

EXPERIENCING THE ACADEMIC LIBRARY IN THE DIGITAL AGE

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I, Yaming Fu, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

ABSTRACT

The Digital Age, marked by the prevalent usage of digital technologies and explosion of digital information, has changed the way we communicate and interact with information, and prompts us to think about how it is influencing and transforming user experience with and within academic libraries. For academic libraries whilst their relationships with users may have shifted so too have their audiences. Internationalisation in higher education (HE) institutions has brought greater student diversity and requirements that should be understood to improve student experience and satisfaction. At the heart of HE, academic libraries serve a significant role in students' learning and researching and their experience in the academic library constitutes an essential part of the learning experience.

Within an interpretive paradigm, this thesis explores how international Chinese students experience the UK academic library in the Digital Age. Mixed methods research was conducted with a largely qualitative stance to explore the complexity of library user experience and to investigate library service delivery in order to enhance the future library user experience design. Library log analysis investigated what students do in the academic library through looking into their information seeking behaviour; cognitive mapping and semi-structured interviews were used to examine how students think and feel about the academic library by probing into their user experience.

Demonstrating the complexity and multi-layered characteristics of context, this thesis proposed separating contexts to analyse and understand students' library experience in distinct contexts. The findings developed an original framework theory of 'context-perception-sense-making' to depict a holistic picture of students' library experience, identifying two vital elements, context

and perception, which trigger, shape and alter students' library experience. This thesis brings together the essential components of information seeking behaviour and user experience into the context of the academic library and defines students' relationships with and within the library in new ways.

Impact Statement

This thesis has brought some real-world practical impacts during the time it was conducted and has delivered new knowledge and learning in terms of developing a framework to understand Chinese students' information experience with the academic library. These findings impact and benefit a number of critical stakeholders:

The UCL Library team and users: the pilot study and library log analysis conducted in collaboration with the UCL Library and UCL ChangeMakers programme brought immediate impact in understanding students' behaviour and requirements and generating recommendations that were accepted into the library system upgrades. It has benefitted the UCL Library team to have an evidence base to consider the needs of Chinese and international students more generally, which in turn benefits the users. It is hoped that future doctoral studies may assist the UCL Library as this has provided a positive model.

Professional practitioners in the information and other cultural sectors within and beyond the UK: The findings from this thesis provided a strong framework to aid the understanding of international Chinese students' experience and expectations of the academic library. It provides an improved understanding of the users' experiences and their information needs in the digital age and ways to improve the user experience design. Chinese students are a large cohort of stakeholders for UK academic libraries. In addition, libraries can be improved for all users by drawing on some aspects of needs driven by the work. Additionally, this work provided some clear recommendations for enhancing and developing library systems.

The framework has potential relevance for information professionals more widely and can inform other settings including the wider cultural sectors such as museums and galleries. It is important to engage with international stakeholders and diverse needs, behaviours and expectations.

International educational professionals: the impact on international educational professionals has been delivered via an in-depth exploration of a major international student group, Chinese students. It is vital to understand the key cultural characteristics that are brought to their learning experience. It can aid the design of programmes and the preparations for international users transitioning to new teaching and learning settings.

Policymakers: the thesis a case study to educational sector policymakers to inform considering the diversity of educational recipients, generating more useful frameworks and policies for all and working towards nondiscrimination. The thesis evidences the benefits of understanding the value of global exchanges of student and research knowledge exchange across cultures.

Researchers: The thesis delivered a novel method for professional practitioners in dealing with cross cultural research. The methods have been discussed at conferences (Fu, 2019 and 2020). Cognitive mapping engages people with language constraints in exploring their position in the world. This can engage the wider public. In the latter conference, the Covid lockdown meant that the cognitive maps were delivered online, with participants drawing maps with instructions, photographing and sharing their maps online with additional discussion. The possibilities of using this method online has further potential for future collaborations and data collection at a distance and as a focus group activity.

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List of abbreviations

ACRL	Association of College and Research Libraries
CILIP	The Chartered Institute of Library and Information Professionals in Scotland
CNKI	China National Knowledge Infrastructure
GA	Google Analytics
GDPR	General Data Protection Regulation
HCD	Human Centred Design
HCI	Human Computer Interaction
HE	Higher Education
HII	Human Information Interaction
IFLA	International Federation of Library Associations and Institutions
ISB	Information Seeking Behaviour
ISO	The International Organisation for Standardisation
UX	User Experience
UG	Undergraduate
NLP	Natural Language Processing
PGT	Postgraduate Taught
QCA	Qualitative Content Analysis
SCOUNL	Society of College, National & University Libraries
TA	Thematic Analysis
TEL	Technology Enhanced Learning

Chapter 1: Introduction

1.1 Research background

The Digital Age, characterised as a timeframe that started in the late 20th century and continues today, has seen the explosion of born-digital contents, rapidly increasing information generated and accessed through computer technologies (Salganik, 2019, pp. 3–4). This has brought about different possibilities for information processing, usage, storage and new ways of communicating and reaching different audiences (Thorson & Wells, 2016); it has also promoted social transformations and human behavioural change. Within this context, it has propelled rethinking on learning and student experience design in Higher Education (HE) (Sharpe et al., 2010); a component of this has been considerations as to how the Digital Age is influencing the academic library and student experience within it. The academic library plays a significant role in the HE delivery, since it serves as the information and knowledge centre for high quality education and research scholarship. New concepts and trends in HE institutions, such as technology enhanced learning (TEL) and the globalisation of student markets, have enabled strategic shifts, challenges and opportunities for the academic library, which has been required to transform a range of functions and diversify its role; for example it is a service provider, a research partner, a leader, a research data manager, a creator of learning content and diverse learning experiences (Pinfield et al., 2017; Wilson, 2015).

Against this backdrop, the significant development of the digital library has brought new forms of user interaction, but also complexity around the connection and duality of the physical and digital characteristics of a library. The physical aspects of the library are normally understood as the library

buildings, the internal physical spaces and the related material practices, which together are positioned as the ‘traditional’ form of the library. In contrast, the digital form of the library is assumed to be distinct from the physical aspect, and built on a digital technical infrastructure and consists of online practices (Gourlay et al., 2015).

Digital library research has focused on discovering what the users are doing in the digital library system and how the system should be designed to accommodate users’ behaviour. There has been some tendency to assume that the physical and digital are separate domains. The physical domain has long been understood to be pertaining to the library space and service usage where the behavioural, contextual, and cognitive aspects of users are evaluated often through qualitative approaches (Lincoln, 2002). In contrast, the digital domain has tended to be treated as an isolated system that is “disembodied, decontextualised and free-floating”, away from the impact of the physical side, that should be assessed within quantitative frameworks, where performance indicators are used to evaluate the operation (Gourlay et al., 2015, p. 263). With those assumptions, research concerning a certain part of the library can only reveal a fragmented picture of the interaction between users and the library, while the users’ actual engagement with the ‘library’ (as an integrated system) is overlooked. For students and other library users, the boundary between the physical and the digital is blurred; therefore, this leads to the question, how do they experience the ‘library’ in the Digital Age? Here, the ‘library’ is considered to be an integrated system that contains physical and digital features and can be understood as a symbolic container where users’ behaviour and experience are both investigated. With a focus on students’ experience in the academic library, this research draws upon two aspects—information seeking behaviour and library User Experience (library UX), striving to construct a holistic picture of student experience in the academic

library in the Digital Age. Their behaviour, perception and subjective experience are revealed through their practices which have been examined through library log analysis, cognitive mapping and semi-structured interviews.

A further complexity is the notable trend happening in HE institutions in the Digital Age—the globalisation of the student base and research agenda which has brought in new thinking and practices to this domain. However, the extent to which these international and cultural backgrounds are recognised and catered for has been limited despite the potential for personalising digital services in the HE system. Since 2016, the British Council (Ilieva et al., 2019) has recognised this notable shift happening in the UK HE institutions and has highlighted the need to learn more about the neglected groups of people in this system. According to Daily Mail¹, it is claimed that the UK possesses more Chinese students than any other country as they make up £1.7 billion tuition fee each year (Davies, 2020). According to the data from the Higher Education Statistical Agency (HESA), in the academic year 2017-2018, 43% of students taking postgraduate degrees in UK were from non-EU countries; and Chinese students constituted the largest single group (HESA, 2019). As a Chinese library student, this doctoral candidate has been keen to contribute to this important research gap. This thesis seeks to study the current cultural dimensions at play in interacting with the UK academic library with a specific focus on Chinese students; University College London (UCL) is selected as the context of research as it is a global university with a diverse student base. As ‘London’s Global University’², UCL has 53% of international students (UCL, 2020a) and it is the top on the list among UK’s universities that was found taking in the most income from Chinese students at £127 million per year according to Daily Mail (Davies, 2020).

¹ Daily Mail: UK’s highest-circulated daily newspaper

² From UCL website: <https://www.ucl.ac.uk/>

This chapter presents the research topic by introducing the background as well as unpacking the research question; the research aim and objectives are established, and the thesis structure is outlined at the end of the chapter.

1.2 Research aim and objectives

With an interpretive paradigm, this thesis explores how international Chinese students experience the UK academic library in the Digital Age using a research context of University College London. The research goal is to depict a holistic picture of student library experience, to understand library users and to investigate library service delivery in order to enhance future library UX design.

Within the research aims, three primary objectives are listed below to clarify the research question:

To investigate what Chinese students do in the UK academic library by looking into their information seeking behaviour;

To explore how Chinese students think and feel about the UK academic library by investigating their library UX;

To understand the library experience of Chinese students in UK in the Digital Age.

1.3 Thesis structure

Following this introductory chapter, Chapter 2 is an overview and critical evaluation of the relevant literature, which looks at the key concepts that underpin this research, namely the understanding about library and its wider context of HE system, information seeking behaviour and User Experience (UX) in the Library and Information Studies (LIS) field. It also reviews the existing

understanding of the parallels between the concepts of behaviour and experience, exploring research gaps and setting the scope for this research.

Chapter 3 outlines the paradigm, methodology, methods and research design, which sets the theoretical foundation for this thesis. The research process is described, including a detailed explanation on pilot study, sampling strategy, data collecting and processing, and data analysis approach. An overview of research data processing is also presented. The strengths and limitations of the methodological choices are discussed at the end of the chapter.

Chapter 4 presents the results from the pilot study, which tested the reliability and feasibility of using cognitive mapping and semi-structured interviews to learn about library experience; it confirmed the sample choice of international Chinese students doing Postgraduate Taught (PGT) programmes and informed the process design.

Chapter 5 presents the results from the investigation on the overall library user behaviour in the UCL Explore (UCL's single search tool) digital library system through log analysis, outlining the overview of what all the library users, especially Chinese users, were actually doing in the digital library system and providing a quantitative underpinning for the later qualitative data collection.

Chapter 6 outlines the results and findings of the research obtained through two qualitative techniques, cognitive mapping and semi-structured interview. It illustrates the Chinese students' attitude, perceptions and experiences in the UK academic library via mapping activities and narrative expressions.

Chapter 7, the Discussion chapter, answers and discusses the research question by interpreting the findings and reviewing the existing theories. A

framework—'context-perception-sense-making', is built from the findings to represent international Chinese students' academic library experience in the Digital Age. It reflects on the delivery of the research aim and objectives, forming a robust view on this research matter.

Chapter 8 is the Conclusion chapter, which concludes the thesis and summarises its contributions to the field. It also gives recommendations to academic libraries and other relevant stakeholders to understand students experience in practice and understand the change brought by the Digital Age. An overall reflection on this doctoral research is presented in the end, which examines the limitations and suggests future research directions.

Chapter 2: Literature Review

2.1 Chapter introduction

There has been a rise in the literature addressing the changes brought about by technological shifts to academic libraries, along with the investigation into information seeking behaviour and user experience (UX) within a range of research contexts. The research on library information seeking behaviour and library UX tends to have a separate and different research focus and frequently uses methods aimed to discover different aspects of library users and its service delivery. However, in order to draw a holistic picture of students' experience in the academic library, both concepts are important in understanding this question. Moreover, it should be noted that the concepts of information seeking behaviour and UX have an inner relation to each other. In this research, those two concepts are investigated together in the same context to explore further about their interconnections.

This chapter starts with a review of published research related to the opportunities and challenges for the academic library in the Digital Age; it then follows with a review of literature related to information seeking behaviour and UX particularly in the Library and Information Studies (LIS) field. It concludes with an exploration of the distinctions and connections between the concepts of information seeking behaviour and UX, which shapes a theoretical underpinning for the research development.

2.2 Academic Library in the Digital Age

This section gives an overview of the context within which the academic library is currently situated and explains why this research is important in terms of

studying students in this broader context and inspiring academic library UX design. This section firstly looks at students in the Digital Age and reviews the concept of the 'student experience' in the Higher Education (HE) system, followed by an investigation of the digital shifts happening in the HE system and in the academic library, including the new concepts that derive from digital opportunities, the challenges that come alongside these developments, and the transforming role the academic library is undertaking.

The Digital Age, characterised as an exponential growth in information, an increasing amount of digital born materials, and evolving digital technologies, started in the late 20th century and continues through to today (Salganik, 2019; Smith & Crespo-Dubie, 2018). It is sometimes also referred to as the Information Age which is regarded as bringing a societal shift from a product-based society to an information-based society (Castells, 2010). Since the Digital Age, Information and Communication Technologies (ICT) innovation is no longer simply the achievement of the IT industry but is part of the fabric of society that is intertwining and changing every aspect of society (McCormack, 2017). As we are living in this Digital Age, technology development is changing the way information is produced, stored, organised and accessed and is consequently influencing people's perception and behaviour in responding to information. The implementation or usage of digital technologies is no longer an option, but a way of life, which strives to make things easier and more effective. The change impacts on people's daily life and their attitudes and methods of dealing with information-related tasks. Technology advancement has had a great impact on teaching and learning, bringing revolutionary changes to the world of education (Gourlay & Olive, 2018; Lippincott, 2010). The HE system, the academic library and students in this context, are undergoing the changes brought by the Digital Age.

The impact from the Digital Age is bringing changes to the HE system where transformative thinking and new concepts emerge in teaching, learning and researching practices; the academic library should pay attention to this impact in particular where any change needs to be responded to quickly as there is an expectation that HE and its components are at the cutting edge of digital delivery. As one of the symbols in the Digital Age, digital technologies provide new possibilities for the academic library to interact with users and to deliver knowledge; more importantly, it diversifies users' library experience, which is also an essential part of their learning experience. Learning is no longer constrained in a fixed style and the academic library is no longer a mere resource and service provider. Moreover, user perceptions of the academic library in turn direct the way they interact with the library and conduct information seeking activities connected to the library.

The academic library is situated in the context of the library (in a broader sense) and also in the context of the HE system. An ever-lasting theme for education and also the library is about "access, quality and cost" (Ally & Needham, 2010, pp. 1–2; Stanley & Knowles, 2016); this theme is also highlighted in the strategic plan of the International Federation of Library Associations and Institutions (IFLA) in response to the United Nations (UN) 2030 Agenda (United Nations, 2015)³, bringing the library goal of providing access to high quality information and knowledge across society with the support of ICTs to work on digital poverty and improve digital literacy (IFLA, 2016). The enormous potential of digital technologies, which are beneficial in terms of enlarging access equality and reducing the costs of obtaining information resources, resonates with the eternal theme and goal of library and HE in a broader sense—greater access at lower costs (Tait et al., 2016). In response to that,

³ The sustainable development agenda is a plan that sets out goals to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere.

new concepts and theoretical frameworks, such as Technology Enhanced Learning (TEL) and connectivism, are put forward to tackle issues brought by the Digital Age and explore transformative ways that help to improve the quality of education.

2.2.1 Student experience in the Digital Age

In an era of unprecedented technological innovation and evolving user expectations and information-seeking behaviour, we are arguably now an online society, with digital services increasingly common and increasingly preferred (Buchanan & Woodsworth, 2010, p. 159)

The university nowadays plays not only the traditional academic role of 'research and teaching' but also the expanding role of innovating, knowledge creating and disseminating (Hughes & Kitson, 2012). With possibilities brought by the Digital Age, many universities published their digital strategies to innovate the way of knowledge delivery and respond to new requirements to maintain the competitiveness for academics, students and funding (McCusker & Babington, 2018).

Students, as customers in the HE system, have expectations to make use of services and receive training to improve their digital capabilities to be competent for the digital society (McCusker & Babington, 2018). As is pointed out by the PwC⁴ report on students today, "as a generation that is more digitally sophisticated than any previously, students expect to be taught and to learn methods that suit their personal preferences and at a pace that they have chosen, not one that is mandated to them" (McCusker & Babington, 2018, p. 4). Students, as a primary group of information users, are more demanding and sophisticated in their expectations and needs now, which brings

⁴ PwC: PricewaterhouseCoopers, a professional services network of firms which manages the global brand, and develops policies and initiatives, to create a common and coordinated approach in areas such as risk, quality, and strategy

challenges and opportunities for universities and academic libraries to adjust strategies and transform the way of delivering knowledge (Gourlay & Olive, 2018).

Student experience is one of the indicators by which students evaluate the extent to which they have received a return on the investment for their personal expenditure on education. As such it has become a prominent component within assessments of educational quality (Barefoot et al., 2016). This concept is particularly important within the UK HE system as students are considered to be consumers under the *Consumer Rights Act (2015)*⁵ with contractual rights. The UK's national education policy aims to ensure that 'students are placed at the heart of the system' (Department of Business Innovation and Skills, 2011). The recognition of the 'student-as-customer' has shifted relationships between students and universities (Bunce et al., 2016). The change in university marketing strategies and positioning students as customers and clients in the university is an ongoing discourse among researchers, with the academic library as part of the marketing picture positioned to boost the student experience and as such to develop more user-centred designs (Quinn, 2015). However, criticism has been made around the notion of viewing student experience within the educational system as a one-way transaction via a delineated product whereby students are passive recipients of this transaction (Molesworth et al., 2009). It overlooks the complexity and interactive nature of the educational process that involves active participation and a great deal of input from students, who stand as important players within the educational system.

⁵ An Act of Parliament of the United Kingdom which focused on customer rights protection and came into force on the 27th May 2015

Student experience in the HE system has been discussed and studied extensively by educators; the discourse since the Digital Age has centred around the complex nature of their learning experience in the digitally-enabled society which is driven by multiple human and nonhuman factors when a sociomaterial perspective is applied to discover how students engage in learning practices (Fenwick et al., 2011; Gourlay & Oliver, 2016). Qualitative research design and ethnographic techniques are shown to be helpful in allowing students to describe or present the landscape of their learning and identifying the complex components that constitute the learning practice in a 'digital' university (Gourlay et al., 2015). It gives clues to the understanding of student experience in the academic library and inspires the potential to better understand how the library user experience could be studied. The complexity of context where the academic library is situated brings about the complexity of the library user experience, which cannot be viewed as simply an interaction with the system, technologies, or space, but should be considered within a broader context where the digital and physical are intertwined.

In the LIS field, library user studies are focused on statistical analysis of the library system (Fry & Rich, 2011; Villén-Rueda et al., 2007) and observational studies in the library space (Mandel, 2010; Suarez, 2007). The stereotyped, traditional image of the library is still influencing the method for researching library users and their overall library experience; user behaviour and experience in the digital library and the surrounding things seems to be isolated from their behaviour in the library space. Actually, previous work has discovered the intertwined role of the physical and digital side of the library in students' academic work; their information behaviour (Foster & Gibbons, 2007) and decision making (Connaway et al., 2013) in the library is supported and led by both virtual tools and physical services. This propels rethinking on how the academic library is perceived and experienced by users holistically and in

particular, by students, whose library experience constitutes an important part in the overall learning experience.

Alongside the discourse on student experience are debates about how to understand and measure it. There are arguments against the homogeneous interpretations of 'student' and 'experience' as each individual is differentiated by ethnicity, socio-economic background, age and personal history and precluding questions about where and when this experience stops and starts, how it comes about, and how it changes (Sabri, 2011). Being discussed extensively, albeit without an agreement on the standard of student satisfaction evaluation, it reinforces the idea of "higher education as a singular commodity which can be judged" (Gourlay & Olive, 2018, p. 4) even though this judgement is a result of a complex process that involves engagement of several partners. Jones and Shao argued that the university, academic library and other active players in this system, such as educators, administrators, and policy makers, should work together and contribute to the experience building and improvement of experience. They also highlighted that the Digital Age brings challenges to the HE system because students today who are born as 'digital natives' have higher expectations and demands on educational investment (Jones & Shao, 2011).

SCONUL⁶ (Society of College, National & University Libraries) makes the claim that the academic library is at the heart of the university, playing a paramount role in forming student experience (SCONUL, 2004). Within this context, researchers in the LIS field are constantly exploring the potential brought about by digital shifts and innovations, trying to navigate the transformation of the library role, function and positioning within the HE system due to both the digital change and wider shifts.

⁶ SCONUL: the membership organisation for all academic and national libraries in the UK and Ireland.

2.2.2 Major shifts in Higher Education and the academic library in the Digital Age

Before looking into how the academic library has negotiated its role in the changing context in the Digital Age (which will be discussed in the next section 2.2.3), this section is to briefly flesh out the picture of the HE system where the academic library is situated in and to roughly depict the wider context.

2.2.2.1 Major shifts in the Higher Education system

It is necessary to review and reflect on the trends, new concepts and shifts that are currently influencing the HE system in order to understand the challenges and opportunities that the academic library is facing in this broader context. The strategy and goal of the academic library is subject to the mainstream discourses in the HE system; the academic library also has a long history in supporting learning, teaching and researching works in HE system (Ørom, 2000).

From e-learning to Technology enhanced learning (TEL)

With the emergence of the conception of lifelong learning and the goal of widening education receivers in the 1990s (Dearing, 1997), diverse ways and forms of learning and teaching have been introduced to increase the access to educational resources. The concept of *e-learning* was put forward at that time with more applications of ICTs in educational practices, aiming to effectively deliver learning resources and enhance the communication between students and lecturers via digital technologies (Catherall, 2005). Contentious discourse on the concept 'e-learning' has been going on for more than 30 years since its appearance, arguing about the understanding and implementation of e-learning and its related concepts, including, but not limited to, online learning, mobile learning and digital learning. A common perception of e-learning

expressed in the social, educational and technological literature is to see it as a thorough transformation of the education sector, fundamentally changing and influencing the teaching and learning practices and further influencing social practice (Barbosa et al., 2012; Barnes & Tynan, 2007). It presumes that the 'transformative' characteristic brings a completely distinctive structure that gets rid of the pre-existing educational strategy and relies heavily on digital technologies; thus, in the debate on this topic, the aspect of technology is often exaggerated and leads to the "generally vacuous and enthusiastic excess of 'tech-talk'" (Selwyn, 2016, p. ix), which loses the meaning and original purpose of applying 'digital' in education. Technology, despite being essential, should be seen as a support tool in the end (Wilson, 2015).

With more researchers being aware of the exaggerated stress on the technological aspect of e-learning and the deviated direction it was leading to, the rise of the concept of 'Technology Enhanced Learning (TEL)' started to spread across the UK HE system and educational policies in the 1990s (Wang & Hannafin, 2005). It corrects the dominant and decisive role of digital technologies in teaching and learning to a supportive and assistant role (Kirkwood & Price, 2014); instead of stressing the research and development of educational technology products, it is argued that attention should be put on how it could be designed in the overall learning environment within the university strategic structure to improve learning experience (Goodyear & Retalis, 2010). Nevertheless, it is doubted that the term TEL,

far from being an unexceptionable and neutral term simply in need of clearer definition, in fact carries with it a set of discursive limitations and deeply conservative assumptions which actively limit our capacity to be critical about education and its relation to technology (Bayne, 2015, p. 7).

Bayne's critique is about the implicit interpretation of 'technology', 'enhanced' and 'learning' and the consequent assumptions that would lead to misunderstanding over the issue; therefore, in her research, she explored the

underlying theoretical interpretation of this term and enriched the understanding “from the instrumentalisation of technology, to the ontological isolation of the human from its material contexts, to a broadening of those concerns from educational technology to education itself” (Bayne, 2015, p. 18). The discussion of ‘the digital’ in education and how to implement it to support teaching and learning practices is still in dispute and will, without doubt, continue as technological advancement keeps influencing the society and the HE system within it. This discourse around the implementation of TEL is, in essence, the understanding of the relationship between ‘the digital’ and ‘the physical (or the material)’, and the position of the human in that complex context that has both digital and physical characteristics.

The academic library, in this background of the continuing discourse of TEL, also faces the challenge of designing digital technologies in its service delivery along with rethinking the role of ‘the digital’ and ‘the physical’ in the context of designing the library experience.

The dawn of the concept: connectivism

In 2005, the theory of *connectivism* was put forward by George Siemens, who is an important contributor in learning theories. He re-examined the three primary learning theories at that time, behaviourism, cognitivism, and constructivism and proposed a new theoretical learning framework to explain the learning activities in the Digital Age—connectivism (Siemens, 2005). His work sheds light on the trends and features of learning in a digital society, such as the increased portion of informal learning, the continual nature of learning that enhances lifelong learning, the shaping role of technology which has a subtle impact on how we think and work, and the agentive role of technology. Learning is no longer an internal and individual activity but is influenced by the technological shifts in society. Moreover, he criticised the other three theories

for lacking the understanding of how learning is “stored and manipulated by technology” and “how [the way] people work and function is altered when new tools are utilised” (Siemens, 2005, p. 1).

The theory of connectivism is significant in education and its related fields in terms of recognising the role and impact of nonhuman factors in learning, such as technologies and other tools, and the importance of recognising the complex learning process (Gourlay & Olive, 2018). It provides a proper way to understand and analyse learning practice which is featured as diversity and complexity. Principles of connectivism are defined in Siemens’s theory, and some are extremely useful in understanding learner’s intention, behaviour and decision making, for example:

- Learning is a process of connecting specialised nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality (Siemens, 2005, pp. 5–6).

For the academic library, the theory of connectivism is instructive in understanding the complex context library user resides in as the library practice can be seen as part of the learning practice, which may be influenced by human and non-human factors. Consequently, the design and understanding of the library experience should be evaluated in the user’s context; and their information seeking behaviour and subjective responses should be analysed with the consideration of this complex context.

Internationalisation in the HE system

The scale of internationalisation in the HE institutions has extended dramatically in the past two decades; it is not only a by-product of globalisation but also a result of strategies and policies enacted by the academic system (Altbach & Knight, 2007). Internationalisation in education can be defined as,

an ongoing, counter hegemonic educational process which occurs in an international context of knowledge and practice where societies are reviewed as subsystems of a larger inclusive world. The process of internationalisation at an educational institution entails a comprehensive, multifaceted program of action that is integrated into every aspect of education (Schoorman, 2000, p. 5).

To get to the root of the matter, the development of the digital environment and its great potential drives the course of internationalisation. Educational information, including the resources, tools and methods, is no longer restricted to certain geographic areas and a globalising process is also happening in the academic world with more international research and publications produced and disseminated. The motives that speed up this process come from firstly, the growing needs of many employers to hire graduates who are competent in a global working context; and secondly, the speedy flow of students and researchers who choose to study and work in different countries to gain experience and skills that are useful in a globalising society (Allan, 2016).

Arguably, this trend in the HE system brings about a notable growth in the number of international students and a diversity in cultural backgrounds among educational receivers. Previous research focused on studying student's learning experience in a foreign country in order to determine how well students can cope with the new learning context in terms of language skills, information literacy and digital literacy skills. For example, in Montgomery (2010)'s work, a large scale study on international students from six countries (China, India, Nepal, Indonesia, Italy and Netherlands) was presented, showing

how they adjusted in a new environment, improved their language skills and how they experienced the learning activities in the UK. Research conducted in Sheffield Hallam University was a collaboration between a module leader, librarian and academic skills tutor trying to develop specific information literacy skills' support for international students via learning workshops (Lahlafi & Rushton, 2015). Positive coursework feedback was found in the evaluation of international students in their study and it provides an example that is worth learning from where academic librarians actively collaborate with other partners in the HE system to deliver skills training and information literacy practice with a target on international students.

The internationalisation in the HE system brings challenges at the institutional level, requiring strategic adjustment and proper guidance for the group of international recipients; in the meantime, it also brings users of diverse cultural and educational backgrounds to academic libraries. Thus, the research on international student's behaviour, preference and experience is put on the agenda for all players in the HE system, including the academic library.

2.2.2.2 Challenges for the academic library

Digital divide

"Information has always been a basic commodity" (Baker et al., 2011, p. 3); it is of great value in terms of forming knowledge and intellectual property products to guide and instruct every aspect of human life. The digital opportunities extend the boundaries and increase access to a wider range of information, which is the positive side of the digital shift; nevertheless, many researchers identified the risk of information inequality for the society, also known as the 'digital divide'. This is a concept that was put forward around the year of 2000, when the ICT development got research attention and started to be applied in diversified areas; this term is used to define the gap between

people who 'have' and 'have not' access to the Internet, ICTs and the vast amount of information brought by access (Chowdhury, 2002). When the concept was first introduced, the focus was on the social inequality in regard to information resources, all kinds of capital and participation in the society, and most of the focus was on the digital division between the developed and developing countries and how libraries in the developing countries can take measures to fill the gap (Chowdhury, 2002; Cullen, 2001). It has been investigated in the field of social science, education, communication science and economics, with the research focus on different aspects; social scientists discuss the issue from the perspective of social inequality that is rooted in the unbalanced resource distribution and social class; communication scientists put emphasis on the access to digital media and dissemination of information; economists focus on the diffusion of innovations and the impact of the digital divide on the economy; while within the education field, the research focus is primarily on information literacy or digital literacy (Dijk, 2017). With the digital trend reshaping society and higher education, having access to information is no longer a barrier to information equality and therefore, the research focus moved from physical access to information (Bucy, 2000) to skills and techniques of information seeking and use that influence the result of that digital use (Hargittai, 2002).

In the HE research context, it has been argued that even having access to the Internet, there still exists a digital divide amongst students who have the skills to make the full use of technology and those who have not, which may be due to a cultural norm or other obstacles (Khalid & Pedersen, 2016). As it is agreed and asserted, "just as access does not guarantee use, use does not guarantee proficiency or mastery" (Angell, 2017, p. 19). This continuing digital divide keeps challenging and reshaping the library in the way it delivers information and gives support to all the users from the library's perspective. Therefore,

understanding users' needs and knowing their skills level is crucial in terms of helping to overcome the phenomenon of the digital divide.

Exponential growth in information sources outside the library

The academic library is always seen as a professional, trustworthy and authoritative centre where scholarship revolves and intellectual activities take place (Yusuf & Iwu, 2010); it is without doubt, a designed place for university users situated within the HE system to provide users with academic information. Nevertheless, barriers exist for users who may lack proficient information literacy skills or feel unconfident to find desired information effectively (Oladokun & Aina, 2009); and the rising idea of "time as convenience" that the ease and cost-effective use of information is valued more than time-saving (Connaway, 2015, p. 5) also leads to the users turning to other information sources that reside outside the academic library and the HE system which they regard more convenient to use.

The prevalent use of Google (and other search engines) and the exponential growth in information sources has threatened the role of the library as a resource provider and supplemented the channel of information seeking outside the library; this raises an issue for all the libraries but with particular concerns for the academic library in terms of the richness, inclusiveness and accuracy of information used for academic purpose (D'Couto & Rosenhan, 2015). Providing free and unprejudiced access to resources and information is always the duty and goal of libraries; however, it has been pointed out that libraries may have put too much effort in resources collection, description and standard compiling and potentially lost their way in making resources more discoverable and usable. This situation has been amplified with the demand of convenience and speed to get information and with users who lack

information retrieval, information and digital literacy skills (as described in the previous part “Digital Divide” in section 2.2.2.2) (Angell, 2017).

Librarians have become aware of the need to pay attention to maintaining their image of authority in academia, redesigning the service and work flow to fit into users’ needs, and relocating the position in the research community (Webster, 2017). The measures taken include but are not constrained to the library user experience (library UX) investigation (see section 2.4.2), library UX designing, infrastructure adjustment and relocating the role in the academic community (see the next section 2.2.3).

2.2.3 Role of library in the Digital Age

As an information centre and a knowledge service, the concept and role of library has been discussed along with the changes brought by the Digital Age, which is featured by the increasing amount of information, more digitally created and preserved information and the ubiquitous computing technology (Salganik, 2019). For the library, the Digital Age is not only a broader social context where it needs to fit in, but more importantly, a transition in its way of working and its relationship with the library users. To clarify the setting of this thesis, this section provides a brief review on the evolving concept of the ‘library’ and its transformative role in a contemporary sense.

Evolving concept of the ‘library’ in an HE context

The digital transformation from the late 1980s brought in campaigns around the ‘electronic campus’, ‘electronic library’, and a large-scale digitisation of collections with a primary aim of extending access to information to a wider audience and a long-term preservation of resources (Evans & Baker, 2009). The

'Electronic Beowulf Project'⁷ initiated by the British Library in 1993 was a flagship initiative which aimed to increase access to its collection through the use of imaging and network technology, resulting in a notable influence to academic libraries across UK (Kiernan, 1994). This kind of activity and associated actions quickly became ubiquitous across libraries, museums and archives across the world, digitising collections for longer preservation and more importantly, for increasing access (Koganuramath & Angadi, 2003). The term '*digital library*' came into use on a wider scale with more organisations, such as the National Science Foundation (NSF)⁸, putting investment and effort into initiations of digital libraries and Online Public Access Catalogues (OPACs) (Babu & O'Brien, 2000; Fox, 1999). With such initiatives, there emerged definitions around the term 'digital library'; and Cleveland from IFLA summarised characteristics of a digital library from several researchers and defined digital libraries as "the digital face of traditional libraries that include both digital collections and traditional, fixed media collections...which ideally provides a coherent view of all the information contained within a library, no matter its form or format" (Cleveland, 1998, p. 2). The development of the digital library and virtual gateways to collections and resources motivated researchers to redefine the 'library' in terms of its transforming role, function and goal with pervasive distributed technologies and information sources, and evolving user expectations.

In the late 1990s, with the eLib (UK Electronic Libraries) programme piloting the use of new technologies within academic libraries, the concept of the 'hybrid library' was coined and developed, described as a form of library which, "brings a range of technologies from different sources together in the context of a working library, and also explores integrated systems and services in both

⁷ See more at <https://ebeowulf.uky.edu/>

⁸ An independent agency of the United States government that supports fundamental research and education in all the non-medical fields of science and engineering

electronic and print environments” (Rusbridge, 1998, p. 31). The use of technology at this point was becoming a more integrated component of the library with a focused effort on rationalizing the digital and traditional library components into the library infrastructures.

A notable use of technology within the academic library is that of the concepts of mobile device integration within the library from late 2000s. At this point in time, researchers started to explore the possibility of ‘mobilising’ library services and enabling access through third party devices. As such a new term ‘mobile library’ was coined with the discussions centring around “mobile access to digital libraries” (Calhoun, 2014, p. 243), “library mobile services” (Briggs & Liu, 2015, p. 135), “mobile library services for smartphones” (Paterson & Low, 2011, p. 412), or the “m-library” (Ally & Needham, 2008), revising the traditional understanding of ‘*mobile library*’, which used to be defined as the vehicle that carries books acting as a part-time library branch for people to borrow books (Want, 1990, p. 5). The implementation of mobile technology added to the understanding of the mobile library in a Digital Age, and is understood as the “traditional library services amended to be available with mobile devices and services created specifically for mobile devices” (Briggs & Liu, 2015, p. 135).

The building of libraries via different technologies brings about the discussion and evolving understanding of ‘library’ in the sense of a virtual gateway or a digital ‘portal’ to resources and services. It is stressed that the building of a digital library system should not aim at replacing resources or services provided by the library elsewhere, but needs to be recombined with various environments to meet users’ end goals (Dempsey, 2003), or in other words, to map to the context of the library users. In conjunction with this aim, the library resources and services were developed to be virtually available, with the

traditional understanding of a library building as a 'collection place' or a 'service place' being challenged. The concept of '*library as place*' is proposed by Bennett, denoting a shift of the library building function from storing collections to serving library users' need for space, whether it is the social need or the need for independent or collaborative learning (Bennett, 2005). This concept is further extended as the 'library as the third place' for collaborative learning and community that gives users a sense of attachment and loyalty (Montgomery & Miller, 2011). Based on this concept of the library as a third place and the concept of 'homeness', which was first proposed by a phenomenologist describing the feeling of being at home and a sense of belonging, the library's homeness quality is then explored and developed (Mehta & Cox, 2019). They found that facilities and the atmosphere in the library give users a sense of comfort and being at home (Mehta & Cox, 2019).

Transformative functions and role in the community

Social, technological and educational movements affect the way the library performs its work and delivers its services, but also influences how it is perceived and viewed in the community. The remarkable development of the digital library is challenging the traditional role of the library which mainly takes the responsibility of selecting, storing, archiving, cataloguing, providing onsite usage, and circulating (Mayega, 2008). The tenet of DELOS (a network of excellence on Digital Libraries which is partially funded by the European Commission) shows a typical transforming goal of libraries, which is, "all citizens, anywhere, anytime, should have access to Internet-connected digital devices to search all of human knowledge, regardless of barriers of time, place, culture or language".⁹ It has been suggested that "libraries must now turn their attention to defining their missions and activities in relationship to what is transforming them: the information technology revolution in teaching,

⁹ Website of DELOS: <http://delosw.isti.cnr.it/>

learning, and research” (Lynch, 2000, p. 67). It is indicated by the Dean of the university library of Carnegie Mellon University, Keith Webster, that the academic library has shifted its role from “collecting information that is purchased and kept on shelves” to “a distributed global network of resources” in the last two decades (Webster, 2017). Its role and functions are more open and diffuse compared to its traditional works in collection development, cataloguing and access, user services and place maintaining (Gaynor, 2003; Lougee, 2002). In 2017, the SCOUNL report listed three primary roles the academic library renders,

A service-provider who delivers supports and related services to institutional users;

A partner who works with patrons and other organisations to provide assistance;

A leader who is active in identifying new trends and guiding the way into it (Pinfield et al., 2017, p. 36).

Notably, the academic library has a key role here, which is not simply as a service provider that serves and links users to its infrastructure, but a leader and a key stakeholder who should identify and guide academic development into a promising direction that can benefit the whole community. Especially in the HE system, the academic library should serve its role of facilitator and teacher, reinforce its responsibility as a fundamental educational and cultural resource (Baker et al., 2011). This is agreed and further explained that it is the education impact that is the core responsibility of the library instead of merely service and information provision, because a diverse learning experience is needed in the twenty-first century where information is no longer restricted in one form and printed and digital information should be “combined in an environment that is user-focused and service-rich” (Wilson, 2015, p. 1). The physical space of the library becomes a collaborative environment that not only holds online and offline services, but more importantly, provides users

with a venue to work collaboratively to support today's social and learning patterns (Wilson, 2015).

In the meantime, with the threat from the exponential growth in information sources and information quantity, authenticity and inclusion are required more than ever in the library; as pointed out "as commercial technology products put content and services at our fingertips, issues of provenance and authority have become absolutely fundamental, especially as more and more of our professional and personal lives are now conducted online" (Connolly et al., 2019, p. 3). Thus, the library should render itself into a role that can accommodate user's behaviour and workflow in the new digital context, furnishing with professional support that is authoritative and indispensable in the academic community. Due to its transformative role, activities happening in the library are diverse and unpredictable; it is therefore necessary for libraries to know how its services have been used by users, how good their experience is, and what is needed and expected from them to meet user expectations and to optimise library knowledge delivery and educational impact within their learning activities (Cribb & Schmidt., 2011). Rather than focusing on "the user in the life of the library" which is the usual logic of starting from the library, it is claimed that users should be put in the centre and shift to thinking "the library in the life of the user" (Silipigni Connaway, 2015, p. ii). User studies have been undertaken in the library in order to build a more usable and intelligent academic service that supports the knowledge flow in the community.

As has been reviewed in this section, the major shifts happening in the HE system is the technological impact and internationalisation of the student base which imply a fast moving educational context and students within this context; therefore, user studies are necessary in terms of understanding how they are

behaving and accessing information in such a shifting context. The customer focus on the student with a stress on student experience design illustrates a more user-centred/student-centred university and academic library. This broader context sheds light on the two areas of foci that are worth investigating, which are *information seeking behaviour* and *User Experience (UX)*. User behaviour is a key indicator in designing and improving library UX, which is able to suggest an individual's perception, habit, and requirements (OCLC, 2012); information seeking behaviour, in particular, would help to understanding how people use and behave with information; while UX is a direct manifestation of how a user interacts with the service and how good that process is (Potter, 2012). In the next section 2.3 and 2.4, previous theoretical and practical research on those two concepts are reviewed, along with how they have been studied in the context of the library and how they have influenced this doctoral research. Additionally, the parallels between the two concepts are explored in the section 2.5 to examine the possibility of studying them together in the same context.

2.3 Information seeking behaviour in the library

In this section, an essential part that constitutes library experience—how students seek information within the library, namely the information seeking behaviour—is looked into, along with a review of its vital components in relation to this research.

Firstly, the definition and modelling of information seeking behaviour are looked at to see how researchers have been learning about and understanding human information seeking behaviours. Then, a broader concept (theory) that is vital to the understanding of information seeking behaviour—the sense-making theory—is reviewed to see a more holistic picture of human

information seeking activities and the relevant variables. Following that, a core component of information seeking behaviour—context—is discussed as it is an indispensable element in understanding and analysing information seeking behaviour. After that, a particular contextual dimension or variable—culture—is reviewed with a specific look into Chinese students’ cultural context, as they are vitally important in this research in terms of understanding the group studied. At the end of this section, a review of the relevant literature around information seeking behaviour in the library context is presented to understand this concept both theoretically and methodologically.

2.3.1 Definition and modelling of information seeking behaviour (ISB)

Information Seeking Behaviour (ISB), as an important component of information behaviour, has been studied to add understanding about how we find information and resources to satisfy our information needs (Wilson, 2000). To review its definition, it is necessary to look at its umbrella concept—*information behaviour*, which is defined as:

the totality of human behaviour in relation to the sources and channels of information, including both active and passive information seeking, and information use (Wilson, 2000, p. 49).

Information behaviour contains all forms of human interaction with information, and this interaction process can either be active seeking or passive receiving. Ford, who has been working in the field of information science, describes information behaviour as , “all about how we need, find, process, and use information” (Ford, 2015b, p. 7). It is the actions, responses and strategies we take when we get in touch with any form of information. Information behaviour is a broader term that contains a wide range of sub concepts, including information seeking behaviour, information search behaviour and information use behaviour (Wilson, 2000).

Wilson, the important contributor to the study of information seeking behaviour, put forward a nested model in 1999 (see Figure 1) that clearly shows that information seeking behaviour is included as a part of information behaviour, and he defined it as,

the purposive seeking for information as a consequence of a need to satisfy some goal (Wilson, 2000, p. 49).

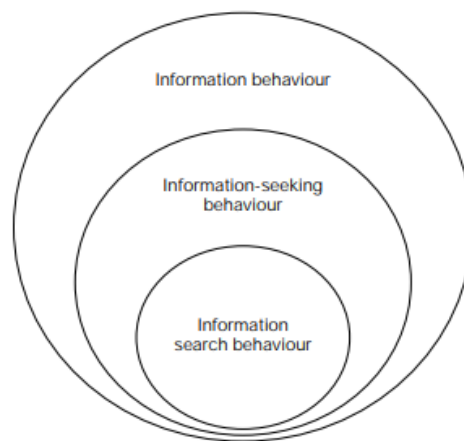


Figure 1 Nested model (Wilson, 1999, p. 840)

In this process of seeking for information, “the individual may interact with manual information system or with computer-based system” (Wilson, 2000, p. 49). Wilson’s definition sheds light on the uniqueness of information seeking behaviour, asserting that it arises from an information need to fulfil the personal goal of learning and understanding and it is a seeking process that is accompanied by a specific purpose. Setting the boundary of information seeking behaviour, it excludes the information behaviour that happens during the wandering or encountering with information.

There are also other researchers who strived to define the term and add additional notes to allow a more sensible understanding of information seeking behaviour; for example, there is a definition that views information seeking as “a basic activity indulged in by all people and manifested through a

particular behaviour” (Kakai et al., 2004, p. 1), which depicts information seeking as a common activity that is carried out frequently and is revealed by certain behaviour. This definition is simple enough to show how frequent and common information seeking activity is undertaken in people’s life, but it is not clear in terms of exhibiting the characteristics that can distinguish it from other forms of human behaviour; whilst there is another definition which remedies the issue and clearly lists out the elements of information seeking behaviour and the stimuli that are leading the behaviour, which goes as “activities, attempts and actions carried out by individual or group to solve an information need or problem through cognitive, emotional and physical actions done in any environment of his search” (Oluwaseun, 2016, p. 293). This definition enriched Wilson’s definition of information seeking behaviour and listed out the behaviour types (activities, attempts and actions) that a user may take to satisfy their information needs; in addition, it does not confine information seeking as a behaviour that is exclusive to individuals, but a response or action that may be taken by a group of people, which adds understanding to the concept, especially under the context of organisations. What’s more, this definition indicates the different levels of actions people may take to seek for information, involving cognitive, emotional and physical responses, which illustrates the level of engagement in which people respond to information needs and the strategies they deploy. The definitions around information seeking behaviour are helpful in terms of adding insights of the characteristics, motivations and reasons behind the scene in different contexts.

Information seeking behaviour has emerged from individual’s information need, which is also known as the ‘knowledge gap’ (Belkin, 1980). This information seeking process is usually reflected in people’s sense-making or problem solving activities, where people realise a knowledge gap and identify a need to look for information to solve their problems or learn something new

(Marchionini, 1995). This process is purposive and is dominated by the person; in other words, rather than passively receiving or casually encountering information, it is an active seeking for information which is stimulated from the inner needs and goal of self-development.

From the 1980s, researchers shifted their research focus from information systems to information users and their research methods changed from mainly quantitative to qualitative (Wilson, 2000). Before this shift, information science research was focused mostly on analysing users' actions and responses to information or a system from a quantitative viewpoint; usability tests and quantitative surveys are used to study what users are doing from an operational view. For example, the well-known communication theory by Shannon who identified elements in users' information seeking process, including source, channel, message, coder, decoder, receiver, and noise, contributed a lot to cryptography (Shannon, 1949). However, Wilson argued the need to uncover the complexity of information needs and the diversity of the contexts of information seeking (Blummer & Kenton, 2014). A "wider, holistic view of the information user" (Wilson, 1981, p. 10) he claimed needed to be built and a research shift is necessary to understand users' needs and to support them in a better way. From that time, information needs and information behaviour became the main topics in the field of information studies. In 1977, the INISS (Information needs in local authority social services department) project led by Wilson and Streatfield applied observations and questionnaires to study information needs and the information seeking behaviour of social services workers (Wilson & Streatfield, 1977, 1979), which focused on organisational information seeking behaviour. They explored information seeking behaviour under this specific social context and this project contributed to Wilson's later work on modelling the factors influencing information needs and information seeking behaviour (Wilson, 1981). In his

first model, he indicated that physiological, affective and cognitive needs have an impact on information seeking behaviour, which are brought about by personal contexts (Wilson, 2006). Later on, other researchers situated users at the centre and studied their needs and contexts of information seeking and use from a qualitative perspective; Beyer and Holtzblatt, for example, used ethnographic techniques to learn about users' behaviour and put forward the principles of contextual design (Holtzblatt & Beyer, 1997). Ellis put forward an information seeking model from his PhD research studying information behaviour of researchers in different disciplines by using interviews (Ellis, 1987). He identified eight procedures that may happen during information seeking process, which were starting, chaining, browsing, differentiating, monitoring, extracting, verifying and ending (see Figure 2) (Ellis, 1989). Ellis's model of information seeking, is more concerned with the activities that may happen during the process compared to Wilson's information seeking model, which focuses on subjective factors and variables that may have an impact on the process.

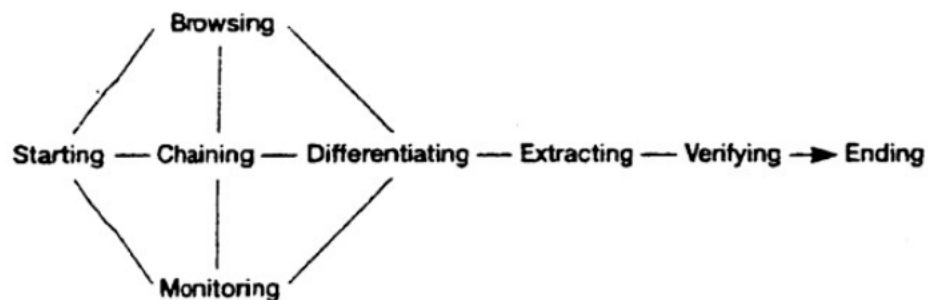


Figure 2 Ellis (1989) Behavioural model of information seeking (Wilson, 1999, p. 255)

Another information seeking behaviour model that focuses on both the process and subjective factors is Kuhlthau's model of the Information Search Process (model of ISP). Through longitudinal investigation into problem solving processes by students and library users, Kuhlthau proposed an information seeking process that represents the construction of people's knowledge (Kuhlthau, 2004). In her model, she identified seven stages in information

seeking, which were initiation, selection, exploration, focus formulation, collection, presentation and assessment, and presented the related affective, cognitive and physical aspects of the information seeking process (see Figure 3). With the seeking process going on, people's knowledge moves from uncertainty to certainty (Chowdhury & Chowdhury, 2011).

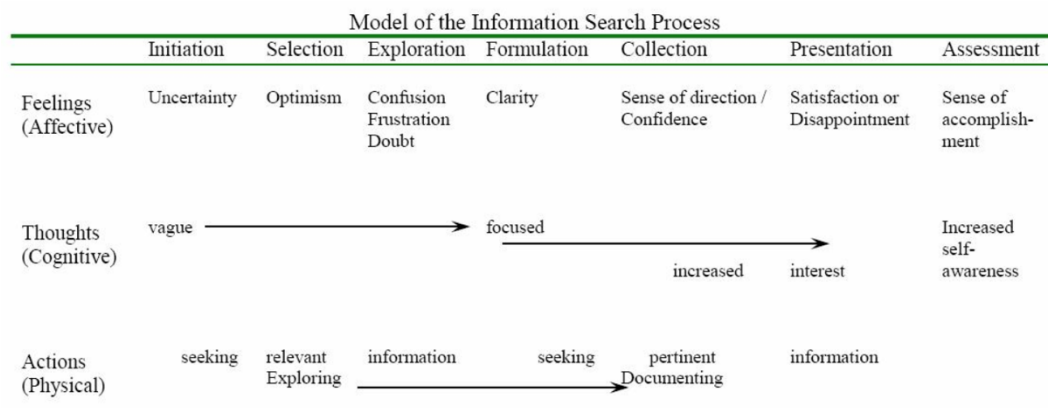


Figure 3 Kuhlthau's model of the Information Search Process (Kuhlthau, 1991, p. 367)

Kuhlthau's work was strongly influenced by George Kelly who proposed the personal construct theory in 1955 (Kuhlthau, 2004). As a psychologist, Kelly suggested that all human beings are 'scientists' that test personal constructions and interpret the world by conducting personal behaviour tests (Kelly, 1955). Kuhlthau's model generated from her study on high school students in some way reflected the construction theory in the context of education (Wilson, 2000). Human information seeking activities is, to some extent, about how people construct their knowledge through making sense of their needs and contexts; and learning, as a representative activity in information seeking, involves constructing knowledge through seeking for information. People explore and seek for information and absorb the useful and valuable ones that suit their needs to gain knowledge in different contexts.

Up until this time, researchers had mainly explored information need, which is the inner reason or motivation for information seeking, and the factors that influence the information seeking process (Greifeneder, 2014). Wilson's 1996

model of information behaviour (see Figure 4) was built based on his previous models and borrowed the characteristics of Ellis's model and Kuhlthau's model (Wilson, 2000); more importantly, he indicated the importance of the information seeking context and included the intervening variables in the model to show the influential factors on the context (Donald, 2007). This model is important in showing that context plays a vital role in information seeking activities that needs to be considered in analysing any information seeking behaviour (Greifeneder, 2014).

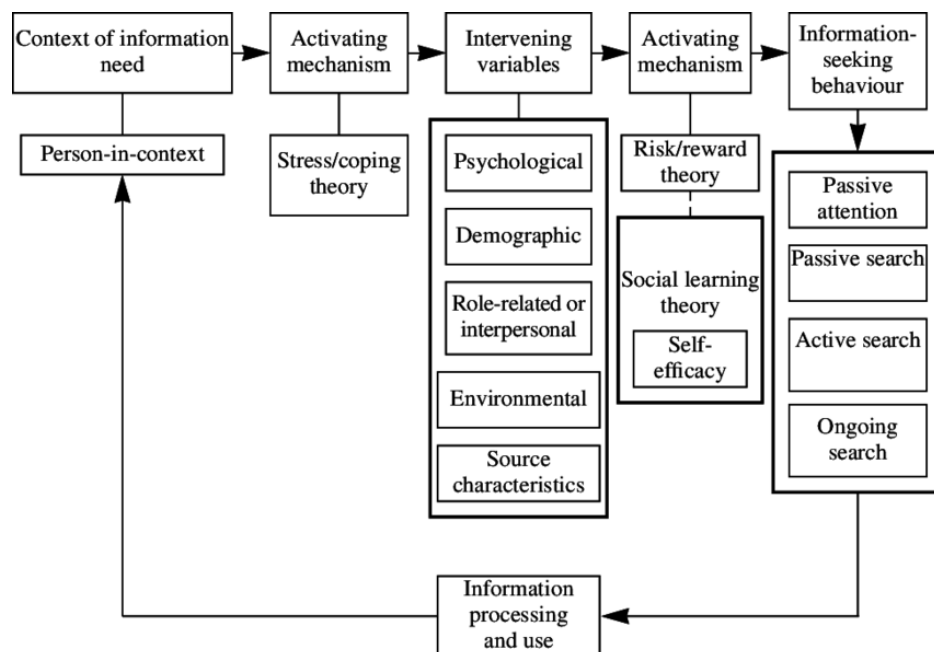


Figure 4 Wilson (1996) model of information behaviour (Wilson, 1999, p. 257)

The development of information seeking behaviour research includes the scoping (the boundaries of information seeking behaviour), defining, discussing the inner reason (information needs), analysing the influential factors and modelling the processes and components. Previous work has depicted the information seeking process especially in the organisational context and stressed the critical role of context in analysing information seeking behaviour. Despite being studied extensively, these are less focused on the context of the academic library and there is no information seeking

behaviour model that is designed based on library use by international students. There is a dearth of research that investigates the shifts brought by the Digital Age and the changing context of information seeking behaviour. What's more, the constantly updated library systems and digital tools make it necessary to study information seeking behaviour in possible contexts and capture any behavioural change of library users.

2.3.2 Understanding ISB: the sense-making theory

Knowledge is the sense made at a particular point in time-space by someone. (Dervin, 1998, p. 36)

The theory of sense-making, or sensemaking, has been studied and developed in many areas, including organisational behaviour, psychology, decision-making, human centred interactions and information behaviours, which are interested in understanding how users and audiences give meaning to phenomena interpretively (Naumer et al., 2008). It was originally put forward by Karl Weick in the book '*the Social Psychology of Organising*' in 1969 and was then developed and discussed as an approach in the second edition of his book in 1979; sensemaking is defined by Weick as "a retrospective development of a plausible story to explain what people have done and the reasons for why they have acted the way they have" (Kjaergaard & Jensen, 2008, p. 3). This definition suggests that sensemaking is an ongoing and iterative process through the time when people encounter changes in their context and comprehend and react to that context to reduce uncertainty.

Having a root in communication research, Brenda Dervin has taken these ideas and tied sense-making to specific methodological arguments and applied sense-making theory to the field of information studies, which contributes a better understanding of how people make sense out of information in complicated contexts and how they seek, use and benefit from information in

that process (Naumer et al., 2008). She took a constructivist view to learn about information seeking and use, shifting the research focus in the LIS field from intermediary-centred or system-centred to a user-centred approach (Savolainen, 1993). Defined this as “a methodology disciplining the cacophony of diversity and complexity without homogenising it” (Dervin, 1998, p. 36), Dervin’s sense-making theory provides an approach or framework to learn about human information behaviour by applying a ‘metaphor’ (see Figure 5) that represents a person moving through time and space, encountering situations, bridging the gaps and assessing outcomes.

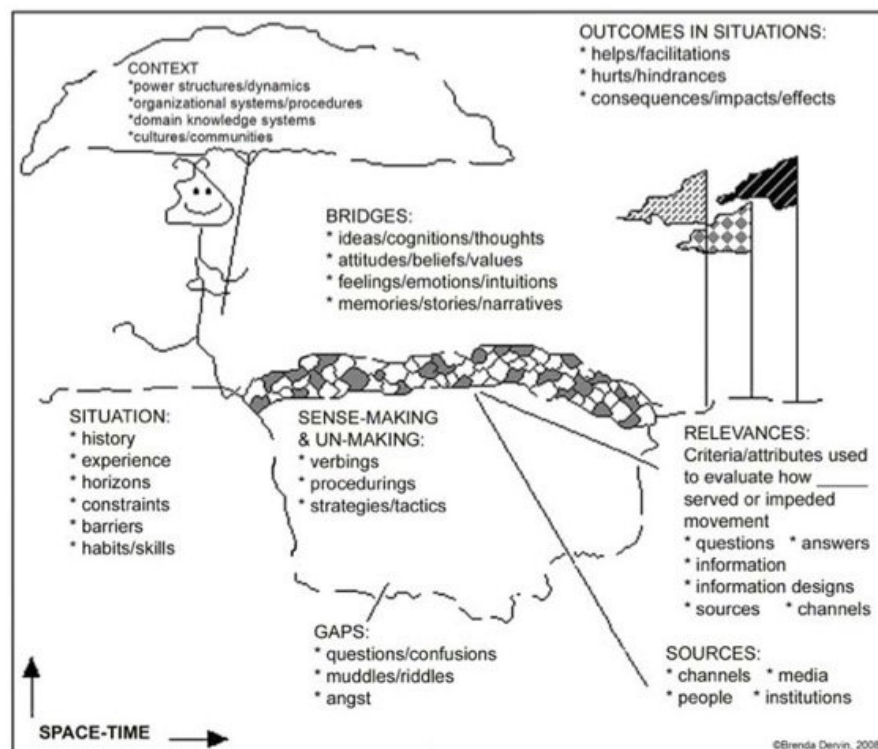


Figure 5 Dervin's Sense-making theory with metaphors (Dervin, 2008, p. 17)

Dervin’s sense-making theory reveals the vital elements in people’s sense-making process (as is clearly labelled in the figure above), where information seeking is one form of sense-making, and therefore, provides an overarching structure in understanding the motivations, reasons, variables and consequences of people’s information seeking behaviour. When analysing and

understanding information seeking behaviour, it is beneficial to investigate those elements to depict the holistic process an individual goes through.

2.3.3 The vital component of ISB: context

Context is something you swim in like a fish. You are in it. It is in you.
(Dervin, 1997, p. 130)

As a vital component that constitutes information seeking behaviour, research and discussions around 'context' has been a focus in the field of information science, information retrieval and Human Computer Interaction (HCI) (Agarwal, 2017); the user-centred paradigm also promotes research on the specific context where an individual's information seeking and using takes place (Courtright, 2007). Although there is no common ground for the definition of 'context' in information behaviour studies, researchers have recognised its vital role in understanding human activities and their interaction with information; Vakkari et al believed that "context constitutes necessary conditions for sufficient understanding of information needs and seeking phenomena" (Vakkari et al., 1997, p. 9).

The facets of context are complex, which consequently brings about diverse ways of understanding. Context appears to describe the broader landscape and the setting, but also provides for analysing individuals. Under some research settings, such as information seeking within everyday life, all the elements in the model can be seen as facets of context (Savolainen, 1995). A research setting gives constraints and descriptions over what, where and how the target is being examined and analysed; and those are contextual variables that influence research results and that makes 'context' an uneasy concept to define. It is generally acknowledged to be some sort of background or container where people and phenomenon reside (Rieh, 2004), or a mixture of spatial, environmental, and temporal constraints that define information

activities (Savolainen, 2006), or understood as time-space confluence that changes over time through human interaction (Dervin, 1997). Context serves as a container that embodies specific factors that are influential on making sense of the studied matter and also bounds the outlier of the research. The interpretation of data and the sense-making process is constructed in a specific context (Schwartz-Shea & Yanow, 2014), without which the creation of meaning cannot be understood.

Context constitutes a field of research that centres on human information behaviour and discusses the impact it brings on both internal and external levels; it is studied in both the information studies field and HCI field, rather than forming its own theory. Within these parameters, albeit lacking agreed definitions, context has been studied by diversified theoretical frameworks and research methods. It is worth noting that the theory of man-environment (see an explanation below in blockquotes) is helpful in shedding light on explaining and understanding 'context', because it explores how human behaviour is shaped in a certain context and in this theory, the context is the behaviour setting:

A behaviour setting is both a physical environment and its behavioural characteristics. Describing behaviour settings includes at least an understanding of what people generally do there, how people know what is expected of them there, how norms of behaviour are established, which attributes of the physical environment tell potential users what is expected of them and what the environment is like. A behaviour setting is not merely a physical concept, nor is it purely social. It links the two together into what can be seen as the primary social-physical unit (Zeisel, 1975, p. 11).

This statement establishes the importance of analysing both external (in this case, the physical environment) and internal (behavioural) attributes in understanding and describing human behaviour in the context. One way to define context is to understand it from a metatheoretical perspective and view it as "the frames of reference which allow us to choose the relevant elements

for study” (Talja et al., 1999, p. 761); this way of understanding is not particularly orientated to assigning context with certain factors or constraints but to view it as a research framework where the object is being studied. In review of other understandings towards ‘context’, most of researchers define it in terms of spatial, environmental and temporal constraints that bound where and when information activities take place (Morrison, 2002; Savolainen, 2006); however, this way of defining context is being criticised for overlooking the emergent and fluid temporal nature of context. It is argued that it cannot reveal the constructing and reconstructing process of context as a result of human actions and interactions (Dervin, 1997; Savolainen, 2009).

Previous information seeking behaviour research has identified factors, characteristics and variables that constitute and affect the context (Agarwal, 2017), which are regarded as important components running through the information seeking activity, while the understanding and conceptualisation towards this term is multifaceted. Context is not something permanent and stable that is readily there to be discovered; rather, it changes over time through human interaction and construction and has the feature of temporality (Dervin, 1997). Information seeking is seen as a series of activities enacted when people look for information in order to fulfill an information need, and it contains complicated cognitive decisions that are influenced by multiple factors (Wilson, 2000); the existing information seeking behaviour models have identified certain contextual factors that have an influential impact on information seekers (e.g. see Figure 4 in section 2.3.1). An example is from Järvelin & Ingwersen’s work on evaluating information seeking and retrieval activities within context (see Figure 6); a conspicuous contribution is that they included multiple levels of tasks as layers of context in the evaluation, which makes much more sense in a contemporary setting as they reflect an individual’s complex social role and the multi-layered characteristic of context.

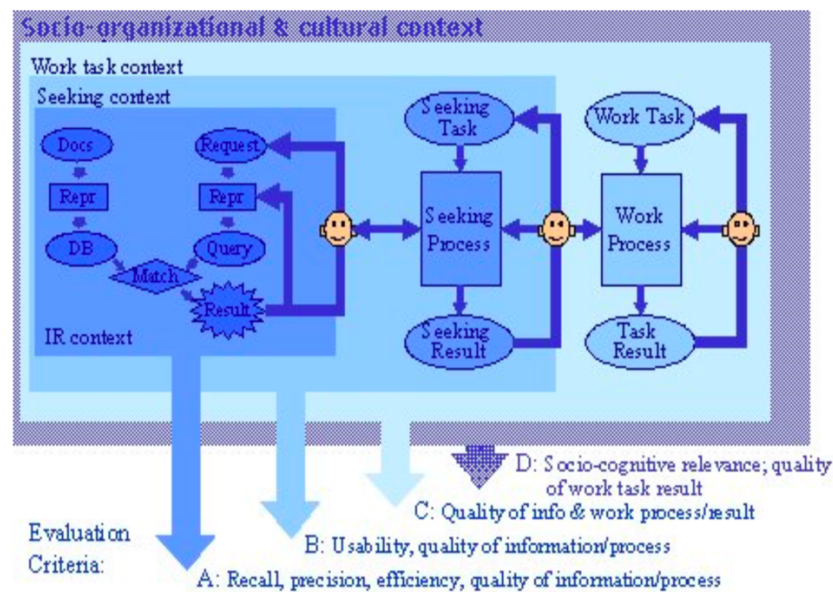


Figure 6 Information seeking and retrieval design and evaluation framework (Järvelin & Ingwersen, 2004, p. 10)

Agarwal reviewed and summarised the information behaviour models and frameworks that incorporate context in detail. From his summary, context plays a crucial part in information behaviour and information seeking activities; it gives rise to information need that leads to information seeking behaviour and it even determines the course and results of this process (Agarwal, 2017). In his work, a summary of 15 facets/types/categorisations of context is presented, showing how previous researchers have been understanding and analysing this concept under different research settings. Based on his summary, to work towards greater clarity, those 15 facets of context can be further categorised into three groups based on the features: the ones that are understood as social or environmental variables (on the left); the ones that are related to temporal or situational factors (in the middle); and the ones pertaining to personal or individual characteristics (on the right) (see Figure 7, which further categorises context facets based on Agarwal's review). The social or environmental variables can also be seen as an external influence that build on social consensus and common understanding, while the personal and

individual characteristics can be understood as an internal influence brought about by the social role and the interaction with others. The temporal factors are the changing and shifting situations that occur over time, which are triggered by time and space (Agarwal, 2017).

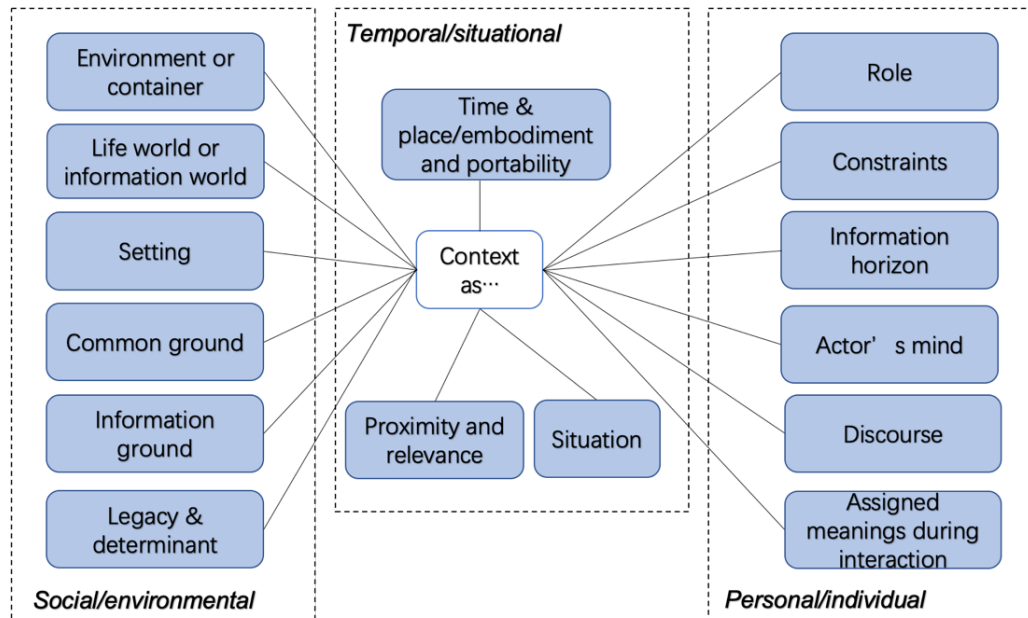


Figure 7 The categorisation of context based on Agarwal (2017)'s summary of context

From the figure above showing further categorisation, the multifaceted feature of context is clearly revealed. In order to understand it correctly, the research landscape needs to be elaborated upon and frameworks be built to accommodate the specific research setting and the group of people being studied. Spink and Cole have argued that researchers need to identify “information behaviour as an instinctive and inherent mechanism also includes the exploration of context, culture and environment in shaping information behaviour” (Spink & Cole, 2006, p. 4); this doctoral research builds on Agarwal’s review of context as a theoretical basis in analysing the complex context that shaping and influencing Chinese students’ UK academic library experience.

2.3.4 A contextual dimension of ISB: culture

In analysing and modelling information seeking behaviour, the internal and external variables (see Figure 8) that impact on the seeking process have been identified in the endeavour to thoroughly understand human behaviour (Ford, 2015a). In Wilson's 1996 model (see Figure 4 to review) in particular, he included context and intervening variables and represented a relatively holistic view of the factors that may influence the seeking process and behaviour (Wilson, 2000).

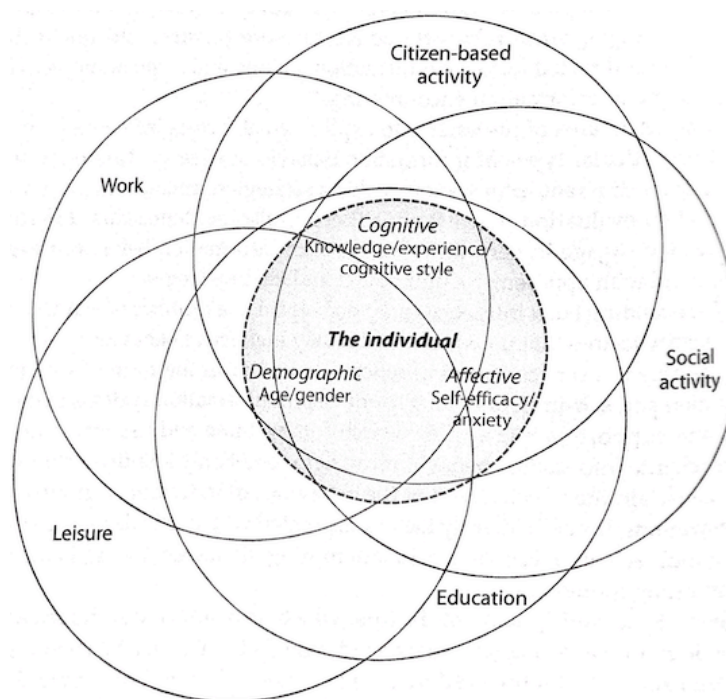


Figure 8 Factors that can influence information behaviour (Ford, 2015a, p. 100)

Previous work has contributed much in investigating different variables' impact on the seeking behaviour (for example, see Robson & Robinson, 2013; Savolainen, 2015); while the impact from culture has not been investigated thoroughly in learning about information seeking behaviour. Among the few works on exploring the cultural variables, Komlodi and Carlin examined Hall's (Hall, 1989) and Hofstede's (Hofstede et al., 2010) cultural dimension theories to build the theoretical foundation to understand cultural impact on

information seeking behaviour (Komlodi & Carlin, 2004). Duncker's research conducted on a New Zealand digital library platform assessed the information searching behaviour by natives and European New Zealanders, and identified the differences of their perceptions and behaviours (Duncker, 2002). Those studies are valuable in terms of identifying the impact of culture on cognitive understanding and behaviour, while more research into diversified cultural groups needs to be investigated.

To understand the impact brought by culture in the process of information seeking, it is necessary to briefly review the cultural dimension theory which is insightful in revealing how culture may influence human behaviour in different ways. Geert Hofstede, a well-known sociologist and anthropologist, created the cultural dimension theory that identified aspects and dimensions that constitute cultural impact (see Table 1), which sheds light on understanding culture's role in information behaviours.

Table 1 Hofstede's cultural dimensions (Hofstede et al., 2010)

Dimension	Meaning
Individualism vs. Collectivism (IDV)	The dimension to show individual's preference to be connected with other social members
Masculinity vs. Femininity (MAS)	The dimension to show the level of tough or tender
Power distance index (PDI)	The extent to show how the less powerful members accept and expect that power is distributed unequally
Long-term Orientation vs. Short-term Normative Orientation (LTO or Confucian dynamism)	The extent to show the preference of maintaining traditions or taking pragmatic approach in facing of societal change

Uncertainty Avoidance Index (UAI)	The extent the member in a society feel uncomfortable with uncertainty
Indulgence vs. Restraint (IVR)	The extent a society allows for natural human drives to having fun

Hofstede's cultural dimensions were developed and used in workplace management and planning, especially for intercultural companies (Hofstede, 2001), which introduces an organisation context. However, his cultural dimensions theory has been criticised for its limited sample from only IBM workers, stereotyping methodology and classifying countries' culture into one type and not allow for change (McSweeney, 2002). Hofstede responded to the criticism later on with a more in-depth look into the dimensions of culture and discussed his model in context (Hofstede, 2011). He also analysed China through his cultural dimensions and claimed that people from China, within a high collectivist culture, have a sense of belonging to "groups", and they tend to accept and obey the rule that is enacted by formal authorities (Hofstede, 2020). The cultural dimensions theory is of great value in explaining behaviours and perceptions from culture's perspective, especially in understanding the international Chinese students' cultural context in this doctoral research.

Apart from Hofstede's cultural dimensions theory, many other researchers have reviewed the impact of culture on information technology. Values and culture, regardless of organisation or nation, play a significant role in influencing how people adopt and make use of information technology (Leidner & Kayworth, 2006). The cultural-influencing model has been developed to depict the cultural impact on individuals and how this impact influences the adoption and diffusion of new information technologies (Straub et al., 2001). Researchers also reviewed the field of information technology and culture and developed models to describe the layers shaping individuals'

beliefs and behaviour, which depicts the diversity of behaviour brought by cultures from different levels (Gallivan & Srite, 2005).

2.3.4.1 International Chinese students' cultural context

As is mentioned in section 2.2.2.1, a dominant trend in UK higher education is the enlarging scale of internationalisation of the student base; with the globalisation strategy of many universities, the number of international students is increasing every year (Houlihan et al., 2017). According to the data from the Higher Education Statistical Agency (HESA), in the year 2017/2018, 43% students who were taking postgraduate studies in UK were from non-EU countries and Chinese students constitute more of them than any other (HESA, 2019). Under this context, international students, especially Chinese students' information behaviour have been studied by many researchers, trying to find out their unique information needs and habits to improve the learning experience of this significant student group.

Previous studies of Chinese students have found that they do show certain information behaviour in learning and using academic libraries abroad (Chung & Yoon, 2015; Mehra & Bilal, 2007a; Yoon & Chung, 2017). Culture difference, language barriers, different library systems are generally considered to be the main barriers for international students' learning and library experiences (Duan, 2016; Hughes, 2005; Shaffer et al., 2010). These differences and difficulties do not arise accidentally, rather, they have been built up systematically based on the underlying values, ways of thinking and pre-existing knowledge—which reflect the culture they come from. Based on Zhang & Liu's research in China, the Chinese university students who were born in the 'Y generation' were the ones who experienced an information explosion and the Internet development (Zhang & Liu, 2014). The economic dominance of Western countries brought a cultural impact to Eastern

countries, including China, through the Internet and the mass media (Thomas & Inkson, 2017). Even so, such impact is often recontextualised to fit in the pre-existing culture in that society (Brannen, 2004). Students from China, although being exposed to values and cultures from other countries, are led by the underlying values of their origin culture. It was found that students in China relied on Internet resources and search engines to find information rather than libraries (Zhang & Liu, 2014). This finding was in line with Hughes (2010)'s research that international students have the tendency to use Google, although there were individuals who indicated the inefficiency of using it. Additionally, information retrieval techniques (such as filters or Boolean operators) that help to improve search efficiency are not extensively used during Chinese university students' information seeking processes (Zhang & Liu, 2014). This might be a reason for the poor experience of learning abroad because a large amount of the work requires extensive reading and searching for articles and books that require search skills to find appropriate resources. However, Zhang & Liu's study of the Chinese students can only reveal a small part of their information behaviour under the context of studying in their home country which does not experience environmental change. When the context changes, the adaptability to fit into the new culture is required and the behaviour would need to be adjust. In Hughes's study of international students, they are described as "information seeking learners" (Hughes, 2010, p. 79). From Hughes (2005)'s study of exploring international students' information behaviour using library resources, it is found that language has a significant impact on students' information behaviours using online resources, while cultural factors are the ones that influence their wider educational experience. The time they consume to find certain library resources and the effort they put in to search for study-related materials are caused by the unfamiliarity with language, but more importantly, by their culture background and past learning experience and habits (Hughes, 2005).

Students from most Asian countries, especially mainland China, have grown up in Confucian heritage societies that obey Confucian ideology that formed in their long history (Chris & Arthur, 2014; Thomas & Inkson, 2017). The educational beliefs of Confucianism put stress on memorising, understanding and questioning based on what has been learned; Western education has tended to be more personalised, interactive teaching and learning, focusing on the individuals, giving more space for them to think, learn and raise questions independently (Chris & Arthur, 2014; Goldin et al., 2017). In the UK specifically, “active learning and the acquisition of transferable skills” is strongly stressed in the HE delivery (Varga-Atkins & Ashcroft, 2004, p. 40). Studying abroad for Chinese students, not only means learning in a different educational system, but more importantly, adjusting themselves psychologically and socio-culturally with their underlying culture identity (Bodycott, 2012). This adjustment of acculturation is described as the ability of ‘cultural competence’¹⁰, meaning

the learned ability to function in a culture in a manner that is congruent with the values, beliefs, customs, mannerisms, and language of the majority of members of the culture (Padilla & Perez, 2003, p. 42).

Cultural intelligence (CQ) is another concept that is connected with cultural competence, which means the scale that reflects self-reported cultural competence (Wang et al., 2015). For Chinese students, the educational experience abroad largely depends on how they adapt to Western ways of thinking and learning and accessing information. There have been studies examining cultural competence and cultural intelligence by adopting different models and scales that look into the factors that impact on the adjustment process in a new culture (Matsumoto & Hwang, 2013; Wang et al., 2015). It has been found that Chinese students’ cultural intelligence is highly influenced

¹⁰ Or named as cross-cultural competence, aka 3C

by their “connectedness with the mainstream society, anxiety levels, perceived language discrimination, and coping helpfulness of family support” and therefore, it is suggested that these factors should be considered upon their arrival and during the adjustment stage when they start studying in a foreign country (Wang et al., 2015, p. 63); for example, cultural orientation and pre-session course should be designed to help with international students’ cultural assimilation (Mckinlay et al., 1996).

In Hughes’s continuing study of international students studying in Australia, students from six countries, including China, showed their limited previous experience of using libraries in their home countries. The educational mode in Eastern teaching culture is more ‘teacher-based’ and ‘textbook-based’, and pays more attention to students’ independent work, leading to less requirements on using the library service (Hughes, 2010, p. 81). Although most of the international students in her study showed a positive attitude towards the library services in Australia, they expressed strong wishes on receiving “subjective-related, extensive learning opportunities” on information literacy education to support their learning and library experience abroad (Hughes, 2010, p. 86). Information literacy training tailored for international students should be embedded in their study experience abroad and it is, in most cases, the library’s role to improve international students’ awareness of information literacy and digital literacy (Hughes, 2005). Previous study of a USA university designed a library skill set for international students based on ACRL’s Information Literacy Competency Standards, aiming to solve the communicational, educational and cultural problems they face (Baron & Strout-Dapaz, 2001). Their study provided a feasible way of designing information literacy courses or skills training sessions from information literacy models tailored for international students’ needs and expectations.

Rather than focusing on the difficulties international students face, it is indicated that librarians should change their mindset and learn more about students' learning culture (what and how students want to learn) (Conteh-Morgan, 2003). There was a study that engaged international students in the design of online resources, the library website and website guidance by conducting a focus group to serve their needs in a better way, which has been designed to better understand and support international students (Ganster, 2011). It is the librarians' role to find out what information international students need and in what way they prefer to receive the information.

2.3.5 Information seeking behaviour research in the academic library

Information seeking behaviour as a phenomenon has been studied in the LIS field for its value in understanding what users are doing and what they prefer to do in certain settings to instruct and inspire the system and service design, moving towards a more user-friendly environment that satisfies their information needs. The eternal role and mission of academic libraries is to support academic activities, and help an institution's population with their information needs (Shoham & Klain-Gabbay, 2019). Investigating and understanding user's information seeking behaviour is a common strategy and research area and is regarded as necessary to undertake from time to time to know user's needs and behaviour patterns and provide targeted services. Here, the context of information seeking behaviour is the academic library, which can be interpreted as "container/environment" or "setting" in regard to Agarwal's categorisation of context (see section 2.3.3); it is where the activity takes place and constrains the type and features of information needs and seeking behaviour.

As the "ability to think critically and make balanced judgements about any information we find and use" (CILIP, 2018, p. 2), '*information literacy*' is

normally studied along with information seeking behaviour in the library context to explain the phenomenon. It shows one's critical thinking on searching and selecting information and it is argued that one should take critical viewpoints on the information found and make use of it efficiently to satisfy information needs, as this ability is regarded as an essential skill in meeting the life-long learning goal and in the information age (Johnston & Webber, 2003). In studying the Google generation's information seeking behaviour, the CIBER¹¹ research group found that in the evolving digital environment, a new form of information seeking behaviour characterised as "horizontal, bouncing, checking and viewing" is identified with a high "self-confidence" on their information literacy skills, however in reality a flawed one (Rowlands et al., 2008). With the forming of digital environments and various technological devices being embedded into the background of education and daily life, the research into people's information behaviour in different digital environments brings about more new concepts such as the '*digital literacy*' (Eshet-Alkalai, 2004) and '*mobile literacy*' (Pinto et al., 2020), which extend the dimension of the literacy concept. As it has been pointed out that "the shape of information is changing fundamentally and has become more complex", information literacy concept becomes more vital in building user's critical thinking ability (Godwin & Parker, 2012, p. 258). Being the information provider and information centre, a library is the place where "text, technology, and literacy converge in concentrated form" (Kapitzke, 2001, p. 451); facing the challenges that are brought about by the digital environment, academic libraries should take a role in boosting students' literacy skills and critical abilities (Godwin & Parker, 2012). More library user studies are needed to investigate and understand their information seeking behaviour in the complicated digital environment and in designing ways to improve their information literacy.

¹¹ CIBER: The UCL Centre for Information Behaviour & the Evaluation of Research

From the methodological perspective, both quantitative and qualitative methods have been used to study information seeking behaviour in the library context. On the quantitative side, the existing investigations are concerned with users' behavioural statistics when using the digital library system with the aim to find out usage patterns through library log analysis (Arshad & Ameen, 2015; Shoham & Klain-Gabbay, 2019); or preference survey into current and future usage on library services which is based on a large number of participants (Pareek & Rana, 2013). While on the qualitative side, interviews, diaries and emails (Sharif et al., 2009) and ethnographic techniques are generally used to communicate with library users in person to get a nuanced understanding of their needs and reasons behind their behaviour (Bauer, 2018).

From the perspective of user groups being studied, there have been examinations targeted on students (Kehinde & Obi, 2016), scholars (Ali & Nisha, 2011) or researchers (Rowlands et al., 2008), focusing on specific information needs, requirements and seeking strategies with the diversified academic levels. While there is much written about the information seeking behaviour of different user groups in the academic library, there is a dearth of research that focuses on international students' behaviour or library experience in this context, not to mention students from a specific country or region, such as China. It is worth noting that researchers have explored how international visitors seek for information in the settlement stage (Yoon & Chung, 2017), or how they make use of social media to seek for desirable information (Bukhari et al., 2018; Hamid et al., 2016); however, most of the research is situated in the everyday information seeking context, rather than in the academic library. This doctoral research is aiming at filling this gap to investigate international

Chinese students' experience of the academic library, including their information seeking behaviour and library UX.

2.4 User experience (UX) in the library

UX in the sense of a positive HCI would, thus, focus on how to create outstanding quality experiences rather than merely preventing usability problems. (Hassenzahl & Tractinsky, 2006, p. 95)

2.4.1 UX and usability

As an important aspect of interactive design, user experience (UX) is a vital topic in human-computer interaction (HCI) and human-centred design (HCD) since its emergence in the 1990s. Before its appearance, the HCI field worked exclusively on the pragmatic aspect of the task and product design, evaluating the behavioural goals by carrying out evaluations, for example, usability tests and that is the reason why the early discussions of UX are mostly associated with *usability*. The instrumental value of a product or system was the primary concern at that time; however, it was then challenged when the research into usability manifested the importance of human factors when designing systems (Hassenzahl & Tractinsky, 2006). It has been pointed out that usability ultimately lives in people's experience and therefore, the assessment of it should be the person's experience at the moment of that experience (Whiteside & Wixon, 1987). Logan developed the concept of 'emotional usability' which is distinct from 'behavioural usability' and specifically refers to additional human needs, such as entertainment or enjoyment, that helps to improve product usage experience (Logan et al., 1994). Emerging from the attempt to explore the human factors beyond the system and assess usability more comprehensively, the term UX was then taken more seriously to explore the 'human' perspective and concerned about subjective responses and reflections.

Alben, an early contributor to UX research, endeavored to define UX by establishing the criteria for effective interaction design (see Figure 9); extending on the pre-existing understanding on functionality and usability of UX, Alben added 'aesthetic experience' as an important criteria in evaluating the quality of experience, which enriched the interpretation of UX by putting emphasis on user's sense of pleasure and satisfaction (Alben, 1996). Kerne then added 'cultural representation' to the criteria, which looks at how cultural perspectives are considered in the interaction designs, moving further towards the aesthetic realms in HCI and HCD (Kerne, 1998). With their initial efforts, more researchers started to notice and discuss the affective factors beyond the system and task design, which brought a research shift in the HCI community and there emerged more human centred design and user experience design research (Beyer & Karen, 1999; Cooley, 1989; Norman et al., 1995). Along with the pragmatic aspect of interaction design, the hedonic aspect, which is concerned with the personal fulfillment that is generated from the human need to learn, interact, enjoy and grow in the interactive system, gained attention and it was argued that it should be taken into consideration (Hassenzahl, 2003).



Figure 9 Quality of experience-The ACM/interactions design awards criteria (Alben, 1996, p. 14)

Despite the extensive discussion of UX, the nature and definition of the term remains controversial (Shin et al., 2017). The first difficult thing to define is, without doubt, what ‘experience’ means in the term UX; early attempts were made to categorise different types of experience, distinguishing its meanings under different usage contexts. Based on cognitive scientist Richard Carlson’s theory of consciousness (also known as Experienced Cognition), Forlizzi and Ford defined experience as “the constant stream that happens during moments of consciousness” (Forlizzi & Ford, 2000, p. 419); Forlizzi and Battarbee then added that it is “how we constantly assess our goals relative to the people, products, and environments that surround us at any given time” (Forlizzi & Battarbee, 2004, p. 263). Experience is distinguished from ‘an experience’ (which is a singular case that occurs in a certain context), ‘co-experience’ (which comes from communication with others during product use) or ‘experience as story’ (which is a condensed way of remembering experience) (Forlizzi & Battarbee, 2004). Experience is the totality of human interactions and responses to everything encountered, while user experience refers specifically to users’ interactions and responses to products, systems, services and objects that are contacted through the user interface (Law et al., 2009) (see Figure 10).

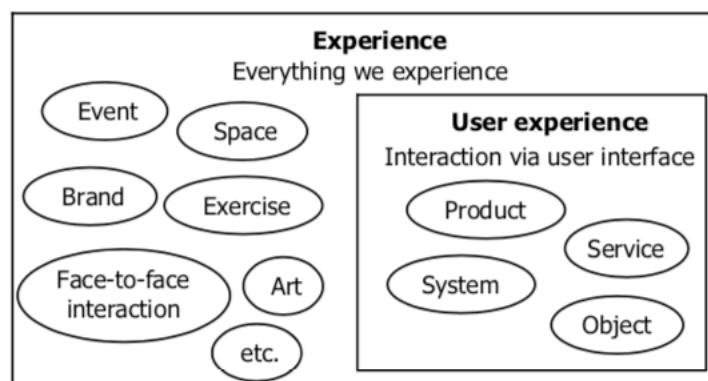


Figure 10 UX in relation to 'experience' (Law et al., 2009, p. 727)

This figure corresponds to Norman's definition of UX; Norman, an important contributor and researcher in the field of design, usability engineering and cognitive science, defined UX in the way that stresses the multi-faceted interactions that occur between the user and the medium they operate on, which goes as:

all aspects of the end-user's interaction with the company, its services and its products [...] True user experience goes far beyond giving customers what they say they want, or providing checklist features. (Norman & Nielsen, 2008, p. 1)

This definition summarises user experience as the overall interaction with the medium; albeit conclusive, it did not clarify what is embodied in this interaction and what is the boundary of UX. Another early definition of UX was from Alben, who clarified the meaning of 'experience' as all aspects of people's interaction with a product, including:

the way it feels in their hands, how well they understand how it works, how they feel about it while they're using it, how well it serves their purposes, and how well it fits into the entire context in which they are using it (Alben, 1996, p. 12).

This definition focused on the quality of experience and how a product is accepted, used and felt by people. There followed other definitions that endeavored to capture the comprehensive perspectives that UX contains, for example:

UX is a consequence of a user's internal state (predispositions, expectations, needs, motivation, mood, etc.), the characteristics of the designed system (e.g. complexity, purpose, usability, functionality, etc.) and the context (or the environment) within which the interaction occurs (e.g. organisational/social setting, meaningfulness of the activity, voluntariness of use, etc.). (Hassenzahl & Tractinsky, 2006, p. 95)

Hassenzahl and Tractinsky's definition of UX goes beyond its role in the instrumental system design and they recognise the affective, subjective and complex needs of users in the context of interaction that constitute an important part of UX. It takes both instrumental and non-instrumental needs into consideration; in the meantime, it is noted that the context of experience

plays an important role in determining user's judgments of experience. Hassenzahl and Tractinsky also summarised and visualised the facets of UX, which according to them is made up of three parts, 'beyond the instrumental', 'emotion and affect' and 'the experiential' (see Figure 11). The first facet, 'beyond the instrumental', unfolds the non-instrumental needs of users, building a more holistic understanding of their desire of "being stimulated, to perfect skills and knowledge, to grow" (Hassenzahl & Tractinsky, 2006, p. 93). The facet of 'emotion and affect' addresses the role 'affect' plays in leading, regulating, and reflecting the user's emotional outcomes with the technology. The facet of 'the experiential' describes the actual experience that is bounded by situation and time; this facet reveals the dynamic, changeable features of UX. This definition and illustration of UX demystified user's interaction with technology beyond the functional and instrumental, enriching the understanding of UX components.

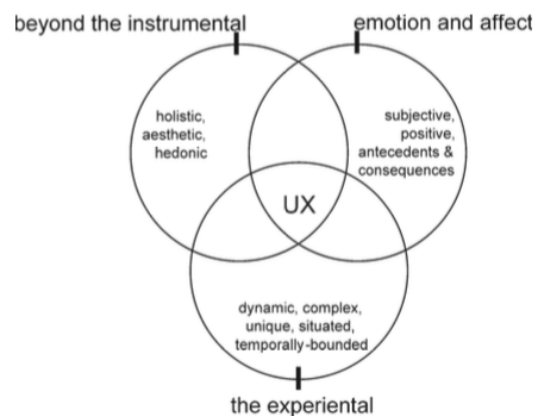


Figure 11 Facets of UX (Hassenzahl & Tractinsky, 2006, p. 95)

The International Organisation for Standardisation (ISO)¹² started to cover and define terms and concepts in ergonomics and HCI in 2006 with the standard *ISO 9241 Ergonomics of Human-System Interaction*, which includes multi-part of topics. With UX being more recognised in HCI and other fields, in 2010, ISO

¹² Official website at <https://www.iso.org/home.html>

formally defined UX in *ISO 9241-210* standard *Human-Centred Design for Interactive Systems* as,

a person's perceptions and responses that result from the use and/or anticipated use of a product, system or service (ISO, 2010).

This definition is further supplied with three notes and one explains UX in more detail:

user experience includes all the users' emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviours and accomplishments that occur before, during and after use (ISO, 2010)

The ISO's definition of UX is elaborated to an extent that takes behavioural and emotional, mental and physical responses into the realm of UX, as well as indicating the temporal changes through this process. UX should not only be viewed as a consequence of interaction, but a mediator that goes along with the user journey. Another ISO note that supplies this illustration of UX states that,

UX is a consequence of brand image, presentation, functionality, system performance, interactive behaviour and assistive capabilities of the interactive system, the user's internal and physical state resulting from prior experience, attitudes, skills and personality, and the context of use (ISO, 2010).

This note indicates the three factors that influence UX, which are the system, user and context; thus, understanding users and their perceived context of usage is as important as designing the functionality of the system. In 2018, ISO clarified the definition of usability in its *ISO 9241-11* standard *Usability: Definitions and Concepts* as,

the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use (ISO, 2018).

This definition distinguishes usability from UX, and they serve different roles in a product assessment. Jordan, a researcher in the field of psychology and UX, also conceptualised the terms by specifying their roles in engaging people, which should be viewed as a hierarchical structure composed of functionality,

usability and UX (Jordan, 2002). At the very bottom, the way a product engages with people is by what it can do, namely the functionality; in the middle, it is the usability that represents how easily a product can complete the task; and at the top of the engagement hierarchy is UX, which associates with how well people perceive and feel about the product.

The ISO definition is promising in a general way, although lacking in detail (Mirnig et al., 2015). Researchers strive to analyse and clarify UX from different perspectives, drawing a more complete picture of the concept and its components. In practice, to discuss UX components is to find ways to evaluate UX. Beauregard and Corriveau built a conceptual framework (see Figure 12) to show UX components from the perspective of depicting the process that happens during the emergence and development of user experience. In their framework, a user's interaction with the product is described as an iterative process that is composed of perception, emotion, thoughts, attitudes and intention (Beauregard & Corriveau, 2007). The unfolding of interaction is influenced by a large set of factors that differ one user from another, including knowledge/experience, concerns/expectations, skills/abilities and personality/physical attributes.

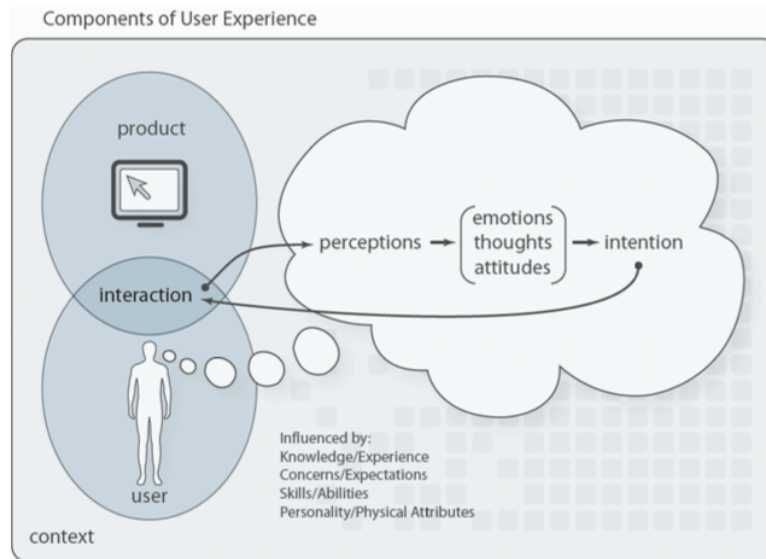


Figure 12 Conceptual framework of UX (Beauregard & Corriveau, 2007, p. 327)

This framework is valuable in terms of its focus on the cognitive nature of human experience and in distinguishing the constructs of experience (perception, emotion, thoughts, attitudes and intention). These five constructs are different in nature; Beauregard and Corriveau elaborated on these terms to offer detailed descriptions (Beauregard & Corriveau, 2007, pp. 328–329):

- perception is the course of obtaining and interpreting sensory information;
- emotion is the subjective responses and consciousness that constitutes a critical part in learning, trust and assessment of what is desirable;
- thoughts are mental processes that allows humans to model what they experience and to plan behaviour;
- attitudes are judgements towards a target typically associated with value, good/bad, or helpful/harmful; it's a function of expectations and past experiences;
- intention is the willingness and goal the user constructs when interacting with the product.

The five constructs emerge at different stages during the interaction with the product, but they all play a part in the construction of user experience. Despite the thorough elaboration of the cognitive process of user experience, this

framework does not reflect on the product side that also influences user experience. It puts too much emphasis on the human side, and then even the factors that influence users are restricted to psychological variables. In contrast to this, the framework developed by Forlizzi and Ford made up this shortage and discussed factors and components from both user and product sides (see Figure 13). Admittedly, the factors that the user brings in are not as inclusive as the previous framework, but the product side is taken into consideration. As the result of the use and anticipated use of a product, UX is also influenced by the features and qualities of the product.

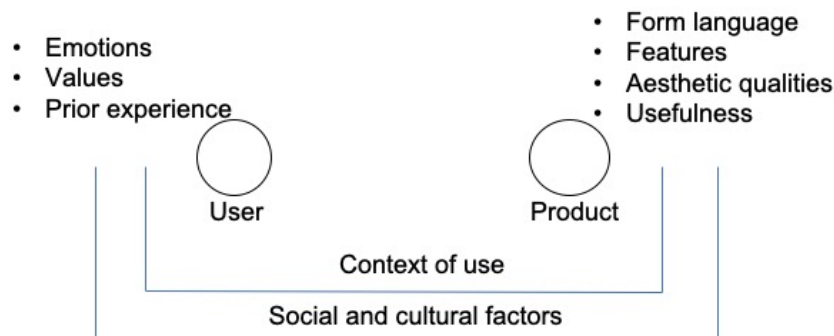


Figure 13 Influences on experience (Forlizzi & Ford, 2000, p. 420)

Moreover, rather than just pointing out the factors that influence UX, this framework locates the interaction between user and product in a context container that is shaped by social, cultural and organizational behaviour patterns (Forlizzi & Ford, 2000) and makes more sense when evaluating UX in a certain context of usage.

This is also agreed by other researchers; experience is shaped not only by the characteristics of the user, such as their personality, skills, background, cultural values and motives, but also the features of the product, such as the shape, colour and function (Desmet & Hekkert, 2007). Although experience is a complex thing to understand and explore, researchers have made efforts to define and create theories of UX. Instead of increasing the complexity by

extending the research scope, it is more sensible to study UX in a specific context. In this thesis, with the aim of exploring international Chinese students' experience of UK academic library, the framework from Forlizzi and Ford (Figure 13) that considers both user and product features, context of usage and other social and cultural factors that influence the process is useful in understanding their library experience from the UX perspective.

2.4.2 Library UX research

The future library experience is not static but is a long-term relationship in which information gathered from users consistently contributes to the enhancement of the experience (Bell, 2014, p. 378)

In the library context, user experience (UX) is not a new area of study although it usually focuses on usability testing of digital library systems (Fry & Rich, 2011) and user interaction with the library space (Duke & Asher, 2012). The advent of the concept of UX in the HCI and HCD fields first raised the interest of academic libraries in the 2000s when usability testing on other web-based systems gained popularity in related fields (Battleson et al., 2001). Academic libraries also started exploring UX on their online services, such as digital library services and websites, by making use of usability testing (Fry & Rich, 2011; Zimmerman & Paschal, 2009). The focus of UX research in libraries at that stage remained on improving the effectiveness of the library website interface and task design to meet users' search goal in order to perform fluent tasks on the library websites (Bell, 2014).

When Norman, the pioneer of UX research, published his work '*Living with Complexity*' in 2011, the more complex nature of UX was uncovered (Norman, 2011). He indicated that in improving UX, all the choices and options should be made to meet users' needs, while, at the same time, conceptual simplicity

should be maintained under the complexity of technology (Norman, 2011). As Bell pointed out,

the total experience is effectively and consistently delivered at all touch points, meaning it must extend beyond the website to all those points where a customer could potentially connect with the organization's products or services (Bell, 2014, p. 371).

In the library context, a good user experience can be obtained by a complex mixture of services and technologies, but at the same time, it should maintain a simplicity across all those that is easy for users to understand (Bell, 2014). UX in the library is more than the usability of web-based services but should be a comprehensive and systemic concept in all aspects of library service design. In the years following, there appeared to be a methodological shift in learning about UX in libraries.

In 2007, the library of the University of Rochester in New York published library design and UX research conducted using ethnographic techniques, which presented a new way of investigating UX in the library context (Foster & Gibbons, 2007). In their work, several ethnographic techniques were used to contribute to a better design of the physical and digital library environment. For example, they used cognitive mapping to design the physical library space and workshop activities to capture ideas on library website design (Foster & Gibbons, 2007). In the same year, another researcher in Canada also published a study using a combination of ethnographic methods, observation and semi-structured interview, to investigate how students make use of the library space (Suarez, 2007). According to his work, three types of behaviour in the library space were found during his observation, which were engaging, social and leisure behaviour (Suarez, 2007). Many of the early works on using ethnographic concepts and techniques in learning about UX in the library context were from libraries in the USA and Canada and their pioneering works led to more user-centred research in libraries that looked beyond the systems

(McKechnie et al., 2006). A prominent application of using ethnographic methods to learn about UX in the library was the ERIAL Project (Ethnographic Research in Illinois Academic Libraries), which was a two year research project that engaged students from five universities to investigate how they perform learning and researching activities in academic libraries (Duke & Asher, 2012). They used nine different ethnographic methods to explore UX in their libraries, including for example, interviews, photo journals, and mapping activities, which were exhaustive enough to inspire future work on library UX from the methodological perspective of ethnography. Additionally, a toolkit was generated during that project, providing detailed instructions on how to use ethnographic methods in the library and detailing what can be obtained through the use (Asher & Miller, 2013). Ethnography has proven to be useful in learning about library UX and in understanding the needs and behaviours of a group of people and to expand theories and knowledge through thorough investigations and observations (Forlizzi & Battarbee, 2004).

In the UK, ethnographic methods started gaining popularity in the late 2000s. In 2009, the library of the University of Loughborough conducted an observational study to explore how students' activities took place in library learning spaces (Bryant et al., 2009; Duke & Asher, 2012). They summarised eight themed activities that they observed in the library by unobtrusive observation (Bryant et al., 2009). Although it was a small-scale study and was carried out in a very special period (exam weeks), it was significant in showing the value of applying ethnography in learning about library users and its usefulness in library service evaluations.

In view of this methodological shift, UX research in the library context has expanded from using mostly quantitative methods (such as surveys and usability tests) to qualitative methods (such as interviews and ethnographic

methods). The subject of UX research in libraries has also showed noticeable changes, from the focus on mostly library web-based services to physical library space design and library user behaviours. This shift was largely due to evolving user expectations with technological progress, and with the new possibilities, the means of learning and ways to engage users are changing. As Bell asserted:

as technology shifts personal expectations, we are challenged to determine how to best integrate it into the user experience (Bell, 2014).

With new technologies evolving, new ways of integrating such technologies with library resources should be discovered to improve library UX and meet users' expectations. This methodological shift gives inspiration to this thesis in terms of understanding and analysing UX from diversified methodological views in order to reveal the complex factors that are influencing users' behaviour and experience in the Digital Age; a primary qualitative perspective with a supplement of quantitative investigation is undertaken to learn about the research matter in this doctoral project.

2.5 Experience and behaviour

Section 2.3 and section 2.4 have reviewed literature around information seeking behaviour and user experience (UX) in detail, with an additional focus within the library context. The review implies a connection between the two concepts when several models present overlaps on some components of the two. In this section, a closer look into the distinctions and connections between information seeking behaviour and UX, behaviour and experience is presented to demonstrate why these two areas of research are important and interconnected in terms of understanding the research topic: library experience in the Digital Age.

Information behaviour (IB), which contains information seeking behaviour as an important part, is concerned with all forms of human interaction with information, while UX focuses on human interaction with products or technologies. In this research, the Digital Age brings about a conflation of information and technology, especially with the academic library, which is seen as an information centre and also an academic product that is delivered by technologies.

From the perspective of their object of research, it is straightforward to see the distinction between the two concepts. Information seeking behaviour studies are concerned with people's pursuit of information to satisfy their needs and preferences regardless of the medium between people and information (Gershon, 1995; Wilson, 2000), suggesting the indifferent role of the tool, technology or any other medium used during this process. In contrast, UX studies are interested in how human-product interaction changes over time with services and products leveraged by evolving technologies or tools being integrated into users' everyday life. LIS researchers are interested in serving users (whether their service is doing its job in terms of meeting user's need), while UX people are concerned about engineering products (whether the product is built in regard to requirement).

From the perspective of research origin and area of research, the previous review indicates that UX emerged and has mostly developed in the HCI field because product design is the primary goal for HCI developers and UX suggests how well the product is being experienced by users. Compared to that, information seeking behaviour is mostly studied in libraries because user behaviour with library information is a direct indicator of library usage and it is the concept which is closely connected to, for example, information needs and information literacy which are essential to know about users.

From the perspective of research focus or modelling concept, as reviewed in the previous sections, information seeking behaviour research is focused on the stages of individual's performance of seeking, searching and using information where the modelling is generally portraying those stages within a complete process. UX research, however, focuses on users' overall appraisal of a product rather than looking into separate actions happening during the process. LIS people support their users through a process; while UX people support their users through building a product that users like. Ultimately, however, both of them are concerned with user satisfaction and this is why the emotional and affective factors are included in both concepts.

Compared to those distinctions, the connections between the two concepts are what this thesis is trying to find out. The first easily noticeable connection is suggested from models or frameworks of both concepts. Kuhlthau's information search process model in 2004 integrated affective, cognitive and physical factors in learning about the responses of people in interacting with information (Kuhlthau, 2004). Wilson's 1999 model revealed contextual factors that have an impact on information seeking behaviours, including personal (psychological, affective and cognitive states), social and external factors (Wilson, 1999). In UX frameworks, such 'non-instrumental' factors were also found to be important components in user perceptions. Hassenzahl and Tractinsky's facets of UX listed emotion, affect and other non-instrumental factors as essential components in revealing UX (Hassenzahl & Tractinsky, 2006). Beauregard and Corriveau's conceptual framework described perception, emotion, thoughts, attitudes and intention that emerge and continually develop through the UX process (Beauregard & Corriveau, 2007). The emotional aspect is viewed as an important component in both IB and UX studies for they both are rooted in how people understand, perceive, interact,

go about and feel about the world (O'Brien, 2011). In both regions of research, emotional, cognitive, and affective factors play a considerable part in influencing and evaluating the process because the human is put in the centre of the investigation whose behaviour and experience is directed by subjective judgements.

From the methodological view, both concepts emerged with an emphasis on quantitative aspect of research, but gradually shifted to qualitative investigations: information seeking behaviour starts with log analysis and surveys to identify patterns and trends in behavioural data and moves to using qualitative techniques, for example, interviews and ethnographic methods, to learn about individual's behaviour and inner reasons. UX emerged from usability studies where the performance indicator is key to evaluation, but shifted to using qualitative techniques to learn about subjective responses and perspectives. They all move towards a more human-centred view with the goal to explore the inner reasons behind their behaviour and experience.

Researchers in the information studies field have noticed the interconnections between human-information interaction (HII) and UX. Human-information interaction, as a broader concept that includes information behaviour, explores how people interact with the information (Fidel, 2012). To view information as experience has been agreed by researchers since Laurel suggested understanding the interaction with information as moving from "looking for something" to "examining or experiencing it" (Laurel, 1993, p. 140). The interaction with information is not merely a single action to find or solve, it is where individual's expectations and motivations are shaped and when the path of experience is formed and altered. O'Brien, at the School of Library, Archival and Information Studies at the University of British Columbia, suggested using a UX lens to learn about HII, borrowing UX frameworks to

“explore information seeking and use as processes within as well as outcomes and predictors of human experiences” (O’Brien, 2011, p. 70). Albeit generalising all forms of interaction between human and information to HII, it explicitly points out the link between the two; information seeking behaviour, as one manifestation of HII, is connected with UX and worthy of further exploration. In previous work, three parallel streams were found between HII and UX, which are context, needs, and sense making (O’Brien, 2011). It is argued that context is paramount to both HII and UX in evaluating and understanding the matter and they all underscore the social aspect of context where behaviour and experience is emerged, guided and influenced (Courtright, 2007). When it comes to needs, it has been underscored in IB research where information needs are viewed as important investigators of the information seeking process, a drive inside to fill in the knowledge gap, making sense of the situation and reduce uncertainty (Dervin, 1998; Kuhlthau, 2004; Wilson, 2000). Nevertheless, need in UX research is generally viewed as “the value inherent in a product, with users’ motivation for choosing or using a technology, or with how people evaluate a system” (O’Brien, 2011, p. 80), which is broader than the need for information. Notably, the broader understanding of needs in UX research may be borrowed to consider a more complete information seeking and using process. The last commonality found is the role of sense-making theory from Dervin in probing HII and UX problems; the ‘gap-bridging’ is regarded as the motive and driver in information seeking and the sense making process during which leads the way people respond to and deal with the gap (Case, 2012). UX researchers also leverage sense-making theory to understand what is happening during the experience (McCarthy & Wright, 2004). O’Brein’s work on proposing to borrow UX as a new direction to learn about IB is crucial in terms of taking the expanding view from UX which looks beyond the stages of information behaviour and seeing information experience as more integrally embedded in human experience.

Arguably, information interaction/behaviour as a component has been noticed and expanded as a part of UX research and many UX frameworks depicted that. The CUE-model (components of user experience) by Thüring & Mahlke (see Figure 14) indicates emotional reactions as indispensable components of UX and they view the interaction process, usage behaviour, user experience and the appraisal of the system as interrelated parts, providing a relatively comprehensive view on human-technology interaction (Thüring & Mahlke, 2007).

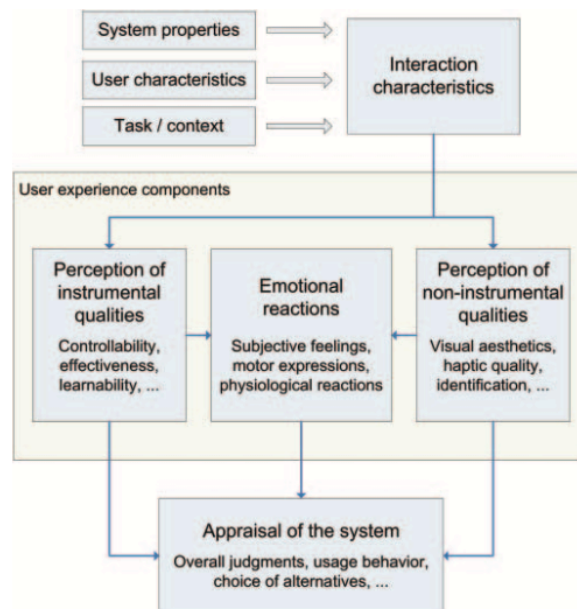


Figure 14 The CUE-model (Thüring & Mahlke, 2007, p. 262)

Expanded ideas in UX research see behaviour as a playing role in understanding and evaluating experience and so requiring investigation. Expanding UX to include behaviour as a part is beneficial to understand how experience is formed and evolved with the interaction and how behaviour and experience is altered with the external changes of the context and technology. In the library context, UX research has similarly expanded from narrow usability studies of web-based interfaces to more comprehensive

investigations of how people are experiencing libraries using ethnographic methods.

Notably, however, although UX research has expanded to include behaviour as one essential component in evaluating and understanding experience holistically, IB research has not examined this distinction and the research focus is still on the information behaviour stages, actions, factors and context of the behaviour without considering the experiential result that comes along with this process. Given the parallels between IB and UX in what has been reviewed, the way UX understands human behaviour can be borrowed to learn about IB in a more holistic way; as it is asserted that “UX invites us to see information interactions as rich and varied narratives, thus enabling us to explore information seeking and use processes and outcomes simultaneously and more deeply as we attempt to keep pace with the changing information condition” (O’Brien, 2011, p. 87). This thesis takes both concepts into consideration in analysing international Chinese students’ experience with the academic library, trying to build a broader and holistic picture of library experience by proposing a framework theory that composes both perspectives.

2.6 Chapter conclusion

This chapter has reviewed the academic library and its wider context of higher education in the Digital Age and also looked into information seeking behaviour and UX literature in particular in LIS studies. In addition, an exploration in the literature around the relationship between behaviour and experience is conducted to highlight the backgrounds, gaps and possibilities in the existing literature. This review demonstrated the challenges and possibilities brought by the trends happening in this digital backdrop in the HE system and the academic library, indicating the necessities for the academic

library to conduct more user studies. It also illustrated a gap in utilising multiple methodological approaches to study ISB and UX within the same context and the need to explore the interconnections between the two in same context.

With the review on previous research, the next chapter, Methodology, builds the theoretical framework to enable this thesis to explore the research topic of Chinese students' UK academic library experience in the Digital Age.

Chapter 3: Methodology

3.1 Chapter introduction

In this Chapter, the rationale underpinning this thesis is presented in detail; it describes and explains the methodology and methods that are adopted to explore the research aim: how do international Chinese students experience the UK academic library in the Digital Age, using the research context of University College London (UCL)? Research methods are adopted to deliver on the three objectives that are set to answer the research aim, as the table shows:

Table 2 Research objectives and selection of research methods

Research objective	Selection of research methods
What they do in the academic library? (information seeking behaviours)	Pilot study Library log analysis
How they think and feel about the academic library? (library user experience)	Cognitive mapping Semi-structured interview
How to understand their UK library experience?	Cognitive mapping Semi-structured interview

The interpretive paradigm and the mixed methods methodology formed the basis of the research design and correspondingly informed the selection of research methods used: library log analysis, cognitive mapping and semi-structured interviews. This chapter discusses the methodological framework, the data collection techniques, the sampling strategy, the ethical considerations for the research delivery and the data analysis approach. Snapshots of the data gathered are presented for the purpose of explaining each stage of the data processing. The strengths and limitations of the research choices are discussed at the end of the chapter.

3.2 Research paradigm

The way of understanding reality and interpreting knowledge is reflected in the theoretical framework, also referred to as the research paradigm (Mertens, 1998). All research can be seen as systematic investigations in which data are gathered, investigated and interpreted following certain paradigms (Burn, 2000). A paradigm inherently consists of a certain ontology (Crotty, 1998), epistemology (Cohen et al., 2000), methodology and methods (Crotty, 1998). In this section, the interpretive paradigm underpinning this research as the theoretical framework is discussed in detail (see the summary table below for the paradigm elements for this research).

Table 3 Paradigm elements for this research

Paradigm	Ontology	Epistemology	Methodology
Interpretive: reality is interpreted by individuals (Given, 2008a)	Relativism: reality is subjective and is constructed differently (Guba & Lincoln, 1994)	Constructivism: meaning is constructed in different ways; “knowledge is culturally derived and historically situated” (Scotland, 2012, sec. 12)	Qualitative: aims at discovering and understanding phenomenon narratively (Corbin, 2015)

3.2.1 The interpretive paradigm

The interpretive paradigm originates from philosophical hermeneutics, a theory of interpretation of verbal and non-verbal communication (Eichelberger, 1989). ‘Motives, meanings, reasons and other subjective experiences’ are the foci for interpretive research (Edirisingha, 2012). To interpret is to make sense and create meanings from the phenomenon (Guba

& Lincoln, 1994). It is built upon the assumption that “social reality is not singular or objective, but is rather shaped by human experience and social contexts” (Pelz, 2008, p. 1). Interpretivism holds that reality is experienced, constructed and interpreted by individuals in their interactions with the world; the purpose of inquiry is to explore and understand a particular phenomenon rather than to generalise it (Guba & Lincoln, 1994; Maxwell & Wooffitt, 2005). Thus, a trustworthy interpretation of reality relies upon first-hand experience and rich and thick description from actual conversations with people within the context (Merriam, 1998). Interpretivists aim to understand the human constructions of the surrounding world and their interpretations of that by using human language. Language, as a bridge of communication, “does not passively label objects but actively shapes and moulds reality” (Frowe, 2001, p. 185).

Interpretivists often adopt naturalistic inquiry to look into the matter in most cases by which they are “non-manipulative, unobtrusive and non-controlling” during the inquiry process (Tuli, 2011, p. 100). Naturalistic inquiry explores human behaviour in their natural settings and the context of investigation is essential to the understanding of the phenomenon, without which it is impossible to acquire knowledge of human experience (Given, 2008b). Different from what is believed by positivist researchers, naturalistic inquiry is based on the belief that reality is subjective and multiple, and the investigation design relies on the human experience in the field. To conduct naturalistic inquiry, participants should be in their natural environment—“researchers must meet participants where they are, in the field, so that data collection occurs while people are engaging in their everyday practices” (Given, 2008b, p. 548). The complexity and unpredictability of human behaviour can only be captured and explored in their everyday context, where the activities and their actual responses can be evaluated. The methods used in naturalistic inquiry

are qualitative methods that focus on observation, ranging from ethnography, ethnomethodology, critical ethnography or autoethnography (Given, 2008a). Researchers should immerse themselves in the context with the participants to understand the phenomenon.

For interpretivists, the methodology taken is focused on understanding human interactions with the world and how they react within the social and historical contexts (Creswell, 2009). Participants' perspectives are elicited and interpreted by the researcher based on his or her own knowledge and the researcher has a large degree of control over what, when and how to conduct the research (Guba & Lincoln, 1994).

The methods are the concrete and specific tools are used to collect and analyse the data (Crotty, 1998). Interpretive methods are the tools that help researchers reveal human behaviour and find out the explanation for such behaviour (Scotland, 2012, p. 12). These methods aim to elicit underlying reasons and explain human perspectives. Thus, qualitative methods are commonly used in interpretive studies for their capability for discovering human perspectives. Such qualitative methods include but are not limited to interviews, observations, visual methods and document reviews. This leads to a large amount of interpretive research being treated as qualitative research.

However, because of the interpretation from the researcher personally and the lack of scientific judgement, interpretive study has been questioned for its validity. According to interpretivists, reality is understood differently by different people and there is more than one way of interpreting that. Therefore, it is hard to make generalisations even with a large number of individuals involved in the study for the fragmented interpretation of reality (Scotland, 2012). This also leads to the use of adding validity techniques, such

as triangulation, peer review or member checking. Among them, triangulation (or mixed methods) strategy has been used frequently where a data set from one method is supplemented with different data sets from other methods, for example, questionnaire results supported with a few in-depth interviews (Bawden & Robinson, 2012). By triangulating one data source with another, validation can be added to the outcome of the research (Fidel, 2008; Williams & Gunter, 2006).

3.2.2 Relativism as ontology

Ontology, in this context, describes the nature of reality (Tuli, 2011), which reflects the researcher's perception about "what things really are and how things really work" (Scotland, 2012, p. 9). The ontology of the interpretive paradigm is relativism, which holds that reality is personally constructed, subjective to individual's different interpretation (Guba & Lincoln, 1994); the reality or truth to an individual is relative to one's epistemic system, which is related to culture and other variables (Kusch, 2018). Researchers find out and discover the reality interpreted by different individuals as knowledge is regarded as dependent on culture and other social contexts, which is not an objective thing (Bawden & Robinson, 2012).

Our consciousness and senses play a paramount part in forming and mediating our interpretation of reality (Scotland, 2012); thus, one's reflection of reality is relative to another's reflection of the same thing. It further leads to the position that it is futile to develop universal theories or standards that define good or bad, right or wrong (Peile & McCouat, 1997). Social scientists often adopt relativism as the ontology to discover the diversity and complexity of human beings and their experiences; they grant the importance of background or context in an individual's forming of realities by which "beliefs, desires and

actions [...] are never independent of a background of cultural presuppositions, interests and values” (Baghramian & Carter, 2019, sec. 2.5).

3.2.3 Constructivism as epistemology

Epistemology, reflecting the forming of knowledge, is concerned, in this context, with the nature of the relationship between the “would be knower and what can be known” (Guba & Lincoln, 1994, p. 108). It describes the way to define knowledge and to learn about reality. Interpretive epistemology is constructivism, which believes that “knowledge and meaningful reality are constructed in and out of the interaction between human and the world, and are developed and transmitted in a social context” (Crotty, 1998, p. 42). This viewpoint is opposite to the positivist epistemology, where researchers believe an objective exists and can be identified and measured by using scientific methods (Edirisingha, 2012); this measurement process is believed to be independent of the researcher’s choice of instrument. Constructivism holds that meaning would not exist if there were no subjective interpretation, which is constructed by human knowledge (Gray, 2004). Individuals construct their knowledge in different ways led by their own past experience and certain level of understanding; therefore, different individual’s construction and interpretation of the same situation is the focus of constructivists.

3.2.4 Rationale for taking an interpretive paradigm

The research question and the phenomenon to explore leads to the adoption of a certain research paradigm to inform the research design and the selection of research methods. As it is suggested that, “it is proper to select that paradigm whose assumptions are best met by phenomenon being investigated” (Guba, 1981, p. 76). The underlying philosophical stand for this research is the interpretive paradigm because it contends that reality is reflected in people’s experience and subjective interpretation of the world, and people interpret

the reality differently with their personal knowledge construction. This research is to explore how Chinese students experience the UK academic library in the Digital Age; by 'experience', what they do and how they feel and think about the academic library are looked into to draw a holistic picture of the 'experience'. It focuses on exploration, explanation and interpretation, rather than generalisation; motive, reason, opinion and perception are the foci of the research. Therefore, the interpretive paradigm is the most appropriate theoretical framework to explore the topic and inform the research design, which has the capability for the researcher to explore subjective human experience and understand the meanings and reasons behind it.

As a doctoral candidate who holds an Undergraduate Degree in Archival Science from Wuhan University and a Master's Degree in Digital Library Management from the University of Sheffield and has been conducting research in Library and Information Science (LIS), the candidate has a robust knowledge background in the LIS field and a proficiency in applying theories with analytical skills, which ensured the quality of this interpretive research and a thorough understanding on the topic.

3.3 Methodological framework

Methodology, as the "strategy or plan of action which lies behind the choice and use of particular methods", describes the conduct of an inquiry (Crotty, 1998, p. 3). It shows the logic of how researchers find out the things that they believe can be known (Scotland, 2012, p. 9). Given the research aim, which is to explore the holistic picture of student library experience, this doctoral thesis approaches the work by using mixed methods set within a qualitative framework, with some quantitative elements included to underpin the work. The researcher took an interpretive stance for the research with a largely

qualitative perspective; as such the researcher's position within the research is further discussed in this section.

3.3.1 Qualitative research

Qualitative research, focusing on “rich descriptions and explanation of processes in identifiable local contexts” (Miles & Huberman., 1994, p. 1), is aimed at describing and exploring the way people feel, experience and think about certain issues. The process of qualitative research always involves familiarising with the target people, immersing in the data, and getting involved in their context (Bourdieu, 1984). In qualitative research, the core thing for the research is to understand the target's belief, thoughts, views, interests, experience and perspective of the world. It is to understand “a particular phenomenon from the perspective of those experiencing it” (Vaismoradi et al., 2013, p. 398).

The distinction between the qualitative and quantitative methodology, in one way, reveals the different ways of understanding the world and in another, reflects the different techniques of collecting and analysing data. The aim of the study, the research questions and the research context informed which methodology is more appropriate than the other in terms of how well to reveal and learn about certain research matter.

The qualitative stand is considered to be an overarching research design principle in social science to learn about people in social and cultural contexts (Myers, 2009). It may be defined as:

a process of enquiry that draws data from the context in which events occur, in an attempt to describe these occurrences, as a means of determining the process in which events are embedded and the perspectives of those participating in the events, using indication to derive possible explanations based on observed phenomena (Gorman & Clayton, 2005, p. 3).

It is generally agreed that a qualitative research design is preferably used to explore and discover complicated social phenomena, and is able to find out the 'inner experience' of people (Corbin, 2015, p. 5) through the exploration of characteristics, reasons and the different dimensions of phenomena. A quantitative research design, on the other hand, values statistical, mathematical and numerical evidence that is obtained through objective measurements such as surveys or experiments to construct models, form generalisations and explain a phenomenon (Babbie, 2004). Quantitative research is interested in prediction and generalisation of the phenomenon rather than exploring or explaining the reasons and rationales behind the scene.

Apart from the knowledge claims and different purpose of the enquiry, qualitative and quantitative methodology are distinguished by their primary enquiry strategies, namely the data collection methods. Qualitative methodology mainly adopts observations, interviews, documents and texts analysis, and the researcher's impressions and reactions as the data sources (Myers, 2009), which are primarily subjective and narrative expressions. The qualitative strategies embark on exploring and understanding the underlying reasons, intentions and opinions of a research matter. As is pointed out by Bryman, "the most fundamental characteristics of qualitative research is its express commitment to viewing events, action, norms, values, etc. from the perspective of the people who are being studied" (Bryman, 1992, p. 61). Quantitative methodology, on the other hand, obtains data mainly from questionnaires, surveys, experiments and other numerical methods (Hittleman & Simon, 1997), finding out the relations between variables and making statistical analysis of data. Three major distinctions between qualitative and quantitative methodology are summarised as (Stake, 1995, p. 37): the distinction between explanation and understanding as the purpose of

inquiry; the distinction between a personal and impersonal role of the researcher; the distinction between knowledge discovered and knowledge constructed.

The distinction between knowledge discovered and constructed leads to different ways of reasoning, where qualitative takes inductive reasoning and quantitative follows deductive reasoning (Guba & Lincoln, 1994). Therefore, in qualitative studies, a researcher takes the core responsibility for the data collection and analysis and he/she is partially or fully immersed with the studied objects and the research (Bryman, 1992). Subjectivity and the researcher's bias hence become a notable disadvantage that has been criticised by the advocates of quantitative methodology; this limitation can be overcome by using triangulation.

3.3.2 Mixed methods research

Mixed methods (or triangulation), as a research strategy, is generally introduced to qualitative research designs to remedy the potential bias from using a single methodology (Graham, 2005). There have been discussions of defining mixed methods research and the discourse involves an emphasis on the characteristics of mixed methods and applying multiple 'methods' and a dialogue of whether to define mixed methods as a 'methodology' (Creswell, 2015), which shows the cumulative development trajectory and an increasing interests in applying mixed methods in the field. By asking 21 leaders in mixed methods research, Johnson et al. (2007) summarised their perspectives and offered a definition:

Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the purposes of breadth and depth of understanding and corroboration (Johnson et al., 2007, p. 123).

This definition articulates the main features of mixed methods and the purpose of using this approach. By applying several types of methods (whether it is qualitative or quantitative), multiple theories or investigating different data sources depending on the goal of the research and how the researcher sees the reality, in-depth understanding can be added to the studied phenomenon (Golafshani, 2003).

If both quantitative and qualitative methods are used to explore the same phenomenon, three possible outcomes are claimed to provide insights in adding validity, drawing upon multiple aspects and deepening understanding (Heale & Forbes, 2013, p. 98), which are: firstly, the results may converge and lead to the same conclusions; secondly, the results may relate to different objects or phenomena but may be complementary to each other and used to supplement the individual results; thirdly, the results may be divergent or contradictory. In either condition, the use of mixed method extends the breadth and depth of understanding and improves the validity and reliability of research results.

3.3.3 Rationale for mixed methods with qualitative stand

Qualitative research aims to study people in different contexts, focusing on understanding and making sense of the different meanings behind their behaviours, activities and decisions (Guba & Lincoln, 1994). In other words, it is generally adopted to explore an issue in a certain social or cultural context from the perspective of a selected group of people. This thesis is exploring how Chinese students experience the UK academic library in the Digital Age, which investigates behaviours and experiences of a specific group of people in the context. The broader context for this thesis is the Digital Age where digital technologies are transforming and impacting the way people interact with information; it also situates itself in the context of the UK HE system where the

academic library is at the heart of the system. The targeted group of observed, international Chinese students, bring their unique attitudes and perspectives towards the library and learning experience in UK, which forms another layer of research context.

This thesis explores how this group of people make sense of their contexts in the library experience and examines their needs, behaviours, perspectives and experiences in those contexts. It is the process rather than the outcome or result that is the researcher's interest; therefore, the position of this thesis is largely qualitative. However, as the thesis explores experience and behaviour, quantitative method of library log analysis is helpful in revealing human behaviour. Mixed methods research was, therefore, undertaken with a largely qualitative stand to investigate the research question via a range of evidence. A mixture of quantitative log analysis, cognitive mapping and semi-structured interviews were used, focusing on answering different aspects of the research question: library log analysis goes as a quantitative investigation in order to draw an overview of 'what students do' in the academic library and to inform the qualitative methods design; cognitive mapping, as the second phase and before interview, is an exploratory way to elicit personal reflections on the topic; and semi-structured interview, as the final step, allows participants to fix their thinking and goes in-depth to understand 'how and why students do' what they do. The three methods, sitting within an interpretive paradigm, complement each other to provide a holistic view on the research matter.

It should be noted that although a mixed methods approach including quantitative and qualitative elements, this is largely a qualitative research; a "thick narrative description" (Stake, 1995, p. 29), as is emphasised in the qualitative research, fits most to find out subjective expression and an interpretation of people's unique context. The constructed knowledge is not

the only truth by all groups of people but, rather, it works within different contexts by specific group of people (Simons, 2009). The aim of this thesis is not to provide generalisations but to furnish and develop knowledge within specific contexts. It is a phenomenon that can hardly be studied by experimental designs or statistical analysis; therefore, a largely qualitative stand rather than a quantitative one better fits this research to meet the aim.

3.3.4 Context for the research: UCL

University College London (UCL), as the research context, was selected to learn about the research matter. It was chosen as it represents a global university where an international strategy is deployed to cultivate a global outlook and to promote academic quality and success (UCL, 2017). As one of the 24 Russell Group members, UCL performs as one of the best with 43% of the research rated world-leading and a further 39% rated internationally excellent (Russell Group, 2020). With a high ranking in research and teaching, the students it recruits are relatively high achieving. Situated in the 'Knowledge Quarter'¹³ of London which is clustered with over 100 academic, cultural, research, scientific and media organisations, UCL has an exceptional art and history backdrop and easy access to massive cultural resources.

It has a long history of education inclusion and equality of experience as the first university in England that welcomed students of any religion and women to university education (Preston, 2019). A diverse student base is maintained in UCL to enhance global engagement and an internationalised horizon. Inclusive teaching is underlined in both Undergraduate (UG) and Postgraduate Taught (PGT) programmes to enhance the equality of the learning experience, while the PGT programmes also strengthen and enhancing research skills and

¹³ The focal point for one of the greatest knowledge clusters anywhere in the world, located in a small area around King's Cross, the Euston Road and Bloomsbury.

capability. Chinese students are an essential group within UCL’s population of international students; year on year they are a high percentage among the UCL international students, especially in PGT programmes. The table below illustrates those for the one-year PGT programmes (see Table 4 below for a summary of non-UK student statistics given by UCL) (UCL, 2020b).

Table 4 Chinese PGT student statistics by academic year in UCL

Academic Year	Chinese PGT student number	Total non-UK PGT student number
2015-2016	2463	8094
2016-2017	2811	8416
2017-2018	3620	9310
2018-2019	3895	7625
2019-2020	4790	8530

From UCL’s official statistics on non-UK student numbers, the percentage of Chinese students who take PGT programmes has increased yearly from 2015 to 2020 (see the Figure 15 for Chinese PGT student’s percentage among all non-UK PGT students). This increasing scale of international Chinese students in the case context—UCL, ensures a strong body of data for Chinese students’ library experience and also enhances the representativeness of this particular ethnic group.

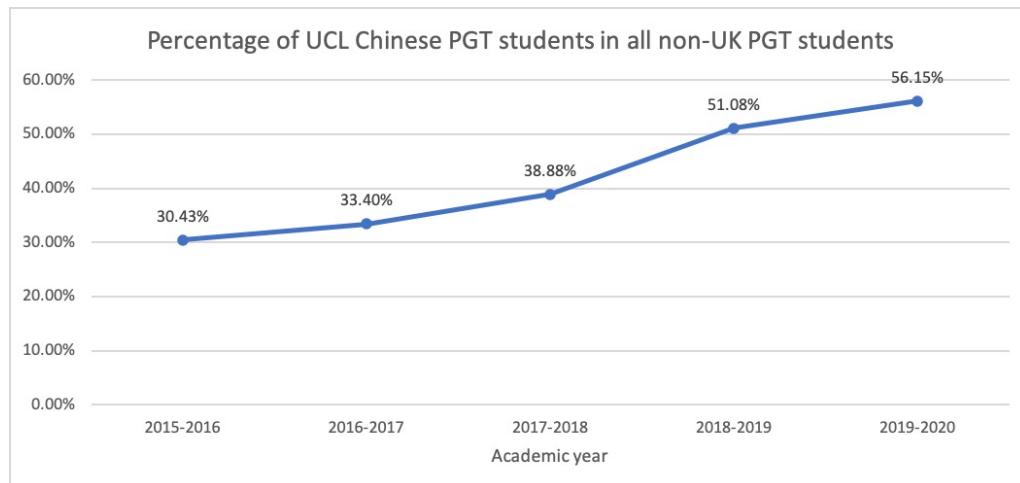


Figure 15 Percentage of international Chinese PGT students

The context of UCL is selected to learn about the research matter for its capability of richly manifesting the phenomenon to help with thoroughly investigating the research question—how a specific group of people (high achieving international Chinese students) experience the academic library in a set context in the Digital Age (UCL within the UK higher education system). Their behaviours, perceptions, experiences and feelings in the environment of the academic library is not controllable and there is no hypothesis before undertaking this research (see Table 5 below for a detailed description).

Table 5 Elements for this qualitative research

Element	Description
Subject investigated	Chinese students taking one-year PGT programmes in UK
The design	A purposeful design (Labaree, 2020): a research context of UCL and a specific group of people is chosen with a purpose to get valid manifestations of the phenomenon being studied
Studied in context	Students are studied in the context of the academic library and there are contextual variables that bound their activities, including: -organisational variable: University College London -educational variable: UK higher education system

	-cultural & social variable: learning in UK, a different culture compared to China
Collection of data	A pilot study: to test research methods and inform process design; Mixed methods: multiple approaches of inquiry are used to get 'thick description', including library log analysis, cognitive mapping, and semi-structured interviews

The subjects investigated in this research are Chinese students who take the postgraduate courses in UCL. The study explored each person in terms of the cultural, educational and social factors and these influences on the wider population. This specific research context and the population were chosen for several reasons: firstly, as a student who studies at UCL, the doctoral candidate has the first-hand experience of learning in this institution and its academic library. Being an international Chinese student who had UG education in China, PGT in UK and now learning in London, the researcher has sufficient understanding and personal experience, which can add value to the research. Secondly, this doctoral candidate's ability to access the UCL library staff and library log data adds feasibility to the selection of this research context. More importantly, the value of this doctoral research would provide UCL library with professional evidence to better understand its service delivery and its users. What is more, as mentioned in 2.2.2.1, the enlarged scale of the internationalisation of the student base in UK universities is motivating more research to have a cross-cultural perspective and to look into diverse cultural groups. The significant population of Chinese students in HE institutions in UK means that they represent a population which needs to be catered for in terms of their educational needs in order to enhance their learning experience. Particularly, the selection of international Chinese PGTs for cognitive mapping is mainly to let them reflect on their library experience in a visual form with

less constraint on language and to potentially reflect on their wider UK education experience.

This thesis uses multiple approaches, including log analysis, cognitive mapping and semi-structured interviews, to learn thoroughly about the subjects' experience in this research context and to improve the validity and reliability of data. The choice of research context and purposeful design is the most appropriate strategy for this scale of sample choice and depth of investigation in consideration of a three-year doctoral research project.

3.4 Research design and research methods

Research design is the logic behind the research, describing how a study is being conducted. It plans out the important components that work together to answer a research question, including techniques, measures, samples or groups, etc (Yin, 2014).

Every research method can be used for all three purposes - exploratory, descriptive, and explanatory studies (Yin, 2014, p. 5).

The choice of the research method, however, is not meant to be exclusive and it is always a trade-off in balancing the drawbacks of different methods. In answering the research question for this doctoral thesis, a mixed methods approach with a qualitative stand is adopted to plot out the research design with the aim to explore the subject matter on a group of people in a specific research context. The Figure 16 below represents the research design for this study, showing how the research is evolved to answer the research question.

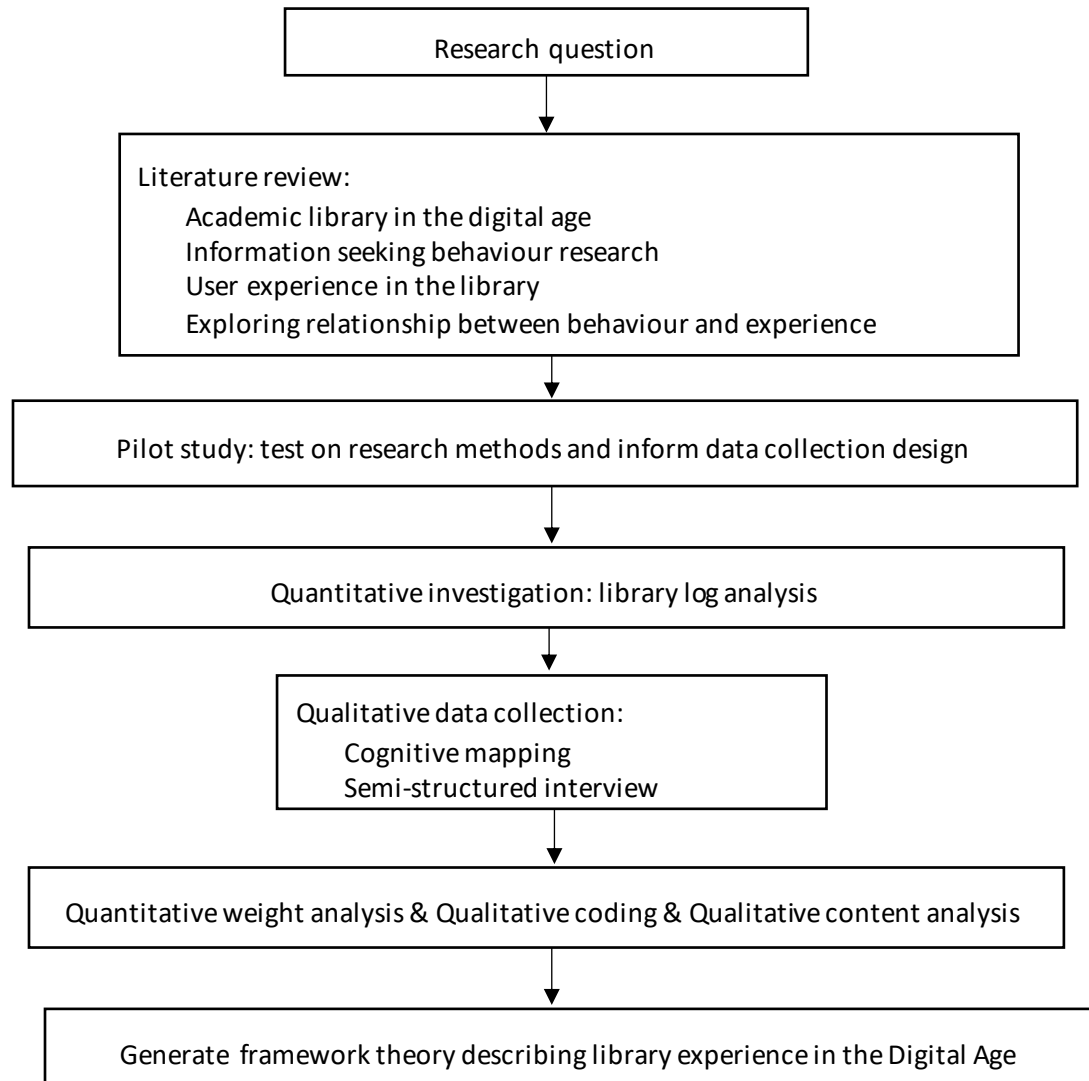


Figure 16 The research design

To explore the research question, the related areas of literature are reviewed to set out the scene; a pilot study is used to test the research methods on a small group of people and to inform the session design for qualitative data collection. Mixed methods of three research methods are selected to look into the research matter, including library log analysis, cognitive mapping and semi-structured interview. They are selected because of their capability for facilitating each other to reflect on participants' behaviours and subjective experiences, as is summarised in the Table 6 below. Data from library log analysis, as a quantitative investigation into students' behavioural statistics in the digital library system, indicates what users are doing in the library system, revealing their behaviour and activity and showing an overall view on the

digital library usage status. The other two qualitative techniques, cognitive mapping and semi-structured interviews, are the primary research methods where the data are mainly subjective responses, reflections, attitudes and perspectives.

Table 6 Overview of research methods

Method	Purpose
Pilot study	To test the research methods (cognitive mapping as the former and semi-structured interview as the latter); To inform the sample choice and interview question design
Log analysis	To investigate what library users are doing in the library system; To identify any behavioural differences of Chinese students
Cognitive mapping	As a sense making tool, to explore contextual factors of library experience and potential wider UK education experience; To elicit expressions, stimulate dialogue and prepare for further exploration in the interview
Semi-structured interview	To explore how participants make sense of their experience in the academic library; To explore subjective responses and explanations towards the experience

3.4.1 Contextual factors

In planning out and undertaking the research, contextual factors were considered in relation to the research question for this particular doctoral project were considered and evaluated, and consequently shaped the research design and findings.

The first contextual factor is in relation to the wider context which is changing constantly and unpredictable and need to be considered in evaluating the research findings. There was a dramatic change in library service delivery and students' learning, due to the impact of the outbreak of COVID-19 in March 2020 which changed the way people worked and studied overnight. With more library building closures, the library system maintenance and the way of delivering its service was challenged with evolving user expectations. What's more, with most of the teaching going online, students, especially international students, were learning from their home country, which has brought a change in their library and learning experience in terms of receiving skills training and seeking information they need. In this thesis, the data collection was conducted before this Covid-19 pandemic, and as such students' behaviour and experience were found in the context of the 'normal' conditions. However, the remote use of library system explored nevertheless still provides insights into the new condition.

The second factor relevant to the research matter is the consideration and analysis of the regional differences, family background, educational background or gender of participants in influencing the library experience; these may have an impact on education quality, past library experience and their existing knowledge and skills and hence their ability to successfully adapt to a new educational system (Jacob & Holsinger, 2009). This thesis examined the international Chinese students who had an UG education in China and were enrolled on a one-year PGT programme in UK, which only ensured that they have past library experience in their home country and a reflection on the library experience in the two countries. During the data collection, participants' UG university and their gender were recorded with the initial thought to evaluate the impact from those contextual factors on their library experience; however, when analysing data, their behaviour, experience and expectations

were found to be similar to each other and there were no comparison groups to help assess the impact from certain factors. Notwithstanding the possible impact from the regional disparities that generally exist among Chinese students (Liu & Ma, 2018), considering the thesis aim was to explore and discover the phenomenon rather than to examine or generalise, this factor was omitted in analysing data on purpose to focus more on the commonality.

The third contextual factor is brought about by the stand of the researcher in interpreting the data. In analysing the data, it is found that most of the Chinese students engaged in the study reflected some skills' gaps in seeking for information; instead of improving their information literacy and retrieval skills, they hoped the library could help them with language and provide them with the information they needed for their studies. As this thesis explores how they experience the library, including what they expect from the library, the researcher only interpreted their thinking based on their responses. However, as educators, it should be noted that there are skills we need to provide to them through training and support so that they can perform and harness their full abilities personally.

The last factor that has been considered and evaluated during the research design is about the continuing library system advancement in UCL since 2017. The UCL Library has been improving its library system to meet users' requirements, and the continuing system advancement may cause a time lag in reflecting user experience. Due to the doctoral study time scale and staging, the library log data (see Chapter 5) that revealed partial Chinese students' behaviour was obtained from the academic year of 2017-2018 as it was the first stage of this doctoral study and served as the quantitative underpinning for the later qualitative data collection. The Chinese students, however, engaged in the qualitative data collection (see Chapter 6) were PGT students

in the academic year 2018-2019 as this was the second research stage, therefore, it should be noted that a time lag exists in the research data and so a sample difference is inevitable even though the participants come from the same ethnic group (Revelle, 2000).

Each of these contextual factors is noted for full transparency and to inform the thorough consideration of the strength and limitations of the research design. It is noted that no one research project can provide a complete picture. However, these choices made in considering the contextual factors hold up as strong decisions that did open and bring new knowledge to this domain.

3.4.2 Log analysis

In computer science, log is a buzz word to describe the usage data of a system or application (Agosti et al., 2012). By showing the interaction between the system and the user, log analysis is commonly used to find out what users actually do rather than what they say or think they do in the system, revealing their behaviour and preference during the interaction with the system. An application and other associated techniques that logs users' behavioural data on the website are used by researchers to learn about users actions on their system (Jansen, 2009). This goal of studying users is normally fulfilled by answering three types of questions (Agosti et al., 2012, p. 665): how users make their requests to the search engine; how users interact with the search engine; how the search engine organises the results.

Library websites, or digital library systems, are conceived to be very different from normal web search engines. Web Search Engines (WSE), are defined as tools that "deal with the representation, storage, organisation of and access to information items which are essentially web pages" (Agosti et al., 2012, p. 665). Whereas digital libraries hold collections which are more structured,

organised and described in a tidier way by expert librarians. Search engines such as Google uses Natural Language Processing (NLP) which takes care of information at scale across languages (Bohn, 2019); while most library systems rely on 'faceted' searching (Tunkelang, 2009). Log analysis is commonly used as an important source to know how library users are using the digital library resources and how the digital library system performs in this process (Agosti et al., 2012).

The formats of the log can be varied, but they are mostly reports that contain behavioural and contextual data (e.g: operating system, browser type, etc.) (Jansen, 2009). Once the log data is obtained, researchers explore the value by reporting and analysing it. Reporting, "is somewhat straightforward and generally involves compiling data in some aggregate way for clarity and simplification" (Jansen, 2009, p. 3). While for analysing, the goal is to find patterns, discover problems, optimise the process and ultimately improve the system design. The users may behave and interact with the system in different ways, which are led by their cultural background, previous knowledge and related experience of using similar systems. Thus, the aim of log analysis is not to find the 'truth', but to discover the diversity of behaviours and to uncover the complexity of human being. There are five essential aspects of the users that should be looked into through log analysis (Tidwell, 2006, p. 6): the users' goals in using a system; the special tasks undertaken in order to achieve some goals; the language or words used by users to describe their tasks; the users' skills at using a certain kind of system; the users' attitudes towards using the system and how different designs may influence these attitudes.

In the field of library research, log analysis is regarded as an indispensable tool to learn about library users, understand their needs and improve the library system design (e.g: library catalogue; library website; other related web

applications) (Nicholas et al., 2000). The emergence of the Online Public Access Catalogues (OPAC) brought with it the introduction of library user log analysis research in the mid 1980s (Villén-Rueda et al., 2007). Log analysis is frequently used in the context of academic libraries to learn about the search behaviours of varied university library users (Villén-Rueda et al., 2007), or in researching user behaviour in more advanced digital library systems that contain multiple forms of resources (e.g: multimedia resources, newspapers, archives etc.) (Agosti et al., 2012; Gooding, 2016).

Apart from revealing behavioural characteristics of users, log data often enables certain information or background about users, for example, the language they use, their nationality, the operating system, the geographical information about their usage, etc. Combining user information with their behaviour, researchers can therefore make 'assumptions' about users, such as their context of usage, the barriers they may encounter or the factors that may influence the use of the system.

To conclude, log analysis is a robust method to find out who are the users, how they interact with the system, what they do and how they fulfill their needs. Investigating what users do is crucial for the web builders and librarians to learn about users, uncover their needs and create effective, usable and friendly systems. However, log analysis can only reveal the usage status, but not the reasons or experience behind it. It has the capability of representing an overview of what users are doing, which provides a starting point for researchers to get to know the users. However, to fully understand their need, motivation, experience and feeling, other qualitative methods that focus on in-depth investigation where subjective expressions and narrative explanations can be elicited should be accompanied to get a holistic understanding of users (Agosti et al., 2012).

3.4.2.1 Rationale for choosing a log analysis

With the research aim to explore Chinese students' library experience, 'what they do' in the library constitutes an essential part in drawing the picture, not what they say they do nor what they think they do. There is a gap in the existing literature that looks into information seeking behaviour in digital library systems for specifically Chinese students; therefore, a preliminary investigation on the library logs is necessary, serving as the very first step in the data collection to know about what users are doing. The library log data from all users and the majority of Chinese users who can be identified through a part of user information (including the country they access the library system and their device system language) provides a comparison between Chinese users and other users. With the research context of UCL, this log analysis is valuable in uncovering diverse user types and their behaviours. Nevertheless, results from log analysis can only reveal part of their information seeking behaviour without showing the reasons, intentions or other subjective aspects that constitute the holistic library experience. Therefore, the other two qualitative methods are also selected to probe further into the research matter.

3.4.3 Cognitive mapping

The term cognitive mapping was first introduced in 1948 by psychologist Edward C. Tolman who researched into finding how cognitive maps help human and animals find their way in a complicated environment differently (Tolman, 1948). In his study of learning how rats and humans use cognitive maps to find a route in a maze, he found that the difference they showed between representations of their cognition and the actual physical environment could demonstrate the elements they consider important (Tolman, 1948). In the 1950s, George Kelly, who is also an American psychologist, put forward the personal construct psychology theory, which

provided a new perspective on solving the problems of personal and organisational relationships by using cognitive mapping (Eden, 1988). The way people understand and react to a context or problem is largely dependent on how they 'construct the world', and this also influences their behaviour (Kelly, 1955).

From the 1970s, extensive research on cognitive mapping and its relationship with human spatial behaviour was carried out by behavioural geographers (Downs & Stea, 2011). Although at that time, researchers from different fields adopted the concept of cognitive mapping in their research, there is a general lack of in-depth discussion on its nature. Downs & Stea offered a formal definition of cognitive mapping as,

a process composed of a series of psychological transformations by which an individual acquires, codes, stores, recalls and decodes information about the relative locations and attributes of phenomena in his everyday spatial environment (Downs & Stea, 1973, p. 8).

They emphasised the forming process of cognitive maps, which is described as a complete mental process with five stages of acquiring, coding, storing, recalling and decoding. People get in touch with information from complex, changing and unpredictable sources in their everyday life and take in information by imperfect information processing ability and different levels of understanding. Through this comprehensive process of receiving, storing, merging and decoding, people can form their own internal representations of the world (Downs & Stea, 1973, pp. 9–10). This process is defined as cognitive mapping and the product of this process is regarded as cognitive maps. This definition also indicates a connection between cognitive mapping and the sense-making process; the psychological process happening through the forming of cognitive maps can be understood as the mental reactions when people make sense of the phenomena around them. They encounter unfamiliar situations and get in touch with information, understanding and

processing it in their own way, while the cognitive map is just one form of their expression or representation of this sense-making process. It is also indicated that the cognitive process is continually changing with one's growing up and learning experience (Downs & Stea, 1973). In their research, Downs and Stea, also indicated that people's cognitive maps can be essential when making spatial decisions and reacting in some forms of behaviour in the environment (Downs & Stea, 1973). It can be manifested in everything, from individual decision-making to the attitude towards the world (Golledge & Timmermans, 1989). This initial definition of cognitive mapping has similar implications with cognitivist's view on learning. Learning, from a cognitivism perspective, is viewed as a whole mental process of receiving, organising, storing, and retrieving information in the mind (Marx et al., 1985). For cognitivists, the learner is at the centre of the learning process, playing an active role in mapping personal beliefs, attitudes, values and cognitions upon mental activities (Doolittle, 2014). Both cognitive mapping and learning are treated as mental process from input to output of knowledge with some transformative effects brought by personal experience.

In another geographer's research on mental image, cognitive mapping is described as a process of using past knowledge and experience to understand and deal with current and future situations (Downing, 1992). People encounter information and learn from their surrounding environment in either conscious or unconscious ways; they use such cognitive knowledge to instruct their present and future life, which holds the view that people receiving information from the outside world, construct knowledge and create subjective representations from their own experience and understanding (Jonassen, 1991). They believe that individuals understand the world from their personal experience; that is, they do not simply receive knowledge from the outside world, rather, they form their personal unique reality based on past experience

(Ertmer & Newby, 2013). This learning process or knowledge acquisition is the result of the reconstruction of existing knowledge and new experience. As concluded by Doolittle, “learning is the adaptive and self-organised construction of knowledge that is a function of both one’s prior knowledge and experience, and one’s current socio-cultural activity” (Doolittle, 2014, p. 487). That is, the knowledge people form through learning is not an accurate reflection of the information they get, but rather, it is a self-regulated process in light of their past knowledge and experience (Doolittle, 2014). This learning process is similar with the forming of cognitive maps.

The term ‘cognition’ is defined by Rosenthal & Zimmerman (1978, p. 2) as the “way people perceive and interpret events”. Individuals react to the situation based on their existing knowledge and belief. Cognition is also described as a process of refining information (Rosenthal & Zimmerman, 1978). It is formed through accepting, storing and retrieving information during learning activities. The term ‘map’ here does not refer to the ‘pictorial graphic model’, but means the process of forming the cognition of the outside environment and the representation of such cognition (Downs & Stea, 2011, p. 313). It is pointed out that ‘map’ in cognitive mapping means the mind status of participants, thus it can be a “mind map or text based” (Priestner & Borg, 2016a, p. 14). Therefore, the quality of the map is not decided by the drawing but depends on the contents or elements highlighted by participants.

In Kitchin's (1994a) review of cognitive mapping, there are four viewpoints on the form of cognitive maps. Because of the term ‘map’, researchers understand it in different ways, such as a cartographic map, a map-like presentation, a map in the mind and a hypothetical construct which has no literal meaning (Kitchin, 1994). The researchers who put emphasis on the map’s geometrical and Euclidean characteristics argue that cognitive maps are

cartographic maps and this point of view stems from psychology studies on animal wayfinding activities (Kitchin, 1994). The most commonly believed viewpoint takes the cognitive map as a map-like presentation or a map in the mind. In the research of social science, these two understandings of cognitive map are commonly accepted. Understanding it as a map-like presentation, researchers state that cognitive map is, “far from a cartographer’s map; however, it is schematic, sketchy, incomplete, distorted and otherwise simplified and idiosyncratic” and it is “a product of experience, not of precise measurement” (Kaplan, 1973a, p. 276). They argue that it is a presentation of people’s mind, integrating information and knowledge to form a representation, which has some map-like qualities. While researchers who understand a cognitive map as a map in the mind, use this term as a metaphor. In their viewpoint, a cognitive map is something that is stored in people’s mind including abstract conceptual relationships (Kaplan, 1973b). Some researchers use this term as a hypothetical construct which refers to “a non-observed processes and organizations of elements of knowledge” (Moore & Golledge, 1976, p. 8). This understanding of cognitive map makes it contain more meanings and elements. The viewpoint adopted for this research is that cognitive maps are map-like representations of people’s mind.

Cognitive mapping holds a multidisciplinary nature as is indicated by Kitchin (1994) who reviewed its application in different academic fields and contexts, including geography, psychology, cognitive science, sociology, anthropology and education. For the psychologist, it is apparent to see the sequence of thinking, the elements that are missed out and the important level of different elements from cognitive maps. In geography, cognitive maps are used to learn about user’s knowledge of a particular place and how they find their way in an environment (Bullingham, 2015). Geographers can then find out whether a place is well known or not by its specific users and improve the design of the

architecture accordingly (Kitchin, 1994). In the field of social science, it is used in a more general way to map how people understand the world (Pinch et al., 2009). Because of this multi-disciplinary feature, it can be applied in a variety of academic fields and it can integrate knowledge from different disciplines.

In the library context, cognitive mapping is known as one of the ways to get rich data in a short time. Kitchin & Freundschuh (2000) pointed out that cognitive mapping can be used to comprehend how people understand the spatial relations gained through primary experience and secondary media. In some cases, it is also used to get the drawing of people's cognitive process and to discover how people understand the environment that surrounds them (Kitchin & Freundschuh, 2000). From around 2000, this method started to be used in the context of academic libraries for studying library users' behaviour in the way they interact with the resources and services provided by the physical or digital library (Asher & Miller, 2013; Duke & Asher, 2013; Horan, 1999; Lanclos, 2013). One of its successful applications is from the ERIAL Project (Ethnographic Research in Illinois Academic Libraries)¹⁴, where 137 students from five ERIAL campuses engaged in the study and drew representations of their impressions of the library. Also, a toolkit document was generated during the project, outlining a detailed instruction on how to use ethnographic methods in the library including cognitive mapping (Asher & Miller, 2013). Donna Lanclos is another anthropologist who made significant contributions to library UX research by conducting ethnographic methods, especially with cognitive mapping (Lanclos, 2013; Wu & Lanclos, 2011).

To conduct cognitive mapping, participants are asked to sketch out their opinion on a piece of paper using three different colour pens in six minutes. They are required to change the colour of the pen every two minutes to show

¹⁴ See more at <http://www.erialproject.org/project-details/methodology/>

the sequence and importance of their drawing. A follow-up interview is often used as a complementary method with cognitive mapping to get participants to explain their drawing and discuss the topic in detail. Through labelling the elements on the drawing and discovering the reason behind the scene, researchers get in-depth and sometimes unexpected answers and perspectives from participants (Priestner & Borg, 2016b). Cognitive mapping, as a research method, has its unique advantages, such as: it is a beneficial way of dealing with someone's position in the world, especially with people whose first language is not English and by drawing, language constraints can be avoided; participants make a direct contribution in a speedy way (participative relationship), they generate the research output directly and there is no wrong result; it is easily adaptable to difference context and research topic; the usage can be in diverse forms and can be adapted to different research methods; it is an effective approach for stimulating dialogues and exploring relationships (Emmel, 2008).

3.4.3.1 Rationale for choosing cognitive mapping

Cognitive mapping, as the second research method in the data collection for this thesis that goes before the semi-structured interview, is selected for several reasons: firstly, as the research subjects are Chinese students whose first language is not English, cognitive mapping is chosen as an elicitation tool for them to freely draw up their library experience without worrying about language or narrative expressions. Cognitive mapping goes before the semi-structured interview as it is a more open exploratory way to explore the scene in the first instance; rather than fixing their thinking in a spoken process, cognitive mapping allows participants to express themselves in an unconstrained form, where real feelings and unexpected findings can be obtained. Finally, the use of cognitive mapping with PGT Chinese students may reflect their potential wider UK education experience and, therefore, any

unexpected elements, including the ones that may reflect their wider experience that appear on the map, can be explored further in the later interview.

Different from a concept map, which is structured, organised and created for common understanding, the format of cognitive maps is diverse and individual-driven. There is no settled rule for drawing up cognitive maps, and whether it is graphic or textual is dependent on individual's personal preference of describing and expressing themselves. Therefore, before the start of drawing, the researcher plays an important role in explaining the research landscape and guiding this activity towards the research question that needs to be answered. The drawing topic for cognitive mapping is given with a brief explanation about the topic. With this orientation led by the researcher, the participants and researcher build a mutual collaborative relationship in making sense of the research topic. Consequently, despite the presentations of the cognitive mind are distinctively different, the elements they include in the maps have characteristics in common.

3.4.4 Semi-structured interview

Interviewing is regarded as a commonly used data collection method in qualitative research (Simons, 2009). It gives the researcher the opportunity to get to the core issue quickly and deeply by enabling participants to elaborate on the topic and tell their own stories (Simons, 2009). The conversation with the interviewee can generate rich narrative data and elicit specific and constructive thinking about the issue.

Semi-structured interview provides some control from the interviewer on the interview process but also on the development of anticipated information. If all the questions are structured, then interviewer has the total control; while

during semi-structured interviews, unanticipated information may evolve and some extent of bias may be removed. The latter assists in understanding the data collected by discussing any unanticipated information further and add that data into the overall interpretation of other prepared questions. It sets the guideline of the interview script and asks both closed and open questions for participants. It gives the interviewer a path to follow that can make sure the scope of the conversation is large enough to cover all the questions that they wish to ask; but in the meantime, allows for space to explore more on the basis of the interviewee's response (Keller & Conradin, 2010; Newton, 2010). It is often used as a supplement to observation or cognitive mapping that gives participants space to explain or elaborate on their behaviour or the maps they produce. In the meantime, the interview questions that are related to the research topic can be designed to ask further questions and have deeper conversations with the people studied. Moreover, it has the advantage that the questions asked can be moved around and added along with the responses from participants (Priestner & Borg, 2016b).

To conclude, the semi-structured interview method is selected to explore reasons, motivations, views, feelings and other subjective aspects from participants as a complement to cognitive mapping.

3.4.4.1 Rationale for choosing semi-structured interview

Semi-structured interview is selected as the final method in this research to learn about student's library experience for several reasons: firstly, it has the capability to carefully investigate human experience in-depth by letting them elaborate on 'how and why'; it follows cognitive mapping because unanticipated elements that appear on the map can be further discussed in the interview and it allows participants to fix their thinking gradually. Importantly, the three methods, log analysis, cognitive mapping and semi-

structured interviews triangulate the data from different perspectives, working together to draw a holistic picture of Chinese students' library experience, which ensures the validity and reliability of thesis findings.

3.5 Pilot study

Pilot study in social science, is understood in two senses: as a small-scale study or a trial version that is prepared for the major study; it can also be understood as a test for research instruments (Teijlingen & Hundley, 2001). Pilot study is regarded as a safe way to identify any potential issues with the research protocol and is also an approach to provide insights into the research design (Lewis-Beck et al., 2004).

The pilot study, as the preliminary stage of this research, tested the reliability and feasibility of the research methods and process design through a small sample group; the sample size and the specific user group for the formal data collection were also determined. The research question of Chinese students' library experience was firstly tested with a narrow focus on one form of digital library—the mobile-accessible digital library system (namely mobile library) to investigate the possibilities for digital technology use in the students' library experience in order to test and further refine the research question. Six students from two different departments were recruited to engage in a session consisting of cognitive mapping and semi-structured interview individually to reflect on the topic: the future digital library development with mobile access in UCL (See an elaboration on the pilot study in Chapter 4). The data were collected and analysed through qualitative coding (see section 3.8.1) and qualitative content analysis; initial findings were obtained; more importantly, the research methods and investigation process were tested.

Through the pilot study, the research method—cognitive mapping followed by semi-structured interviews, was found to be an effective way to help participants deliberate on the research topic and of gathering abundant visual data in a relatively short time. Unexpected results can be found by using this method, which is beneficial when investigating library experience. However, different people have various ways of drawing up their minds and some people may find it difficult to draw up their thinking in a short time. A lesson from the pilot study is that several individual participants found it too sudden and were unprepared to start drawing a cognitive map upon hearing the drawing topic, which may have led to incompleteness of drawing. Thus, a short thinking preparation time (thinking for one or two minutes before starting drawing), is given to participants in the formal data collection to ensure they understand what they are being asked to draw about.

Cognitive mapping, as an effective start of the research, should be used along with other techniques to get deeper and complete data on people's inner world; by combining this with semi-structured interviews, the researcher can get participants to explain their drawing and ask questions based on their maps.

3.6 Data sampling

3.6.1 Sampling and data saturation

A sampling statement is essential for both quantitative and qualitative research in terms of helping the interpretation of findings and the replication of research (Kitson et al., 1982). In qualitative research, the sampling strategy has a decisive impact on the quality of the research (Coyne, 1997). However, there are no settled rules for choosing the sample, no matter in terms of the sample size or sampling strategies (Patton, 2002). The decision on the sample size is determined by “what you want to know, the purpose of the inquiry,

what's at stake, what will be useful, what will have credibility, and what can be done with available time and resources" (Patton, 2002, p. 244). The sample chosen for qualitative studies should be able to present and reflect the aim and purpose of the study; the guiding principle in determining the sample size in qualitative studies is claimed to be the concept of *data saturation*, which is developed from grounded theory (Bowen, 2008; Mason, 2010). Qualitative studies that are not concerned with statistical generalisation often use nonprobabilistic samples and purposive sampling is the most common sampling method in nonprobabilistic samples which rely largely on data saturation (Guest et al., 2006).

The concept of *data saturation* was first introduced to indicate the research stage where no new data can be found in developing the conceptual category in grounded theory, where "no additional data are being found whereby the sociologist can develop properties of the category" (Glaser & Strauss, 1967, p. 61). After that, the concept of saturation has been discussed considerably in other qualitative studies. What is generally agreed is that data saturation is achieved when there is "no new data, no new themes, no new coding and the ability to replicate the study" (Fusch & Ness, 2015, p. 1409). In other words, data saturation is reached at the diminishing point when no new information comes out with more data; after all, the essence of qualitative studies is not about frequency or quantity (Mason, 2010). It has been indicated that the deeper the researcher looks into a topic and familiarises with the data, there exists possibilities for the "new to emerge"; however, saturation emerges when the data shows "counter-productive" that "the new" does not add any value to the overall story, model, theory or framework (Strauss & Corbin, 1998, p. 136). Mentioned and appearing frequently in the literature of qualitative research, is that there is no unified standard on operationalising data saturation and confirming the sample size prior to data collection (Guest et al.,

2006). It is claimed by Lincoln & Guba, 1985 (p. 235) that the normal sample size of the interview research is a dozen or so and the number of 20 would reach saturation ; while in Guest et al., 2006 (pp. 59–82)'s interview study¹⁵, the number of 12 would reach data saturation. It has been pointed out that there is no 'one-size-fits-all' method to reach data saturation because the research design, aim and context are different from each other (Fusch & Ness, 2015). For example, as Charmaz (2006) claimed, a small-scale study that looks into a specific group of people is quicker to reach saturation compared to one based on a more general situation.

There are studies that explore ways to operate data saturation. An early attempt was from Romney, Batchelder, & Weller (1986), where they formed an analysis model called Cultural Consensus Model in their ethnographic study that could be used to determine the minimum sample size when 'cultural consensus' is achieved that the group of people studied shared common views on certain topics. This attempt provides the possibility for operationalising data saturation in practice. There are also researchers who identified factors that influence saturation and help to determine the sample size: for example, Morse (2000) pointed out the scope, nature of the research, the data quality and the research design are factors that determine sample size. Ritchie, Lewis, & Elam (2003) listed seven factors that influence sample size, including "the heterogeneity of the population; the number of selection criteria; the extent to which 'nesting' of criteria is needed; groups of special interest that require intensive study; multiple samples within one study; types of data collection methods use; and the budget and resources available" (Ritchie et al., 2003, p. 84).

¹⁵ A qualitative interview research about perceptions of social desirability bias and accuracy of self-reported behaviour in the context of reproductive health research.

Apart from the attempts to identify factors in determining data saturation, more work has been done in working out the guiding principles or approaches in this matter. Francis et al., (2010) proposed four principles in deciding saturation in theory-based interviews and illustrated how to confirm sample size by those principles. Saunders et al., (2018) reviewed the existing literature and summarised four approaches to saturation in qualitative studies, including theoretical saturation, inductive thematic saturation, *a priori* thematic saturation, and data saturation, which each have different saturation foci. As they claimed,

when used in a deductive approach to analysis, saturation serves to demonstrate the extent to which the data instantiate previously determined conceptual categories, whereas in more inductive approaches, and grounded theory in particular, it says something about the adequacy of sampling in relation to theory development (Saunders et al., 2018, p. 1899).

With no agreement on the standard way of operationalising saturation, researchers believe that it should be considered along with the research aims, questions to be addressed, theoretical goals and the research framework (Mason, 2010; Saunders et al., 2018). It is also believed that data saturation is important in theory-based interview studies to ensure the content validity with an adequate sample size (Francis et al., 2010).

Data saturation is one goal and intention of research; a principle in selecting samples is to get the representation of the group and stop when the phenomenon can be understood. Showing the saturation of the data collected not only represents the aim and focus of the research, but also demonstrates a sufficient level of investigation into the research topic.

3.6.2 Purposive sampling

When deciding the sampling strategy, the question we ask is “who or what do we want to hear from, and who or what do we not want to hear from” (Braun & Clarke, 2013, p. 56). The population we look into is based on the research question, the characteristics of the group of people, the information we can get from them and their unique experience of life that we wish to explore. As stated by Sandelowski,

when qualitative researcher decide to seek out people because of their age or sex or race, it is because they consider them to be good source of information that will advance them toward an analytic goal and not because they wish to generalise to other persons of similar age, sex, or race (Sandelowski, 1995, p. 180).

No matter which sampling strategy is used, the goal is to obtain useful information effectively and improve the validity of the investigation (Morse & Niehaus, 2009).

The purposive sampling in qualitative studies is not about reaching the wider population and generalising, rather, it is aiming at an in-depth investigation on the chosen data on the chosen group of people (Patton, 2002). The sample should be chosen in order to provide “rich information” (Patton, 2002, p. 230), which is led by the research question.

3.6.3 Sampling strategy and participants recruitment for this research

Purposive sampling is a typical sampling strategy in qualitative research, for its aim in selecting a specific group of people to provide rich information. Rather than generalisation, it is trying to identify any common patterns across the chosen sample in certain context of research (Patton, 2002).

In the first stage of this research, library log analysis, which investigates the library system data of all library users in UCL, was conducted to provide a

quantitative underpinning for the later qualitative data collection. Through comparing user data around system language and geographical information, the information seeking behaviour of most of the Chinese users was found (which is elaborated in Chapter 5). In order to explore reasons, motivations, and other aspects that constitute their overall library experience, cognitive mapping and semi-structured interview were conducted later on.

Purposive sampling is used to recruit participants with a focus on international Chinese students studying in PGT programmes in UCL in the formal qualitative data collection. For the purpose of this study, international Chinese students refers to students from mainland China and does not include students from HongKong, Taiwan, Macau and the disputed islands as the Chinese students from the mainland constitute the majority and the educational system in the mainland China is distinguished from those other areas where the education has a Western (colonial) influence. At the first stage of this doctoral research, it was initially planned to recruit 20 Chinese students from different departments in UCL in order to ensure the broadness and abundance of data with the goal to reach data saturation. With the data collection progressing, no new information emerged after the data collected from 15 Chinese students; in other words, their perspectives and experiences of using the academic library in UCL were found to be similar to each other among those 15 participants. Thus, the ultimate sample studied for this research was 15 Chinese students from nine different academic areas in UCL: literature, humanities, social science, engineering, education, medicine, economics, architecture and computer science (see *Appendix A* for detailed participants information with their departments and programmes). It should be noted that the Chinese student community at UCL is massive, and they come from different cities in China and are studying different subjects; thus, there is a limitation to the sample pool for this research. The 15 students in this research

are only an example of UCL PGT Chinese students whose library experience is also an example of that for the wider Chinese student community.

All the participants had their UG education in Chinese universities and, at the time of this research, were studying in one-year PGT programmes at UCL so have experienced the academic library systems in both countries. They were recruited by invitation emails sent via the departmental email lists and recruiting posts to UCL Chinese students group on the Chinese social media platform¹⁶ (WeChat) in the early April 2019 with a £10 Amazon voucher given to each one as an incentive. They were invited to participate individually in a one-hour session, which consisted of a cognitive mapping exercise and a follow-up semi-structured interview (See *Appendix F* for the research script for formal data collection sessions). All the participants engaged in the study individually from May to June 2019 in a quiet study room in UCL.

3.6.4 Ethical consideration

All the research should be conducted ethically and morally. To achieve the research aim should not harm the rights of the studied subjects (Neuman, 2014). The ethical approval (see *Appendix B* for research information sheet with ethical statement) for this research is threefold, including the one for pilot group, the one for library log data and the one for formal qualitative data collection.

Library log data

With the full support from the UCL library, especially the UCL digital libraries team, the library log data throughout the academic year of 2017-2018 was obtained, which shows all the UCL library users' operational data on the UCL

¹⁶ this is a closed group on the WeChat social media platform for most of the Chinese offer holders in UCL in that year

Explore library search tool. UCL library's participation added benefits and practical value to this research in terms of result reporting and add-on feedback. All the log data was anonymised and thus no risk in terms of ethical consideration. Nevertheless, accessing and storing of log data was carefully paid attention to by password protection.

Pilot study and the formal qualitative data collection

The pilot study was supported by the UCL library and UCL ChangeMakers¹⁷; it was approved by the UCL Research Ethics Committee as low risk study. The recruiting email for the pilot study was sent to PGT students in the Department of Information Studies (DIS) and UG students in the Information Management for Business (IMB) programme in UCL's School of Management without a constraint on nationality. It was mainly to test the research methods and explore the topic. Moreover, the link with the UCL library in the pilot study enhanced the reporting of pilot study findings and their feedback facilitated the design for the formal data collection.

The formal qualitative data collection was approved by the Research Ethics Committee in DIS at UCL, where the data was collected; and was qualified as low risk. Personal information was not collected, and it is worth noting that the Chinese community in UCL is considerably large with many similar names and therefore this minimised the risk of identifying individuals.

As the researcher who has the responsibility to protect personal information and make sure that any identifiable information should not be revealed, when collecting data, any details that could identify individuals were not collected (such as participants' names, addresses or student numbers, etc). The information sheet for the pilot and the formal study (see *Appendix B*),

¹⁷ See more at <https://www.ucl.ac.uk/changemakers/>

introducing and explaining the details of the research, were sent by email upon recruiting each participant and was reviewed again at the start of each session, which gave them enough time to take an informed decision on whether to take a part in the study (Marzano, 2007).

During the interview for both pilot and formal, a digital recorder was used to make sure of an accurate transcription of what was said during the interview. A research note was taken during the process to record any project-related issues. The recording was only used for transcription and data analysis, and was not used for anything else without the participants' permission. In this research, their nationality (in the pilot study), gender, UG university, and UCL PGT programme were recorded because these may be related to the research question and may be important factors that influence the findings.

3.7 Translation and transcribing method

Transcription is a common form of data source in qualitative research that utilises audio data. During the transcribing process, the researcher has to decide what and how to translate from recordings to written text (Ochs, 1979). The spoken language is very different from written language, which is messy and is presented in different ways. However, to transcribe is not to replicate, but to represent (Braun & Clarke, 2013). It is the product of the interaction between the recording and the transcriber, who makes the choice of what to keep and how to represent it (Braun & Clarke, 2013).

However, transcribing is always seen as time consuming and requires the input of effort and time (Cohen et al., 2007). With the development and application of Natural Language Processing (NLP), researchers now are using automated tools in transcribing recordings in the field of qualitative studies, which

transform spoken language into written language automatically. Unlike manual transcription, the automated tool cannot guarantee the 100% accuracy of the original speech in that context: “the research process will always be a trade-off between available time or means, and the quality of the transcript” (Bokhove & Downey, 2018, p. 3). Nevertheless, it is still able to provide a “good-enough first version” that saves a lot of time (Bokhove & Downey, 2018).

In this research, the cognitive mapping exercise was conducted in English, where the participants were asked to draw their map in English; while all the interviews were conducted in Chinese. This way of collecting qualitative data is innovative, but there are several reasons for using English and Chinese separately for the two methods: the cognitive maps were required to be drawn in English as the topic of drawing is their experience of using the UCL library system and services where the information is in English; therefore, it would be more accurate in drawing and describing the library experience in English in a short time given. What is more, as the elements that appeared on the cognitive maps were coded directly in the data analysis (see section 3.8.1), it was more sensible to use the exact words or phrases drawn by the participants, instead of translating them based on the researcher’s understanding. This is also a good way to see how the Chinese students express themselves and their experience in English, but at the same time, in a drawing activity, which would not give them too much pressure in expressing themselves. While the semi-structured interviews were conducted in Chinese as previous research has found that conducting interviews in English with those whose first language is not English causes issues with reliability and validity (Marshall & While, 1994). Their understanding of the questions and free expression may be constrained because of the language. Therefore, in order to make the participants feel

comfortable and at ease to express themselves, Chinese was used during the interviews.

The translation process for the interviews was troublesome in terms of translating the most accurate meaning of participants' expressions in Chinese (See *Appendix H* for a sample of interview transcription and corresponding translation). A popular Chinese NLP transcribing tool (Li et al., 2019), XunFei (讯飞) from iFlyTek company¹⁸, was used to automatically transcribe all the interview recordings into Chinese text. The machine transcription cannot guarantee the 100% accuracy, especially with Chinese that the meaning depends largely on the language context; therefore, all the recordings were listened to again and checked for accuracy by the researcher. All the Chinese transcriptions were then translated into English manually (see figure below for the process).

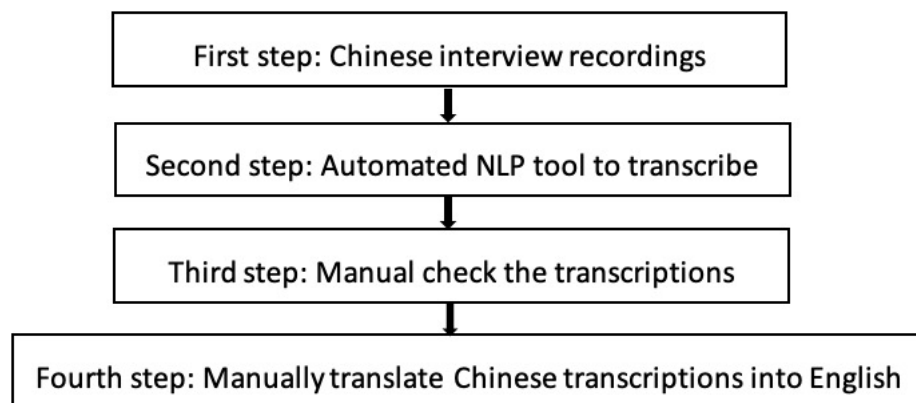


Figure 17 Transcribing and translating process

Regarding the ethical issues with the NLP platform, Xunfei has a privacy regulation that protects the data uploaded by its user.¹⁹ All user profiles are anonymised and stored on the server located in China. The data and files

¹⁸ A product from iFlyTek, a partially state-owned Chinese information technology company; see the website at <https://www.iflyrec.com/>

¹⁹ See details at <https://www.iflyrec.com/html/helpCenter/privacyPolicy.html>

uploaded were stored with a password set by the researcher (user) and the platform saved those data until the user deleted it after the use. Upon getting the automated transcriptions, the researcher saved them onto a local work laptop with password protection and deleted the files on the Xunfei platform.

3.8 Data analysis

Qualitative data analysis is the process of interpreting the data and finding out the meaning from the narrative descriptions and expressions (Bazeley, 2013). The interpretation brings in the researcher's personal experience, skills and knowledge formed in everyday life and this interpretative process goes beyond descriptive analysis. The researcher's cognitive and intuitive insights are reflected in the interpretation where they make sense of what has been learned (Simons, 2009). Analysis of qualitative research is aimed at building explanations and generalising theories (Yin, 1994). Meanings and themes are identified to explain a matter and construct hypotheses.

3.8.1 Qualitative coding

Data do not speak, and themes do not emerge by themselves. By coding, the researcher finds and gives meaning to the data (Gibbs, 2007). Coding is defined as "a process of identifying aspects of the data that relate to your research question". It can either be selective coding that only picks out partial data that the researcher is interested in or complete coding that codes "anything and everything of interest or relevant to the research question" (Braun & Clarke, 2013, p. 206).

Codes identified in the data are "tags or labels that assign units of meaning to the data and for the quick identification of the segments relating to the research questions and any potential themes" (Miles & Huberman., 1994, p.

56). They are generally a word or a short phrase that “symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (Saldana, 2016, p. 4). The name of codes can be descriptive or explanatory, concrete or abstract, depending on the level that can reflect the accuracy of data (Simons, 2009). Researchers also divide the codes into the semantic codes (data-driven) and latent codes (researcher-driven), representing coding the explicit expression of data or coding the implicit meaning within the data that requires the researcher’s “conceptual and theoretical” knowledge (Braun & Clarke, 2013, p. 207). The coding process can “summarise, distil or condense data, but not simply reduce them” (Saldana, 2016, p. 5). During coding, both semantic and latent codes can be created and organised into a standard format according to the level of analysis and the needs of research. Codes are connected and corresponded to propositions, which come from the pre-existing theoretical framework or perspectives of grounded theory (Simons, 2009). The initial codes should be created according to the original propositions that can address as many research questions as they can (Yin, 1994). During coding, categorising can also be used to sort and group the codes into more theoretical expressions that is easier to analyse in a straightforward way, which is referred to as the ‘expanded codes’ in the process (Miles & Huberman., 1994). After the analysis of codes and data, propositions may be revised and new theory may emerge from that.

3.8.2 Cognitive maps: weight analysis via F/P index

As the method of cognitive mapping involves different individuals’ use of three coloured pens in sequence in the six minutes time frame, with more maps gathered, additional perspectives can be explored through quantitative weight analysis across the maps to find the commonalities and instant reactions by individuals.

The weight analysis takes the quantity and position of a code (for example, a label, word, or part of the map that presents an independent meaning, like Figure 18 shows) that appears across all maps into account through the calculation of the F/P index, which stands for Frequency/Position index.

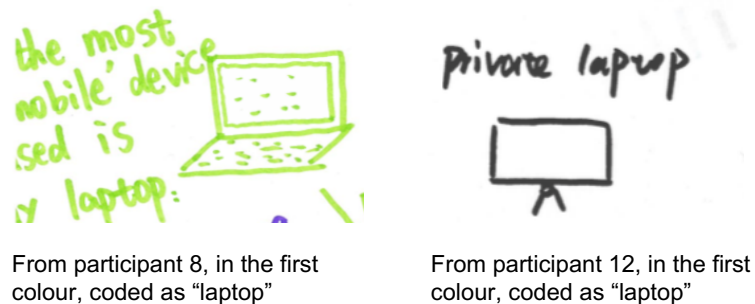


Figure 18 An example of a code

This calculation approach is borrowed from Asher (2013) in his cognitive mapping study that looks into the library physical space. By taking the temporal sequence of code appearance (change of pen colour) and the total appearance of codes into consideration, participants' instant reaction and flow of thinking can be traced. The frequency represents the total number of times that a code appears across the maps; the mean position stands for the temporal sequence of a code that is calculated by the average number of all the positions a code appears across the maps. Mean position and F/P index are then calculated through the following formula:

$$\text{Mean position} = \frac{\text{Colour A} + (2 * \text{Colour B}) + (3 * \text{Colour C})}{\text{Frequency}}$$

$$\text{F/P} = \frac{\text{Frequency}}{\text{Mean position}}$$

The higher the number of frequency and the lower the number of position leads to a high F/P index, because the higher F means more frequent appearance and the lower P means the earlier sequence. Thus, a code with a higher F/P index suggests participants' instant thinking of the drawing topic by

which we can infer the important elements they pay most attention to around the drawing topic or the issues that they value most. Weight analysis is valuable in terms of reflecting instant reactions and identifying problems through assessing a number of maps.

3.8.3 Interviews: thematic analysis or qualitative content analysis

When speaking of the data analysis approach in qualitative research, Thematic Analysis (TA) and Qualitative Content Analysis (QCA) are the two that have been used widely and sometimes interchangeably with vague distinctions between them (Vaismoradi et al., 2013). Both TA and QCA hold a philosophical perspective of 'factist', that embarks on finding out the facts of the world, the behaviour of people, their views, experiences and motivations under a certain context (Have, 2004; Sandelowski, 2010). In this research, QCA is used to analyse the cognitive maps and interviews; in order to explain the reason why QCA is chosen, it is better to look into both analysis approaches and see the boundaries between them.

Thematic Analysis (TA) is a flexible data analysis method that is defined as "a method for identifying, analysing and reporting patterns (themes) with data" (Braun & Clarke, 2006, p. 79). It has four forms of variations, which are inductive TA (analyse from bottom up), theoretical TA (analyse based on the existing theory), experiential TA (focus on personal experience) and constructionist TA (focus on how the topics are constructed); each one represents a way of doing thematic analysis (Braun & Clarke, 2013). The core focus of using TA is to generate rich, detailed and complex descriptions and exploration of narrative materials (Braun & Clarke, 2006). Qualitative content analysis (QCA), although sharing the similar characteristic with TA that aims at analysing narrative materials and generating descriptive statements, is different in terms of its capability for analysing data qualitatively and

quantitatively in the meantime (Grbich, 2013). It can be defined as “a systematic coding and categorising approach used for exploring large amounts of textual information unobtrusively to determine trends and patterns of words used, their frequency, their relationships, and the structures and discourses of communication” (Vaismoradi et al., 2013, p. 400). Such systematic method is fulfilled by arranging chunks of the data/narrative materials into the categories of the coding frame (Schreier, 2012). There are three ways to do QCA, which are conventional QCA (codes derived and defined from data), directed QCA (codes derived from theory) and summative QCA (keywords identified before and during analysis) (Hsieh & Shannon, 2005). QCA is suitable to be used when the field and the research question has not been explored too much and the aim is to find out the issues in the data (Green & Thorogood, 2004). From the definitions, the obvious distinction between TA and QCA is the different products of these two methods, which are themes/patterns and categories/coding frame respectively. This difference brings the discrete focus of analysis and expressions in presenting the results.

Because of the difference brought by the focus of analysis, the materials that are used in these two approaches are slightly different. TA is preferred when a large quantity of narrative verbal text from a certain context needs to be analysed; while QCA can be applied no matter on verbal or visual materials (Schreier, 2012; Vaismoradi et al., 2013). With TA, the intensive and in-depth interpretation is required to fully investigate the data from a comprehensive viewpoint; QCA, in contrast, only pays attention to the selected aspects that are related to the research question (Vaismoradi et al., 2013). As Bengtsson points out, “all qualitative research deals with some interpretation. However, the interpretations vary in depth and level of abstraction, depending on the method of analysis and on the researcher’s ability to distance him/herself” (Bengtsson, 2016). The process of QCA is to review the text

collected, identify the categories and discover the understanding behind it based on the research question.

Both TA and QCA can be used in an inductive or deductive way, depending on whether a pre-existing theoretical framework is used in the research. Analysing in an inductive way, the data is examined in a bottom-up way and theme/category is created based on the data; if analysing in a deductive way, a theory is used in exploring the data and the changes of theme/category are identified and compared (Braun & Clarke, 2013; Hsieh & Shannon, 2005).

In this research, QCA was selected to analyse the qualitative data for several reasons: firstly, there were visual (cognitive maps) and verbal text (interviews) in this research and they cannot be separated to analyse as they show the participants' complete thinking and their experience. QCA has the feature of being flexible to analyse different forms of data. Secondly, qualitative data is rich in its essence and it is impractical to analyse all aspects in a limited timeframe (Schreier, 2012) and QCA is "context specific" that it interprets the data only under that context (Schreier, 2012, p. 31). This thesis looks into Chinese students studying in UK and is only focusing on several aspects of data that fit in that context and are directly related to the research question. Thirdly, content analysis originated in quantitative studies and is able to analyse the data from both qualitative and quantitative perspectives "in striking a balance between the specific and the general"(Schreier, 2012, p. 31). It is not a necessity for quantifying the results in QCA, but it is able to do so. In this thesis, for the data from cognitive maps, frequency of the codes was taken into consideration in the analysis. Fourthly, content analysis is suitable to be used when the research aim is to get a "condensed and broad description of the phenomenon [...] and to build up a model, conceptual system, conceptual map or categories" (Elo & Kyngäs, 2008, p. 108). It is preferable when new insights

and understandings are obtained through the interpretation of data in that context. This research is aiming at providing new insights and building up a theory that considers both 'information seeking behaviour' and 'library UX' in the given context. What's more, inductive QCA was used to analyse the cognitive maps and interviews because there was no suitable theoretical framework that can be referred to under the research context.

In terms of improving the validity of the coding, double-coding was used in the analysis. After the initial round of coding, the second round was conducted by the researcher themselves. The meaning and interpretation of the material emerged and developed with the familiarisation and improved understanding of the data. Double-coding helps to increase the reliability and quality of the coding frame (Schreier, 2012). In the first round of coding, the semantic codes were created to represent the manifest meaning of data; when it came to the second-round coding, latent codes were added to the coding frame to show the researcher's personal interpretation of the data.

There have been studies that explore how to conduct QCA in practice; however, there is no unified or standardised procedure for conducting it. The table (Table 7) below lists several QCA procedures that are commonly used. All three procedures for doing QCA contain the process of familiarisation with the materials, organising and identifying units of analysis, testing the frame/model and reporting the findings. It seems clear that the product of QCA is a model/frame/conceptual system that can represent a phenomenon and can be replicated under a certain context. While there are also differences among those procedures in terms of the sequence of creating codes and categories, the decision on the sequence depends on the research question and the material that is being analysed.

Table 7 Steps of data analysis for QCA

QCA process (Thomas, 2003, pp. 5–6)	QCA process (Schreier, 2012, p. 6)	QCA process (Elo & Kyngäs, 2008, p. 110)
1) Preparation of raw data files; initial read through text data; 2) Identify specific segments of information; 3) Label the segments of information to create categories; 4) Reduce overlap and redundancy among the categories; 5) Create a model incorporating most important categories.	1) Deciding on the research question & selecting the materials; 2) Building a coding frame; 3) Dividing the material into units of coding; 4) Trying out the coding frame; evaluating and modifying the frame; 5) Main analysis; interpreting and presenting the findings.	1) Preparation (selecting the unit of analysis) 2) Organising; 3) Open coding; 4) Coding sheets; 5) Grouping; 6) Categorisation; 7) Abstraction; 8) Reporting (creating conceptual system).

3.8.4 Rationale for a qualitative analysis

In this research, the QCA procedure from Schreier (2012) is slightly revised to better analyse the research data that contains cognitive maps and interview transcriptions (see Figure 19 below for the analysis procedure for this thesis). The aim of the analysis is to generate a theory that illustrates the research phenomenon—library experience.

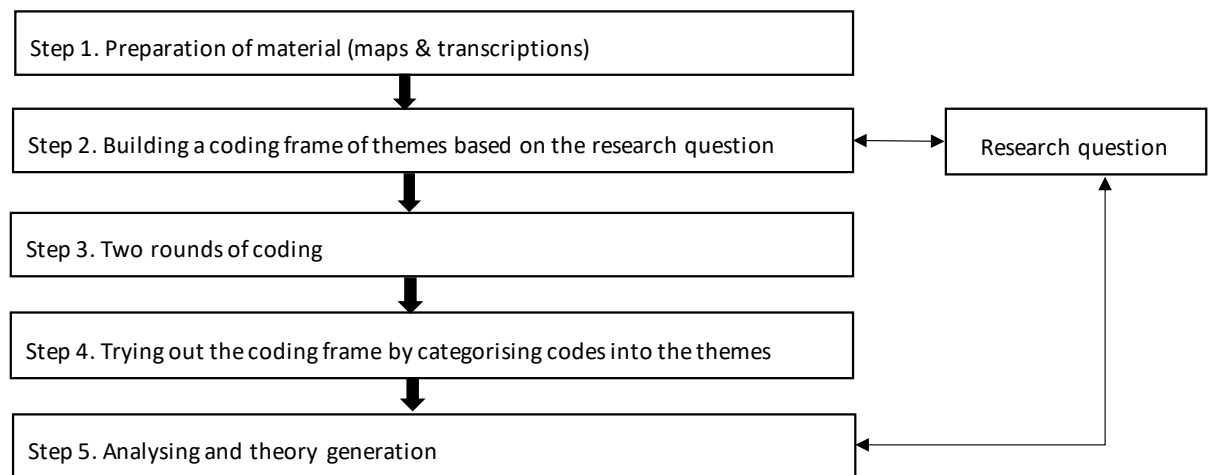


Figure 19 Data analysis procedure

The research question works in the data collection and analysis from two aspects: in one way, it supports the design of the interview questions; in another way, it guides the creation of coding frame for the analysis (Atkinson, 2002). When discussing the data obtained, the research question is reviewed, evaluated and answered.

In this doctoral research, the qualitative analysis software, NVivo, was used to support the coding process and the build-up of the coding tree. It was pointed out that the analysis software should be treated as an assistant that helps the researcher understand the data (Coffey & Atkinson, 1996); thus, when using NVivo, it was utilised as a platform that contains all the data and helps the researcher better organise the codes.

The decision on whether to code the cognitive maps and interviews separately was made in the coding process; in the pilot study, the codes were used interchangeably, and the codes generated from the cognitive maps were used in the interview data with more codes added. However, for the formal data analysis, they were coded separately for several reasons: firstly, the topics and concepts discussed in the interviews were more organised and based on the research questions; while the elements that appeared in cognitive maps were

diverse, random and unanticipated, which made them difficult to merge and collaborate. The cognitive map exercise drew much attention on specific components or experience of using the digital library, where more concrete and specified elements were found on cognitive maps; however, the interview drew upon eliciting the reasons, feelings, explanations, descriptions, and perceptions, where more abstract and metaphorical meanings were expressed. In addition, the units of coding were different in that the cognitive map had shorter units, such as words and phrases; while interview had longer coding units, such as sentences and paragraphs. Lastly, this may be due to the methodological issue that cognitive mapping shows their first concern, and their priorities in a limited time frame (six minutes); thus, the elements were the ones that were directly related to their own habits and experience. As for the interviews, the questions asked were directly related to the research question, which were generally not reflected on cognitive maps.

Therefore, the codes in the cognitive maps and interview differed a lot. There were two rounds of coding and during the second round, the codes were expanded based on the initial ones; analytic memos about the data and researchers' interpretation were added with the reconfiguration of the initial codes (Saldana, 2016). This double coding process was aimed at explaining and interpreting the data from the researcher's experience and knowledge about the topic and to bring more evocative meanings.

3.9 Data overview

In this section, an overview of the data collected from cognitive mapping and semi-structured interviews is presented to give a sense of how the data looked like and how the doctoral candidate searched for meanings from it. As it is elaborated in section 3.8, the data gathered is qualitative in nature, and

inductive coding was carried out to let the concept (codes) emerge with the goal to understand, explain and make sense of the data. The concepts (codes) were then categorised according to the established themes (coding frame) that have been used to design the cognitive mapping and interview questions, which were 'information seeking behaviour', 'library user experience', 'views on future library system' and 'cultural factors'.

3.9.1 Overview of cognitive maps


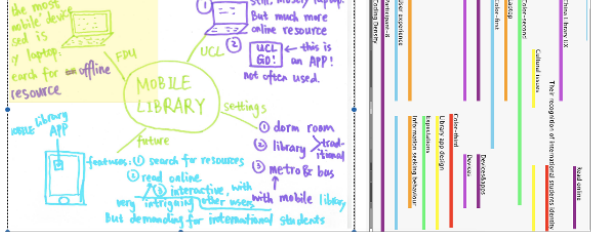
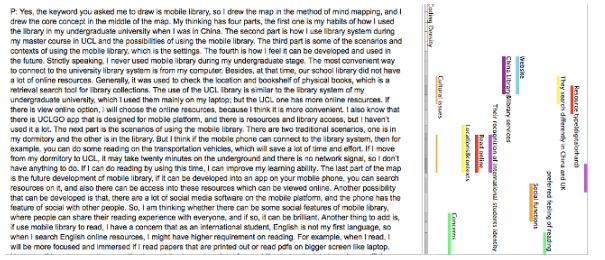
Being qualitative in nature, cognitive mapping as a visual research method, is an effective sense-making tool that represents the participants' construction of the world and their self-expression in a visual format (Given et al., 2013). The understanding of visual data can either be focused on meaning or weight, by which the interpretation would be different while the multifaced information can be explored. For this thesis, both ways of interpretation were enacted to capture all the possible meanings from the two aspects.

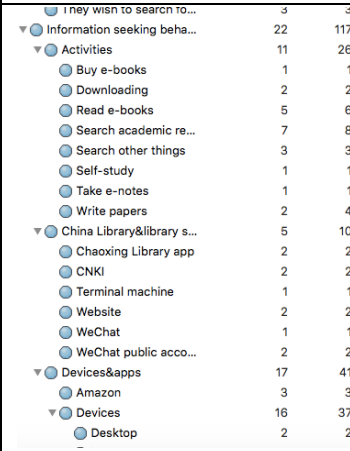

Although the map format and the way individuals organise elements on the map may be distinctively different, which is led by their knowledge construction and presentation habits, a more important thing through this practice was to explore how they used cognitive maps to make sense of the drawing topics and what they wanted to express.

Table 8 illustrates the process of analysing and understanding a cognitive map and an example from participant 8 is given to represent how each step was carried out. The analysis started with the participant's creation of the cognitive map, on which three colours were used to show the drawing sequence. The second step, supplementary explanation, is crucial, where the participant talked about their cognitive mapping in the sequence of drawing and explained the reasons why they draw certain things and how the elements came to their

mind in that sequence; the vague part can be illustrated in detail and missing items may be mentioned through this process. It also shows how their thinking proceeds and is presented chronologically on the map. Notably, although they were asked to draw the cognitive map in English, several of them used Chinese to indicate certain elements as an instant reaction in this short and limited time. Thus, additional notes were added using a black pen during the supplementary explanation where the Chinese was translated into English and unfinished parts were completed by the participant, if necessary. Through the first two steps, map data and the supplementary notes were gathered and then, the third step was coding, where the elements appeared on the map and supplementary explanations were inductively identified and coded. In the identification process, the unit of an element can be a short phrase, a term, a segment on the map, or sentences in the supplementary explanation that can represent a complete and unique meaning. The elements were then coded and named as nouns, terms, concepts or statements, which formed the codes. By the support of qualitative analysis software (NVivo12 in this case), the codes were created by selecting segments of the cognitive maps and quotes from supplementary explanation transcriptions (see *Appendix I* for the list of codes identified from cognitive maps).

Table 8 Analysis of cognitive maps

Step	Task	Result
<p>Generation of a cognitive map</p> <p>Participant drew the cognitive map (three coloured pens were used to show drawing sequence).</p>	<p>Participant drew the cognitive map (three coloured pens were used to show drawing sequence).</p>	 <p>On this map, for example, green was the first colour, followed by purple and then blue</p>
<p>Supplementary explanation for the cognitive map</p>	<p>Additional notes were added with participant's explanation.</p>	<p>P: Yes, the keyword you asked me to draw is mobile library, so I drew the map in the method of mind mapping, and I drew the core concept in the middle of the map. My thinking has four parts, the first one is my habits of how I used the library in my undergraduate university when I was in China. The second part is how I use library system during my master course in UCL and the possibilities of using the mobile library. The third part is some of the scenarios and contexts of using the mobile library, which is the settings. The fourth is how I feel it can be developed and used in the future. Strictly speaking, I never used mobile library during my undergraduate stage. The most convenient way to connect to the university library system is from my computer. Besides, at that time, our school library did not have a lot of online resources. Generally, it was used to check the location and bookshelf of physical books, which is a retrieval search tool for library collections. The use of the UCL library is similar to the library system of my undergraduate university, which I used them mainly on my laptop; but the UCL one has more online resources. If there is view online option, I will choose the online resources, because I think it is more convenient. I also know that there is UCLGO app that is designed for mobile platform, and there is resources and library access, but I haven't used it a lot. The next part is the scenarios of using the mobile library. There are two traditional scenarios, one is in my dormitory and the other is in the library. But I think if the mobile phone can connect to the library system, then for example, you can do some reading on the transportation vehicles, which will save a lot of time and effort. If I move from my dormitory to UCL, it may take twenty minutes on the underground and there is no network signal, so I don't have anything to do. If I can do reading by using this time, I can improve my learning ability. The last part of the map is the future development of mobile library, if it can be developed into an app on your mobile phone, you can search resources on it, and also there can be access into these resources which can be viewed online. Another possibility that can be developed is that, there are a lot of social media software on the mobile platform, and the phone has the feature of social with other people. So, I am thinking whether there can be some social features of mobile library, where people can share their reading experience with everyone, and if so, it can be brilliant. Another thing to add is, if use mobile library to read, I have a concern that as an international student, English is not my first language, so when I search English online resources, I might have higher requirement on reading. For example, when I read, I will be more focused and immersed if I read papers that are printed out or read pdfs on bigger screen like laptop. However, if I read on small screen like the mobile phone, I can't be focused like that or I might have lower efficiency of reading. And I feel if I read Chinese resources, I won't have such concern.</p>
<p>Coding: identify elements and create codes (1st round of coding)</p>	<p>Elements from cognitive maps and explanations were identified and coded in NVivo12.</p>	 <p>Visual data analysis in Nvivo (segments of the image can be selected and coded)</p> <p>Code stripes in Nvivo (colours are assigned automatically by the software)</p>  <p>Textual data analysis in Nvivo (unit of analysis can be words, phrases, sentences or paragraphs)</p> <p>Code stripes in Nvivo (colours are assigned automatically by the software)</p>

Step	Task	Result																																																																														
Recoding (2nd round of coding)	Data were reviewed and codes were revised in the second round; latent codes were added	(Same as upper image)																																																																														
Categorisation	Codes were organised and sorted into established coding frame; code tree was formed.																																																																															
Meaning exploration	Meanings behind the codes were explored, explained and analysed.																																																																															
Weight analysis	Frequency and mean position of codes across all maps were counted. F/P index was calculated to see weight.	<table border="1"> <thead> <tr> <th>Name of code</th> <th>Type of code</th> <th>Files (n/15)</th> <th>Frequency</th> <th>Mean position</th> <th>F/P</th> </tr> </thead> <tbody> <tr> <td colspan="6">Information seeking behaviour</td> </tr> <tr> <td>Activities</td> <td>Sub category</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Search academic resources</td> <td></td> <td>4</td> <td>4</td> <td>1.75</td> <td>2.29</td> </tr> <tr> <td>Read e-books</td> <td></td> <td>3</td> <td>4</td> <td>2.25</td> <td>1.78</td> </tr> <tr> <td>Search other things</td> <td></td> <td>2</td> <td>2</td> <td>1.5</td> <td>1.33</td> </tr> <tr> <td colspan="6">Devices & apps</td> </tr> <tr> <td>Laptop</td> <td></td> <td>7</td> <td>8</td> <td>1.38</td> <td>5.8</td> </tr> <tr> <td>Mobile phone</td> <td></td> <td>6</td> <td>6</td> <td>1.17</td> <td>5.13</td> </tr> <tr> <td>Desktop</td> <td></td> <td>2</td> <td>2</td> <td>1</td> <td>2</td> </tr> <tr> <td>iPad</td> <td></td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> </tr> <tr> <td>Kindle</td> <td></td> <td>3</td> <td>4</td> <td>2.5</td> <td>1.6</td> </tr> <tr> <td>Devices</td> <td></td> <td>2</td> <td>2</td> <td>1.5</td> <td>1.33</td> </tr> </tbody> </table>	Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P	Information seeking behaviour						Activities	Sub category					Search academic resources		4	4	1.75	2.29	Read e-books		3	4	2.25	1.78	Search other things		2	2	1.5	1.33	Devices & apps						Laptop		7	8	1.38	5.8	Mobile phone		6	6	1.17	5.13	Desktop		2	2	1	2	iPad		1	2	1	2	Kindle		3	4	2.5	1.6	Devices		2	2	1.5	1.33
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Desktop		2	2	1	2																																																																											
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Kindle		3	4	2.5	1.6																																																																											
Devices		2	2	1.5	1.33																																																																											

Two rounds of coding were carried out to improve the validity and reliability of the coding frame. The first round of coding generated semantic codes that reveal the explicit meaning from the maps; while for interpretive research, the implicit meaning from data was explored by the researcher through actively engaging with the data and interpreting the latent meaning behind the data. Therefore, the semantic codes were revised, and more latent codes were added according to the researcher's interpretation in the second round of coding (step 4: recoding). Next, after two rounds of coding for cognitive maps and their supplementary explanations, codes were then sorted and grouped according to the established themes (in other words, the coding frame), which were 'information seeking behaviour', 'library user experience', 'views on future library system' and 'cultural factors'; those themes were the initial high-level concepts that were used to design the research. Through categorising the codes into those high-level themes, the code tree was generated (step 5: categorisation).

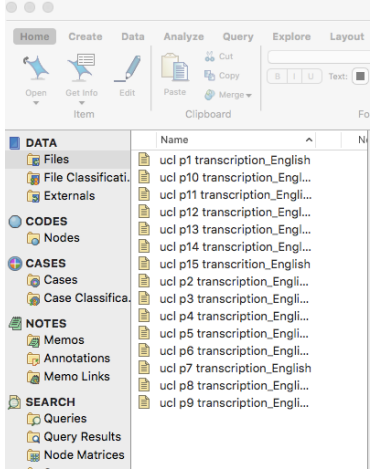
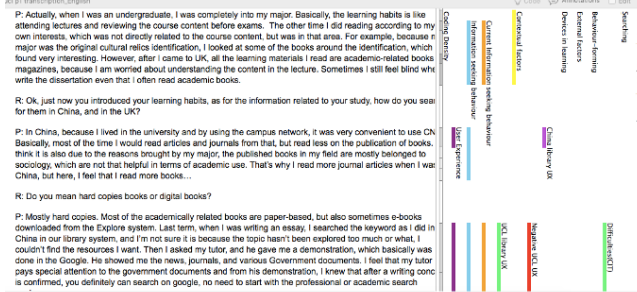
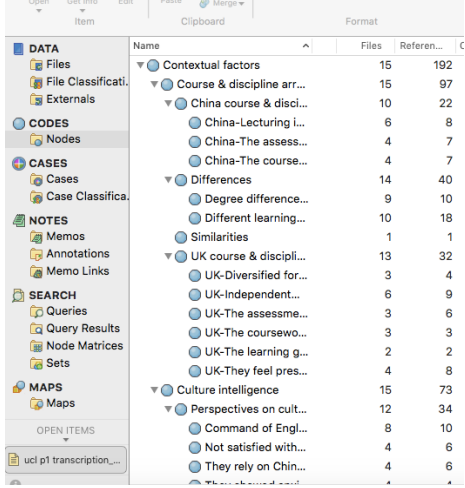
To understand what the cognitive map exercise illustrates, two ways of sense-making were carried out—meaning exploration and weight analysis. In exploring the meaning, the codes in the same category were reviewed and analysed simultaneously; the explicit and implicit meanings were interpreted, with the aim to explore what the participants expressed and the reasons behind them. In analysing the weight of codes, the frequency of each element and the mean sequence as it appeared on the map were counted and then calculated by the F/P index formula, getting the weight of each element. In this way, the important elements that dominated the map can be seen, which, in some way, indicated the important things participants paid attention to under the research context when thinking of this topic. Consequently, the cognitive maps can be understood both systematically and meaningfully.

3.9.2 Overview of interview data

The analysis process over interview transcriptions is separated from that of the cognitive map exercise; and the codes from cognitive maps were not used or referred in coding interviews (reasons can be found in 3.8.4).

Table 9 illustrates how the interview transcriptions were analysed and how the researcher made sense of the codes that emerged from the transcriptions (see *Appendix J* for the list of codes identified from interviews). The first four steps are similar to the analysis of the cognitive maps, where the transcriptions were read through and codes were created inductively based on the segments of information that can reflect complete and unique meanings; the segments may be sentences or paragraphs. In the second round of coding, more latent codes were created based on the researcher's own interpretation of the data. During the categorisation, codes were grouped according to the established themes that instructed the interview question design; the code tree was generated with major themes that reflect the research question. The last step of the analysis was to make sense of the codes in those categories through examining the existing literature and theories, going back and forth to seek for meanings from the codes generated in this research, which is also known as the sense making process in the interpretive research.

Table 9 Analysing interview transcriptions

Step	Task	Result
Preparation of interview transcriptions in NVivo12	Imported interview transcriptions in NVivo12 and familiarised with data.	
Coding	Identified segments of information that show specific meanings and create codes.	 <p>Textual data analysis in Nvivo (unit of analysis is sentences or paragraphs)</p> <p>Code stripes in Nvivo (colours are assigned automatically by the software)</p>
Recoding	Data were reviewed again, and codes were revised in the second round.	More latent codes were created based on the researcher’s personal interpretation according to their knowledge and understanding in this field.
Categorisation	Codes were sorted and grouped based on pre-established themes; code tree was generated.	

Step	Task	Result
Making sense and interpretation	Literature and theories were reviewed, and plausible meanings were made in order to answer the research question.	Meanings were made from the data with the review on literature. New framework was generated.

3.10 Methodological strengths and limitations

The first methodological limitation comes from the nature of the interpretive research as the phenomenon is interpreted by the researcher who inevitably brings in personal bias and the nature of discovering the complexity to add understanding may lead to a lack of verification (Cohen et al., 2007; Mack, 2010). Although multiple data sources are used to ensure the abundance of data with an attempt to counter this limitation and gain in-depth insights (Ponelis, 2015), the findings from this thesis may still require for further validation.

The second limitation refers to the selection of cognitive mapping as a way to collect the data. It has been criticised that participants may deviate from the research topic during mapping as the method is unstructured and the result is unpredictable; in addition, some people may feel uncomfortable with drawing their ideas with limited directions, particularly with a limited time given and dependent upon their drawing ability (Gibbons, 2019). To counter the inherent limitations of cognitive mapping, the researcher explained the drawing topic

clearly before the start of the task and the participants could ask questions in Chinese if they felt unclear about the topic or what was being required of them. Students were reassured that the quality of the drawing did not matter and that they could add labels and words. Also, from the pilot study, there was a lesson learned from the process that some students may feel under pressure to draw and may not be able to include everything they want to express in the six minutes given; therefore, in the formal mapping session, all participants were given one-two minutes before the start to think about what they wanted to draw and the researcher made sure that they were ready to proceed. What is more, in the session, participants were reassured that there was no wrong way to draw up their mind map and they could include anything as long as they felt that was relevant. This would ensure the relative freedom of thinking and drawing under a settled topic.

Another limitation comes from the research sequence with cognitive mapping going ahead of the semi-structured interviews. The strengths of conducting the two methods in this sequence has been illustrated clearly in 3.4.2.1; however, it should be noted that there may be an influence from the cognitive mapping exercise on the interview responses. Participant's instant reaction to the drawing topic might be reinforced and underlined in the later interview and their responses to the interview questions might be affected and altered on the basis of their maps. This might be an issue if the participants do not fully understand the topic and draw irrelevant things on their map; nonetheless, they were given an introduction on the drawing topic to set them at ease. What is more, the follow-up interviews were conducted in Chinese and the scope of the questions were directly related to the research matter and, therefore, made sure that they understood what was being asked. Additionally, cognitive mapping, as an elicitation sense-making tool, was conducted with the purpose to allow the participants to think and express things without fixing

their mind; their spontaneous instant reactions provided insights into things that really matter in their experience.

In terms of the limitation from the semi-structured interview, it is queried in terms of the demand characteristic about the interviewee, meaning their responses may be altered by their assumption of what the situation requires or what the researcher wants (Gomm, 2008). This is to some extent inevitable as the narrative method of investigation lacks strong evidence of human behaviour and it is hard to tell whether their narrative response is accurate; however, the design of the interview question, the query method and the use of multiple data evidence help. More open questions were designed, and emergent questions based on interviewees' responses were increased especially with their explanations of cognitive maps. Also, questions such as how and why were asked to let them explain the reasons and describe the process without disturbing their train of thinking. In addition, the data was developed with the library log analysis was conducted as a triangulation to increase the reliability of the research data.

Another limitation is related to the limited sample group and the recruitment method. As explained, the six participants in the pilot study and 15 Chinese students in the formal qualitative data collection were recruited by email with a £10 Amazon voucher offered as an incentive. This incentive may bring about a limitation in the data as some of the students engaged may have been unfamiliar with the research topic or had limited library experience and participated because of the voucher. Therefore, before their arrival to the session, they were asked whether they have used the UCL library and its system to make sure they had the experience. However, to what extent the vouchers would make a difference cannot be assessed. As for the 15 Chinese students recruited for the formal data collection, although the research has

strived to recruit students from a diverse discipline background, the sample group only represents a very limited proportion of the Chinese student community; also, they were only representing the PGT students who were in a one-year learning programme in UK.

As has been indicated before, the choice of research methods and context is always a trade-off and no perfect method exists. The last methodological limitation comes with the context choice; as a global university that has a high ranking, the students recruited in UCL, including the Chinese students, are relatively high achieving and, therefore, may not represent the overall body of international Chinese students studying in UK and in other foreign countries. Also, considering that there is a considerable number of the Chinese students' in the student community, their library experience may be diverse; however, the Chinese students that engaged in this study stand for at least a part of them. Although the research result may not be generalisable due to the context choice, the findings indicated some aspects of their academic library experience in the Digital Age and it would definitely provide valuable feedback to the UCL library system developers.

3.11 Chapter conclusion

This chapter outlines the theoretical framework that underpins the research and the methods choices that were made within the research design. It starts with the interpretive paradigm this research undertakes to explore and interpret the research question of international Chinese students' library experience. The mixed methods research with a primary qualitative position where three research methods of library log analysis, cognitive mapping and semi-structured interview is then expanded. The data analysis methods of

qualitative coding, weight analysis and qualitative content analysis are unpacked in order to depict the whole process of data processing. An evaluation of the strengths and limitations from the methodological viewpoint is also presented to end the chapter. The findings through data analysis are presented in the following chapters (Chapter 4-Pilot study; Chapter 5-Library log analysis; and Chapter 6-Data analysis from cognitive mapping and semi-structured interviews).

Chapter 4: Establishing the research focus: pilot study

4.1 Chapter introduction

This pilot study was established as a testing ground to frame the evolution of the doctoral research in terms of its research focus and methodological approach. A small-scale study exploring students' perspectives and expectations of the UCL newly-built 'Explore' library system was conducted trialling the use of cognitive mapping and semi-structured interviews. The pilot study was focused on a narrow aspect of digital library—the mobile-accessible digital library system in order to explore the possibilities for digital technology use in students' library experience and to test and refine the research questions.

The student group this doctoral research looks at is the international Chinese students, but the international dimension was the one this pilot study set out to test how the research methods would work with different cultural groups and to confirm the sample choice. Thus, students from the UK and EU were also recruited as a control group to Chinese students. The pilot study for this research was carried out as an independent research project with the support from UCL Library and the UCL ChangeMakers team.²⁰

4.2 Pilot study setting: UCL Library

As has been elaborated in 3.3.4 (context for the research), UCL, as a global university, has always been delivering and strengthening its active role in

²⁰ See more at <https://www.ucl.ac.uk/changemakers/>

education, research and enterprise (UCL, 2017). UCL library, with its 16 libraries and learning spaces located across London, is working within it to support learning, teaching and research. UCL 2034 was a strategic plan outlining the mission and ambition for 20 years' development. One key theme of the UCL 2034 strategy is to inspire students of every level and equip them with the knowledge and skills they need to contribute to society (UCL, 2018). From the Library's perspective, apart from the research-based education design, the UCL Library services set out a strategy to better support and deliver a first-class experience across the UCL family of libraries (UCL Library Service, 2015). Leveraging new technologies and opportunities to deliver resources and support the library function are listed as an important goal of the UCL Library development plan. The digital library and other services have been updated and continue to be reviewed in response to users' needs and educational requirements. Information literacy, as another key component in Library's mission, is designed in alignment with the UCL overall pedagogy strategy (UCL Library Service, 2015). Therefore, the Explore library system (UCL's single search tool) has been continuously updated since 2017, in order to improve the search experience of users. Notably, the library team has been working on the mobile-friendly Explore tool to serve virtual and mobile users on different devices.

Under the support of the UCL digital libraries team, this pilot study aimed to find out students' views on the newly-designed mobile-accessible Explore system to engage them in the 'design' of the future digital library system. This aligns with the educational strategy of UCL, which is "to establish a digital learning infrastructure that connects students with each other, with staff, with research and with the wider world" (UCL, 2016); a study to explore a mobile-accessible digital library can provide insights into the design of a digital infrastructure that encompasses all parts of the University.

4.3 Pilot study design

This pilot study used cognitive mapping and semi-structured interviews to gather students' perspectives and expectations of the future UCL digital library development with a special focus on the mobile-accessible digital library system.

In this small-scale study, with the aim to test research methods and to confirm the student group for this doctoral research, there were no restrictions on cultural backgrounds in recruiting participants and a convenient sampling strategy was taken by which participants were invited via invitation emails sent to all the Undergraduate (UG) students from the Information Management for Business (IMB) programme and all the Postgraduate Taught (PGT) students in the Department of Information Studies (DIS). These two departments were chosen as they were easy to contact with from the position of the researcher who is a doctoral candidate in DIS. An information sheet (see *Appendix B* for the pilot study information sheet) explaining the study aim and session process was attached in the invitation email and was reviewed at the start of each session to ensure participants were aware of the content of the pilot study. Six students accepted the invitation and were recruited; their gender, nationality and discipline is shown in Table 10 below.

Table 10 Information on participants in pilot study

Participant number	Gender	Nationality	Discipline
1	Male	Chinese	UG-IMB
2	Male	Chinese	UG-IMB
3	Female	European	PGT-DIS: Publishing
4	Female	UK	PGT-DIS: Publishing
5	Female	UK	PGT-DIS: Librarian
6	Male	UK	PGT-DIS: Librarian

The six participants engaged in the pilot study session individually together with the researcher in a quiet study room in UCL from February to March 2018; each session was around 20 to 30 minutes. A research script with cognitive mapping instructions and semi-structured interview questions was prepared and went through by the researcher in each session (see *Appendix C* for the research script for pilot study). Upon their arrival, participants were first asked to draw cognitive maps of their perspectives, experiences and expectations of mobile-accessible digital library (or mobile library); they were prompted to draw up how they personally used the mobile-accessible digital library, how they felt and what they expected from the digital library service on mobile devices. After that, a follow-up semi-structured interview was conducted where participants first explained their cognitive map and then were asked questions related to their experience using the mobile-accessible digital library (See *Appendix C*).

Six cognitive maps (see *Appendix D* for cognitive maps collected in pilot study) were collected in the pilot study and then coded with elements identified and named as individual codes (see *Appendix E* for cognitive map codes in pilot study). Each code was counted and calculated by weight analysis from Asher & Miller (2013), the ERIAL research on library development (which has been introduced in 3.8.2 Weight Analysis). Codes were firstly grouped into categories with F/P index calculation based on the frequency and the mean drawing sequence that each code appeared on the map (Asher & Miller, 2013). The interview recordings were transcribed and then analysed using Qualitative Content Analysis (QCA) (Hancock, 1998). The unit of analysis was sentences or a paragraph that express an independent meaning. Transcriptions were first coded regarding the meaning of their response and these codes were then grouped into categories based on the meanings.

4.3 Pilot study data analysis

This section represents the findings and discussion of the data obtained through the cognitive mapping and semi-structured interviews from the pilot study. A comparison of the categories created through analysing cognitive maps and semi-structured interviews is presented at the start of this section with the number of codes/quotes in each category to show an overview of meanings that emerged from this pilot study. The codes identified from cognitive maps were categorised based on the meanings; the semi-structured interviews were analysed by QCA and the categories were created based on the interview questions and the participants' responses.

Then, the weight analysis of the cognitive maps is illustrated to show the instant reactions from participants and to identify the important elements they paid most attention to around the topic in the short time given. Lastly, quotes from the semi-structured interviews are discussed based on the categories to explore the research question in-depth.

4.3.1 Categories

By identifying the elements that appeared on six cognitive maps, 67 unique codes were created. These codes were then grouped into five categories, which were 'library resources', 'library services', 'expectations on mobile accessible digital library', 'mobile learning behaviour' and 'others'. Through analysing interview transcriptions by QCA, 180 quotes were coded and then categorised into seven categories according to the interview questions and participants' responses. The comparison between the number of codes/quotes in the categories of cognitive maps and interviews is shown in Table 11.

Table 11 The comparison between the number of codes/quotes in the categories of cognitive maps and interviews

Category in maps	Number of codes	Category in interviews	Number of quotes
Expectations on mobile-accessible digital library	18	Expectations on mobile-accessible digital library	52
Mobile learning behaviour	9	Mobile learning behaviour	63
Library services	15	Library services	16
Library resources	10	Library resources	16
Others	15	Opinions on cognitive mapping	15
		'Explore' library system usage	12
		Experience on using library apps	6

The 'expectations on mobile-accessible digital library' includes the codes that relate to students' expectations, thoughts and imaginations on the future mobile-accessible digital library system or mobile library apps, as well as the functionalities they wish to see on the app; 'Library services' include online and offline services and functions provided by the UCL Library; 'Library resources' refers to all forms of library information and resources that aimed at supporting academic teaching, learning and research needs which were mentioned on the maps; the 'Mobile learning behaviour' category means the learning habits or behaviours participants reflected in particular in the form of mobile learning, including how they use mobile devices to look for, search, make use of and share information related to their study. Other elements that cannot be categorised or were not related to the research topic were grouped into the 'others' category. 'Explore library system usage', 'experience on using

library apps’ and ‘opinions on cognitive mapping’ are three categories that were directly generated from the interview questions.

4.3.2 Weight analysis on cognitive maps

During the cognitive map drawing, students were given three different colour pens to show their sequence of thinking and drawing. F/P index were calculated according to the frequency of the code and the average position it appeared across all maps (see more detail in 3.8.2 Weight Analysis). Previous findings in psychology research showed that people’s brains store information in a hierarchical structure (Binsaleh & Binsaleh, 2013). Therefore, by revealing the sequence and the times of drawing different elements, the important and emergent things under the drawing topic can be found. The index calculated in this way can indicate the relative importance of each code to some extent. The codes with the F/P index higher than 1 are shown in Table 12.

Table 12 Codes with F/P index higher than 1

Code	Frequency	Mean Position	F/P Index
Library resources			
‘Explore’ Search (library catalogue)	7	1.14	6.14
Books, articles, journals, archives, newspapers	6	1.16	5.17
Physical libraries	3	1.33	2.26
Book status track	5	2.4	2.08
Database (web of science, etc.)	2	1	2
Library services			
User Log in	5	2	2.5
Wifi, eduroam ²¹	3	2	1.5

²¹ Eduroam: a federated authentication service that allows participating institutions to provide access to their wireless networks to users from other eduroam participating institutions.

Expectations on mobile-accessible digital library			
Accessibility	5	2.2	2.27
University logo	2	1	2
Playability, desirability, gamification	3	2	1.5
Information security (fingerprint, face ID)	3	2.65	1.13
Mobile learning behaviour			
Location: on the move	4	2	2

The 'Explore search' scored highest among all the codes, as it appeared seven times on all the drawings with a mean position of 1.14, which means that it was drawn mostly in the first colour. As is shown in the table above, the library catalogue and different forms of library resources were the ones that were relatively important when they thought of the topic "mobile-accessible digital library system". Interestingly, although the drawing topic is about the digital library system that can be accessed via different digital technologies, the code 'physical libraries' still weighed a high number (F/P index of 2.26); this code was mentioned by participants to show how they hope to see the physical library services connected with the mobile platform, where they can plan for their activities in the physical library space. The other two codes with high F/P index were 'book status track' and 'database (web of science, etc.)' and those two were both essential library resource related functions that participants regarded as necessary to a mobile library system.

In the category of 'library services', only two codes have the F/P index higher than 1: 'user log in' and 'wifi, eduroam'. Most participants thought of the login process upon the topic; some drew their opinions about the login design for the newly-built Explore system and some designed the ideal login process for a mobile library system. In any presentations, it reveals the importance of the

user login process design in a digital library system. ‘Wifi, eduroam’ was mentioned in the cognitive mapping as the Internet connection was considered as the paramount thing that influences how easily they could use the mobile and digital library system.

As for the ‘expectations on mobile-accessible library system’, the four codes with higher F/P index reflected the important aspects the six participants thought of in the instant reaction; and also the things that should be paid attention to in the design of mobile accessible digital library systems, which are the accessibility (of design, library resources, etc.), inclusion of university logo, the playability, desirability and gamification in the mobile library design, and the stress on information security especially on a mobile application. Those expectations were explored further in the interviews and expanded in detail in the next part.

The ‘location: on the move’ was the only code with a high F/P index in the category of ‘mobile learning behaviour’. From cognitive mapping, participants expressed that they would generally only use a mobile library system when they were on the move, rather than in a fixed location. This reflected a different context of usage of a mobile library from a digital library, which is further explored in the chapter six.

4.3.3 Qualitative content analysis on interviews

The aim of this pilot study (see *Appendix C* for research script for the pilot study and the interview questions) was to explore students’ perspectives and expectations of the newly-built Explore tool and the future development of the mobile accessible digital library service. The categories identified from the interview transcriptions and the corresponding interview questions are shown in Table 13. This section of the interview analysis is arranged based on the

categories identified with the aim to answer the question of how students experience the UCL newly-built Explore system and their views on mobile-accessible digital library.

Table 13 Interview questions and corresponding categories

Categories	The interview question
Category 1: mobile learning behaviour	How and where do you use your mobile devices to support your study and look for study-related information (mobile learning habits)?
Category 1: mobile learning behaviour Category 2: library resources Category 3: library services	Library services, devices, places or things that are helpful regarding your study needs
Category 1: mobile learning behaviour Category 3: library services	How you use your mobile phone to access library service or catalogue?
Category 4: Explore library system usage	Preference on the old or new 'Explore' tool
Category 4: Explore library system usage	Your experience on using the library Explore tool on your mobile phone
Category 5: Experience on using library apps	Your experience on using other library apps
Category 6: Expectations on mobile-accessible library system	Considering there is a mobile library app, what would you like to be able to do with it?
Category 6: Expectations on mobile-accessible library system	Functions or services you want, as well as the functions you don't want
Category 6: Expectations on mobile-accessible library system	How do you think of the mobile library app?
Category 7: Opinions on cognitive mapping	What do you think of the method of cognitive mapping?

Category 1: mobile learning behaviour

Students engaged in the study expressed their learning behaviours through mobile devices and they reflected unique learning habits based on the context, tasks and conditions when using mobile devices to support their studies.

First of all, most participants expressed their preference for using laptops to do complicated work (e.g. reading or writing), compared to mobile phones. They explained that the screen size and the organised layout were the primary reasons for that. Another characteristic of the mobile learning behaviour was that they indicated their different learning behaviour under different contexts. They tended to use their mobile phone as a complementary learning tool when they were on the move or travelling where stable Internet connection was needed. For example, Participant 5 indicated that *“I tend to get a lot of ideas and writing when I’m travelling for some reason, on the tube or the bus”*. In the meantime, they tended to use mobile phones to take down instant thoughts or quickly find information relating to their studies, as was mentioned by Participant 6, *“if I go for a bike ride and I just had an idea and I want to look something up then I’ll stop”*. The same idea was indicated by Participant 2, *“if I don’t understand what lecturer is talking about, I may look it up like Googling”*. In addition, participants used their mobile phones as a “note taker”, where they can take down and access their instant ideas. Participant 6 explained this behaviour, *“if I have an idea that I know I’ll forget later I want to make a note of it”*.

The three aspects of mobile learning behaviour expressed by participants illustrate that compared to laptop or desktop with larger screen and tidier design, mobile phones were viewed as a complementary role in their learning

when it is inconvenient to use other devices. They stressed the handy and instantaneity of using mobile phone to take down their fragmented ideas.

Category 2: library resources

Regarding the library resources students use most, they expressed their opinions and habits on using library resources. The resource that was mentioned most was the free online journals and books. They tended to search titles or keywords to find these resources on their mobile phones compared to laptops where they would rather search and view the full text. Some participants preferred to use the UCL Explore search tool, while some prefer to use specific databases. One student (Participant 6) mentioned the Web of Science and WorldCat in particular to emphasise their preference on using these two databases to find discipline-related online resources. However, it was also pointed out that *“sometimes (it was) difficult to use the articles”* on mobile phone due to the limited screen size (Participant 3).

Category 3: library services

The students' perspectives on the UCL library services can be analysed from two aspects, the positive and the negative ones. On the positive side, it is worth noting that several students emphasised the role of librarians, who provided abundant help and assistance to them. They expressed their thankfulness to all the UCL librarians and demonstrated that an online librarian is still necessary in the mobile library system so they can quickly and easily seek help in a digital form. Another library service that obtained positive comments was the E-shelf, where students can make a record of the library resources they consider important and save for later use.

However, there were also negative comments on the UCL library service, especially with the room booking system where they can book for private

study rooms for personal or group use and the user login process. Two participants pointed out that the room booking system was not smart enough to automatically show the available rooms without logging into their personal accounts. Students were required to log in to the booking system to see available rooms and they also need to click into each room to see the available timeslots in the academic year of 2017-2018. As Participant 1 said, *“we have to do that every single time we tap into a room, which is kind of annoying”*. Besides, students also criticised the way they had to add their UCL card ID number as the booking system username, which was regarded hard to remember. Participant 5 pointed out, *“whereas if I do it on any other device, I always have to have my library card”*.

Category 4: Explore library system usage

In September 2017, UCL Library published a new look for the library Explore search tool, and the screen capture of the old and new Explore system are shown in Figure 20 and Figure 21. The Old Explore could be used throughout the academic year of 2017-2018 with a button saying “try our new look”, which would lead to the new Explore screen. In the interviews, students were asked about their perspectives and preferences for the old or new Explore system and this category was generated from this interview question.

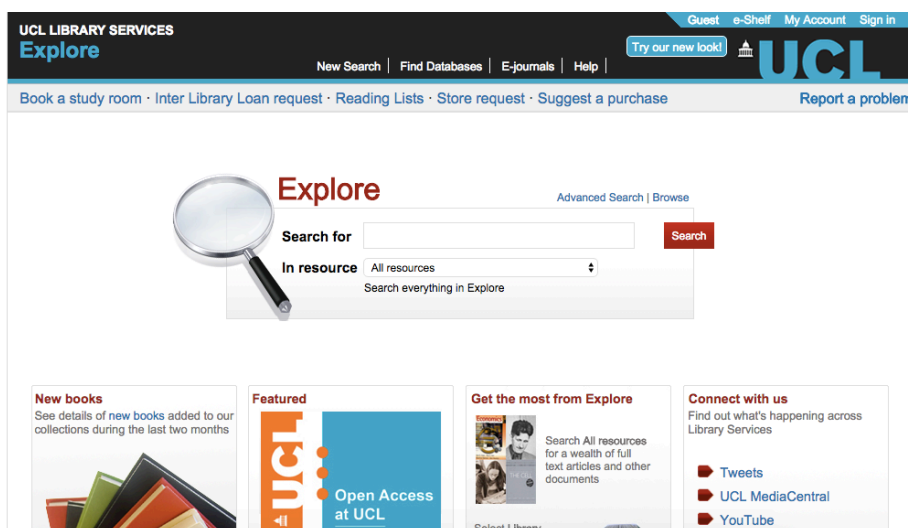


Figure 20 Screen capture of the old Explore

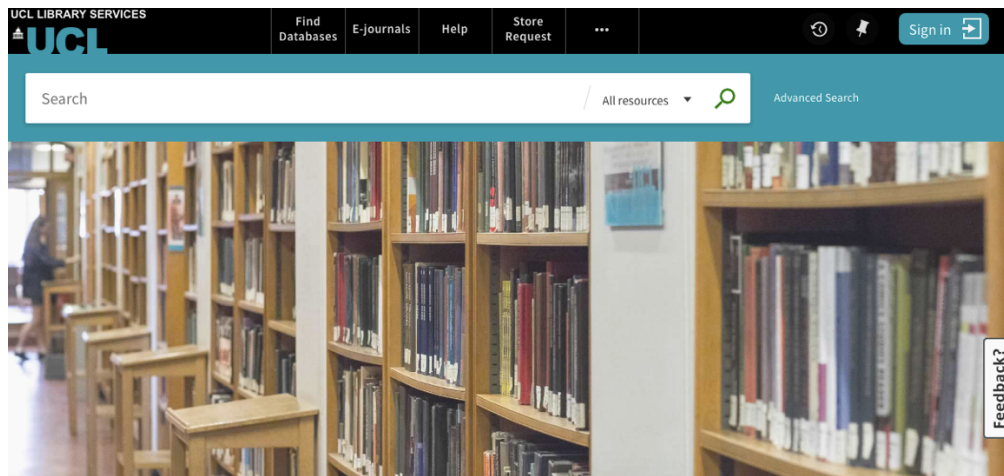


Figure 21 Screen capture of the new Explore

Through this interview question, one unanticipated finding was that all the six participants engaged in the study expressed that the old Explore was their preferred search system. One of them was not aware of the existence of the new Explore interface; however, the others had used the new one but still preferred the old interface. A possible explanation for this finding may be the limit of the sample and the uniformness of their academic level. In the interviews, the participants explained the reasons for their choice. Firstly, according to Participant 2, who was a second year UG student, the old Explore system was more reliable and user-friendly. It was probably because they had used it since they first came to UCL and had formed a habit on using it. Another reason for this choice was the clearer layout and options on the old Explore system. Participant 5 and 6 shared the same thoughts on this question: *“it is clearer to find things”* and *“gives you a really nice layout of the breakdown options”*. They suggested that although the new Explore interface looks simpler, it seemed vast and lost the balance between access and showing what was in there. The last reason for preferring the old Explore was the complete difference between the old one and the new one. Students expressed their reluctance on receiving changes, especially with such a huge change. As

Participant 3 complained, *“it just changes everything in a sense, and it's too sudden for me”*. In regard to the old Explore system, students found that the tidy header part and the dropdown menu were really helpful in their searching process.

Category 5: Experience on using library apps

The students were asked about their past experience on using other library apps during the interview, and two of them shared their experiences. The library apps they used were all from academic universities, and one from a Canada university. Talking about their experience, they all conveyed positive appraisals on using library apps. As Participant 3 put it, the app was *“super quick and useful and easy”* with functions like checking PC availability, book status and the online librarian. Students were able to *“oversee the library before going there”* and this concept gave students more freedom on arranging their time. Participant 4 put emphasis on the app's mobility and accessibility while travelling. In all, students who had used library apps before held a positive view on its function and supportive role to their studies.

Category 6: Expectations on mobile-accessible library system

Based on the students' learning habits and their current experience of using the library system, participants also expressed their expectations on the future implementation of the mobile-accessible library system or in other words, the mobile library app. They were asked about their opinions on building up an app for the library and all six students engaged in the study held positive views on it. They believed that having a library app would give them more options in interacting with the university facilities and improve their digital skills, especially for students who study information technologies. Also, having the library system on their phone was regarded as a good way to give them more accessibility while on the move. For students who keep their learning habits

on mobile devices, building up a mobile library would provide them with more targeted academic resources and support.

Students were also asked about their specific wishes and expectations for the mobile library app and these can be illustrated from several aspects:

Functions perspective:

First of all, participants expressed their wishes for the functions they would want to have in a library app. The most frequently mentioned functions were room booking, seat availability check and the Explore search catalogue. Students put emphasis on the functions they need in relation to accessibility and mobility. They tended to use these functions while on the move or during travelling. Furthermore, they hoped that all the functions of the digital library could be imbedded in the library app with several functions highlighted to keep all the systems consistent and easy to use.

Customisation & personalisation perspective:

Another expectation for the future mobile library app is the customisation of the system. Students conveyed strong wishes on having a personalised system where they could get targeted resources and information updates, such as reading list and book recommendations, in relation to their disciplines and academic interests. Participant 2 wished, the system *“will know what kind of books I need and customise the list for me”* and Participant 6 also hoped that it *“can be personalised and can encourage you to narrow down your search”*.

Design perspective:

Interestingly, several participants showed their concerns on the design aspect of the future mobile library app. Two students focused on the visual presentation and the colour scheme, hoping to make it intuitive in terms of navigation. They suggested that the visual presentation could be used in

particular in the room booking and seat availability parts, where different colours could represent different status of the rooms or seats. Also, the idea of augmented reality was mentioned by participants, hoping to add playability and interactivity to the mobile library experience. This conception could be used in the context of finding a book in the library or displaying special collections. As Participant 6 suggested, *“I’d like to have some kind of an augmented reality bit, where I can come in and have like a library adventure game while I’m going to find my book”*. They have high expectations in interacting with the academic library and hope to have multiple ways in receiving information, in this case, a playable design in seeking for information.

Data protection perspective:

Most of the students engaged in the study stressed the personal data protection issue. They were worried about the personal data the future library app would collect, which was related to *“ethics issue”* (Participant 6); however, in the meantime, they hoped the app could remember their login details and *“automatically comes up with”* their information (Participant 5), like student number and password, to save their time. One student came up with the idea that *“using fingerprint or face id to unlock, instead of using user id and password [...] which is safer and make sure it’s you who log in to the system”* (Participant 2). Another student mentioned information security in the implementation of the mobile library. To conclude, students hope that they can enjoy the convenience brought by the app, with their personal information being protected at the same time.

Category 7: Opinions on cognitive mapping

During the interviews, the last question asked about the students’ opinion on the research method, cognitive mapping. All the participants held a positive perspective on using cognitive mapping as a research method to collect data.

They liked the way of visualising and stimulating their mind, rather than just typing or talking. They suggested that cognitive mapping was a good way to start off a topic and help people generate their ideas. The use of different coloured pens can also suggest the sequence of thinking and the mental process. Participant 3 indicated that using different colours during their drawing *“can see the train of thought because it's cognitive”*. One of the students (Participant 1) felt it a little bit difficult to start off drawing a concept but indicated that it became easier and more fluent once their mind got going.

4.4 Findings from the pilot study

The academic library is the focal point for students' learning life. As such it needs to integrate key resources and information related to students' study into one digital repository that can be accessed from anywhere, at any time and in any learning context as part of the digital learning environment. The specific focus of this pilot study was on the mobile-accessible library system; with the features for mobile devices, it is expected to provide students with convenient information and services from the university library.

From the pilot study, although all the six participants expressed an expectation to have a mobile library app in the future, compared to one for the laptop or desktop, they viewed their mobile device more as a supplement to their learning for when they cannot use their laptop; their laptop was regarded as the main learning device and the primary device they use to access the library system and seek for learning-related information. While the participants did reflect on some mobile learning behaviour and that the context and information needs of using mobile devices were found to be different from those when using laptops; this explains the concept of *“contextualisation of learning”* by using mobile devices that gives learners the mobility to learn

regardless of context and platform (JISC, 2011, p. 2). They generally used their mobile phones as a 'note taker' or a quick search tool when they were on the move or during travelling where a stable Internet connection is required. This finding raises a further question about how students use different devices in different context to interact with the library; therefore, so as not to be constrained to a narrow focus, the research question of this thesis was then shaped to explore students' library experience in the Digital Age, where different types of digital technologies are explored in experiencing the library.

As for the question of students' opinion on the UCL new Explore system, the participants expressed a preference for the old Explore system as they had formed the habit of using the old interface. They stressed the tidy layout, the clear and labelled options, and the consistency of the interface on different devices. The results of the pilot study implied that the design and labelling of library system interface is essential in influencing students' library experience and appraisal. What is more, it is important to get to know the students' experience and involve them in the design process; by engaging students to find out how they experience the academic library can provide a more student-focused perspective for the future development. Students can then be the 'designer' of the digital learning infrastructure and this process will improve their digital scholarship.

Another finding from the pilot study is about their expectations for the future library service development with mobile technologies, which encompassed four aspects: functions, customisation and personalisation, design, and data protection concerns. The findings revealed the factors that may influence the library UX on the mobile access. As illustrated by Beauregard & Corriveau in their conceptual framework of UX, the interaction between user and product is an iterative process, in which users' perception and intention of one product

is influenced by their previous knowledge, concerns, skills and personalities (Beaugard & Corriveau, 2007). The four aspects of the expectation found in the pilot study is in line with the influential factors in the UX framework, such as the framework from Forlizzi & Ford (2000).

More importantly, from the pilot study, some level of cultural context was revealed; two international Chinese students (participant 1 and 2) expressed their cross-cultural perspectives as international students from a Confucian cultural background. Firstly, from their cognitive maps, a distinct way of organising and expressing their thoughts was found where the two Chinese participants used more graphical structures to present their thinking, while the other four participants from UK and EU used more textual expressions and even sentences, see Figure 22 for a comparison of cognitive maps.

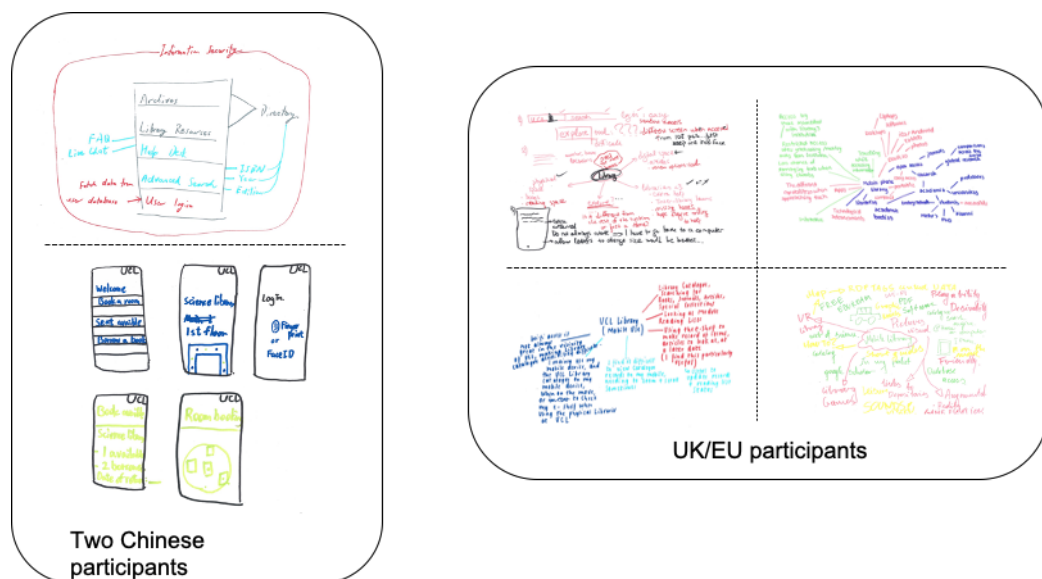


Figure 22 Comparison of cognitive maps from Chinese students and UK/EU students

From their maps and interviews, the two Chinese students placed emphasis on the friendly and straightforward design of the mobile library service and one of them drew the desired interface of a mobile library directly on the cognitive map, see a section of their map (Figure 23).

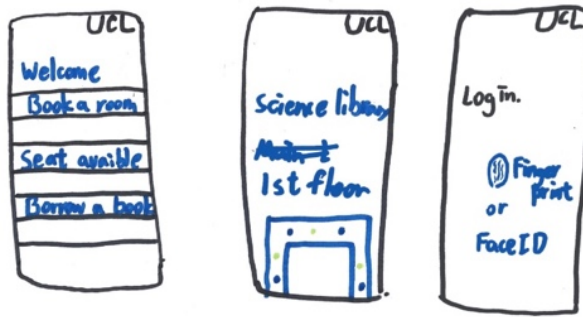


Figure 23 Part of the cognitive map by one Chinese student (participant 2 in the pilot study)

Avoiding jargon, the two of them stressed the importance of a straightforward expression of the interface and techniques to improve accessibility. It has been found that rather than the linguistic factors, it is the cultural background and past learning experience that have more impact on international students' wider educational experience (Hughes, 2005). Thus, exploring the cultural contexts of international students and improving the university services based on that is essential for the internalisation strategy.

While it should be noted that the two Chinese students engaged in the pilot study were UG students, who had no experience in the Chinese Higher Education system and the university library in that system, the different style of drawing and their thinking may not be directly related to the Chinese HE system; there is no evidence to compare the China and UK learning and perspective from the findings of the pilot study. However, it does show some extent of the cultural context from Chinese students and their requirements for the library system. Consequently, this pilot study strengthened the idea of targeting the sampling on international Chinese students, but with a more specific focus on the PGT Chinese students who had previous learning experience in the Chinese HE system and academic library experience in China.

4.5 Methodological implication

Methodologically, the purpose of conducting this pilot study within this doctoral research is to test the research methods, shape the research question and confirm the sample group. The three aspects were investigated, and implications were made through this small-scale study.

Test the research method: this pilot study shaped how the two methods, cognitive mapping and semi-structured interviews, can be combined and how the session could be designed, that cognitive mapping should be taken as an elicitation tool to explore the participants' thoughts and the interview should follow to let them fix their thinking and discuss the topic in detail. In addition, this pilot study tested the feasibility of the two research methods on different cultural groups and in particular on Chinese students as English is not their first language; nevertheless, they expressed abundant information via the two methods and reflected their cultural context, which confirmed the choice to look into Chinese students in the formal data collection. What is more, the pilot study informed the formal session design as some participants reflected that it was hard to start off drawing; thus, to ensure that they fully understand the topic and what to do in the cognitive mapping, one-two minutes is given in the formal session before the start of the drawing to let them think about the topic.

Shape the research question: through the pilot study, a narrow focus of the mobile library was trialled and it was found that most participants prefer to use laptops and desktops to access the library system in most of the learning contexts; therefore, a more feasible and broader topic—library experience in the Digital Age, is shaped and explored, which is not constrained by devices or usage contexts.

Confirm the student group: Before conducting the pilot study, it was more about testing the research methods in terms of how much data could be gathered and how well the methods would be accepted for different student groups, if they were asked to draw cognitive maps in English. Therefore, students from different cultural backgrounds were recruited and UK and EU students were seen as a control group. In the pilot study, the two Chinese students indeed demonstrated some level of cultural context, while they were UG students who had no experience of the Chinese HE system; therefore, this pilot study confirmed a more specific student group to explore which were PGT Chinese students with experience in both China and the UK.

Chapter 5: Library log analysis

5.1 Chapter introduction

In this chapter, the data and findings that were obtained through the library log analysis are presented and discussed. This provides a quantitative underpinning for the later qualitative data collection in terms of enabling an exploration of what library users, in particular the majority of Chinese students, are doing in the academic library system and informing the qualitative data collection design. It evidences library users' information seeking behaviour through their interaction with the digital library system, including their actions, clicks, searches, and other relevant statistics. The library log analysis enables the delivery of the first research objective: to investigate what Chinese students do in the UK academic library by looking into their information seeking behaviour.

Log analysis provides detailed records of a population's usage of a 'system'. It is often found to be an effective tool for showing the overall picture of user activities and behaviours online; in this thesis, a range of statistical evidence from the library log analysis reveals some aspects of Chinese students' information seeking behaviour on the UCL's digital library system. In particular their device usage, session duration, and bounce rate.

In collaboration with the UCL Digital Libraries team, two log data sets of the UCL Explore library search tool were accessed and analysed. These were the Primo Analytics data provided by the Ex Libris²² Primo platform and the Google Analytics data (both are anonymised log data). Figure 24 below presents a

²² Ex Libris: a software company that develops integrated library systems and other library software; Primo is a discovery service developed by Ex Libris

snapshot of the Google Analytics dashboard and data analysis process providing the macro level usage and summaries of online activities. The Primo Analytics reveals detailed, comprehensive statistics about monthly actions and sessions. The statistics from Google Analytics and Primo Analytics were merged to better present and analyse what users do in the system. Both data sets covered the library system usage data throughout the academic year of 2017-2018 (September 2017-August 2018).

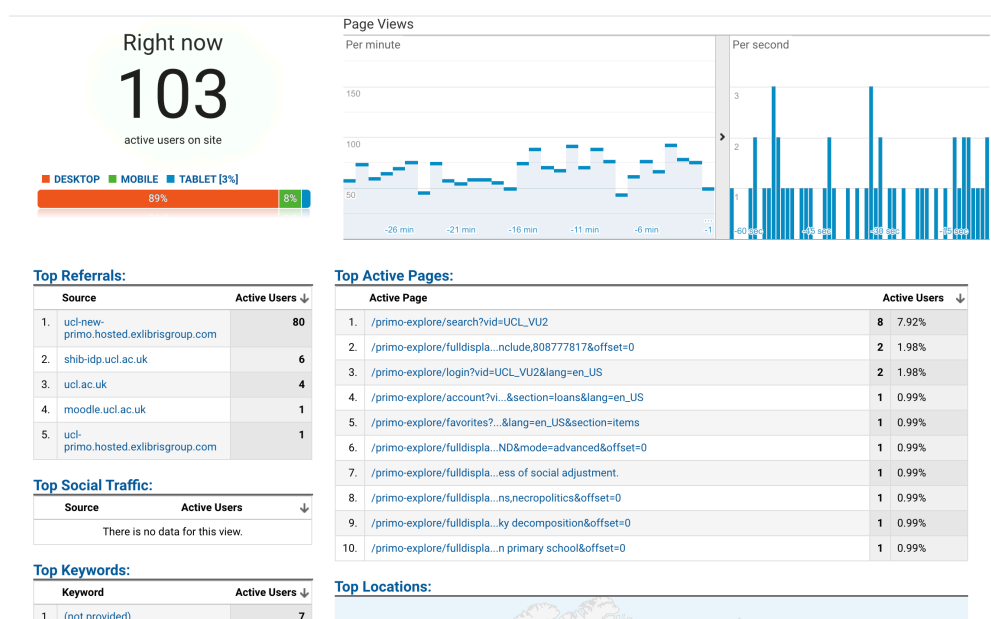


Figure 24 Google Analytics dashboard

The two log data sets enabled a closer look into the UCL library user population and there was evidence that reflects most of the Chinese users' behaviour in some but not all of the data; due to the complete anonymity, the log data sets only presented the whole usage with the summaries of user actions monthly and yearly, and did not tell the age, gender, discipline, position or any other personal information that may suggest their identity. Nevertheless, there was log data which showed the location (country), devices they use and the system language of their devices when accessing the library system, which may reveal their nationality if they used the system from their home country or if they operated the system in their native language. Therefore, the ordering of this

chapter starts from ‘the whole usage’, which embarks on analysing the log data from the UCL library population overall, and then drills down to the ‘Chinese users’ usage’, which uses multiple dimensions of the log data to explore information seeking behaviour of the majority of Chinese users.

5.2 The whole usage

The requirement for the General Data Protection Regulation (GDPR)²³ to protect personal data by organisations limits the analysis of specific user groups or individuals from anonymised library log data; however, the summaries of monthly usage and average usage still provided valuable insights into the overall information seeking behaviour of the library users in terms of where and how they were using the system via log statistics of locations, devices, actions, clicks, searches, and sessions.

Before analysing specific aspects of usage, a general look into the library usage throughout the academic year is beneficial for understanding the users and what they need in using this library system. The Figure 25 below shows the total number of sessions made in each month on the UCL’s library system, which indicates the overall use chronologically. The peaks and troughs are annotated (by session numbers in specific months) to infer the high and low traffic time periods in the library system.

²³ GDPR: a regulation in EU law on data protection and privacy in the European Union (EU) and the European Economic Area (EEA).

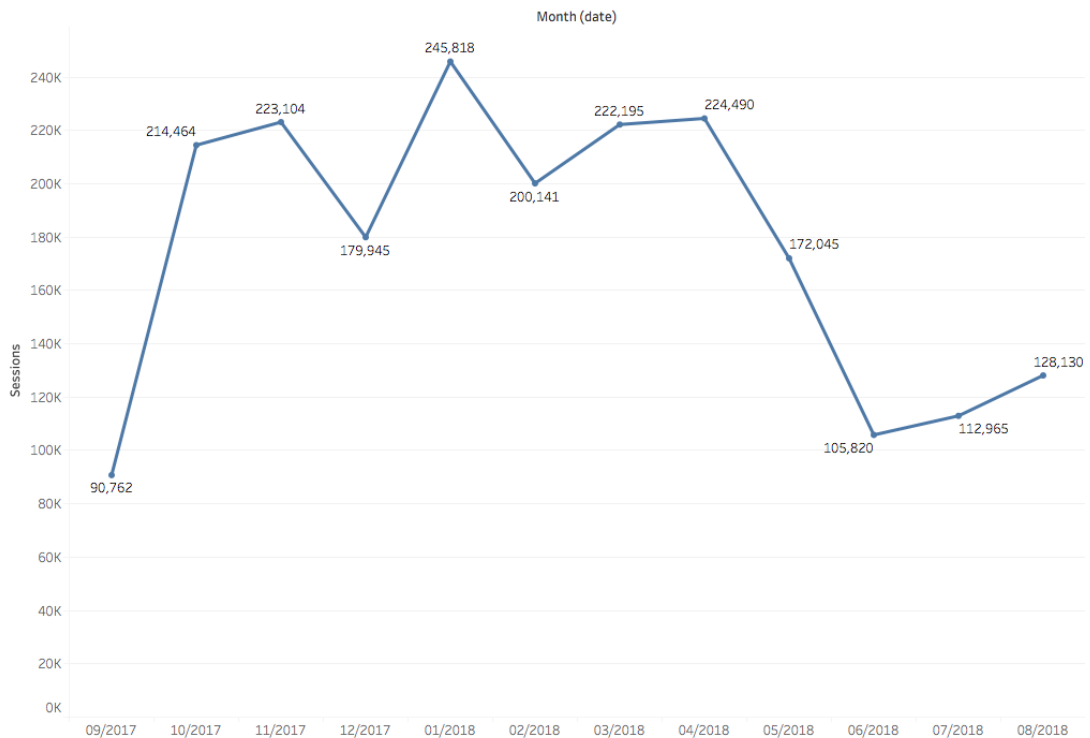


Figure 25 The monthly sum of individual sessions throughout the academic year

It is interesting to see from the graph that in the university term time and exam weeks, the sessions reached high peaks, such as the November 2017 (end of term one), January 2018 (start of term two) and April 2018 (end of term two). This figure reflects the traffic brought about by the information needs and tasks that are triggered by user's academic context; the context which is defined by their role, position, time and space. It can be inferred that the research and learning goal is the primary reason that motivates and influences users' activities in the UCL digital library system.

5.2.1 Actions

Actions are the detailed steps taken in the process of browsing, using and performing activities and conducting tasks on a website (David, 2013, p. 240). Multiple clicks and actions constitute a session and each of them may be repeated several times in order to complete a task; the sequence of actions taken to complete a task is different depending on the users' information

seeking behaviour and habits. Task analysis is often used as a way to design interactive systems and improve the website flow (David, 2013). In order to understand how UCL library users were using the digital library system and the tasks that might be implied from that, the library log data that related to actions and searches was analysed as an important aspect of understanding the information seeking behaviour.

A summary of actions, with the average clicks higher than 1000 times per month in the academic year 2017-2018, is shown in Figure 26 below. These are the breakdown of the actions taken in the sessions users made and each action represents a click on the library website. The most frequently performed actions were 'click on title' and 'view online', with the average clicks of 156,555 times/month and 148,531 times/month. This is followed by the other 8 actions that had clicks higher than 20,000 times per month, which were the 'locations tab' (82,204 times/month), 'SFX link²⁴' (62,212 times/month), 'Next page' (57,011 times/month), 'Display FRBR²⁵ versions' (34,240 times/month), 'Facet filtering²⁶' (29,175 times/month), 'Display full record' (26,511 times/month), 'Click on availability statement' (23,911 times/month) and 'Details tab' (20,905 times/month).

²⁴ SFX link: provides patrons with a direct route to electronic full-text records through OpenURL linking, delivers alternative links for further resource discovery, access to journals, and more.

²⁵ FRBR: functional requirements for bibliography records (developed by IFLA), is a conceptual entity-relationship model used in the library system.

²⁶ It is the filter options on the left hand of the website, where users can narrow down their search by selecting different criteria.

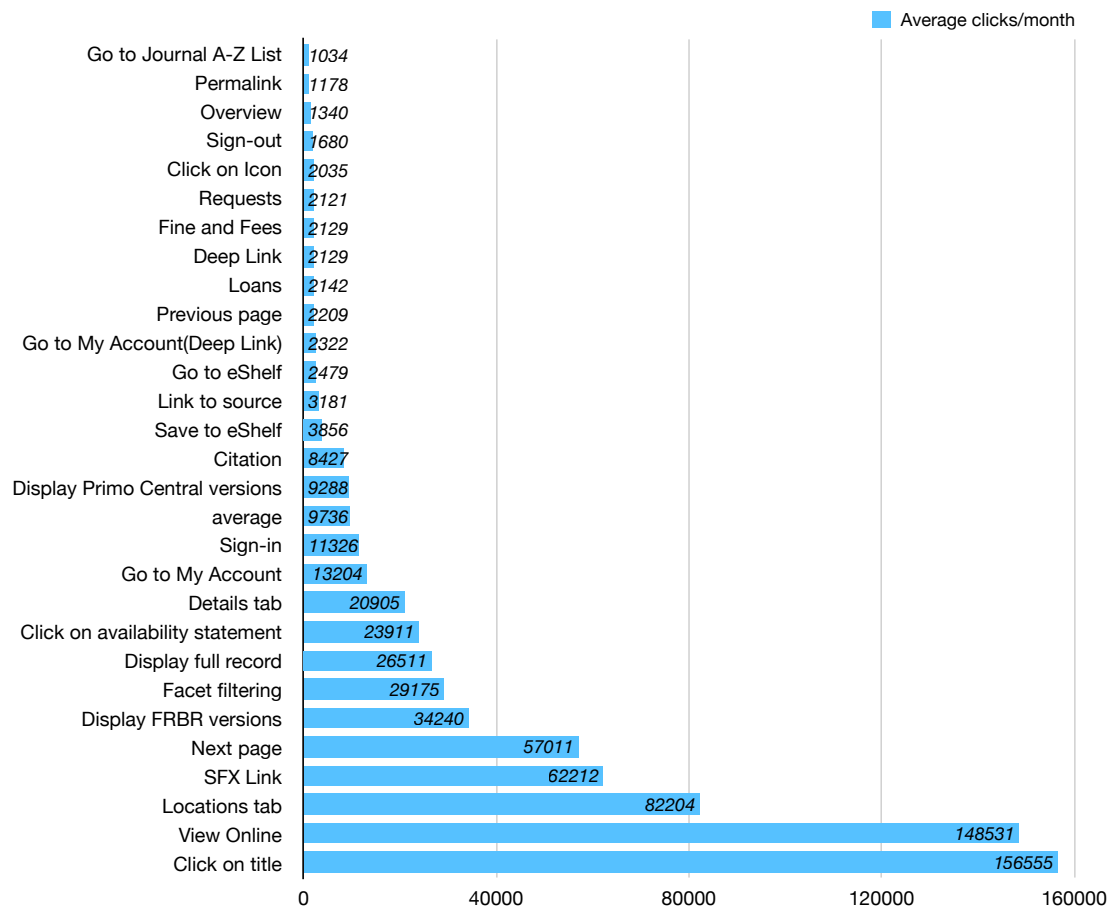


Figure 26 Summary of Actions per month (average clicks >1000 times/month)

In this figure, there is a significant digital shift of library resources and user behaviour from the statistics that showed a considerable jump from 'location tab' (checking the location of the print resources) to the number of clicks on 'view online'. It should be noted that a large number of library collections have been digitised, or online versions purchased, allowing for digital access without loan restrictions of time and space. It potentially evidences a digital behavioural change from users moving towards the use of digital resources rather than borrowing printed books. Within the Digital Age, where more people are aware of the availability and usefulness of digital facilities and the constraints of the physical world, the format of the information they prefer to use and their information seeking behaviour is shifting to what they assume to be convenient and sensible. This suggests that it is essential for academic

libraries to promote the integrity of digital library facilities and the alternative options for users to choose on receiving the library services.

However, this statistic alone cannot gauge users' borrowing or reading preference with regard to formats. A study investigating format preference from library usage data conducted by the University of Toronto found their users' slight preference over print resources, but they also indicated that it was insufficient to infer such preference from the log data only (Robertson et al., 2015). What also needs to be noted is the different functions and contexts of the print and the digital: "with print we are focusing on circulations of entire books which generally cover a long range of time. In contrast, electronic resource accesses tend to cover shorter periods of time and focus on chapters or sections of books, not books in their entirety" (Robertson et al., 2015, p. 249). Because of the anonymity, the log data sets did not show any borrowing information which would contain personal information (e.g. student number, department, borrowing date, etc.); therefore, the data around user actions only reflects the information seeking behaviour on the digital system, in other words, what they clicked on the library website. It cannot tell any in-house usage of the print resources, such as whether they read books in the library or whether they borrowed books without searching or checking in the digital library system. This leads to the incompleteness of drawing the conclusion of format preference; while the qualitative data collection should provide us with more insights into this issue.

Another interesting finding from this chart is the actions taken in terms of using the 'next page' functionality, which enables a user to see more resources by clicking on the next page button (57,011 clicks/month), and the 'facet filtering' functionality, which allows a user to choose one or more relevant facets that relate to the search (29,175 clicks/month). It is not surprising that many users

clicked next page to see more results because academic work requires a breadth of reading on the same topic, and they usually need to search works by different authors under the same topic. However, the number of clicks on 'facet filtering' was surprisingly almost less than half of the actions on 'next page' monthly, which shows that users would far rather click on the next page to see more results than using the filter to limit the range of results and improve the accuracy of their search. This may be because the users were unfamiliar with the filter tool and did not understand its value or they know clearly what to search for (e.g. having a title or an author name at hand) without applying filters to drill down the results.

In comparison to 'facet filtering', other functions provided by the library system had a lower number of clicks, such as 'citation' (8427 clicks/month) and 'save to e-shelf' (3856 clicks/month). The low clicks on other functions may be due to the presumption by the users that they are less usefulness or that they have inadequate knowledge on how to effectively use them to support their academic work. It is noted that there are limits to the log value; the functions users prefer and the reasons for frequent/less frequent usage can only be confirmed by qualitative methods.

5.2.2 Facet/filter usage

Another aspect of information seeking behaviour implied from the log analysis is the facet usage: this is a major action that can reflect the efficiency of the search and technique users adopt in the information seeking process, an indicator of the users' information retrieval skills and how well they can search effectively for what they want. From the previous statistics, the action of 'facet filtering' had an average click of 29,175 times/month but this did not show which aspect of filtering they were using. Table 14 is a summary of the detailed

facet filtering usage (average clicks per month), which lists all the filtering methods users can select to narrow down their search.

Table 14 Facet usage average value per month

Facet Type	Avg clicks per month/Facets Selected	Avg clicks per month/Sessions
Resource Type	12,728	8,692
Top level ²⁷	5,509	3,864
Date Slider	3,540	2,155
Library	3,072	1,915
Creation Date	1,789	1,235
Topic	853	427
Language	489	355
Author	451	323
Journal	264	92
IoE Collection	189	119
New Records	70	43
Pre-filter	1	1
Average clicks per month	2574	1708

The most frequently used facet type is the ‘resource type’ which allows user to select the type such as articles, books, book chapters, journals, dissertations, newspaper articles, conference proceedings, etc. It was selected on averagely 12,728 times per month in an averagely 8,692 sessions. This is followed by the ‘top level’ filter, ‘date slider’ (time range of the resources) and ‘library’ (location of the resources). Filter usage data is an important indicator of what users pay most attention to when seeking academic information; the UCL library log data shows that users care about the type of resources, which potentially imply how they make use of the library resources, the related academic task which may give requirements on the information type and the possible context of searching. However, a more precise summary on which type they select most, under what context and in solving what kind of task was

²⁷ Top level: static facets that display in the Show only sections of the Brief Results page. Unlike other kinds of facets, top-level facets display even if matching results are found only in one category (such as Available in the library).

not indicated by the log data. In addition, the filter usage of Chinese students cannot be inferred from the current data sets because of the anonymity, which is further explored in the qualitative investigation.

5.2.3 Keyword Searches

Keyword searching is closely related to information needs and users' goal of using the library system; it shows directly what students have been searching for and how they construct search strings. In this log analysis, the popular search strings were looked into in order to know the commonly searched resource topics to get to identify the disciplines of frequent users and their potential context of search.

As shown in the Table 15, the popular search terms (total searches higher than 500 times in a year) were listed with the total number of searches for the whole academic year. From this table, those sixteen search terms can be classified by the resource type and topic. The green denotes the reference books, guides and resources; the yellow labels the specific academic journal; the blue indicates certain databases or search tools; the purple represents a specific book; the grey shows the discipline or module-related materials. The topics of the popular terms were identified and listed on the right-hand column.

Table 15 Total number of keyword searched in the whole academic year

Search String (total search n=127,658)	Sum/Searches	Topic
Westlaw	4,381	Law
financial times	2,753	Business
Education	1,381	Education
chem1101	1,294	Chemistry
uptodate ²⁸	1,124	Medical science

²⁸ UpToDate is a software system that is a point-of-care medical resource.

Search String (total search n=127,658)	Sum/Searches	Topic
underground infrastructures: planning ²⁹	905	Architecture
oxford english dictionary	850	Others
pubmed ³⁰	795	Medical science
ucl exam papers	769	Others
british national formulary	752	Medical science
web of science	673	Science
Nature	666	Science
the economist	619	Business
the times	526	Business
suny cambridge history russia ³¹	517	History
british pharmacopoeia	500	Medical science

The most frequently searched term was 'westlaw', which is a law resource, with a total of 4,381 hits in the academic year. This might be searched by students who are in the field of laws, business and management. An interesting finding from this table is the term 'chem1101', which has a comparably high search rate (total of 1294). The search results for this term were the past exam papers for the course 'basic inorganic chemistry', which has the course code as chem1101. This is a surprising result that shows that students were actually using the library system to search for all types of information related to their study, including exam papers. Another interesting finding is about the search for databases or academic search engines (which are denoted in colour blue). The library users were using the library system to lead them to another academic database rather than going to that database directly; this shows that students were using the library system as an integrated information gateway to lead them to other channels of academic information. The search box of the UCL digital library system was used as a

²⁹ The search result of this term lead to the book "Underground infrastructures planning, design, and construction"

³⁰ PubMed is a search engine accessing primarily the MEDLINE database of references and abstracts on life sciences and biomedical topics.

³¹ The search result of this term lead to the book "The Cambridge History of Russia"

virtual gateway to the academic resources market where diverse types of information could be obtained.

From the popular search strings, it can be inferred that a large number of UCL users who use the library system frequently were those in the discipline of medical science, education, business and science. Due to information protection and the limitation on collecting data about student numbers in specific departments, it is hard to know the exact number of students in different departments or disciplines in UCL. The disciplines implied from the search strings do not mean that the students in those disciplines constitute the largest number of students in UCL; it merely suggests that they were the most active users of the UCL digital library system. In the participant recruitment for the qualitative investigation, students from those disciplines were invited to ensure that they have adequate experience of using the UCL library system.

5.2.4 Devices usage

This research is exploring students' library experience in the Digital Age, in which digital technology is an important contextual factor. This part of the analysis is to investigate how users were making use of different devices to seek information on the digital library system via related log data, to explore their contexts of usage and to discover how they behave on different devices. From the Google Analytics statistics, a summary of device usage and three essential behavioural statics—bounce rate, pages viewed per session and average session duration—on different devices were captured to analyse the overall usage of the UCL library system on different devices. The table below (Table 16) is a summary table of users and their behaviour on three major devices, desktop (including laptop), mobile phone and tablet.

Bounce rate³² is a key indicator in terms of showing the effectiveness and relevance of the web content in terms of the landing page. Web designers take bounce rate as important evidence that shows whether a user takes any actions (such as clicking a link, making a request or filling a form, etc.) upon arriving on the website landing page and to know whether the landing page design is attractive and relevant to web users. Usually, a high bounce rate can indicate some problem with user engagement with the site if the goal of the website is to draw users further into the content potential, but it is not a definitive statistic that defines how good the website is designed or how well users are engaging with the website. Nevertheless, it does suggest some user characteristics and information seeking behaviour if other dimensions of the log data can be added and compared, which in other words, provides a frame of references to indicate the bouncing behaviour by comparison.

Table 16 Summary table of device usage

Device Category	Acquisition			Behaviour		
	Users	New Users	Sessions	Bounce Rate	Pages/Session	Avg. Session Duration
	407,033 % of Total: 100.0 0% (407,033)	387,881 % of Total: ³³ 100.11% (387,447)	2,199,368 % of Total: 100.00% (2,199,368)	28.02% Avg for View	4.98 Avg for View	00:06:26 Avg for View
1. desktop	337,838 (83.02%)	322,119 (83.05%)	1,956,553 (88.96%)	25.37%	5.22	00:06:54
2. mobile	56,075 (13.78%)	53,525 (13.80%)	190,124 (8.64%)	53.04%	2.65	00:01:59
3. tablet	13,026 (3.20%)	12,237 (3.15%)	52,691 (2.40%)	36.13%	4.51	00:05:17

It is apparent from the table that the primary device used to access the UCL library system is the desktop (including laptop), with 83.02% of the total

³² Google Analytics Bounce Rate calculation is single-page sessions divided by all sessions, or the percentage of all sessions on your site in which users viewed only a single page and triggered only a single request to the Analytics server.

³³ This total percentage of 100.11% may be caused by the rounding error.

number of users performing 88.96% of the sessions in the academic year 2017/18. This is followed by the usage on mobile and then tablet, with 13.78% and 3.20% of users respectively. Not surprisingly, under most circumstances, library users tend to use the library system on their desktop/laptop, which has a bigger screen and more functions. The statistics of pages viewed per session and average session duration also suggest more complicated tasks and more time devoted when accessing the library system on desktops/laptops, with an average of 5.22 pages viewed and around 7 minutes spent in a single session. In comparison, the sessions on mobile phones were fairly short (around 2 minutes with 2.65 pages viewed per session) and user jumped out more frequently than when using desktop or tablet. It should be noted that the pages viewed and session duration on tablet is similar to that on desktop while the usage on mobile phone was distinctly different from the other two, which does suggest a significant behaviour disparity among using mobile phones and the other two devices. It is the context and information needs that differentiate their choice of device and the information seeking behaviour they demonstrate, which can only be explored through qualitative techniques.

The detailed use analysis on the devices is from Primo Analytics, where the monthly average numbers of sessions, actions and actions per session are summarised by specific type of devices (Table 17). A notable finding from this table is the average actions in each session on different devices. Although there were more sessions on mobile phones than tablets (4344 vs 3307 sessions), users made more actions per session on tablets (14593 vs 15402 actions) (labelled in grey). This again indicates the different tasks users performed and the different information levels they reached on mobile phones and tablets.

Table 17 Average device usage per month

Device	Avg/Sessions	Avg/Actions	Avg/Actions Per Sessions
Laptop/PC	9,632	56,086	6
iPhone	4,344	14,593	3
iPad	3,307	15,402	5
android	677	2,672	4
winphone	13	51	3
iPod	8	33	4
blackberry	2	8	3
kindle	1	2	2
Average	6,327	35,996	5

In order to easily compare the use among these devices in the same time periods, aggregate measure³⁴ was used to show the usage trend on one map, with different axis scales (see Figure 27). The trends for android, iPad and iPhone are flatter than that of the laptop/PC, which indicates steady usage on these portable devices. The sessions performed on laptop/PCs, however, changed dramatically with the influence of the university term time and exam periods. It is also worth noting that the trend lines for android and iPhone are almost identical in the year 2017-2018, which shows that although the mobile brands are different, the mobile users have similar information behaviour on their mobile phones. Lastly, the sessions conducted on the top four devices almost have the same peaks and troughs and these are in line with Figure 25 in the whole usage part, showing the main use of the UCL library system is to satisfy the research and learning goals that are set out based on the term time.

³⁴ Aggregate measure: In Tableau, users can aggregate measures or dimensions, though it is more common to aggregate measures. Whenever you add a measure to the view, an aggregation is applied to that measure by default. The type of aggregation applied varies depending on the context of the view.

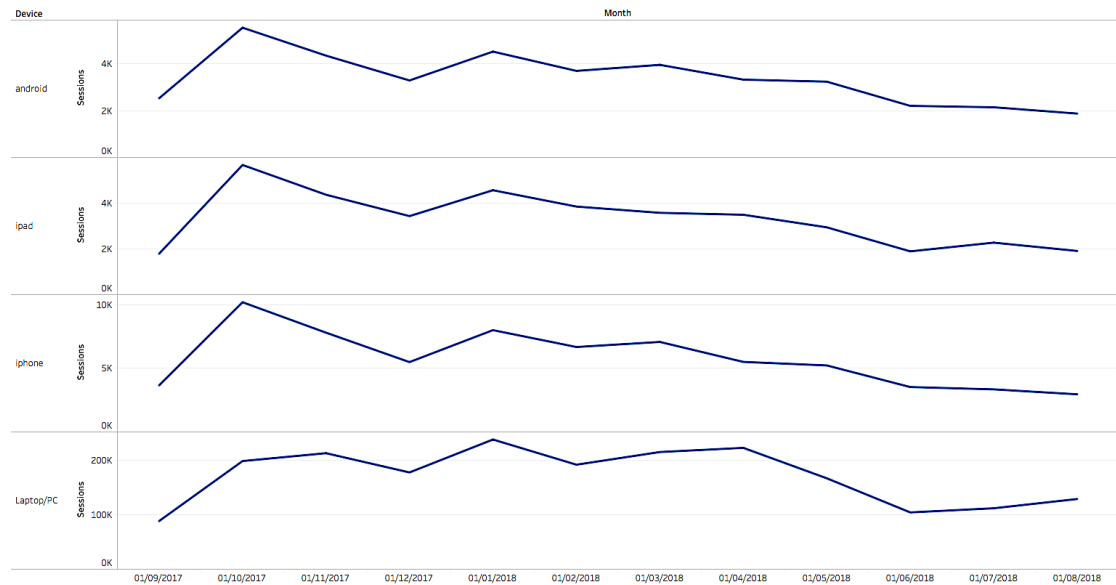


Figure 27 Session trend by popular devices

It is the information needs and tasks that lead to certain information behaviour. The library, as the information centre, should investigate the goals and requirements of users on different devices and their context of usage to design the library system and interface accordingly to satisfy users' needs and improve library user experience. In the qualitative data collection stage, questions around requirements and context usage are explored in-depth.

5.2.5 Key behavioural statistics in a year

The total and average summaries of actions show the usage within a month and a year, which is essential to know the overall users' information seeking behaviours; nevertheless, it is hard to tell the chronological change or tendency caused by the context change. In this section, the annual change overviews of the bounce rate, average session duration and pages per session (see Figure 28, Figure 29, Figure 30) are presented in order to understand UCL library users' context of usage.

The figure below shows that the average session duration (Figure 29) and pages viewed per session (Figure 30) had a similar path of change, where they

reached peak and trough values at almost the same times. This indicates their positive correlation relationship, that the more pages viewed, the longer the session was; while the bounce rate overview shows a contrary path of change, where it went smoothly in the Autumn and Spring term (September 2017 to March 2018) and experienced dramatic changes after the Easter holiday (Figure 28). The peak value of the bounce rate coincided with the trough values of session duration and pages/session (the middle of April 2018), which means a frequent jumping behaviour on the library website with less page viewed and shorter session duration. The fluctuation of usage appeared on all three figures during the Summer time (June to August 2018) with a slight increase at the end of Figures 29 and 30 and a slight decrease at the end of Figure 28, showing a discontinuous usage of the library system during the summer break and an increased usage before the start of the new term.

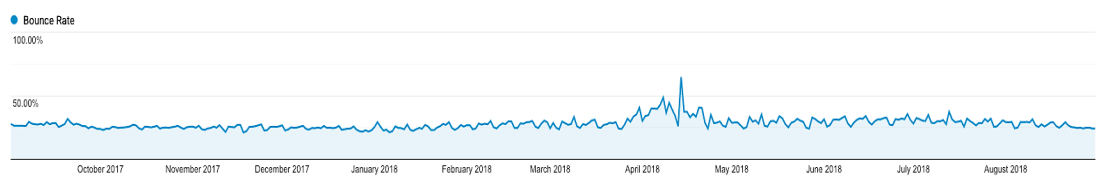


Figure 28 Annual overview of bounce rate

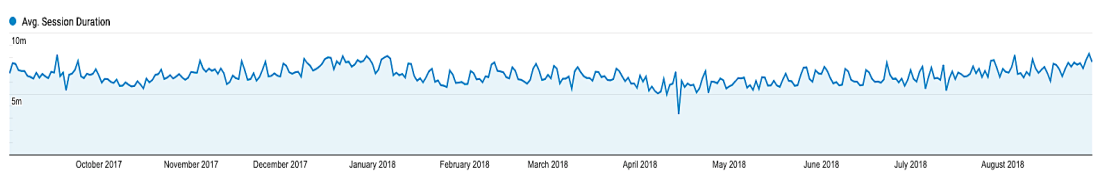


Figure 29 Annual overview of average session duration

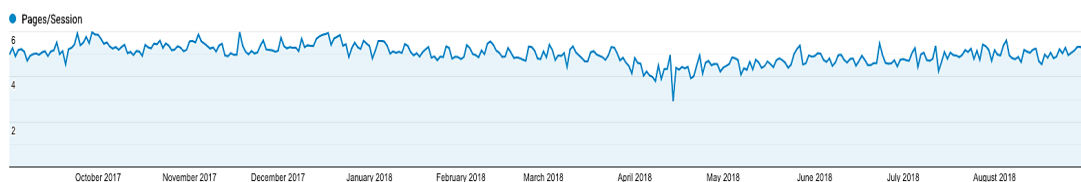


Figure 30 Annual overview of pages/session

This gives us a clue to the context of library users' information seeking behaviour. Their use of the library system was mostly influenced by the learning environment and the arrangement of the term and their courses. In the Autumn term, when users started their new academic year and went to lectures for their courses, they showed a lower bounce rate and relatively longer session duration and more page views. This may be caused by their exploration with the new course, unfamiliarity with the library system, and the constant formative coursework each week. The statistics around the Easter holiday clearly showed the impact brought by the learning tasks, where library users would be facing coursework deadlines. The stable fluctuation with a slight statistical increase in the summer reflects the process of dissertation writing and other academic works that may not have an immediate submission date. With further qualitative investigations, the reasons are explored from the user's perspectives.

5.3 International Chinese users' usage

This research is targeted on exploring Chinese students' library experience, therefore the related log data was used to drill down to locate the majority of them. Through using multiple dimensions of log data, especially through the ones that represent where the library system is being used (country) and the system language of the devices used when accessing the library system, the majority of Chinese students using the UCL's library system can be identified. It should be noted that this does not include Chinese students using a Cluster machine, loan laptop or one running a non-Chinese OS setup, or a VPN.

5.3.1 Information seeking behaviour

5.3.1.1 Identify Chinese users by country

From the Google Analytics data, users' behaviour (including the bounce rate, sessions, session duration and page per session) in the academic year 2017/18 was summarised and grouped by countries (see Table 18). Five primary countries where UCL library users were accessing the system from are listed here: UK, USA, China, France and Germany. It is apparent from the table (and unsurprising) that UK is the country where the library system was being used mostly which constitutes 91.16% sessions with 86.57% of library users accessing from UK. However, some users were accessing the system when they were out of the UK, which provides further data which potentially identifies Chinese users.

Table 18 Summary of user sessions by country

Country	Acquisition			Behaviour		
	Users	New Users	Sessions	Bounce Rate	Pages/Session	Avg. Session Duration
	407,033 100.00%	387,881 100.11% ³⁵	2,199,368 100.00%	Avg28.02%	Avg4.98	Avg00:06:26
1. United Kingdom	373,366 (86.57%)	350,661 (90.40%)	2,004,957 (91.16%)	27.91%	4.98	00:06:24
2. United States	6,447 (1.49%)	4,509 (1.16%)	16,501 (0.75%)	32.93%	4.71	00:05:45
3. China	4,046 (0.94%)	2,525 (0.65%)	14,325 (0.65%)	28.80%	5.50	00:09:03
4. France	3,497 (0.81%)	1,863 (0.48%)	13,517 (0.61%)	27.65%	5.02	00:06:42
5. Germany	2,991 (0.69%)	1,814 (0.47%)	10,413 (0.47%)	27.27%	4.72	00:06:02

Compared to users based in UK, UCL library users in China viewed more pages in a session (5.50 pages/session) and had a longer session duration (around 9 minutes). These two statistical indicators were also higher than that of the average values. This is likely to reflect a different way that Chinese users interact with the digital library system. As the log data reflects library usage in

³⁵ This total percentage of 100.11% may be caused by the rounding error.

the year 2017/18, which is before the COVID-19 pandemic (where distance learning is prevalent), the likely reasons for why there was access from non-UK countries but particularly from China are: academics traveling (which may pick up statistics from staff or any affiliates), Chinese UG students going home when finish a term (normally in July) and using library to prepare for the following year of just downloading resources as much as they can before losing access, Chinese PGT students going home for the summer (avoid paying rent and to be with family) and completing their dissertations, Chinese students going home for the Spring Festival in February 2018.

From the table, the average bounce rate on the UCL library system is 28.02%; as mentioned in 5.2.4 (Devices), bounce rate is an important indicator of a user's behaviour. Normally a high bounce rate shows a negative performance of the website because users jump out of the site after viewing the home page; however, it is a difference case with the library website. On the UCL Explore library system, there are less layers of content; typically, a session starts with the search page (Explore home page/search box), followed by the result page (result list) and a specific resource detail page. Compared to other studies on investigating bounce rate, the UCL library website has a lower rate. According to Batra (2008)'s study on business websites, the average bounce rate was 40%; Betty (2009)'s study on library collections website had the average bounce rate of 34%. This indicates that the library users in UCL are much more engaged with the library system (with an average bounce rate of 28.02%). It is worth noting that the different information intentions and goals of using the system lead to different levels of engagement; the users of the UCL library system are mainly students, staff, researchers and visitors who have explicit goals and tasks to carry on the website, which leads to a higher level of immersion and a lower bounce rate. Therefore, it is more valuable to compare the bounce rate of different user groups with the average bounce rate.

The average bounce rate is 28.02% and the UK users have a lower bouncing rate, which is 27.91%. Users accessing from China have a bounce rate of 28.8%, which is around the average rate and is similar to users accessing in the UK, showing their tendency of exploring the UCL library system and viewing more content on that. Notably, users in USA have the highest bounce rate (32.93%) and the shortest session duration (around 5 minutes), which indicates that users' accessing from USA have a different jumping behaviour when they browse the UCL library system and a different information seeking behaviour. If we take the statistics of pages/session and average session duration into consideration, users in China tend to stay, browse and conduct other activities in a longer duration on the library website.

5.3.1.2 Identify Chinese users by system language

Another facet of data that potentially helps to identify international Chinese students is the system language used. It should be noted that the system language identified by the library log is from the information from the user profile setting or device setting (system language on their device); thus, there may be Chinese students who were using English based devices. However, it is rarely the case that a non-Chinese user would be using Chinese as the system language on their devices, which should guarantee that the Chinese users identified by the log data through system language were the people that this PhD is targeted at. By identifying the system language (Chinese: zh-cn³⁶) and the location (UK), the majority of Chinese users who were using the UCL library system can be identified. The Table 19 below illustrates the main user information seeking behaviour based on the system language and country.

³⁶ Zh-cn: Chinese (PRC); this excludes Chinese (Hong Kong), Chinese (Taiwan) and Chinese (Singapore)

Table 19 Summary of user session by system language and country

Country	System Language	Users	New Users	Sessions	Bounce Rate Avg:28.01%	Pages/Session Avg: 4.98	Avg. Session Duration 00:06:27
UK	en-gb ³⁷	219,125	206,227	989,278	28.33%	4.94	0:06:14
UK	en-us ³⁸	124,955	115,996	702,860	28.72%	4.8	0:06:08
UK	zh-cn ³⁹	15,416	14,011	168,033	24.23%	5.83	0:08:12
US	en-us	4,636	3,672	11,266	33.54%	4.96	0:05:42
China	zh-cn	3,104	2,061	11,454	27.26%	5.62	0:09:27

As mentioned before, in order to precisely evaluate Chinese users' behaviour in the system, it is more sensible to compare their data with the average value. It can be seen from the Table 19 that compared with the average bounce rate (28.01%), the Chinese users (using a Chinese device) located in UK have a lower bounce rate of 24.23%, even lower than the rate of Chinese users located in China (which is 27.26%). This means the Chinese users in UK usually visited more than one page of the library website in sessions to complete their goal. In addition, the results of the 'pages/session' and the 'average session duration' in the table indicate that Chinese users in the UK and in China viewed more pages in one session, around 5.83 pages/session and 5.62 pages/session respectively, and spent a longer time in one session, around 8 and 9 minutes, compared with other users. This two-dimensional analysis using the log data of system language and country is in line with the analysis that only used data of the country (5.3.1.1), which further illustrates the different information seeking behaviour of Chinese users, no matter if they are located in the UK or in China.

From the analysis of country and system language, we can see a clear difference between the English language users and Chinese users on the three key statistics; this difference reveals some of the user characteristics and may

³⁷ En-gb: United Kingdom English

³⁸ En-us: United States English

³⁹ Zh-cn: Chinese (simplified)

indicate the unique information seeking behaviour they have when using the library system. International Chinese students compared with other library users, spend more time using the library system, finding resources and completing information tasks. There may be a number of factors and reasons behind the statistics of a lower bounce rate, higher pages/session and longer session duration of the Chinese users that can be explored further in the qualitative data collection stage. Chinese users may: put more effort into exploring the library resources; work harder and devote more time on the library system; encounter some difficulties during usage; have different habits of interacting with the library system and different information seeking behaviours; be less familiar with the library systems in UK and take longer time to navigate the systems.

5.3.2 Chinese users' devices usage

By analysing the log data of devices with system language (two-dimensional analysis), Table 20 was generated to identify Chinese users' behaviour on different devices when using the UCL library system. Users who have devices with the system language of simplified Chinese (zh-cn) are labelled in grey and this implies the majority of Chinese users on the UCL system.

Table 20 Device usage by system language

Device Category	Language	Users	New Users	Sessions	Bounce Rate	Pages /Session	Avg. Session Duration (seconds)
desktop	en-gb	176,215	166,404	856,352	24.73%	5.33	419"02
desktop	en-us	130,661	122,110	764,836	27.75%	4.84	385"09
desktop	zh-cn	13,237	11,835	166,644	21.49%	6.27	546"29
mobile	en-gb	40,423	37,922	138,435	52.65%	2.59	112"36
mobile	en-us	7,760	7,159	24,062	53.57%	2.57	116"67
mobile	zh-cn	3,684	3,488	10,309	57.14%	2.77	146"62
tablet	en-gb	9,006	8,271	35,542	37.00%	4.29	312"56
tablet	zh-cn	1,451	1,370	6,265	35.43%	5.82	440"89
tablet	en-us	1,437	1,277	7,146	32.13%	8.48	445"66

From this table, an interesting finding is the bounce rate of Chinese users on different types of devices: they had a very low bounce rate on desktops (which is 21.49%) compared to other users who were using desktops; however, they were also the users that had the highest bounce rate on mobile phones (which is 57.14%). Their engagement with the library system on desktops was deeper than that on mobile phones. This shows their different goals and information seeking behaviour when using desktop and mobile to access the library system which may be caused by the environment or context of usage. The reason for this difference is explored in the qualitative stage of research.

On both devices, Chinese users viewed more pages (6.27 pages on desktop and 2.77 on mobile) per session and spent a longer time in each session (around 9 minutes on desktop and around 2.5 minutes on mobile) than other users. A quarter of the Chinese users on desktops were using mobiles in the meantime, fulfilling their different information needs under varied contexts. Compared to desktop and mobile, there was a small number of Chinese users who used tablets to get access into the library system (1451 users) with a relatively low bounce rate (35.43%) and high session duration (around 7 minutes) compared to other users. This finding is in line with the previous user analysis and might be caused by cultural factors, search habits, learning habits and digital information literacy skills, which are investigated in the next step of the research.

With data from Table 16 and Table 20, three column charts are generated to show the critical statistics on different devices crossing the system language; with average values labelled on the charts, a more intuitive presentation of the three language users' behaviour on different devices is illustrated. The dark blue column represents Chinese users that used Chinese devices (zh-cn); the

light blue is users with UK English devices and the middle blue is users with USA English devices.

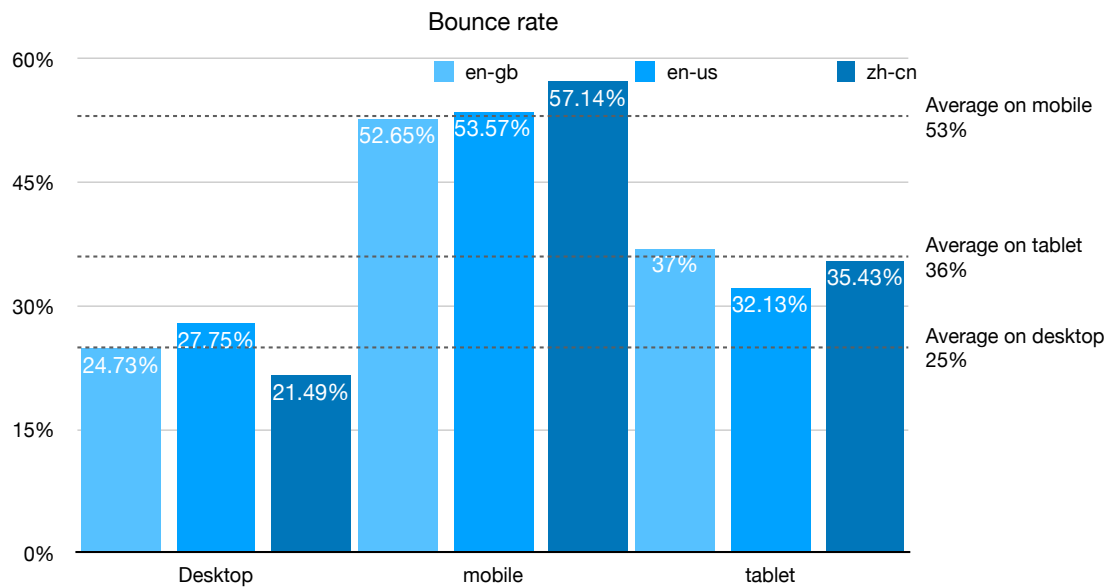


Figure 31 Average bounce rate on different devices by system language

Figure 31 is a demonstration of the average bounce rate which clearly shows a relatively frequent jumping behaviour on mobile phones. All the three language users tend to stay on the library website and explore the potential content when using a desktop/laptop, which shows their immersed information seeking behaviour on a desktop and suggests the context of using a desktop may be conducive to study. However, with a mobile phone, their jumping is revealed with behaviour such as checking or confirming rather than browsing or exploring. Additionally, Chinese users tended to use the library website on a desktop rather than on a mobile phone nor a tablet, where they were found to stay on the website and explore more content.

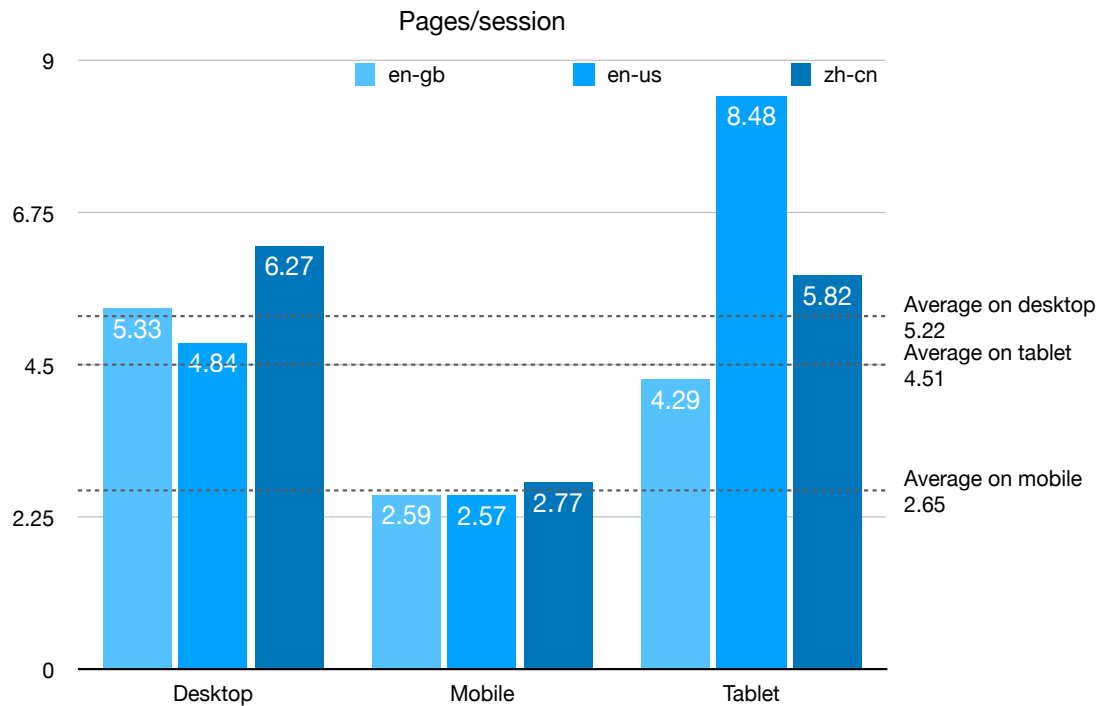


Figure 32 Average pages/session on different devices by system language

As for the average pages viewed per session, from Figure 32, a notable statistic is from the USA English device users who averagely viewed 8.48 pages in one session on a tablet, which was many more than the pages they viewed on a desktop and mobile and also more than other users' page views. It becomes clear that the USA users tended to use a tablet to access the UCL library system to conduct information seeking. While Chinese users generally viewed more pages (6.27 pages/session) on a desktop/laptop than the average users, they had similar overall page views with the UK users. For all users, the mobile phone seems not to be preferred to access the library system and they did not perform deep searches on mobile phone.

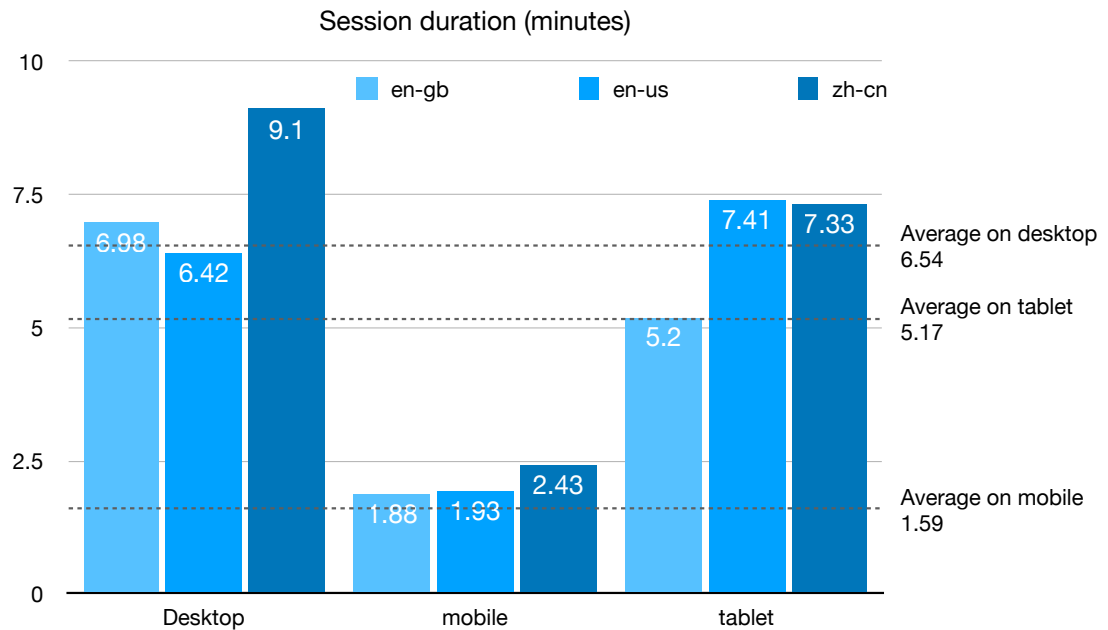


Figure 33 Average session duration (minutes) on different devices by system language

Figure 33 presents the average session duration by the three different language groups on desktop, mobile and tablet. From this figure, it is easier to see that users spent considerably more time on desktops and tablets compared to that on mobile phones. Besides, Chinese users spent longer time in each session (9.1 minutes on desktop) compared to English users and this is more obvious on desktop and mobile. An interesting statistic is with the US English devices where a fairly long session duration was found on tablets, contrary to the other two language users and average users who had longer session durations on a desktop, which is in line with their statistics around pages/session.

The statistics from logs are powerful in the way that they present the detailed usage and engagement conditions. However, they cannot explain the reasons behind the scene about why there are different interactions. This is in line with Gooding (2016)'s statement that log statistics do not give the motivations or reasons for user behaviour; thus further investigation is needed to fully understand the users.

5.4 Implications from log analysis

Understanding users is always regarded as a core part in designing an interactive service or products and in improving user experience; it is a process of knowing who are using the system, their characteristics, their needs and their context of usage (David, 2013, p. 138). As the first stage of this doctoral research, this log analysis into “what they do” in the online academic library is crucial in uncovering an important aspect that constitutes library experience, which is information seeking behaviour in the digital library system. The implications of log analysis are discussed from two aspects in this section: the overall usage by the whole population and that of international Chinese users.

5.4.1 The overall usage

Log data has a great value in looking into the whole population of library users. Due to data protection and the complete anonymity of log data, any personal information that may indicate gender, age, discipline, position or department was not revealed in the UCL logs; therefore, the analysis started with the overall usage which did not distinguish any user groups.

The main users of the UCL library system are students, staff, researchers, and visitors to UCL, who can be novices or experts of library systems and their academic levels and abilities vary considerably. The usage statistics for the whole year illustrated how the UCL library website has been used throughout the academic year along with the term and course arrangements; every access is triggered by certain information needs and goals which form the seeking process and the construction of knowledge (Kuhlthau, 2004). Difficult to measure, information need is seen as a complex result from personal knowledge demand, social and emotional factors and personal context

(Chowdhury & Chowdhury, 2011a). The information need for using the UCL library system is formed by user's role in their academic activity and the tasks that emerged from the role; it is clear that their context of use is primarily within the academic requirements. From the action analysis, what users were searching for, how they put that in strings, and how they made use of filters to assist the search were revealed. Those actions are motivated directly by information tasks and contexts and the strategies they use are demonstrations of their skills and habits. The high number of searches for the course code "chem1101" and "ucl exam papers" suggests that users conduct information seeking with explicit goals and in the context of completing coursework and preparing for exams to achieve their academic goal. Such context gives clues to the library to assist users with more information and resources related to their coursework, such as past exam papers and course reading lists.

A notable finding from the action analysis was the large number of clicks on viewing resources online rather than checking the location of physical copies. This implies some possibilities on the overall usage of UCL library system: it may suggest the library users' adaptation to the digital library environment; it may suggest a digital transition of information type and information use; it may also suggest that more users are aware of the constraints of the 'physical' and the convenience of the 'digital'; it may be influenced by the context of searching that it is inconvenient (or not possible) to borrow books from the physical library when they are away from the campus.

However, it cannot reveal their preference on the format of resources or the reasons for choosing such format. Besides, due to the permitted level of details and the privacy issue, the statistics around viewing resources online cannot be broken down into certain types (e.g. journals, books, chapters, etc.) and an individual's viewing history cannot be traced. It is also hard to tell the

intensity of usage for different formats (Robertson et al., 2015). Although the previous work on the library's digital challenge revealed expectations from library users in the Digital Age, which are availability, findability, sharing and re-use and understanding the content (Oudenaren, 2010), this does not mean that users prefer the digital or that the digital has replaced the print (Robertson et al., 2015). The implication and value from this statistic is to act as a benchmark for the next stage of qualitative research, where the context of use and personal preference of using different formats is explored.

The findings on the limited use of filters and other functions like the e-shelf, citation and gateways to journal and database list may suggest users' habits and information seeking behaviour on the library system yet cannot fully reveal the reasons of this limited usage. The constantly updated library system that is equipped with abundant functions and supported by technologies have brought convenience but also confusion and challenges to some users (Kassim, 2009). Previous work on observing international students' interaction with the library system found their information retrieval skills were insufficient, unstructured and uncritical (Hughes, 2007). Another study found that Asian students have a limited breadth of reading due to their inadequate search for e-resources (Stone & Collins, 2003). It is thus also important to know users' information intentions and their requirements in terms of helping users to get successful academic achievements. It has been pointed out that the use of digital library resources should be treated in the overall learning experience, rather than simply the information skills (Hughes, 2013). The limited usage may indicate insufficient publicity of these functions and the necessity for libraries to design more information literacy training workshops, but this also may suggest users' dissatisfaction with these features. Students today are surrounded with digital technologies, engaging with tasks that require digital information literacy and information retrieval skills (Gourlay & Olive, 2018).

Libraries, as the information centres and experts, should not only generate useful information and resources, but they also need to consider users' needs and provide tailored trainings to assist their information seeking process. In the meantime, more library user satisfaction surveys should be conducted to find out users' perception of library resources and services (Kassim, 2009; Mirza & Mahmood, 2012).

Digital technologies are created to serve people with various activities in different contexts (Gourlay & Olive, 2018). It is not surprising to see that the longest session duration and most page viewed in a session appeared on laptop/PCs, where the context of using laptops is mostly in the places designed for learning. While the shortest session duration and least page viewed/session was shown on mobile phones; such apparent distinction suggests the different context and goal of using the library system on mobile devices, where information seeking behaviour and user experience would be different from the one on a laptop/PC. It has been pointed out that there is a dearth of research that looks into how students might engage with the technologies and digital environment in their studies (Gourlay & Olive, 2018). Context is essential in defining the setting and drawing the boundary, without which the information seeking behaviour or user experience theory cannot be accurately described (Jansen & Rieh, 2010). However, the broadness and variety of context makes it difficult to define and study only through log data. The log analysis implies possibilities of users' context with regard to technologies, time and space, task and activities and other possible contextual factors; however, it is not adequate to show the whole picture. In-depth investigations should be conducted to fully understand how students make use of technologies in their academic library experience in diverse contexts.

5.4.2 International Chinese users

Through analysing multiple dimensions of log data, especially with geographic location and system language, the majority of international Chinese users were identified, which provides insights into their information seeking behaviour on the UCL library system and inspires the design for the next stage of this research. However, from the log data, it is not possible to confirm the role or programme they were in and the data only revealed summative behaviours from most of the Chinese users who may be undergraduates, postgraduates, researchers or staff; yet many of Chinese users in the UCL library system are students.

The log analysis results show that Chinese users had a relatively low bounce rate, longer session duration and viewed more pages in each session. It has been pointed out by previous studies that bouncing “sometimes represents a highly direct and pragmatic form of information seeking” when users are aware of where to go and how to search for the exact information (Nicholas, 2010, p. 28). Considering the pragmatic function of the library system, the high bounce rate of English users may suggest their awareness and familiarity with using the library system to find the resources they need or that they spend less time on the library system because of their learning habits. In contrast, the lower bounce rate and longer session duration of Chinese users may indicate their different way of information seeking, a specific strategy of using the library system, or the ineffective use of it. The reasons cannot be revealed merely from log analysis, and other approaches should be used to get narrative explanations from users. Previous work has indicated that language barriers, transition to a new academic environment, unfamiliarity of utilising resources and other factors were the issues that have a negative impact on international students’ overseas learning experiences (Wu et al., 2015; Yi et al., 2003). From the annual overview figures, we see that the bounce rate, session duration and

pages viewed per session for all users changed over time, where users had a relatively lower bounce rate and longer session at the start of the term. This may suggest that the library users spend a longer time browsing and exploring the system at the start of each academic year and they gradually get used to it after a period of time. However, the average low bounce rate of Chinese users compared with other users may suggest their different pattern of interaction and the difficulties that may be brought by the difference in culture and language. The information seeking behaviour research conducted in an everyday life context has assessed how cultural and social variables have influenced the way people find information for their daily needs, namely the theory on the everyday life information seeking (ELIS) (Savolainen, 2008). This theory is influenced by the concept of 'Habitus' raised up by Pierre Bourdieu, which is described as the internalised socially and culturally determined the way of thinking, perception and evaluation (Savolainen, 2008, p. 23). According to ELIS, gender, age, socioeconomic status, cultural background, location, education level and other factors can affect people's information seeking in everyday life. While in this research context, which is within the HE system, the library log analysis suggests specific behavioural characteristics of Chinese users that may be brought about by culture, past education experience, the disciplines they are in, or other factors; how those factors are influencing their behaviour and experience in the academic library can only be explored through qualitative techniques.

5.5 Chapter conclusion

Log analysis is valuable in revealing what users are actually doing within the system, rather than what they recall, think or say they do (Nicholas et al., 2006); what is more, it is able to show the diversity of user interactions and demonstrate differentiations among user groups, which helps to identify

issues during this interaction process. As a component of web analytics, log analysis is useful to help the web developer capture the usage status of a specific application and determine the way to improve usability and UX. In the LIS field, techniques from web analytics have been used to evaluate the quality of digital library systems and to learn about library users' interaction with the resources and services provided by a digital library (Agosti, 2008; Betty, 2009; Cohen, 2003). Library logs tell stories of what users are doing in the virtual library space and librarians can always get an overview from such logs compared to qualitative usability studies. As stated by Nicholas, "the great thing about log analysis is that you are working with huge population and thus can drill down to discover diversity" (Nicholas, 2010, p. 29). However, the logs are unable to uncover the motivations, reasons, expectations and difficulties for searching, which requires other techniques to learn the matter in a qualitative way (Jansen, 2006).

From the logs, we can see a statistical difference for Chinese users, yet we cannot draw any conclusions from it. The reasons for such differences can only be explored through their personal narrative explanations. Except for this, the implication from the logs still illustrated that investigating the library usage of students from diverse cultural background is worthy of further exploration for academic libraries to provide customised services and to support students' academic activities with targeted reference (Whitmire, 2003). Previous work has found that demographic factors, especially the cultural background, do have an impact on international undergraduate students' library usage, which is mostly due to the "different early training on how to find and use information resources" (Stone & Collins, 2003, p. 31). The complex nature of people is formed in the social and cultural environment, thus culture's impact should never be ignored nor stereotyped (Berry et al., 1987; Kang & Chang, 2016). To understand their actual experience within the academic library, their

interaction with the information and services are not the only thing to examine, but also their needs, characteristics and cognitive process, which constitute the stimulus for such interaction are more important thing to explore (Marchionini, 1996). In the next stage of this doctoral research, cognitive mapping and semi-structured interviews were used to explore the Chinese students' attitudes, perspectives and feelings about the library experience and their context of usage; and their performance revealed in the log analysis were reviewed and probed to discover the reasons behind the scene.

Chapter 6: Uncovering the scene: Data analysis

6.1 Chapter introduction

In this chapter, the data obtained from the cognitive mapping and semi-structured interviews of 15 Chinese students (see *Appendix F* for the complete research script that was used in instructing the data collection), was analysed through qualitative coding and qualitative content analysis. This enabled an exploration of Chinese students' experience with the UK academic library in the Digital Age, with the aim to deliver on the second and third research objectives: to explore how Chinese students think and feel about the UK academic library by investigating their library UX; and to understand the library experience of Chinese students in UK in the Digital Age.

The chapter is organised based on the data analysis procedure (see 3.9 for the overview of data processing), from coding (see 3.8.1 for qualitative coding), categorising to meaning exploration and interpretation. The quotes used in this chapter can be referred back to a full list of cognitive mapping (supplementary explanations) and interview transcriptions in the *Appendix M* Cognitive mapping and interview transcriptions, where the Chinese and translated English transcriptions are ordered by participant number.

Section 6.2 presents the data analysis of the cognitive maps and it is organised based on the cognitive maps coding tree of four categories: 'information seeking behaviour', 'library user experience', 'views on future library system' and 'cultural factors', generated from codes found on the 15 cognitive maps and 15 corresponding supplementary explanations of the maps. In each category, codes are discussed firstly by weight analysis and then by meaning exploration (qualitative content analysis), or in other words, maps are looked

into both quantitatively and qualitatively to explore what and how the participants draw their library experience in a visual form.

Section 6.3 presents the meaning exploration and interpretation of the interview data. It first looks at the interview coding tree with the same four categories and their subcategories generated from 15 interview transcriptions in 6.3.1. With an interpretive stand to explore the research question, linking back to the data from cognitive maps, latent meanings and abstract conceptions are then explored through the rich interview data in 6.3.2; connections across categories and abstract conceptions are explored to link codes, categories and abstract conceptions together. At the end of this section (6.3.3), the meanings behind data are developed through exploring how Chinese students experience the UK academic library, where the three contexts that constitute their library experience are discussed, drawing upon excerpts from the empirical data and exploring meaning in relation to the relevant literature.

Section 6.4 is a further exploration and interpretation of Chinese students' library experience reflected through the three contexts found in the data, pulling out the meanings behind the scene. Section 6.5 is a summary of recommendations that came up directly from the participants. 6.6 provides a conclusion to the chapter as a whole.

6.2 Meaning exploration through cognitive maps

In this section, codes identified from the cognitive mapping exercise, including the maps and corresponding supplementary explanations, are presented and analysed in order to explore the explicit and implicit meanings expressed by participants from this visual method. Two methods of data analysis were

adopted to look into the cognitive maps; weight analysis through counting and calculating the F/P index was conducted to evaluate participants' instant reaction to the research topic, exploring the things they paid most attention to; qualitative content analysis followed to review what they expressed through the cognitive mapping exercise. This section is organised by the four categories and in each category, the codes are expanded under the subcategories in that specific category. In each subcategory, codes are discussed firstly by weight analysis and then by qualitative content analysis.

At the start of this section, an overview of the four categories generated from cognitive maps and a summary table of F/P index analysis is presented to give an overall image of the data gathered from the research method of cognitive mapping.

The qualitative coding process identified 63 codes (see a complete list of codes from cognitive maps in *Appendix I*) and the coding frame with four categories was assigned to accommodate those codes, which were the previously established themes, namely 'information seeking behaviour', 'library user experience', 'views on future library system' and 'cultural factors'. These four themes are the core concepts that help to decode the research question in terms of uncovering the multiple facets of the phenomenon, and they are the ones that guided the research design. The codes were initially grouped according to these four pre-established themes with the anticipated expectation of making sense of the data from those four perspectives that may help to answer the research question. The meaning exploration was expanded according to the four pre-established themes and codes were discussed under those themes.

Eventually, 31 codes were grouped into the ‘information seeking behaviour’ category. These helped reveal the activities or context of participants’ information seeking behaviour; 25 codes were grouped into the category of ‘views on future library system’, which embodies codes that describe participants’ expectations, suggestions and hopes for a future digital library system design and their wished for library experience; six codes were classified into the category of ‘library user experience’, which includes the codes that describe participants’ past and current library user experience either in China or the UK; and ‘cultural factors’ category which encompasses two codes that were found from the maps that revealed participants’ cultural context. The summary table (Table 21) shows the number of codes, files and references of categories and subcategories from the cognitive maps. The total number of files is 30, including 15 cognitive maps and 15 supplementary interview explanations. The file number represents the number of files that have the code; the reference number represents how many times a code was mentioned or appeared. The arrangement of the table is based on the descending order of ‘number of codes’, showing the major themes that emerged from the cognitive mapping exercise.

Table 21 Summary table for categories and subcategories of codes from cognitive maps

Category	Subcategory	Number of codes ↓	Files (n/30)	References
Information seeking behaviour		30	22	110
	Technologies	6	17	41
	Information seeking activities	5	11	23
	Locations and contexts	4	9	21

Category	Subcategory	Number of codes ↓	Files (n/30)	References
	UCL library and library services	9	9	15
	China library and library services	6	5	10
Views on future library system		25	27	114
	Online expectations	19	23	90
	Offline expectations	4	7	10
	UX expected	2	8	10
	Other expectations	0 (as it is also a code itself)	4	4
Library user experience		6	12	20
	UCL library UX	4	12	17
	China library UX	2	3	3
Cultural factors		2 (only 2 codes were found on the maps that related to culture)	6	6

It is apparent from the table that the majority of codes identified from the cognitive mapping exercise belong to the category of ‘information seeking behaviour’ which contains 30 codes, with 110 mentions in total. However, with a fewer number of codes (25), elements that related to ‘views on future library system’ appeared 114 times in 27 files, showing the frequency of appearance

of codes in this category. Codes in ‘library user experience’ category were mentioned 20 times in 12 files; and codes in the category of ‘cultural factors’ were the elements that reveal or reflect behaviours and experiences pertaining to culture. Only six elements were found and two codes were created under the ‘cultural factors’ category; this was because the cognitive mapping task was more about how students were using and feeling about the digital library rather than any cultural differences they experienced during this process. The difference in code numbers reveals the emphasis that was set in framing the cognitive mapping exercise to some extent.

For weight analysis (see 3.8.2 for an explanation of the weight analysis method via F/P index), only elements from the maps were analysed and calculated; the ones generated from the supplementary explanations were not considered as they were not instant reactions. Thus, the total number of files is 15: the file number represents the number of files that have a certain code; frequency indicates how many times a code appeared on maps; mean position and F/P index were then calculated based on the formula, which was illustrated in 3.8.2. This table (Table 22) only listed the codes that have the F/P index higher than 1 as it was aimed at exploring participants’ instant reactions to the topic that they regarded important. The codes that have F/P index equal or less than 1 were the ones that appeared less often and were added later in the drawing practice as complementary elements and so we can infer that they are not as important as the ones that have higher F/P index; therefore they were discarded in this analysis.

Table 22 Codes of cognitive maps organised by F/P index (higher than 1)

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Information seeking behaviour					
Technologies	Subcategory				

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Laptop		7	8	1.38	5.8
Mobile phone		6	6	1.17	5.13
Desktop		2	2	1	2
iPad		1	2	1	2
Kindle		3	4	2.5	1.6
Devices		2	2	1.5	1.33
Locations and contexts	Subcategory				
Locations and contexts-- Physical library		5	5	1.4	3.57
Locations and contexts-- Home or dormitory		3	3	1.67	1.8
Locations and contexts-- Commuting		2	2	1.5	1.33
UCL Library and library services	Subcategory				
UCL Library and library services--Explore system-- Search interface		3	3	1	3
Information seeking activities	Subcategory				
Search academic resources		4	4	1.75	2.29
Reading e-books		3	4	2.25	1.78
Search other things		2	2	1.5	1.33
Views on future library system					
Online expectations	Subcategory				
Technologies		5	6	1.83	3.28
Library app design--Library services (other)		5	6	1.83	3.28

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Library app design--Book study rooms		3	4	1.75	2.29
Library app design-- Personalised and customised functions		3	3	1.33	2.26
Library app design--Seat reservation		3	3	1.33	2.26
Library app design--Map or visualisation of information		4	4	2	2
Library app design--Search		3	3	1.67	1.8
Library app design--Social functions		3	3	2	1.5
Library app design--My account		2	2	1.5	1.33
Library app design-- Notifications		2	2	1.5	1.33
Library app design	Subsub category	3	3	2.33	1.29
Offline expectations	Subcategory				
Borrow and return books		2	3	2	1.5
UX expected	Subcategory				
A well-functioned library environment with everything provided and labelled		3	3	2.33	1.29
Library user experience					
UCL Library UX	Subcategory				
Online difficulties		2	3	2.33	1.29

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Resource type (digital or hard)		3	3	2.33	1.29
Cultural factors					
Proper expression (language related)		4	4	2.5	1.6

6.2.1 Category: Information seeking behaviour

Category	Subcategory
Information seeking behaviour	
	Information seeking activities (6.2.1.1)
	Locations and contexts (6.2.1.2)
	Technologies (6.2.1.3)
	China library and library services (6.2.1.4)
	UCL library and library services (6.2.1.5)

Under the theme ‘information seeking behaviour’, there are five subcategories as listed above; elements that reflect actions and activities during the information seeking process were categorised as ‘information seeking activities’; the ones that are related to spatial factors that influence the information seeking process were categorised into ‘locations and contexts’; the ones that represent devices or tools supported by technologies that drive the information seeking were categorised into ‘technologies’; and the ones that show how students seek for information specially in the UCL library and in their undergraduate university in China were separately categorised into the ‘UCL library and library services’ and ‘China library and library services’.

6.2.1.1 Information seeking behaviour-Information seeking activities

Weight analysis

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Information seeking activities	Subcategory				
Search academic resources		4	4	1.75	2.29
Reading e-books		3	4	2.25	1.78
Search other things		2	2	1.5	1.33

This subcategory includes the activities performed with the support of the library system. The element of 'search academic resources' is, not surprisingly, the activity with the highest F/P index in this subcategory (2.29) and it was mentioned by four participants in their drawings to show their information seeking to complete academic tasks. On the maps, they drew a laptop alongside this activity of searching for academic resources, showing the essential role of the laptop in their academic information seeking activity. The other two activities that have the F/P index higher than 1 are 'reading e-books' (1.78) and 'search other things' (1.33). Reading e-books was mentioned four times, which is apparently an important activity when they are describing the activities in the academic library; this element appeared several times on their maps along with the element of 'Kindle', indicating their habit of using reading devices, such as Kindle, to read e-resources from the library and to gain the replicated feeling of using paper books. Support from devices like Kindle plays an essential role in their information seeking and using process; it is one of the important channels that output academic resources. The other element that is not directly related to learning was categorised into the code 'search other things' and it appeared two times on the maps. One participant drew the search for fun, which includes the search for movies or music that are

entertainment resources; while the other drew the search for daily information to do short time reading along with the drawing of a mobile phone as one of the devices used during information seeking.

The activities in the information seeking process should not be evaluated without the consideration of technologies and devices (see 6.2.1.3), which have a decisive impact on how they perform varied activities on different devices.

Meaning exploration

Five information seeking activities were identified from the cognitive mapping exercise and they were 'search academic resources', 'search other things', 'reading e-books', 'writing papers' and 'downloading'.

Notably, several participants indicated that the first thing they came up with when thinking of mobile library or digital library is 'searching for academic resources' that related to their current study; as participant 2 said,

[...] the first group was drawn when I thought of the mobile library is the UCL library website that can be opened on the computer, where you can search keywords of articles and get the results, including articles and books. (participant 2)

This action as described by this student is, in other words, searching or collecting in the information seeking process, happening when information seekers have a clear goal or a knowledge gap to fill and they take actions to look for what they need (Marchionini, 1995).

There are also elements that reflect 'search for other things' that are not related to academic work, such as searching for novels, movies, multimedia resources or information for daily life. They drew those elements to show the multiple types of information they search or want to search in the library

system. This action, in contrast, is more like exploring or browsing in information seeking activities, when they do not have a strong purpose of completing a task, but a need to satisfy personal interests and they seek information actively rather than passively. This code is also about blurring boundaries where they see social and other non-academic as part of the academic or library system in that it is part of the person living in everyday life.

Some of them described 'reading e-books' during the cognitive mapping exercise, which the researcher classified in the 'information seeking behaviour' category, considering that they can be understood as the action of collecting and processing during the sense-making process, and information seeking is involved in this process. It is worth noting that this code appeared along with the reading devices, including Kindle and iPad, for example, as explained by participant 1 where they described a series of activities they usually performed in their academic work:

*the first thing I thought up is that we can use mobile phone, pad, this kind of devices[...]to do reading[...] take some notes; therefore, I remembered some apps that are suitable for pad to take notes and read e-books, etc.
(participant 1)*

From their description, the activities around the academic library involves getting access to academic resources via multiple devices or platforms and making use of or learning the thing they get; it is an essential stage in making sense of a task, a problem, or a muddle. Reading and taking notes is, in other words, processing or analysing the information by personal knowledge and skills. This element was mentioned with tools and devices, which implies the indispensable part of technology-supported devices in the participants' learning activities and interaction with the library. The participants also expressed an explicit preference for using digital resources and books in digital format as an important source in their studies; they also explained the way they get e-books, for example,

if there are some books designated by teacher, you can search it on Amazon, and buy the price of Kindle version, which will be cheaper. You can also look for these books on UCL Explore system and read on Kindle. (participant 2)

In the supplementary explanations, the “paper-like” feeling was mentioned several times, which shows their strong concern on the way and format of reading, as it is explained by participant 2,

the Kindle e-book is the device that has the mobility and the paper-like screen.

However, it was also pointed out by participant 3 that the feeling of reading physical books cannot be replicated and replaced by paper-like devices, such as Kindle (see the figure below). This point relates to the idea the library users are still in a physical environment even when they are more living in their head and the devices such as Kindle bridges physical and intellectual worlds together.

The feeling of reading with books and electrical device. like kindle is different. although looks like book.

Figure 34 Feeling of reading by participant 3

With more experience of using digital resources in academic life, the worry about access is no longer the first concern, while the pragmatic experience and subjective feelings is. In the meantime, it should be noted that the devices they own determine the information type they seek for and the way they process that information.

Another information seeking activity identified was ‘writing papers’, which is one of the essential learning tasks for the participants who were PGT students.

Upon thinking of the digital library system, this activity came to their mind and as participant 4 explained,

in the first part, I was thinking why I use the school library is because I have to write papers, and I need to search for information, so that's the time when I use the school library. (participant 4)

This element can be understood as an information need (gap) or an action during the information seeking and sense-making process; writing is a way to organise and produce a new structure of information. Writing papers or essays is a common task for PGT students in UK, especially for students in Art and Humanities disciplines; the discipline and programme requirement lead to the tasks and the way of seeking for information. This participant also described the context of writing papers and the desired environment they wish to have in the future library (see figure below):



Figure 35 Writing papers in expectation by participant 4

The student explained that “*when I write an essay and read a lot of literature, I need to be very focused*” (participant 4); several activities are going on at this time, including reading literature, writing in Word, and browsing search engines; thus, they hoped the library in the future could provide multi-screen devices to support multiple activities at the same time when they completing academic tasks, which would be much more convenient and help them stay focused without switching among screens or devices. This expectation is in fact to replicate the experience of having lots of different books and materials open as they can have a glimpse of all the things at a time.

Another information seeking activity identified was ‘downloading’. One student wrote ‘downloading’ on cognitive map and pointed out the copyright issue they were worried about and further explained that

*there might be some copyright issues for some books that can only be accessed within the university and cannot be borrowed out of the campus.
(participant 3)*

The student referred to the physical books that are not available in digital form and might have copyright restrictions on any form of reproduction.

Codes in this subcategory partially address the question of ‘how do they think about academic library in the Digital Age’. Participants were mostly seeing the academic library as something they use to support their academic work and as something that gives them access to ‘things’ they need for that purpose; and they also acknowledge that sometimes they need to go outside the library to get the ‘things’ they want in the form they want, e.g. Amazon for e-books, by which they drew a boundary to the academic library and they saw that as outside the educational system whereas the academic library is situated within. The activities they included on the cognitive maps involved not only seeking and searching for what they want, but also the stages they go through of how they make sense of the academic tasks they receive; nevertheless, those activities appeared with tools and devices, suggesting the indispensable position of technological devices in their academic work, which is expanded in 6.2.1.3.

6.2.1.2 Information seeking behaviour-Locations and contexts

Weight analysis

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Locations and contexts	Subcategory				

Locations and contexts-- Physical library	5	5	1.4	3.57
Locations and contexts-- Home or dormitory	3	3	1.67	1.8
Locations and contexts-- Commuting	2	2	1.5	1.33

Locations and contexts of using the library system were mentioned frequently in participants' cognitive mapping exercise; this subcategory contains spatial elements that constrain and influence the information seeking behaviour. In this subcategory, 'physical library' holds a high F/P index of 3.57 and it appeared five times by five participants. It appeared on the map normally with elements of 'desktop' and 'bookshelves', with which to search for online resources and location of books; it is the place where they carry out activities that connects the digital and physical parts and constitutes the major component of their information seeking activities. Additionally, participants place the physical library in a notable position on their cognitive maps and pointed out its designed atmosphere that helps them to concentrate on the academic tasks. The physical space of the library, as it was pointed out by a few participants, may not be the first place where their academic activities take place, but still holds an irreplaceable place that they know they can rely on throughout the time in their learning experience abroad.

The other codes that were also mentioned several times were 'home or dormitory' and 'commuting'. In the mapping exercise, several participants listed out all the contexts and locations where they generally use the library system and the activities they perform in each context. Home or dormitory, with an F/P index of 1.8, appeared on three participants cognitive maps where they expressed the offsite use of the library system and the learning activities they do when they are at home. Commuting, which was distinguished by

another code in the same sub category—travelling (is not showing on the table because its F/P index is 0.5), means the time when they were on their way to the university, dormitory or other places nearby, rather than travelling to remote places. This element was mentioned by two participants and has the F/P index of 1.33, by which they expressed how they used the library system when they were on their commute to help them check the information about the library, such as seat availability or opening hours.

Those three locations or contexts with higher F/P index reflect the most commonly encountered contexts of using the academic library and can be understood as part of the context that bounds information seeking behaviour or the environmental variables that influence the information seeking process.

Meaning exploration

Locations and contexts are valuable references to define the activities library users perform, information they require, and the method they choose to look for the information. In the cognitive mapping exercise, many of the participants gave detailed descriptions of the contexts in which they use the library system and several of them organised their cognitive maps based on locations and contexts (see figure below as an example from participant 4). It is interesting to see how Chinese students experience the academic library under different contexts and how they deal with information tasks in those contexts, as participant 4 explained with the drawing,

the first part is the scenario of the school library [...] where everyone is learning, there is a good learning atmosphere, so sometimes I will come to the school library to study. But because in London, the dormitory is a bit far from the school [...] I develop the habit of learning in the dormitory [...] I don't usually learn in my own flat, rather I will go to our study room or the open sofa area, where I can study in a quiet place, and then I will take my laptop. (participant 4)

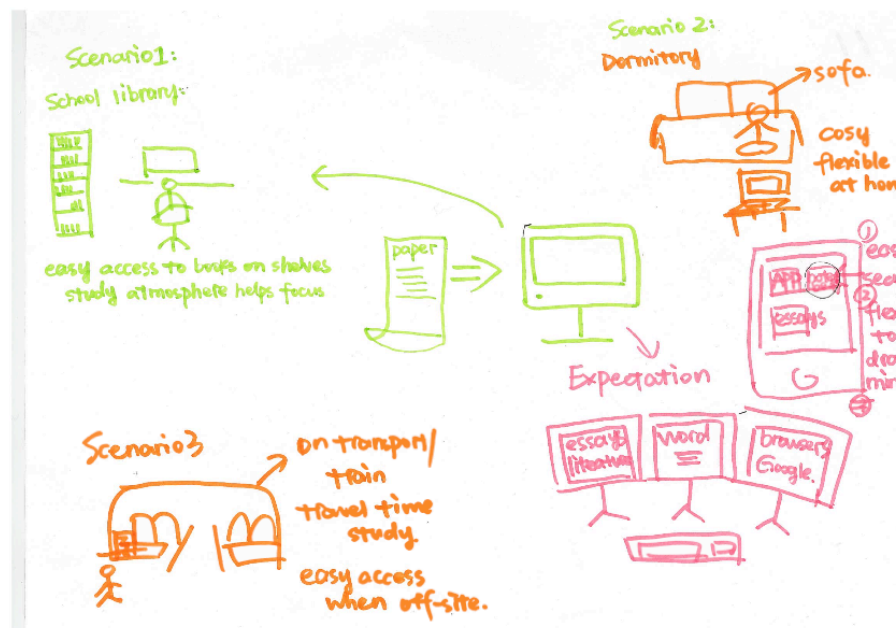


Figure 36 Cognitive map by participant 4 (organised by contexts/location)

The location mostly referred to was, not surprisingly, the 'physical library', as it has been discussed in Weight Analysis. Participants explained their feelings and the reasons they prefer to study in the library as, first of all, there is "a good learning atmosphere" (participant 4, participant 12); secondly, they can make use of the "library desktops/computer clusters" (participant 12) provided by the university; and thirdly, it is "convenient to check the books on bookshelves" (participant 4). Their maps and explanations regarding the physical library reflected the elements they valued in the context of working in the physical library. They require a certain level of immersion and full concentration on their work when they choose to study in the library; surrounded with other students doing the same learning activity, they feel engagement and some kind of obligation to that environment. The convenience to check books on the shelf is brought by the original function of the library, and this convenience becomes extremely important when users need to concentrate on their work and they wish to find and use books on the site, which shortens the time of information seeking. Desktops, as important facilities provided by the library, give users flexibility in choosing the working

devices, as participant 12 stated *"I don't use my own laptop"* when they could use the desktop in the physical library. Some of the participants engaged in the study preferred to use the library desktop along with their own laptop at the same time, with different activities on those devices. Whatever habits they have, the facilities in the library extended their choice and provided them with more possibilities to conduct their learning tasks. From this code, the question of 'how do they think about the academic library' was further answered that they view it as not just something that gives them access to the 'things' they need to support their study, it is also a physical environment that is conducive to study.

The next location they recalled on their cognitive maps was 'home or dormitory' (including apartment common room); this was where they usually use their own laptop to study and get access to the library system remotely. Different from the student dormitories in China where students normally live in the campus, the students in London live in scattered locations and some far away from the campus. Thus, the dormitory becomes an important venue of learning and using the library system; as was explained by participant 4:

because in London, the dormitory is a bit far from the school, and I can't cook if I come to school [...] and besides, it become dark very early during winter, so I feel that it is not safe, therefore I develop the habit of learning in the dormitory (participant 4)

Most student accommodations in London have common rooms that are designed for students to study together with a simulated library atmosphere, and participant 4 further stated their preference in studying in the common room:

I don't usually learn in my own flat, rather I will go to our study room or the open sofa area, where you can study in a quiet place, and I will take my laptop (participant 4)

The common room provides them with a quiet place to study with other students, just like the library, and also a place that is close to where they live.

It saves them time on commuting and gives them the similar immersed atmosphere of learning with others. The home, dormitory or common room is also a physical environment conducive to study, but they need an online connection to the things they need if they are not in or near to the same physical space as those things. The remote use of the library system also requires them to put in their university username and password to confirm their identity and right to the resources, which might be troublesome; however, the remote access to library resources and availability of online resources provide students the essentials to build their desired physical environment remotely.

Another two contexts of using the library system they recalled were 'commuting' and 'travelling'. These two are different in terms of the range of moving, activities they do and devices they choose to use. 'Commuting' (undertaking journeys of a short duration time-wise) refers to travel to the university or back to the dormitory, which is not conducive to study as they are on the move; UCL has however provided information online (such as about the availability of PCs or study rooms) that students can check this on the way so they can get to the right place (see figure below for map from participant 10). Rather than conducting proper learning activities or searching for resources, when they are on the move, they prefer to check the facilities status or services in the library to guide their next move. At this time, the mobile phone is the most appropriate device to use that is portable and has the access to the internet in the meantime.

-
- 1) before going to lib:
- a. check for available space / pc
(maybe in the future there can be some guide/map
 - b. inform of the loans/holds

Figure 37 Activities during commuting (participant10)

While ‘travelling’ (undertaking journeys of a long duration time-wise) is the journey to a distant place, which can be difficult when sometimes they do need to study during that time; creating an environment that is conducive to study in this case can be more difficult, but it helps when they bring a laptop as it provides a ‘virtual space’ around them which gives access to software and tools they require. They described how they make use of personal laptop at this time:

the third scenario is the time when I travel to other places before finishing my coursework, then at that time I will be on the train or at the hotel, and I will work on the coursework before going to bed at night. At this time, because I am far away from the university, and the Internet is not very good, so I really need a very stable Internet connection (participant 4)

Being away with learning tasks that need to be finished, they need to bring a laptop to do multiple tasks, and in the meantime, an off-site stable network connection is essential to ensure they are able to get access to online resources.

Through the meaning exploration of this subcategory, many of the participants described the ‘environment’ they have built to study (not in physical or digital terms) and how spatial factors influenced the way and the device they use to study and interact with the library system. The academic library is an environment that is conducive to study; however, as the resources used in the study become less physical and do not only existing in one place, the environment becomes less rooted to one place as well. It can exist anywhere and they implicitly expressed the environment they need or try to build that they regard conducive to study.

6.2.1.3 Information seeking behaviour-Technologies

Weight analysis

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Technologies	Subcategory				
Laptop		7	8	1.38	5.8
Mobile phone		6	6	1.17	5.13
Desktop		2	2	1	2
iPad		1	2	1	2
Kindle		3	4	2.5	1.6
Devices		2	2	1.5	1.33

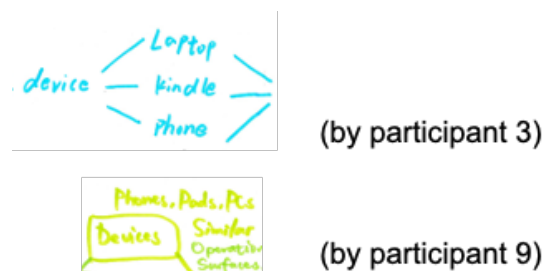
The codes with the highest F/P index are under the subcategory of 'information seeking behaviour-technologies', especially the codes, 'laptop' and 'mobile phone', with F/P index of 5.8 and 5.13 respectively. Those two are the devices participants would mention in this context because the topic of drawing was 'mobile and digital library' and those two devices are the ones that are commonly seen and used in the Digital Age to support academic work. Laptop was mentioned more times than mobile phone and it appeared in seven drawings, suggesting its essential position in the participants' use of the library system and their academic work. Through the supplementary explanation, participants described laptops as an indispensable device where most of the academic tasks were conducted as it is portable and has a proper size screen that works well for the tasks such as information seeking, reading and writing. It is the tool that bridges the physical and digital worlds in their learning and information seeking activities. While the 'mobile phone' appeared on the maps where participants used it as a quick search tool to check library information immediately wherever they are, as it has been illustrated in the part 6.2.1.2. 'Desktop' and 'iPad' held the same F/P index of 2, less than half of 'mobile phone', suggesting the occasional usage. Albeit with

rare occasion of usage, the desktop in the physical library was claimed to be extremely useful, which plays a core part in a desirable working environment within the physical library (see figure below).



Figure 38 Desktop forms a desirable working environment in the physical library (by participant 4)

Surprisingly, ‘Kindle’ was mentioned by several students which was used as an essential reading tool because of its *“mobility and the paper-like screen”* (participant 2); and they included Kindle on the map to show how they use this device to read resources they sought from the library system. ‘Devices’ was coded where participants wrote this word on the map to show a cluster or a combination of devices they would use during learning and the use of the library system (see the figure below as examples). It indicates the paramount position of digital devices in participants’ learning and library experience; additionally, it shows the diverse ways of interaction based on devices and the complex experience that is drawn from that.



(by participant 3)

(by participant 9)

Figure 39 Example of 'devices' by participant 3 and 9

When making sense of their experience within the academic library in the Digital Age, technologies (devices) constitute an overarching part; the choice of devices is determined by both the context of usage and the information tasks being conducted. Same as location, technology itself can be analysed as a part of the context or an influential variable during the information seeking process. If viewed as a part of the context, it represents a dimension in the student's context of usage and constitutes towards the reasons and motivations of behaviour; while if viewed as an influential variable during the information seeking process, it is considered as a 'decoration' that shapes the appearance of information seeking behaviour.

Meaning exploration

One important aspect this research aims to explore is how the Digital Age is influencing the way students experience the academic library. Under the topic "mobile and digital library", many elements that relate to tools, devices and apps emerged during the cognitive mapping exercise. Apart from the code 'devices' which represents clusters of devices, five specific types appeared on their drawings: 'laptop', 'mobile phone', 'Kindle', 'iPad' and 'desktop'.

Among those devices, personal laptop holds the paramount position, and favoured across all academic activities for its feature of big screen and relative portability. With a stable network connection, a laptop creates a virtual learning environment where most of the information seeking is performed: as stated by participant 14 when explaining the first thing that came to mind, "*the first thing on my map is my laptop and I usually use it to search in the library website, searching and reading articles*". The laptop was treated as a personal assistant that has all the software they need; the way laptops organise, store, input and output information is based on personal habits and preferences, which are hard to replace by other devices that students are unfamiliar with.

Compared to tablet and mobile phone, the laptop was preferred in performing complicated learning tasks because of its larger screen and keyboard. They mentioned more than one time that when they need to immerse themselves in learning, and especially when they needed to generate academic outputs, such as writing essays or preparing presentations, they do it on their laptop with corresponding supportive software.

As for the 'mobile phone', in the cognitive mapping exercise, participants explained the main function of their mobile phone was communication and entertainment; they claimed that they were easily get distracted when they read on mobile phones:

the mobile devices like mobile phone is not suitable to read, because the screen is too small. And because the screen is too small, the phone will be used for other purposes which makes us cannot focus on the reading (participant 3)

However, they also indicated how they use a mobile phone to do quick search when commuting (see figure below) and when it is inconvenient to use other devices:

mobile phone [...] usually performs daily searches, like for example, when suddenly if I think up something [...] I may read overviews on that. If I find something useful by the overview and decide that I am going to read it, I will go to read it on the laptop after I choose a specific article. (participant 14)



Figure 40 Use of mobile phone during commuting by participant 8

This shows how digital devices, as part of the context, are determining the way students interact and use the library system, and consequently forming their library experience. Because of the features of the mobile phone and the use

context where normally they are on the move, they performed certain information seeking behaviour on this device (for example, a quick check and book a library study space) and look for different information types (short and fragmented information).

The 'Desktop' is the computer facility provided by the university library that connects to the university network with a large virtual storage space to save files. As discussed in Weight analysis, a desktop is regarded as a vital part of the physical library, creating the environment conducive to study. Students made use of multiple devices when they work in the library, as described by a participant 12:

where there are lots of other students who are using the desktops in the library intensively. I don't use my own laptop at this time. (participant 12)

Another student drew a desktop with bookshelves in the library to show the context when working in the library, which is a primary learning scenario (see figure below).

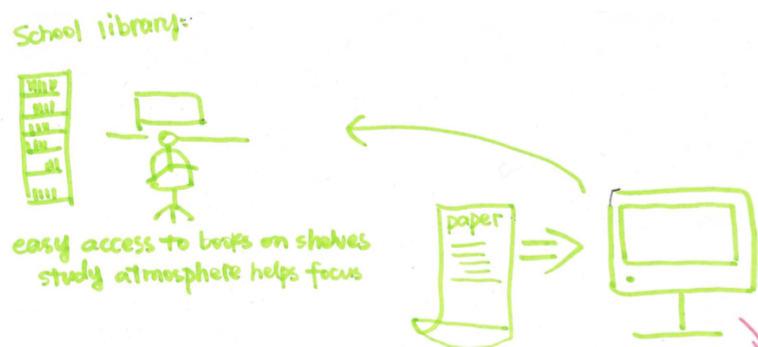


Figure 41 Desktop in the library by participant 4

The environment in the library where bookshelves are at hand and students are studying together quietly makes it a desired workspace for learning. The library desktop is used at this time to conduct academic tasks (e.g. writing papers); and participant 4 also expressed expectations for the library to have

more desktops and provide multi-screen set-ups for users to perform varied activities,

I am thinking if we can have more desktops in the library, then one of them mainly writes in the Word, then one on the left is to see various articles, then the third is the browser, where you can search for grammar or something you don't know in Google. It can be more convenient, and you don't have to switch screens by yourself. (participant 4)

The desktop is regarded as an essential facility with stable network and working software; they are hoping to have more such devices to conduct multitasks at the same time to replicate the environment of having multiple books and materials open at hand.

The code 'iPad' was another device they regarded as a learning tool. The tablet device is designed to have features from the computer, but with the touchscreen and mobile design. The only tablet brand that appeared during data collection was the iPad by Apple, thus the element was named as 'iPad'. The learning activities they perform on the tablet were primarily reading and taking e-notes; and they made use of apps on iPad to support these activities, such as Notability and Amazon, as explained:

I thought if use these devices to do reading, you must take some notes; therefore, I remembered some apps that are suitable for pad to take notes and read e-books, etc. (participant 1)

Tablets have a certain level of mobility and a larger touchscreen compared to a mobile phone; its mobility makes it preferred in the situation when laptop is not at hand. The larger touchscreen makes it suitable in learning activities that require some easy operations, such as reading and taking notes. It becomes a digital 'notebook' where students save and organise materials and notes as they created for their work.

As for 'Kindle', they noted how to buy textbooks from Kindle store (Amazon) or download the free digital version from the library system and read it on

Kindle, rather than borrowing the physical books from the library no matter whether a hard copy is available:

if there are some books designated by the teacher, you can search it on Amazon, and buy the price of the Kindle version, which will be cheaper. You can also look for these books on UCL explore and read on Kindle. (participant 2)

However, there were also concerns and doubts around the feeling of reading on a paper-like devices:

although it [Kindle] is developing towards the feeling of paper, but the way of turning papers cannot be duplicated when we read on that. I think this is a kind of contextual problem that the reading in the library and reading at home is not the same. (participant 3)

This statement suggests that the context (environment) and the object used to read are influencing people's reading experience, and make a difference in the goal of reading, whether it is for entertainment or academic purposes. Albeit the screen is paper-like, it cannot imitate and replace the feeling of reading printed books. However, in the Digital Age where online and digitised resources are increasingly available for dissemination and usage, reading devices like Kindle, support new ways of interacting with library collections. It may also change how students view what they can get from the library in the Digital Age if fewer physical books are needed or used.

This subcategory reflects how the participants see the affordance of different devices and how they use the most appropriate one that they have to do what they are trying to do under different contexts. It is also about how they make use of those devices to create the desired learning environment.

6.2.1.4 Information seeking behaviour-China library and library services

In the cognitive mapping exercise, several participants drew elements related to the Chinese library and library services they had used when they were undergraduate students back in China. There is a temporal dimension in here

mixed up with the spatial one as participants were not just talking about different experiences in China, but different experiences over time.

Six codes were identified in this subcategory, which are 'CNKI', 'Chaoxing Library app', 'university library website', 'WeChat public account', 'WeChat' and 'terminal machine'. It should be noted that none of the codes in this subcategory had F/P index higher than 1, thus, the weight analysis is omitted.

Meaning exploration

CNKI (China National Knowledge Infrastructure) is one of the largest online academic databases in China that integrates knowledge resources, including journals, e-books, conference proceedings, dissertations, newspapers and other forms of information. It appeared several times during the cognitive mapping exercise and it is believed to be the core digital academic information source in China. One participant drew CNKI on their map and explained how they had used its mobile library app before,

CNKI App [... is where] you can get access to free resources if log in with the university account. (participant 2)

The main information seeking activities they performed on CNKI were searching and browsing in relation to academic needs. Different from the gateway searching in the UK university library system, it is normally listed as one of the linking databases on university library websites; the inclusion of CNKI in the cognitive mapping exercise indicated its important position in students' library experience back in China.

Chaoxing digital library or ChinaMaxx digital library, or super star digital library, is an online collection of e-books and is known as a major partner working with the Chinese universities to provide e-book resources for its users. Some Chinese universities purchase, collaborate and use the library system built by

Chaoxing; this element appeared in cognitive mapping when a participant was recalling their experience of using the mobile library app built by Chaoxing. However, as they recalled, the app was at the launch stage and was not working well:

When I was in the senior year, I entered the library one day and saw this library app launch notification on the library screen, then I went to download the app. But it was not working at all. I guess it may be because our university introduced this software for the first time, and it's still in the test stage[...] But when I saw the launch of it, I thought it was a very magical thing[...] like a very convenient platform, so I downloaded it (participant 6)

Despite the unsuccessful experience of using this mobile library app, participant showed their curiosity and positive assumptions about the library app, which they believed should be a convenient platform to search for information.

'University library website' was coded during the supplementary explanation when they were explaining how they search for physical books by using the university library system back in China,

If we want to retrieve a book in the library, we went to the library and there was a row of terminal machines. On that, we can retrieve library's books in the IE browser. (participant 6)

At that time, our school library did not have a lot of online resources. Generally, it was used to check the location and bookshelf of physical books, which is a retrieval search tool for library collections. (participant 8)

It is surprising that the university library website was not emphasised much as CNKI or the other resources providers and this, on one hand, is due to the function of their Chinese library website which is designed for searching the library catalogue for physical books in library; and on the other hand, because of the deficient maintenance of the website which caused negative library experience.

'WeChat' appeared on one drawing along with the 'WeChat public account'. WeChat, the major instant communication app in China, is not only a messaging tool, but also a social media platform. As the largest social media platform in China with over one billion users, it is imbedded in participants' everyday life (Kharpal, 2019). As a way to get information, WeChat came to their mind when they were asked to draw their digital and mobile library experience and things related to how they find information (see figure below for element WeChat on a cognitive map).



Figure 42 WeChat on the cognitive map by participant 2

The element of 'WeChat public account' appeared on the map as an important source to obtain library information. Organisations can set up public accounts in WeChat to post their information, articles or event notifications to disseminate its publicity and communicate with users more effectively. Participant 2 explained how they obtained information from the WeChat public account:

[...] I drew WeChat here, it is where you can find the library information from the public account and articles of different libraries if you search the library name directly. For example, the National Library. In their WeChat public account, there are several options, where you can find the library information. (participant 2)

Designed to accommodate the instantaneity of mobile phone, the articles in the public account are usually short in length with pictures to help illustration and draw attention of its readers. In the fragmented time, the mobile phone is the major platform to seek for information with a stable network and the

compact size and WeChat app on a mobile phone is one of the important information sources for Chinese students.

The other code in this subcategory was the ‘terminal machine’. In the cognitive mapping exercise, the terminal machine was mentioned when a participant was explaining how they made use of the library service when they were in China. Terminal machines are prevalent in Chinese public and academic libraries and it empower library users to look for information and search library collections in a stable and convenient way. A retrieval search engine can be found on the library terminal machine that is used to look for the location of books on the shelf; however, the operation and update of the terminal machines might be disappointing, as recalled by participant 6:

If we want to retrieve a book in the library, we went to the library and there was a row of terminal machines. On that, we can retrieve the library's books in the IE browser. It was very slow when searching, that is, you may have to wait for nearly ten seconds to 20 seconds to retrieve a book[...] (participant 6)

From this statement it is clear that the system response time has a strong impact on the library user experience; users want to get the resources and information in an effective way with a smooth experience.

6.2.1.5 Information seeking behaviour-UCL Library and library services

Weight analysis

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
UCL Library and library services	Subcategory				
UCL Library and library services--Explore system--Search interface		3	3	1	3

In the subcategory of UCL library and library services, there is only one code that has a very high F/P index of 3, which is the 'Explore system—search interface'. Three participants drew the interface of Explore, the gateway of the digital library system of UCL, with different points to make. They used a straightforward and clear way to put their thinking on paper and they each had a different focus when recalling the library interface. Participant 1 drew the Explore interface (search panel, see Figure 43) to indicate it as one of the information sources to get academic resources; participant 2 drew the search interface to show it as an academic search engine to find books in the physical UCL library, under which context the library gateway is used as a retrieval tool (Figure 44); and participant 5 drew the search interface on a laptop and on a mobile phone to show the distinct design and functions on the two devices (Figure 45).



Figure 43 'Library interface' by participant 1



Figure 44 'Library interface' by participant 2

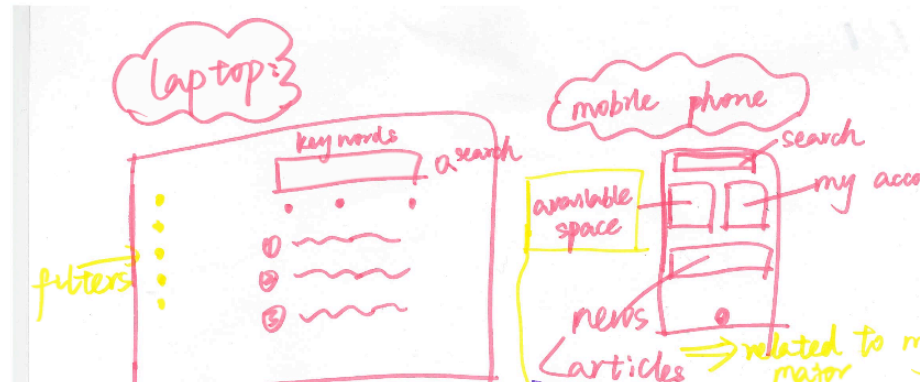


Figure 45 'Library interface' by participant 5

Through their visual expressions, a distinction of how international Chinese students view the university library system is revealed. The academic library system is, to some extent, seen as a digital gateway or market within a wider digital world where they assume to get abundant resources; it is also seen as a virtual bridge that connects the physical world which leads their way to find physical books in the library. The library system interface is treated as the virtual entrance to the digital market/world.

Meaning exploration

In this subcategory, codes that reflected how international Chinese students use and seek for information through the UCL library or library services are unpacked (see Figure 46 below for a tree diagram that represents the codes in this subcategory), including information seeking activities with physical library components, such as 'bookshelves', 'borrow and return service', 'desktop', 'finding and locating books' and 'librarian', and also those with digital library services, such as 'Explore system', 'UCLGO app', 'network connection' and 'book request'.

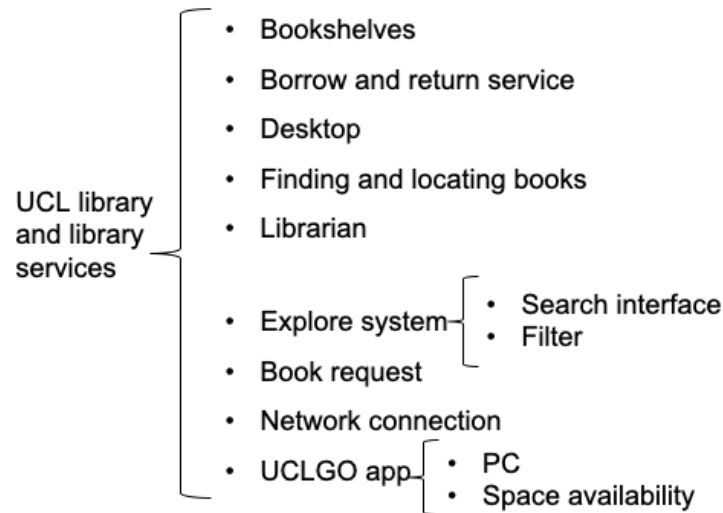


Figure 46 Tree diagram of codes in the subcategory of 'UCL library and library services'

When drawing and describing the context and scenario of learning activities, the element of the physical library is mentioned several times and it is one of the primary learning venues, as elaborated in 6.2.1.2 Location and contexts. The figure below is image cuts from two participants (Figure 47) that showed how they think about the physical library and elements they used to represent it.

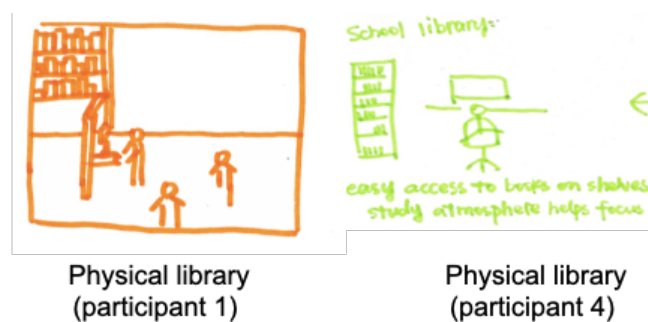


Figure 47 'Physical library' on cognitive maps

On both of the cognitive maps, the 'bookshelves' in the library appeared as a strong indication of the library environment and represent the accessibility of library resources, which is also an essential component in forming their library user experience; the physical library space performs the function of an information hub with all types of resources provided. Participant 1 drew

bookshelves explaining the experience of borrowing and returning books, and this element 'borrow and return service' only appeared once in the cognitive mapping exercise. The experience was recalled as the participant described in the supplementary explanation:

I remembered last term, when it was the exam week, I borrowed books from several libraries and spent the whole afternoon finding and borrowing books. When I need to return them, I carried so many books and went to several different libraries⁴⁰, which was so annoying. (participant 1)

The physical components in the library evoke the users' memory and their experience of using the library services, which constitutes their overall appraisal of the library. This negative experience reflected by participant 1 implies the constraints and limitations of the physical aspect of the library, which may lead to a digital shift in their information seeking behaviour. The other participant (participant 4) pointed out that when studying in the library, it is easy to look for books on shelves. On the drawing, another physical facility appeared, which is the 'desktop' in the UCL libraries. This implies that for them, an important affordance of the physical aspect of the library is the handy access and easy navigation to physical books and the supportive facilities that are conducive to study. Those facilities and resources constitute the unique learning environment in the library through which students define what they get and what they expect to get.

Another code that appeared in the cognitive mapping exercise was the action of 'finding and locating books', by which they meant the process of finding physical collections on a shelf through the digital library system (see figure below). From participant 2's cognitive map, it is interesting to see how they connected the digital library gateway to the action of finding physical books in the library and how they defined the 'things' they can get from the digital

⁴⁰ UCL has 16 libraries and study spaces located across London

library system. On the map, they also drew a mobile library app in the middle to show their understanding of the difference between a web-based library system and the mobile library app they used in China (CNKI 知网 in this case).



Figure 48 Element 'finding/locating books' by participant 2

From this student's perspective, the physical library collection is distinct from the digital ones, from which they can retrieve and get book location information through checking the digital library system; this reveals that they actually view the digital library system as a virtual bridge that connects the physical world, and to find physical collections in the physical world requires a virtual 'map' to help them navigate.

'Librarian' was identified as a code in the supplementary explanation (not on the drawing) when a participant explained their negative user experience of using the 'book request' service from the UCL Library, where they spent extra time and energy to get the book they requested. However, the student showed reluctance in seeking help from the librarian,

*I just feel a little embarrassed to ask for help if he can't notice my problem.
(participant 6)*

As international students who may need extra time to know and familiarise themselves with the facilities and services from the university in a new country, they require more assistance and support throughout their study abroad time. Nevertheless, their past experience, personal characteristics, cultural context

and the temporal situation may cause difficulty and sometimes, unnecessary barriers, to utilise the services effectively. The participant's experience implies that the people (staff) in the physical library as they described seem intimidating for them and they would rather spend more time to explore the library by themselves.

The codes related to digital components in the UCL Library that appeared in the cognitive mapping exercise were 'Explore system' with two sub-codes, 'filter' and 'search interface'; 'UCLGO app' with two sub-codes, 'PC' and 'space availability'; 'book request' as explained in the last paragraph and 'network connection'. The 'Explore system' code appeared on cognitive maps, indicating the digital gateway or entrance where they search 'things' they need, including physical collections and digital articles:

The first part [...] is the UCL library website that can be opened on the computer, where you can search keywords of the articles I need and it will give me results, including articles and books. (participant 2)

There are lots of online books and journals (on UCL Explore), which is very convenient. (participant 1)

During the exercise, all the participants expressed their overall satisfaction of using the UCL Explore library system and their compliments mainly came from the abundant online resources and the efficient gateway search by which they can get all types of information via one keyword. On their cognitive maps, the digital library 'search interface' was symbolised as a search box, keyword search button, library logo, result list, breadcrumb view, and filter (see figure below).



Figure 49 'Library interface' on cognitive maps

The participants used a straightforward and clear way to put their thinking in a visual form and they each had a different focus when recalling the library interface; participant 1 stressed the Explore logo and the result list where a breadcrumb view is available; while participant 2 focused on the gateway of library system and the search box; and participant 5 labelled 'filter' on the left-hand side (in yellow) as an important part of the search interface. The interface is, to some extent, like a marker or a symbol in the massive digital world, by which students know that they are 'in the library' in digital terms. In any way, it indicates the essential role of the UCL library system in their information seeking activities, which constitutes a vital part of their library experience.

The 'UCLGO app', launched to provide essential university information and support students' learning, is an information-led app that contains library services, such as the PC and study space availability check, and laptop loans (see Figure 50 for a screen cut of UCLGO in app store). Although it is not designed specifically for the university library, there are useful information that help students make use of the library services with their mobile devices.



Figure 50 UCLGO description in app store

During the cognitive mapping exercise, several participants drew the UCLGO app on their maps; but in general, the app was not used extensively, and several participants uninstalled the app after a short time (see figure below as an example).

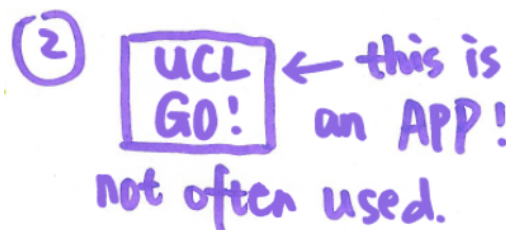


Figure 51 UCLGO app by participant 8

It should be noted that participants were aware of this app; however, it was rarely used in their study. In the later interview, they were asked about the use

of this app and the reasons for a rare usage. Three primary reasons were elicited in the interviews:

Firstly, the operation on mobile library app is difficult and slow compared to that on mobile-accessible library website (on the mobile phone browser), for example:

I can save bookmarks on my ios mobile phone and I saved the library website as a bookmark. If I want to check something with the library system, I will directly open it in the browser to see. (participant 1)

Secondly, the information on UCLGO app is limited and sometimes out of sync; and there are other apps or information channels that can replace the function of this app, for example:

Moodle⁴¹ has a specifically designed app, so I deleted the UCLGO and just downloaded the Moodle. Then I think there are some functions which are useless, especially the map. I think that you can't find a way according to this non-interactive map. It's better to use Google Map if you really want to find your way. (participant 12)

[...] the information in it is not accurate sometimes. Once I booked a study room in the Science Library and [...] found that the library didn't open, but you can still book the space [...] doesn't consider the actual situation. (participant 7)

Thirdly, the UI design of the UCLGO app does not meet the expectations or requirements of the students, for example:

I do not like this interface; I feel that it is a bad-designed interface. It is actually very flat⁴². (participant 6)

Nevertheless, there were useful functions on the UCLGO app that were mentioned by participants and they were the library 'PC' and study 'space availability' check (see figure below).

⁴¹ Moodle: an open-source learning management system, UCL Moodle is the centrally supported virtual learning environment (VLE) used to support and enhance teaching, learning and research in UCL.

⁴² Flat design: a user interface design style that uses simple, two-dimensional elements and bright colours.

1) before going to lib:
 a. check for available space / pc
 (maybe in the future there can be some guide/map

Figure 52 Space/pc availability check by participant 10

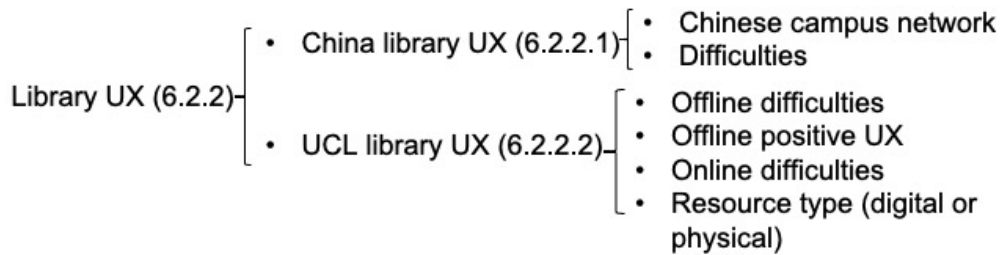
It was pointed out that this function was always used before going to the library, as discussed in 6.2.1.2 locations and contexts, which helps them make decisions about which library to go to and to have a rough sense of the busyness in the library ahead of time. The context of usage and information type they seek for on a mobile library app is distinct from that in the digital library system, when the ‘mobile’ and ‘portable’ characteristic of the device is strengthened, and it acts as a quick search tool where instant information is preferred.

Here again codes in this subcategory answer the question, ‘what they do and how do they think of the academic library?’. They drew the library as books on shelf by which they still see it as a physical symbol inhabited by physical people (and slightly intimidating), but also as the provision of certain services (including that of checking to see if any PCs or study rooms are free in it). More metaphysically, they see it as a virtual gateway or entrance (via the empty search box on library interface) to knowledge and exploration of questions and as a tool (via filter or advanced search function) to organise, categorise and make sense.

6.2.2 Category: Library user experience

Category	Subcategory
Library user experience	
	China library UX
	UCL library UX

The category of 'library user experience' encompasses codes that showed students' experiences, subjective responses and perspectives towards the academic library. Two subcategories were located in it, which are the participants' past experiences of using the Chinese library system, and their current library experience in UCL. The structure of this part is depicted in the figure below.



6.2.2.1 Library user experience-China library UX

There were no codes in this subcategory that had F/P index higher than 1; therefore, the weight analysis is omitted, and the qualitative analysis goes ahead.

One participant drew a comparison between the library UX in UCL and in China and this was classified into 'China library UX' (see figure below). The FDU (Fudan University) was their undergraduate university; and they indicated that in China, they used their laptop to search in the library system, but the resource type was generally the offline resources. One interesting aspect about cognitive mapping is to see the corrections they made during their drawing; this student corrected the resource type from online to offline at the time when they changed the pen colour. This shows the changing thinking flow and the amendment they made during recalling.

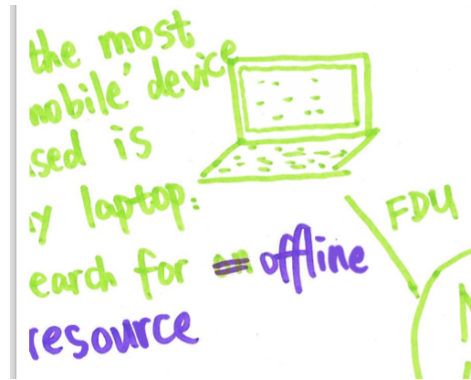


Figure 53 China Library UX by participant 8

The subcategory of the ‘China Library UX’ contains two sub-codes, which are ‘Chinese campus network’ and ‘difficulties’. The ‘Chinese campus network’ was identified as an independent code for its strong influence on participants’ past library UX and it formed their learning habits to some extent. As this participant recalled, downloading digital resources from the library system requires the connection to the campus network at the time when they were in China:

in my undergraduate university, I have to use the campus network, that is, the intranet to use the library system. So, at that time I go to the library every day, and use the intranet to get free resources (participant 5)

The access to library system was connected to a location/context—the physical library because of the campus network and this past library experience, to some extent, formed the way of where and how they tend to make use of the library or how they presumed to use the library. On the map, one participant drew a negative user experience of using the Chinese library system, which were the ‘difficulties’ they encountered (see Figure 54), for example, the long-time response of the search and the crash (“当机” on the map, which is a misspelling in Chinese and should be “宕机”) of the system sometimes.



Figure 54 Difficulties of using the Chinese library system by participant 6

This participant compared the library experience of the past and current and by comparison, mainly focused on their negative personal library user experience (see cognitive map of participant 6 in *Appendix G*), including the unsolved issues, the barriers in searching and the difficulties they encountered. When the time allowed for drawing is limited and short, the experience that an individual pays most attention to would be presented first in a straightforward way without further thinking. For this participant, in particular, the issues they encountered in experiencing the library were in an urgent order.

From the codes that emerged in this subcategory of China library UX, the different experiences participants talked about were partially brought about by the spatial context of country (the Great Firewall of China—limited choice of academic search engine; the different digital library design), but much of what they discussed was because of the temporal change between then and now (upgrade of academic levels and skills). Two variables, temporal factor and spatial factor, appear through the exploration of meanings in this subcategory, which bound their sense-making process and influenced the way they seek for information.

6.2.2.2 Library user experience-UCL library UX

Weight analysis

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index

UCL Library UX	Subcategory				
Online difficulties		2	3	2.33	1.29
Resource type (digital or hard)		3	3	2.33	1.29

Two codes in this subcategory had an F/P index higher than 1, and they were ‘online difficulties’ and ‘resource type (digital or hard)’; both of them had the F/P index of 1.29.

‘Online difficulties’ includes the elements that expressed the difficulties participants encountered when they seek for information in the UCL digital library system. Two participants mentioned it three times on their drawings and led to a 1.29 F/P index. One of them pointed out that it was hard to seek for information only based on the title and listed several types of inputs (texts, image, media) that may help to find the information needed; the other participant mentioned two difficulties when they used the library system—one was the broken links in the UCL Explore system that would lead to empty content; the other was the difficulty to find proper resources and some physical books in the library, which caused them to turn to Google and other search engines to find replacements. Although elements that reflected difficulties or issues appeared in the library experience, they were not prevalent on the maps. The small number that were drawn shows that participants did sometimes experience daunting moments particularly when they found it was hard to obtain the ‘right’ information they needed. For example, on the maps were written “how to find (just based on the title)” (from participant 3) and “cannot find resources/it’s hard to find the book I want” (from participant 6) (see *Appendix G*).

Through the cognitive mapping exercise, three participants mentioned their preferred resource type and all three of them explicitly expressed their preferences for digital resources with no constraints on reading times or downloading. One of them drew the transition of preferred resource type from physical to digital after they came to the UK and the transition happened with the change of the library system (see figure below; FDU is Fudan University in China).



Figure 55 Resource format transition (participant 8)

Their preferred resource type, on the one hand, was influenced by their way of learning, receiving and seeking for information; on the other hand, was informed by the library system. When there were more online resources and digital version of books that they could read and download without limitation, it gave them more possibilities and freedom to choose, which in turn influenced how they seek information.

Meaning exploration

The subcategory 'UCL library UX' contains elements that were directly related to their current UCL library user experience, including four sub-codes, 'offline difficulties', 'offline positive UX', 'online difficulties' and the preference for the 'resource type (digital or physical)'.

The 'offline difficulties' refers to the elements that showed the barriers or negative aspects to the offline library use. All the elements in this code were identified in the supplementary explanations rather than from the maps; the difficulties came from respectively, the borrow and return service, the deficiency of available digital resources, librarian and the book request service. In the UCL library, the books need to be returned to the same library where they are borrowed from; this may cause problems if the user borrows books from multiple libraries as participant 1 experienced as it has been mentioned in 6.2.1.5:

[...] the libraries are far away from each other and [...] the books are heavy and I need to carry around 20 books. The most frustrating thing is that the day when I returned the books, our department library was closed due to a bank holiday [...] I didn't know until I went there and I couldn't return all of them. (participant1)

In addition, the opening hours of the library are confusing if the user does not check them ahead of time. Because of the existence of many UCL libraries (16 in total) in multiple locations in London, the different opening hours can cause confusion and frustration to users.

It will be better if all the resources have the digital versions. Just as I remember when I searched for some books in IOE, it seems that many of them don't have digital versions and I think it is not convenient. (participant 5)

From the statement, they preferred digital version of books for its convenience and different on-hold requirement. The lack of digital versions, not surprisingly, brings negative feedback on the library visit. Negative library experience has also been found when using the book request service:

all the books in request were put in a large shelf on the ground floor of the library. A bunch of books were placed in that place, very messy. You have to find it by yourself. I probably spent half or one hour that day to find the book, which was very difficult, because its classification was very unclear. (participant 6)

Usually, the classification of the requested books on the collection shelf is based on the user's surname and the request date, which is distinct from the

normal classification system. They may ask help from the librarian; however, when the user prefers not to seek help from a librarian, for whatever reasons, this may cause barriers for them to find the book, as stated by this user:

No (didn't seek help), because he (the librarian) was putting a very unwilling face to help, do you understand? Because the bookshelf was far from the help desk, he can't see me if there is any problems. (participant 6)

This may be a rare case, but similar situations should be considered; because for international users, when they are not familiar with the environment and the services, a simple thing may become complicated and cause problems for their learning experience abroad. From their expression, the physical world is more constraining than the virtual one and may take much more effort and longer time to acquire similar results.

The 'online difficulties' comes from three aspects, which were the scarce method of search, the broken links, and the absence of the online resources wanted. The scarce method of search was expressed by one participant by puzzling how to find desired resources by only using one method (title or keywords) (see Figure 56):

if we search only based on the title of the article or the keywords, it is difficult to find what we want, because it's just a short title. (participant 3)

How to find (Hard to find just based on the title)

Figure 56 Difficulties encountered in the online library by participant 3

This statement is not only reflecting the scarce approach of searching, but also how they assess the information by only one method, and in this case, by titles. They view the digital library system as an entrance to massive resources and, consequently, just having one means of searching would bring doubts and uncertainties in terms of getting the 'right' information. The information

retrieval and information literacy skills have a direct impact on the efficiency and results of information seeking activities; they have concerns on whether and how they can find what they want.

Another difficulty mentioned in the exercise was the accidental broken links on the result list of the UCL Explore library system, which was described by one participant:

when I clicked into the first result, I can't find the link page to it [...] I think it might be a bug. (participant 6)

Although it is a rare case and an accidental one, the system bug would cause negative library user experience and students may turn to other non-academic search engines to find replacements, which would be less qualified and damage their critical skills. The other difficulty was the absence of the wanted online resources as was described on the map in figure 57.



Figure 57 Difficulties encountered in the online library by participant 6 (2)

An interesting thing about this figure was the arrows which the participant used to indicate the path of information seeking; in the meantime, when describing this difficulty, they used Chinese to express their thinking as they were only given a short time. This reflects that the instant cognitive responses of this participant to a problem are expressed by their native language, which is an easier and more comfortable way to visualise their thinking in a short

time. The English translation was added during the supplementary explanation. On the drawing, the student stated that sometimes they could not find the digital resources in the digital library related to their search, thus they would go for the book request service to find the physical collections; however, it was not easy to find books in the library, and in order to avoid this trouble, they would turn to other search engines and look for information on the web. The information seeking path they went through reflects the problem-solving ability and alternative information sources they would look for during this process. It demonstrates an issue that instead of finding ways to improve their information literacy and information retrieval skills, some students tend to avoid the troublesome and risks in learning and seek information for convenience.

Those difficulties mentioned by the participants, on the one hand, reflected the potential problems that may bring negative impact on library UX and suggestions towards the future improvements of the library services; on the other hand, reflected the deficiency in students' ability and skills in seeking information.

Despite the difficulties they encountered in the physical and digital library, the participants also pointed out the positive UX they had in the library and this aspect appeared on one cognitive map, which was coded as the 'offline positive UX'. The positive aspect primarily came from the learning atmosphere in the library, which helped them to concentrate on their work (see figure 58). As discussed earlier, this cognitive map was organised by the contexts of using the library system; the physical library, as one of the essential venue for learning, was listed as the first location, where the facilities in the library constitute a unique environment that helps users to 'focus' on their work.



Figure 58 Positive offline UX by participant 4

The other code identified was the expression of the preferred format of library resources, which was coded as ‘resource type (digital or hard)’. Participant 9 described their way of using the digital library system and how they looked for information:

I don't have much experience in using the mobile library, actually I rarely go to the library in UCL nor in my undergraduate university and I prefer to read electronic resources online directly. (participant 9)

This statement not only shows their preferred way of seeking for information, but also reflects how their preference on the resource type influence their intention of visiting the physical library space; this was also reflected in the statement of participant 5:

In fact, the reason why I am not going to the library in UCL is because I can always get resources by logging in with UCL account. (participant 5)

For library users, they care about the quality of the resources they can obtain, but in the meantime, they expect it to be convenient and effective; just as argued by participant 8:

If there is view online option, I will choose the online resources, because I think it is more convenient. (participant 8)

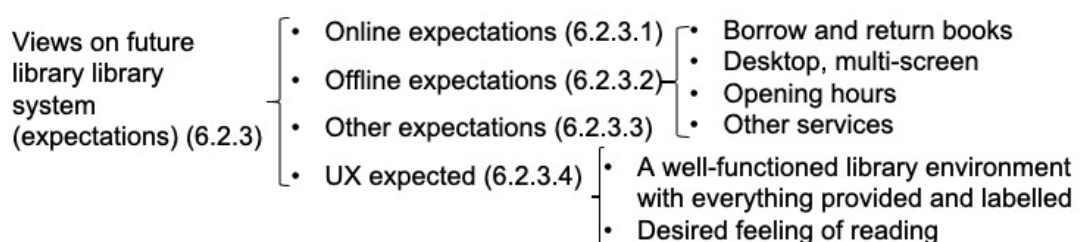
Without spending time commuting, finding books on shelf, and worrying about the short-period on-hold time, the online resources improved access by providing convenient virtual access with multiple loan and download permissions. With more digital versions of resources available and the recognition of the constraints in the physical world, the digital resources are getting more popular.

From exploring the meanings behind the codes in this subcategory, it is getting clearer that participants view the physical library as a space or environment that is conducive for their studies; while their more frequent interaction with the library is through the digital library system where they get access to digital resources as their preferred resource type.

6.2.3 Category: Views on future library system (expectations)

In the cognitive mapping exercise, many participants drew their views towards the future digital library development in UCL, by which they expected to have a better library UX. There were suggestions for targeted services in the physical library, or system upgrade for the digital library, or system design for future library app. The ‘online’ and ‘offline’ (digital and physical manifestations) was divided based on what participants expressed in their understanding.

There were four subcategories in this category, and they were ‘online expectations’, which embodies elements that were about opinions, wishes and suggestions for online library services in future. The ‘offline expectations’ encloses expectations for the offline library services in the physical library; ‘other expectations’ contains wishes that did not belong to either the online nor offline components of the academic library but were also helping in developing the future library system; and the ‘UX expected’ includes elements that expressed the library UX students wished to have. The structure of this part is depicted in the figure below.



6.2.3.1 Views on future library system-Online expectations

Weight analysis

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Online expectations	Subcategory				
Technologies		5	6	1.83	3.28
Library app design--Library services (other)		5	6	1.83	3.28
Library app design--Book study rooms		3	4	1.75	2.29
Library app design--Personalised and customised functions		3	3	1.33	2.26
Library app design--Seat reservation		3	3	1.33	2.26
Library app design--Map or visualisation of information		4	4	2	2
Library app design--Search		3	3	1.67	1.8
Library app design--Social functions		3	3	2	1.5
Library app design--My account		2	2	1.5	1.33
Library app design--Notifications		2	2	1.5	1.33
Library app design	Subsub category	3	3	2.33	1.29

In this subcategory, ‘technologies’ and the ‘library app design—other library services’ are the two codes with the highest F/P index of 3.28. They both were mentioned by five participants and appeared six times. ‘Technologies’ represents any type of technological support that appeared on the maps,

which included VR (virtual reality), big data, VUI (voice user interface), BCI (brain computer interaction), portable and wearable devices, and robots. Participants were encouraged to think bravely beyond the current library experience and most of them drew technologies to express their wish for finding desired information they want with technological support. The surprisingly high F/P index comes from the code 'library app design—other library services', meaning information about the facilities and other physical services provided by the physical library that they wish to see in a mobile library app. Those facilities included but were not limited to the location of water fountains, bathrooms, cafes, laptop loans, and device charger loans. It is a surprising finding because the physical library facilities are often ignored in the design of the digital library system; however, from the drawings, several of them stressed this matter, hoping to quickly and easily check the information about physical library facilities on their mobile phone. Mobile phone, as a quick search tool where instant information is preferred to be received and searched, was expected to support the fluent usage of library services through providing necessary quick information about the library services.

Compared to 'search' for resources, other functions like 'book study rooms' (2.29), 'personalised and customised functions' (2.26), 'seat reservation' (2.26) and 'map or visualisation of information' (2) have higher F/P indexes in the subsub category of the 'library app design'. It suggests the functions students wish to see on a library app are distinct from that on a web version, which are primarily related to navigation and finding their place in the physical library, rather than an academic search. The checking, booking and guiding are important information they need to know before going to or on the arrival at physical library. Rather than booking study room on their laptops, they prefer to book the room on a more portable device, the mobile phone. Seat reservation was also emphasised, as participants wanted to know the seat

availability status in the library before their arrival to help them make the decision of which library to go. As the core information source in their academic life, they wished to receive academic resource recommendations based upon personalisation and customisation from the library to extend their reading and awareness of new and discipline-related resources. Four participants drew their expectations of having visual presentations of library information, and this includes visualisation of bookshelves to help them locate the floor and the direction of books, and the detailed floor plan to help them find their way within library space. Notably, nearly all the functions they wish to see in a library app belong to the physical library services. Technological tools, such as the mobile phone, serve as the bridge that connects the physical library components through a digital form, playing the role of a digital robot that monitors real-time status in the library.

As for the 'search' function in the design of the mobile library, mentioned by three participants, it holds an F/P index of 1.8. Search was mentioned but not emphasised here; they hope to do a quick search on their phones when it may not be convenient to use their laptops, like for example, when they are on commute. In this case, search is mostly performed without downloading or reading or other complicated information activities as the context determines the way they use the library system.

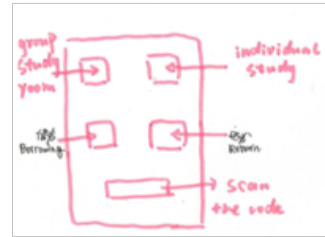
The other three expectations regarding the library app design were 'social functions', 'my account' and 'notifications', which have the F/P index of 1.5, 1.33 and 1.33 respectively. 'Social functions' appeared on three participants' maps with three different angles: one suggested it that could have a feedback function, where library users are able to report any issues or problems with the library facilities; another came up with the idea of interacting with other library users and use the library app as an academic social platform; the other

hoped there could be some interaction between library users and the library system, where users can give feedback on likes or dislikes and the system can provide recommendations based on that feedback to form an interactive loop. Interestingly, when they think about a library app, they wished it to have an interactive social experience by which they can communicate with librarians or other library users in an online form, which is similar to the experience of using other social media apps. This idea weakens the traditional stereotype of an academic library that performs the function of an academic resources provider, while it strengthens the overall experience of actively interacting with all parts of the library.

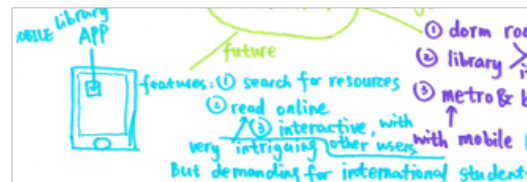
The subsub category of 'library app design' with an F/P index of 1.29 contains elements of library app interface design. The figures below are the three drawings that have this element (see figure 59). An interesting finding from cognitive mapping was the way they expressed their opinions on drawings; all of them drew the app layout directly on their map as straightforward and easily understandable presentations, where the buttons, sections, modules, and functions can be identified at first sight. This way of visual expression was also found in the other two Chinese students who engaged in the pilot study, where they also used a straightforward way to design the library app (see 4.4).



(by participant 4)



(by participant 13)



(by participant 8)

Figure 59 Library app design

On their drawings, participant 4 and participant 8 wished to have search gateway, functions related to essay writing, such as saving essays and reading online, while participant 13 focused on the library services, such as room booking, library study space and borrow and return services. The functionality of the mobile library app they wished for is closely related to their current habits and information seeking behaviour. Compared to the web version of the library system, it is apparent to see that users have different requirements on a mobile version, which also relates to their context of usage.

Meaning exploration

Four codes and one subsub category were organised in this subcategory, 'online expectations'. The 'library app design' as the subsub category, then contains 14 codes. A tree diagram of codes in this subcategory is presented in the figure below. This section is organised based on this tree diagram.

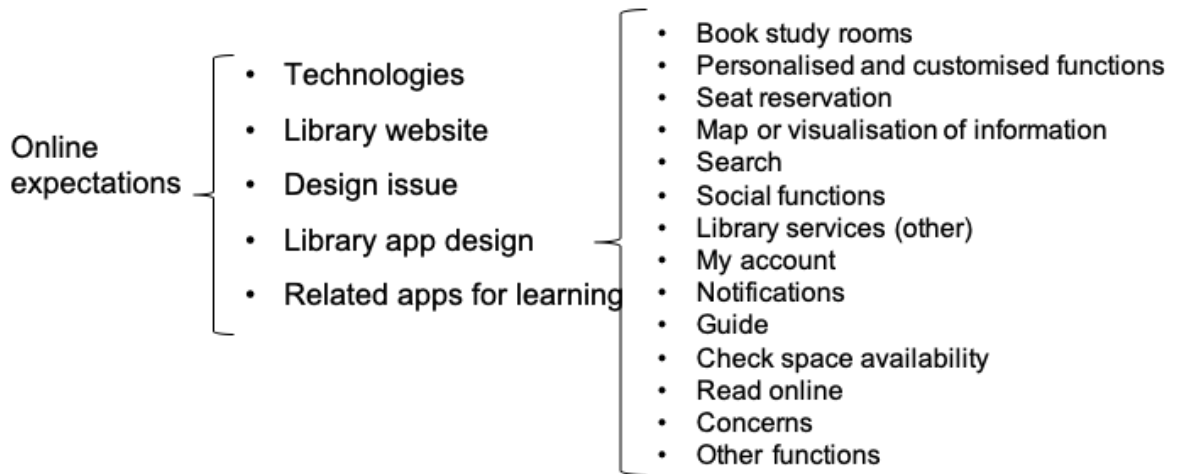


Figure 60 Tree diagram of codes in the subcategory of 'online expectations'

Technologies

Among the codes in 'online expectations', the elements under the code 'technologies' appeared frequently in the cognitive mapping exercise. Speaking of the future digital library, users have interesting expectations and bold imaginations, especially under this Digital Age where emerging technology is changing the way people view a problem and what they expect for the future. Notwithstanding some imaginary thoughts, their expectations also came from their information needs and imperfect current user experience. This code contains a wide range of technologies, from machinery concepts to applied science. 3D (three dimensions) and VR (virtual reality) were two concepts that were brought up several times by participants. 3D technology displays object in three dimensions, extends the visual depth and creates the environment and experience of virtual reality. The map below shows the expectation towards the future library form; figure 61 describes a way for using 3D and VR concepts in creating "the atmosphere of the library" (participant12); figure 62 lists out the advantages of using VR in the library presentation and management and this participant elaborated their thinking further during the supplementary explanation:

First of all, it can bring a face-to-face communication [...] we may be in a virtual library, where you may see other users and you can see what books

are borrowed by them. Second [...] because it is in the virtual format, a lot of people can read this book [...]. The third thing is that, by using VR, all the books will be virtual and they can be kept for a long time and no need to worry if they get destroyed because of the time. The last thing is that it can save some space and there is no need to build such a large library to store so many books[...] (participant14)

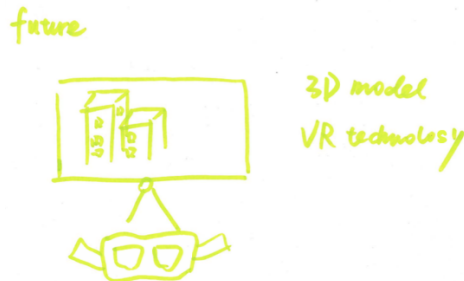


Figure 61 3D and VR application in future library by participant 12

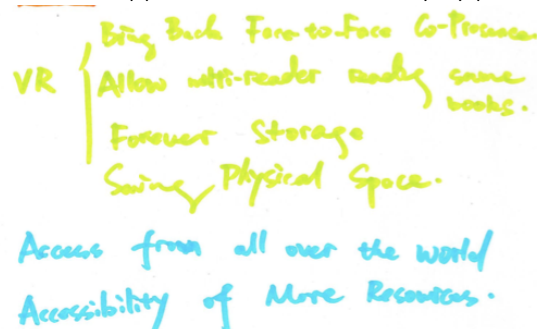


Figure 62 VR application in future library by participant 14

Notably, here they are trying to merge that distinction between the physical and digital in 'virtual reality'. This statement shows that the consideration came not only from the library user experience but also from the library long-term development. This participant had an academic background in architecture and was in the programme 'Space syntax: architecture and cities', which discusses human behaviour in space and the design of expanding cities. Their expectation towards using VR technology showed expertise in space design where they explained how VR technology would be able to generate different forms of library and human interaction that would save space and reduce the need for storage space for books. The expansion of publications and records is bringing concerns about the long-term conservation. The records life-cycle theory has been directing records and archive management, but preservation and conservation in the library is still developing under

different library contexts. In addition to the consideration on conservation, those technologies would provide users with more possibilities in the intermediaries to the library resources, which reflects their wishes of getting access to library resources under different contexts without the constraints on location and time; this was stated on participant 14's drawing, "access from all over the world". As international students, they may be worried about the remote access of library resources on any occasion that they are outside UK.

Library website design

There is another code situated in the digital library component, which is the 'library website (web version)'. On the figure below, this participant drew the web version of the library website interface that they wished to have in the future. Different from the current gateway search interface, this participant hoped to have some resource categories below the search box and pre-setting filter on the left-hand side of the homepage, where they could select the relevant facets before the search.



Figure 63 Expectation on "library website (web version)" by participant 6

Although it was just a slight change to the current interface, the categories suggested may give the user directions on what type or field of resource they

can select specifically in this system; the advanced search would work better for the users who are aware of what to search and what they want to find.

Design issue

Without a doubt, the interface design has a strong influence on the interaction and user experience, and this is a major topic in the UX design domain. For this study, however, how the interface design may change the information seeking behaviour and library UX is not discussed in a great detail. This code only appeared on one participant's drawing, but it still illustrates some issues around library website usability (see figure below).



Figure 64 Expectation on "design issue" by participant 9

This participant stressed the similar operating interfaces on different devices (phone, tablets, PCs, etc.) and wrote a "VIP!" on the side to indicate how important this similar interface design was, and also gave an example of how the different design of the Android and IOS systems can cause troubles to users:

for example, there are Android and ios systems, and the two of them have very different user interfaces, which will cause users who use Android cannot easily change to an ios system, and vice versa. (participant 9)

For many users, familiarising with a system takes time and effort; keeping the consistency of interface design on multiple platforms is essential to the improvement of usability. It is worth noting that during the later interview, when explaining the reason why they rarely used the UCLGO app, the student stated further that *"I don't like to explore new things in electronics. I feel that it is a waste of time"*. Not all the users like to explore new things especially with electronic devices; thus, providing them with the easiest and most

straightforward way to get to the information they want on all their devices and keeping the consistency of design to save their time on learning is crucial in improving UX.

Library app design

Among the elements related to online expectations, the ones that related to wishes towards the future mobile library app design appeared with the highest number and were categorised into this subsub category 'library app design' with 14 codes. In the analysis, those 14 codes were organised and rearranged by the frequency of appearance during the cognitive mapping exercise and the inner connections between different codes. The figure below (see figure 65) represents this connection among the 14 codes in the 'library app design'.

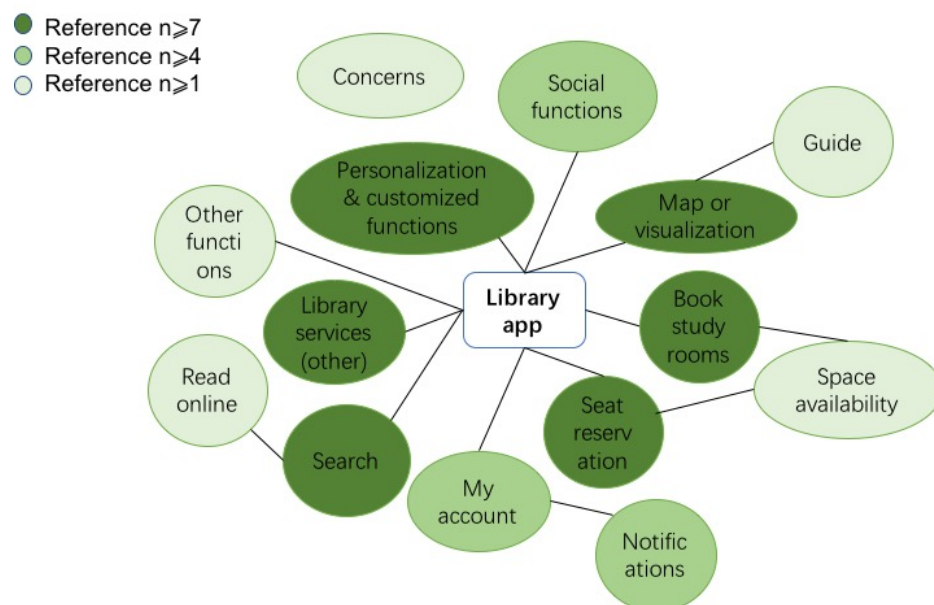


Figure 65 Code relations in the subsub category of 'library app design'

The shade of the elements indicates the frequency of each code (the darker, the more frequent); and the line between the codes shows the inner relationships. There are six codes that were mentioned equally or more than seven times during the exercise and they are in dark green; they are organised close to the centre of the diagram—library app, to show the direct connection to the function of the app and its considered importance during the app design.

Three codes ('my account', 'notifications' and 'social function') were mentioned equally or more than four times. The other five codes in light green are the ones that were mentioned less than 4 times.

From the visualisation of codes, most suggested functionalities were designed to support the library services in the physical space, such as seat reservation, booking study rooms and map or visualisation of library space; it is interesting to see the library users appreciate a library mobile app that assists their activities in the physical library.

Several cognitive maps started with a desired interface of a mobile library app and in describing the functions or modules in the app, most of them mentioned 'book study rooms' and 'seat reservation'. These are two services that were extended based on the current library services of study space availability check and booking service (see figure below).

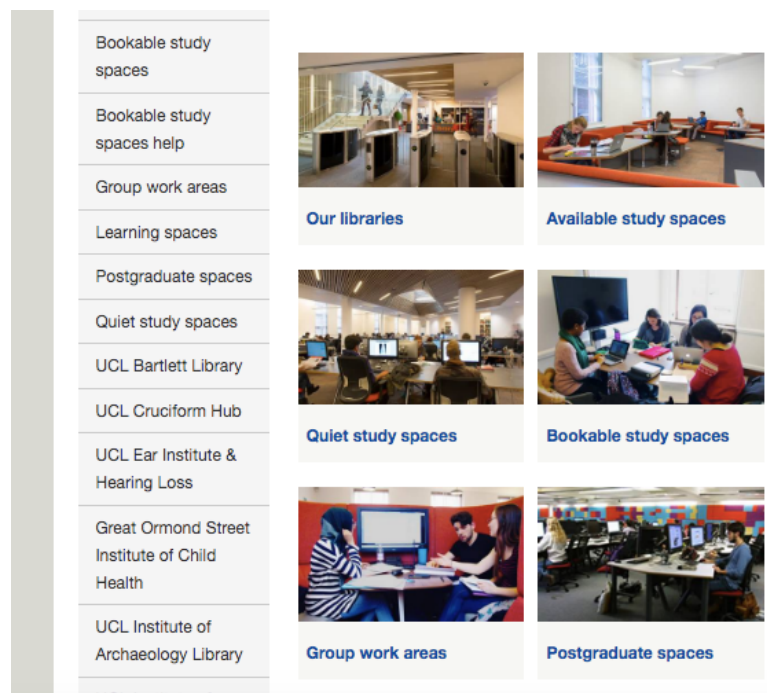


Figure 66 Study space check and booking

Being portable and convenient to look up at any time the mobile app became a preferred container of such services that can assist users' decision-making before and upon their arrival at library. Those functions were valued by the users, for their perception of the library as a place or environment conducive to study; as one participant stated:

[...] (I drew the part of book study room) because library is not just a place to borrow books, students also use the space to study. (participant 9)

The current UCL library service provides users with links to book group study rooms for a one-hour slot per day per user for PGT students; users can check the availability of the study space through UCLGO app, which shows how many seats are taken up or free at the moment (see figure below). However, the individual seats cannot be reserved; the availability check provides users with a rough overview of the current situation in the library (busy or not) but they still need to find the seat floor by floor.

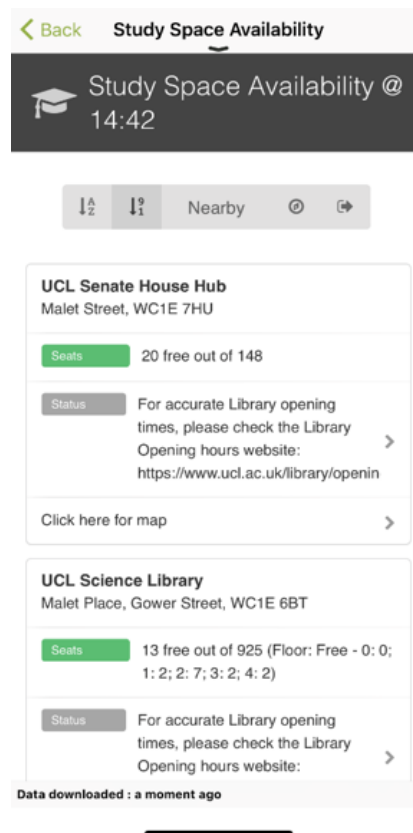


Figure 67 Space availability check @UCLGO

Thus, apart from the current service for booking group study rooms, several participants drew their expectation towards the 'seat reservation' services, such as the figure below.

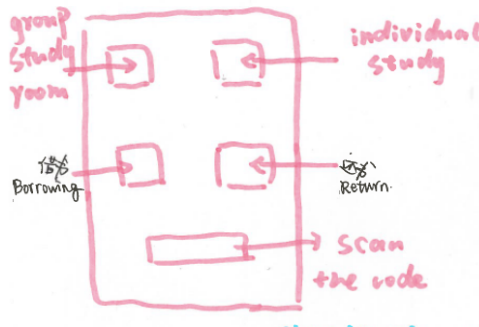


Figure 68 Code 'book study room' found in participant 13's drawing

They wish to have bookable individual study space on a mobile app, which can secure their seat in the library without spending time looking around for a seat; this student explained their wish in detail,

when it is the peak time, everyone has the need to book a seat; if the individual seat cannot be booked in advance to confirm, it will cause inconvenience. (participant13)

They also mentioned an issue with individual seats during peak time, as some users might leave their seats for a long time which would cause a waste of resources; thus, this student came up with the suggestion on the future design of library, that

if you can scan your seat in the future mobile library app, to know if this seat is booked or not and you don't have to find seats on different floors around the library, or disturb others. When you leave your seat, you can scan it again before you go out of the library. (participant13)

It was also a concern mentioned by participant 10 and 11,

I'm just thinking that if there is a service that can help you save your seat for a while and when you leave, the system can also help you cancel it. (participant10)

I hope it can be possible to reserve seat in the library that I don't have to go to the library to find a seat. It's usually spent me a long time to find a seat. (participant11)

As a basic element in the library, how to make the best use of seats and space for individual study purpose and save time for users to find seat is a serious issue to be solved, especially during the peak times.

On one cognitive map (figure 69), the participant listed three items (“room booking; available room checking; available seat checking”) that related to ‘book study rooms’ and ‘seat reservation’; apparently, checking and booking are two separate components and procedures in their understanding and correspond to different information needs. The action of checking usually happens before the decision making of whether to visit the library, when users are not on the spot; while the action of booking is often made with an explicit goal of when and which library to visit and with booking, it forms a commitment that is made by users.

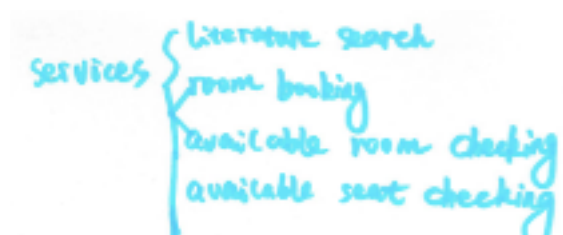


Figure 69 Code “book study room” found in participant 11’s drawing

Related to booking a study room, one participant hoped that the library could provide users with different types of rooms that are not constrained to study purpose, such as “chatting room, rest room, and music room” (participant 11); it shows their understanding of the library as not only a place to study, but a multi-purpose environment that supports their multiple activities that happens during the stay in the university. It should be noted that some users do not distinguish between the services of booking study rooms or reserving individual seats; what they are expecting is locating a place that ‘belongs to’ them, where they can study attentively without being disturbed. They value the efficiency of finding such a place in the library quickly and quietly without

disturbing other users. They want to design and have access to their own 'perfect' study environment, but also want to be able to chat to others and be social at other times.

The other code that related to physical library is the 'map or visualisation of information', which appeared frequently during the cognitive mapping exercise; the expectation of visualisation was basically divided into two aspects: the visualisation of the location of books (see figure 70) and the visualisation of library space (see figure 71).

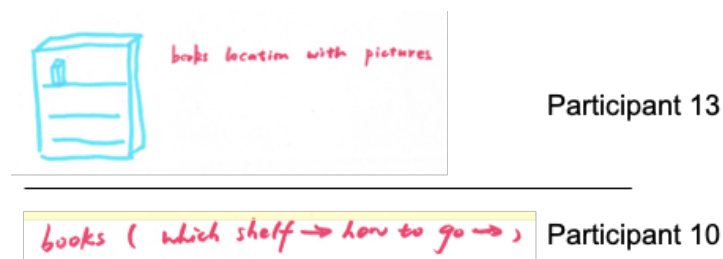


Figure 70 Visualisation of the location of books

The expectation for the visualisation of book locations mainly came from the complaints about the difficulty of finding books, which often took them plenty of time; they wished that, "if there can be pictures of where the book is, users can find the book according to that picture, which is faster" (participant13). For some users, finding books takes longer than expected and this may cause an upset feeling which may lead to a dissatisfied library experience; as was further explained by participant 13:

even though it shows the location code of each books, you still need to spend a lot of time on finding the book, because the code might appear in a large area and sometimes the information is not very clear. (participant 13)

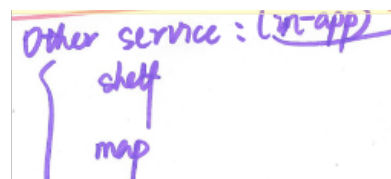
Similar expectation was also found in another participant's explanation,

If there is a physical book that you need, you can find out which bookshelf it is on the app, and how to get to that bookshelf, which can also be presented on a kind of map, just like some museum or gallery apps that

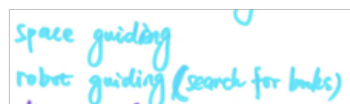
*give you navigation to the painting or art piece you want to see.
(participant 10)*

This student gave examples of museum and gallery apps that they regarded as similar sectors with academic libraries that also serve user's need of exploring, finding and learning a specific aspect of knowledge. How to present collection information and spread knowledge is always an eternal topic of this type of cultural sectors; various visualisation presentations have been utilised to draw users' attention and support their user experience. Displaying collections in a map format is definitely a direct and straightforward way of guiding and indicating the locations that can assist users' journeys and visits in the space.

Another expectation towards the visualisation of information is about showing the map of the library space and guiding function that can lead users to specific places in the library (see figure 71).



Participant 5



Participant 11

Figure 71 Visualisation of library space

Finding ways to a certain library and within the library is troublesome for some users, especially as UCL has 17 libraries scattered at different locations in London. Users expected that the mobile library app could embed with the GPS and map function that is able to guide them to a library where they can find empty seats, as was stated by participant 10:

What I hope is that if the app can have some route planning, for example, from your current location, give you a suggestion which library to go based on the available PCs or available seats. Especially during the exam week, I think it will be quite useful to diverse people into different libraries.

(participant 10)

In essence, a library user cares about navigating and finding their own place in the library quickly and easily. The design of the mobile library app should focus on how to assist users' journey planning to the library and help them navigate in the library space. Another participant expressed this expectation from another viewpoint:

*If the space design in the library is too complicated and I don't know how to find a place and there is no volunteer I can turn to, the mobile library app can locate where I am in the library and it can plan a route, tell me how to go, like by voice, or maybe in the library there can be some small robots, which can speak to me and lead me to the place I want to go.
(participant 11)*

There remains issue around orientation and finding their way around both physical and digital spaces. The zoning and floor plan on a two-dimensional map are not easy to understand for some users, and they are expecting a more interactive way of exploring the library that the delights and practicability are considered at the same time.

Participant 5 listed out the information that could be displayed better in visual format, which includes the library floor distribution, the location of books, and facilities in the library:

Then, this is what I thought at the last few minutes, which is the information the library users need to know, such as the location of the bookshelves, the location of the library map, information about the toilets, cafes, and the facilities in the library or what is around the library. I think it may be better to present this part of information in a map format, where you can click on different points on the map, like a navigation. (participant 5)

Another code that is directly related to 'map or visualisation of information' is 'library guide', which appeared on one participant's drawing (see figure 72). With the support of library guides, it helps the wayfinding to and in the library; as was asserted by this participant when explaining the drawing,

when I go into the library and (I hope) it can give me a map inside the library to lead me to exactly that bookshelf, that I can read it on my mobile phone. In addition, there can be information about which library shall I go to find the book, because there are so many libraries in UCL and for example, the book I want can be found in both A and B library, and it can tell me which library is nearer to me. (participant 9)

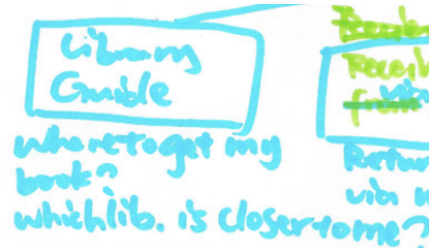


Figure 72 Code 'guide' on participant 9's drawing

The visualisation of information is more than just a way of presenting what the library possesses, it is also a medium of communicating with library users, to introduce, engage and disseminate the library services. For international students, the visual form of information would provide them with extra help to understand and make use of the university services; it is easier to read and identify than text only information that could improve the efficiency of navigating and making use of the library services.

The code 'library services (other)' contains the elements that represented the expected affiliated services in the library whose information was hoped to be included in the mobile library app. These are for the library as a place where they can be in physically, rather than digitally (whilst physically being elsewhere). Five participants (see cognitive maps from participants 5, 9, 10, 11, 13 in the *Appendix G*) showed their expectation towards the possible library service information that should be included in the mobile app, which can be roughly divided into facilities inside the library and the affiliated services. They were arranged and presented in the figure below (figure 73); the blue block

contains the facilities inside the library and the green block embodies the affiliated services that academic library can work with.

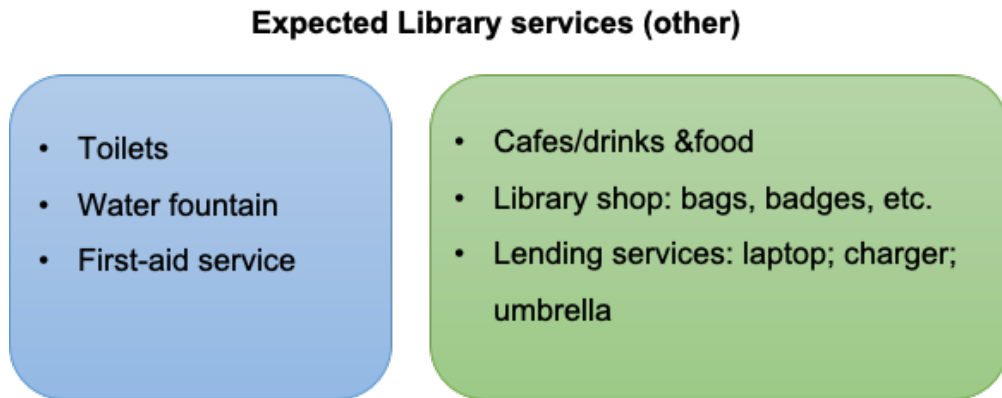


Figure 73 Expected library services (other)

The users expressed their wish to check the information of essential facilities such as toilets and water fountain from the mobile library app, where the updated information about facility location and current status can be checked easily and quickly; as wished for by participants 10 and 13:

I think the library app can help us search for some convenient facilities, such as the water fountain when you want to drink water, or the emergency services when you encounter some urgent problems. (participant 10)

I also expect there can be information about facilities, including information on where the toilet is and where the drinking fountain is. If the information can be automatic updated, then you can query where these facilities are, which will be particularly good and practical. People won't use the software very often if the software that are not updated in real time. Therefore, I think the real-time feature is very important. (participant 13)

From their statements, users expressed a strong wish of getting real-time information, which could describe the current status in the library to help them make decisions correctly. One feature of a pragmatic system is the information accuracy; whether clear and accurate information can be delivered to users is a measurement to evaluate the software performance. The other services

mentioned by participants were the affiliated sectors that the academic library can work with, such as cafes, shops, and lending services. The academic library is more than just a place to borrow books and to study but should be a conglomeration of different entities providing integrated services.

In the cognitive mapping exercise, the elements that described the ‘personalised and customised functions’ in the future design of the mobile library app were also emphasised by several participants. This code includes the wish to receiving recommendations on library resources based on the user information, past search, and interested topics; they gave examples and talked about their experience of using other apps,

for example, if you searched for some resources today and you read certain books, it would automatically generate some book recommendations that you have not read but are related to your search. (participant 10)

I used an app before called ‘iResearch’, and you can enter the keywords you like, and it is working like the ‘red book’ (a Chinese social app for sharing things), that it will recommend you with some updated publications and research based on the keywords or fields you entered before. (participant 5)

The recommendation based on keywords and user input is helpful in terms of extending the search results and providing users with alternatives of receiving information. As a passive way of information seeking, recommendations given by this specific algorithm that calculates the search history and gives similar results may be effective and plausible. Another algorithm for generating recommendations suggested by a participant is based on user information or system settings,

it can recommend me with some books that my classmates read a lot or some reading materials related to my course (participant 9)

One feature of academic libraries is to support a specific group of users—students, staff and researcher from the university. They are working in different sectors with distinct academic backgrounds, while they are virtually

connected by research goals, learning tasks and academic events. From this statement, it can be seen that users wish to find out what their peers are exploring, seeking and reading; they regarded the academic library as exploration of knowledge and linking to the other builders of that knowledge, working together in a knowledge community. The algorithm designed to link users virtually and build networks based on user profile can be a solution to this requirement, where users from the same department or discipline would be connected and recommendations may be given based on their search. In the context of this research, considering the identity of participants who are international Chinese students, their expectation towards the customisation and personalisation reflects the deficiency in their information seeking skills and the needs of receiving more relevant academic resources.

As for the expectations related to the digital library component for the library app, most of them indicated on their cognitive maps that the 'search' function should be included in the app (see cognitive maps of participant 5, 8, and 11 in *Appendix G*). Although users expressed the preference for using a laptop or desktop to seek for information and do their work, the search function was still regarded as an indispensable constitution on the mobile platform. The ubiquitous access to library resources guarantees the information seeking activity under any context.

'Read online' feature is connected with 'search' function and among those who drew the search function on their map, only one of them indicated the feature of accessing and reading the resources digitally through their mobile phone. It should be noted that the utilisation of information is in tandem with information seeking and they are two separated activities happening at different stages. The identification of the 'search' function in the library app only explained the information seeking process, where they search for

resources; however, this does not show the utilisation of the resource, through which they may read online, download or make any further changes to it. One participant expressed the wish to read the digital format of library resource through their mobile phone:

I think if the mobile phone can connect to the library system, then for example, you can do some reading on the transportation vehicles, which will save a lot of time and effort. (participant 8)

The context of using the feature of ‘reading online’ from mobile library app is on the move when portable devices with a stable network connection is preferred. It is also the time when fragmented learning tasks might be completed.

An unexpected aspect of the wish for library app design is the ‘social function’ mentioned to indicate the features that would support user’s communication and interaction with other users or the library staff. Their expectation about this feature are twofold: the first is about the interaction with other library users, where the mobile library can provide a way for them to express the experience of reading or using the library service; as expressed by participant 8,

Another possibility that can be developed is that, there are a lot of social media software on the mobile platform, and the phone has the feature of social with other people. So, I am thinking whether there can be some social features of mobile library, where people can share their reading experience with everyone, and if so, it can be brilliant. (participant 8)

The second is about building an intermediary between users and the library staff to reflect on the library service and give feedback in a timely manner, such as:

when you are using this app, I think it can also serve as a channel for feedback. For example [...] when you are using the computer, and it crashes, then you can submit this issue directly on app, which will be faster to let IT service help you. [...] Finally, the users can also provide some feedback on the accuracy of the services and search, such as space availability, which shows that there are a lot of seats, but when you go

there, there actually no seat there. (participant10)

'My account' and 'notification' are the other two features that appeared in relation to the design of the library app, both of which are relevant to user admin management, by which participants hoped to manage their library account from mobile library app and get due notification of books on loan.

The services they want on an app are more about navigating the physical environment rather than an intellectual one; or in other words, it is viewed as a virtual robot that guides them in the physical world, instead of seeking information to gain knowledge. Mobile devices imply an interface with the physical world – moving in it and through it.

Related apps for learning

Apart from the expectation of library apps, some participants also mentioned other apps that they need in the process of learning and the elements were identified as the code 'related apps for learning'. On the figure below, this participant wished to have more apps to support their reading activity and note-taking behaviour.

More facilitators and reading apps / noting apps.

Figure 74 Expectation on "related apps for learning" by participant 1

Currently, there is no specified reading software recommended by the university library on mobile devices that can support the display of articles downloaded from the library system; the only choice for them is the built-in function of saving and displaying the files. It should be noted that the reading activity is complicated and contains multiple tasks during this process, such as highlighting, making notes, commenting, etc.; thus, designing related options

for readers to engage with the resources they obtain from the library can improve the usage efficiency and make the best of this process.

Another participant talked about their expectation of having an app that can record their thinking and notes in one place and gave an example:

sometimes, I suddenly have an idea on the underground, or [...] like when I am on the train, I want to write it down. I think it is a good idea to develop an app that can easily map your idea on the phone, because it is easy to map or draw on the phone. (participant 4)

In the learning process, many activities are going on; what this participant described was more related to the activities of thinking, mapping and organising ideas. They mentioned the situation and context where it is easier to use a mobile phone to take down notes and this is actually very important during the creation of work where the flow of thinking is going on all the time. Although this exercise asked them to draw thinking around digital and mobile library, the other activities that mutually support the learning goal were recalled and mentioned in the exercise, which should be noted by the library. It is also about creating a digital or virtual environment conducive to study – everything they need instantly accessible and in one place – in this case that place is ‘an app’.

6.2.3.2 Views on future library system-Offline expectations

Weight analysis

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Offline expectations	Subcategory				
Borrow and return books		2	3	2	1.5

Two participants mentioned ‘borrow and return books’ on their drawings and led to an F/P index of 1.5. One of them made expectations on the rule of

borrowing and returning books, by which the participant hoped to have longer loan time and no limitation on returning books to certain libraries. The other participant expressed the desire to be able to scan the book code from their library app when they borrow or return volumes, and for the check-in/out information to be simultaneously updated in the library system to make the borrowing and return process easier. From the map, it infers a strong desire from participants to have more flexible loan rules for borrowing or accessing physical books; this also may explain why digital resources are getting more use, as although there are some constraints on the loan time for the digital format, unlimited copies can be accessed and re-downloads are quick and easy to undertake.

Meaning exploration

Four codes are under the subcategory of 'offline expectations' and they are 'borrow and return books', 'desktop, multi-screen', 'opening hours' and 'other services'.

The expectation towards the 'borrow and return books' service includes thinking about how to find and return books in an effective way, and the wish to have less limitations on borrowing books. On participant 1's map, the wishes are written in text: *"no limited time or longer time" for loans; and "no need to return books to different libraries"* (see figure 75). Considering the nature of the one-year PGT programme where the coursework and dissertation are accomplished in an intensive amount of time, all the PGT students' demand for academic resources emerges at almost the same time along with the term time. This sometimes leads to a shortage of available copies of books on shelf. The library has been coordinating this situation by putting restrictions and limits on loan time; however, for some core reading books, the users need a continuous period of time to have it on hold. In the meantime, the restriction

on inter-library loan and return caused difficulties for users as they are required to return the books to the correct library that it belongs to; this may be inconvenient if the user requires the books from different subjects and it would take them time to return books to specified libraries. Those expectations indicate the necessity of providing digital versions of books that has no limitation on downloading or borrowing; and this accounts for the trend that more users prefer digital resources than physical ones.

No limited time
or
longer time;
No need to return books
to several different libraries;

Figure 75 Expectations on 'borrow and return books' by participant 1

Participant 13 deliberated on how to find, borrow and return books in an effective way:

I hope by scanning the code on the books, it can realise real-time borrowing and returning books[...]Because now, you know, when we return a book, [...] it still need to be reclassified and put back to the original location in the next day or several days after; if such real-time system can be built, users can directly return the book to the shelf of a particular library, which may be more convenient. (participant13)

By scanning the book code, the information about the book description, publication information and location in the library would be represented. What this user hoped is to realise a self-return service where users themselves put the book back to the shelf and shorten the clear-up time. This expectation came out of the concern about the long unavailable time for some popular books that a lot of students require at the same time; by shortening the clear-up time, the books can be used in an effective way. On the cognitive map, this student also expressed the wish to have pictures of the book location on the shelf on the library app as it would have two advantages: one is assisting users

to find the book in a quick and straightforward way; the other is to help the users return the book to where it belongs on the shelf, forming an ecological self-service.

Another code situated in the physical library component is the 'desktop, multi-screen'. It is surprising that several participants mentioned how they used different devices at the same time and performed different activities on each and they wished the library would support their way of working by providing multi-screen devices (see figure below as an illustration).

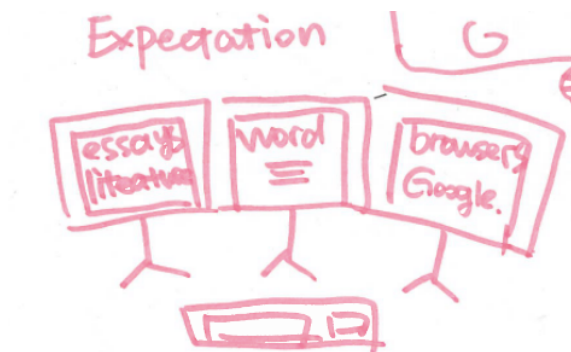


Figure 76 Expectation on "desktop, multi-screen" by participant 4

Participant 4 explained the reason that they needed multiple screens for learning:

In fact, when you write an essay and need to read a lot of literature, you need to be very focused. There are a bunch of software on the laptop, and I need to switch among them, so I am thinking if we can have more desktops in the library, then the middle one shows our writing in the Word, then one on the left is to see various articles, then the third is the browser, where you can search for grammar or something you don't know in Google. It can be more convenient. (participant 4)

It is also very interesting to see how they organised the position of each screen; the one in the middle represented the primary thing or core work and the others on the two sides were the tools that support this core work; this organisation of screens also helped to sort out the priority of the tasks they

need to do during the work. This is actually the student designing their perfect study environment.

‘Opening hours’ was identified as a code when they recalled negative library experience in relation to the opening hours (see figure below).

Do not need to worry about holidays ;

Figure 77 Expectation on "opening hours" by participant 1

This expectation comes from the past library user experience, as was recalled by participant 1,

The most frustrating thing is that the day when I returned the books, our department library was closed due to a bank holiday or something and I didn't know until I went there and I couldn't return all of them. (participant1)

The interesting thing about this expectation is that, by wishing that the library opening hours can be extended during holidays, the participant hoped they could use the borrow and return service, rather than using the actual physical library space. In their supplementary explanation, the student talked about their habits of learning at home and only made use of the physical library to borrow books; that is the reason why they put emphasis on the borrow and return service. It also suggests that the update of the library information is important; the current way of listing the opening hours on the library homepage is apparently not efficient to inform the user and the method of notifying them should be rethought.

Apart from the current services in the physical library, participants also expressed expectations of other possible services in the future and these are coded as ‘other services’. One aspect is the side-line products that the library can provide to users, as described by participant 9:

As a user that rarely borrow books from library, and only read books in library, I am thinking if the library can lend us something, like the umbrella, as you know the weather in the UK, like some canvas bags, badges, so we can have a closer relationship with our university and library. Besides, these things can either lend to us or sell to us, or there can be a donation box at the library reception, which have been doing by some libraries of UCL. (participant 9)

This participant stressed the relationship between the university library and its users: how could the library show care and concern to users, not only academic support, but also other aspects of their life and study? How to make the library a place that the users trust and rely on during their study in London? These problems come to the library strategy and branding that involve issues on the user's perception of the library and the image that the library wants to convey. As an academic library, there is no doubt that academic support is the primary service the library is developing; while for users, they may wish to get more auxiliary services that support other areas of their life. This expectation also reflects the identity they want to seek during their study in UCL.

Another possible service they mentioned is the book delivery service:

I hope to receive the books I want by delivery, like I live in zone six and it is very inconvenient for me to come to the library to pick up books, so I wish if library can send the books to me, it will be great! (participant 9)

Although it sounds unrealistic, the wish suggests the changing habits of library users: they value the convenience of getting resources and they wish to shorten the time of obtaining resources. It should be noted that the expensive living cost in London has brought about the issue of the scattered distribution of students; unlike most of the Chinese universities where students live on the campus and so shorten the time they spend on commuting. It also explains the reason why most of the participants prefer digital resources for their instant access.

6.2.3.3 Views on future library system-other expectations

There were no codes in this subcategory that had F/P index higher than 1, therefore the weight analysis is omitted. This subcategory contains the expectations that were out of the range of the research topic. In the cognitive mapping exercise, one participant drew a workflow diagram that showed their suggestion and wish towards the library workflow (see figure below).

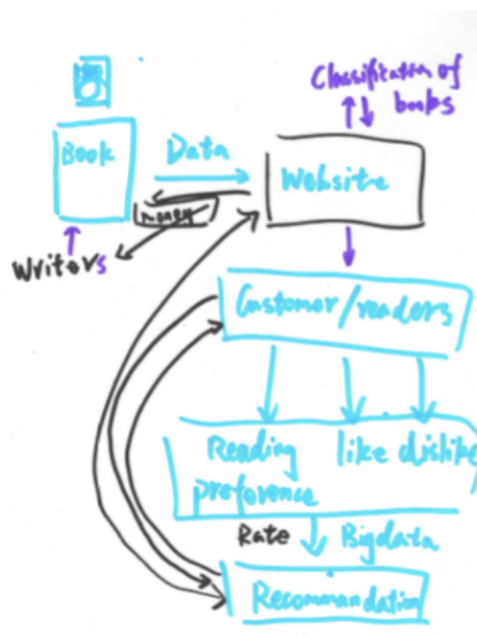


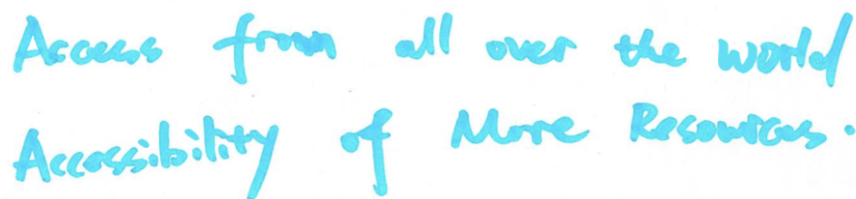
Figure 78 Code "other expectations" found in participant 15's drawing

In the explanation, they illustrated this workflow in detail, which connects the authors, publishers, users, and the library together and helps them communicate with each other. The core thing in this workflow is the big data concept, which analyse the data from the library website and generates user preferences to library, publisher and authors. In the drawing, the participant also emphasised how to gather user preferences from the library website by rating and giving opinion on 'like' or 'dislike', data would be gathered, and recommendations of resources would be sent to users. The description was about a feedback loop in which the library is in a more virtual sense, a body of knowledge shaped by people's consideration of and views on it. Although the

expectation from this participant is out of the range of the conventional wishes that are grouped in the previous categories, it is valuable to see library user's instant reaction and thinking in six minutes on the topic of mobile and digital library. Even the normal user has considered the workflow and the operational mode of library and during their library usage, they wish to find ways to communicate their opinion and feeling with the library, publishers and even writers.

Another expectation was about the access to the library system without the limitation of geographical location (see figure 79). Without worrying about the campus network, this participant wished that the university resources could be accessed from any place in the world; and this actually is working now, by logging into the UCL user ID, users can get access into the library system no matter where they are with the VPN. By explaining the "accessibility to more resource", the participant added:

for example, many government data has hierarchical structure, some are open, some are safeguard level, and some are sensitive, that not everyone can see it, so I hope that these resources can be viewed by more people in the future if possible. (participant 14)



Access from all over the world
Accessibility of More Resources.

Figure 79 Expectation on "accessibility issues" by participant 14

This statement considered the access permission to some special collections; however, they specified the data type as government data, which is sensitive and confidential in nature. It should be noted that government data also has the life cycle and many governments in the world are developing open data strategies to help the re-use of data and improve transparency (Veenstra, 2013). It can be expected that in the future, this type of data will be more

available to the public; the library, in this process, should be the one that helps with building the connections between various organisations and its users around the world.

6.2.3.4 Views on future library system-UX expected

Weight analysis

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
UX expected	Subcategory				
A well-functioned library environment with everything provided and labelled		3	3	2.33	1.29

One code in this subcategory has a F/P index of 1.29, 'UX expected—a well-functioned library environment with everything provided and labelled', it is a latent code that was interpreted from the drawing. When they drew their expectations and hopes for a library system design, they included very diverse elements that from both physical and digital components and other services they regarded could be helpful for the library experience, such as charger loan and library cafe. They perceived the library to be a fundamental environment where they can get all the services that could help them to study and seek for information; in this sense, the library should be treated as a functional workspace where they can perform all their related activities with ease.

Meaning exploration

This subcategory includes the latent codes that were spotted and interpreted by the researcher from the cognitive mapping exercise. There were two codes

interpreted: “a well-functioned library environment with everything provided and labelled” and the “desired feeling of reading”.

In the previous section of library app design, multiple types of services were mentioned by the participants, which include the ones that are not directly related to the library functions (for example, see figure 80). In the meantime, they emphasised the way of displaying library information, such as interactive maps and different forms of visualisation. From their expressions, it can be seen that users were expecting to have an integral and well-functioned library environment that has everything they need when they study or work in it; this environment includes both physical and digital parts that contain elements in relation to study. In the meantime, organising and presenting of information about this environment is vital as they wished to have clearer and more straightforward designs with necessary visualisation method.

different functional rooms music/chat/rest
 drink/food supply, laptop supply, charge device supply
 print

Figure 80 Well-functioned library environment wished by participant 11

Another code ‘desired feeling of reading’ was generated because during the cognitive mapping exercise, several participants expressed the reading experience they had at that time and that they wished to have in the future. As for the current reading experience, most of users mentioned how they prefer to read on their laptop rather than mobile phone because of the bigger screen:

the mobile devices like mobile phone is not suitable to read, because the screen is too small. Or because the screen is too small, the phone will be used for some other purposes and make us cannot focus on the reading. (participant 3)

when I read, I will be more focused and immersed if I read papers that are printed out or read pdfs on bigger screen like laptop. However, if I read on

small screen like the mobile phone, I can't be focused like that or I might have lower efficiency of reading. (participant 8)

Consequently, when designing the library services on different devices, those differential behaviours should be fully considered, and the service focus should be different. They also indicated the difference reading experience on paper and paper-based devices, such as Kindle (as it is discussed in 6.2.1.3 Technologies) and imagined how the academic library in the future could provide users with abundant reading experience that would satisfy the changing needs,

what I want from the future intelligent library is not only search information that I want, but also a reading tool that can give me a great reading experience. For example, the seamless interface that I mentioned, it will be displayed in front of you and can make your spine in a very comfortable status, which obeys that ergonomic design (participant 7)

Users paid a lot attention to the feeling of reading. The library is more than just an information provider, but a learning assistant that should provide all-around helps on exploring, seeking, reading and using information. The feeling of reading is influencing what platform and tool they use to work, seek for information and read and also determines what type of learning-related information they access on certain tools. Building a user-friendly reading tool is indispensable in supporting the reading activities, and there exist possibilities for academic libraries that can be achieved by rising technologies, such as seamless interface and virtual reality.

6.2.4 Category: Cultural factors

There are two codes in the category of cultural factors, and they are latent codes generated based on researcher's interpretation on drawings and supplementary explanations from the cognitive mapping exercise. This category encompasses the elements that reflected phenomena or issues that may be caused by culture.

6.2.4.1 Cultural factors-Language

During the cognitive mapping exercise, when participants were asked to draw their perspectives and experience of using the mobile library or digital library, they expressed a strong concern about language which they regarded having a negative impact on how they seek for and use the academic-related information. As participant 8 expressed explaining the cognitive map:

if use mobile library to read, I have a concern that as an international student, English is not my first language, so when I search English online resources, I might have higher requirement on reading[...] if I read on small screen like the mobile phone, I can't be focused like that or I might have lower efficiency of reading. And I feel if I read Chinese resources, I won't have such concern. (participant 8)

They were worried about their reading speed and efficiency in reading in a language which is not their native one. The other two participants drew the difficulties they met in seeking information directly on their cognitive maps. Participant 3 drew “hard to find information just based on title” and also listed several ways to search, including by words, image and media. Apparently, after encountering difficulties, they had some thoughts on how to seek information effectively and they hoped to utilise multiple methods to extend the searching results. Participant 6 drew about difficulty in seeking for information partially because of the language and what they did afterwards (see 6.2.2.2 UCL library UX for participant 6’s experience of seeking for information). When unable to find the resource in the academic library, they would turn to the Internet to find other online resources outside the system.

The participants engaged in this research expressed their difficulties to seek for information and resources; this difficulty may be caused by incompetent information literacy skills or choosing proper keywords to search which is relevant to language proficiency. This is in line with the previous research that found language is one of vital factors influencing international students’ learning experience abroad (Hughes, 2005).

6.2.4.2 Cultural factors-Proper expression

In the cognitive mapping exercise, several participants expressed the wish to find information they truly need and were eager to correctly express their real thoughts, which required proper academic expression and knowledge of the local culture. Participant 7 mentioned BCI (brain-computer interface) in their drawing (see figure 81) and indicated that:

*I think there are differences between the keyword you typed to search and what you really think in your mind[...]BCI is a more direct way, that is, to search what you want in your mind in a simple and convenient way.
(participant 7)*

It shows the difficulty they experienced to express their real thoughts and compose the suitable keywords to search.

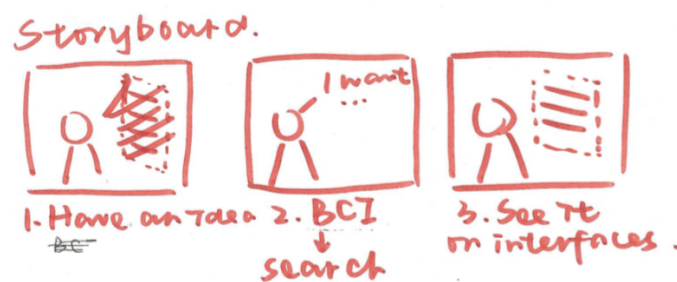


Figure 81 BCI to find information they really want by participant 7

Another participant 5 put forward making use of big data to get recommendations from the library system based on user's interests and keywords to extend the ability of finding resources. They explained their drawing and said, "you can enter the keywords you like, and...it will recommend you with some updated publications and research based on the keywords or the fields you entered". From this explanation, we see that it is insufficient for them to seek for information only based on the keywords they know due to their language and limited knowledge; and they wish to see more results that can be given automatically from the library system based on the limited keywords they are aware.

6.3 Meaning exploration through interviews

The semi-structured interviews were designed to explore the participants' library experience as international students and therefore, the questions were structured into three major themes: culture, information seeking behaviour and library UX. "Culture" reflected their cultural dimension in experiencing the academic library as international Chinese students; while "information seeking behaviour" and "library UX" constituted what they do and how they feel and think about the library, and consequently reflect a holistic picture of their library experience. The guiding interview questions (the complete list of interview questions can be found in *Appendix F Research Script*) and the corresponding themes explored are shown in the table below:

Their stand	Questions	Theme reflected
As an international learner	Your learning experience in China and UK? Your cultural experience?	Culture
As an information seeker	What information/where/how do you seek information to satisfy your study needs? What/how do you find information on the library system? How you use technology to support your information seeking?	Information seeking behaviour
As a library user	How do you use the UCL library system? How do you evaluate it? (what you like about/do not like about?) Your suggestions or expectations? Your perspective on the future library system?	Library UX

6.3.1 Categories generated from interviews

Inductive coding and qualitative content analysis were carried out to analyse the interview transcriptions; this enabled meaning to emerge from participants' responses and narrative expressions. The basic units of coding were sentences or paragraphs representing complete and distinctive meanings; codes (quotes) were then sorted and grouped according to the four pre-established top-level themes (in other words, the coding frame), which were 'information seeking behaviour', 'library user experience', 'views on future library system' and 'cultural factors'. Those four themes were established with a goal to help answer the research question: how Chinese students experience the UK academic library. These themes aligned to the categorising for the cognitive maps.

Table 23 is the summary table which shows the categories and subcategories of the coding tree generated from interview transcriptions. The complete coding tree contains four layers (category-subcategory-subsubcategory-code). Several subcategories are also code themselves and have no child code; therefore, in the second column, there may be the name of a code or a subcategory. The total number of interview transcriptions was 15, which led to the total file number of 15. The file number represents the number of files that contain a certain code which thus reveals synergies and differences across participant perspectives; the reference number represents how many times a code appeared. The arrangement of the table is based on the descending order of 'references', showing the extent of appearance frequency during the interview.

Table 23 Summary table for categories and subcategories of interview transcriptions

Category	Subcategory/code	Files (n/15)	References ↓
Library User Experience		15	485
	UCL library UX	15	266
	China library UX	15	105
	UX of using mobile library	15	89
	Physical library environment has an impact on their learning and their willingness to study in the library	8	13
	Reading experience	5	8
	Library as a place to study	3	4
Information seeking behaviour		15	462
	Current Information seeking behaviour	15	253
	External factors	15	158
	Past information seeking behaviour	15	38
	Lack of Information literacy skills, training and instructions	8	13
Cultural factors		15	192
	Course and discipline arrangement	15	97
	Culture intelligence	15	73
	Learning atmosphere	7	14

Category	Subcategory/code	Files (n/15)	References ↓
	Living environment	7	8
Views on future library system		15	101
	Expectations	15	56
	Smart library	13	16
	Mobile library	12	12
	Views of technology in library	10	12

In the interviews, the expressions and opinions that reflected the library UX resulted in a significant component of the results with 485 quotes. Participants talked about their current library user experience in UCL (266 quotes) and past library experience when they were UG students in China (105 quotes). They were also asked about their experience of using a mobile library (89 quotes). The other three codes in this category ('Physical library environment has an impact on their learning and their willingness to study in the library', 'reading experience' and 'library as a place to study') are latent codes created during the second round of coding, which were not directly stated by participants, but were interpreted by the researcher based on what their responses may imply; for example, participant 15 expressed how they used the library, as *"I have never been to the library to borrow books. Really, I only go to the library to study"*; several other participants also illustrated how they view the library as a space to study but they did not explicitly state that, and thus, a latent code 'library as a place to study' was created.

'Information seeking behaviour' is another significant theme dominating the interviews, which has 462 quotes in total. It contains the codes that reflected

participants' information seeking behaviour and the factors that influence that behaviour. This includes their descriptions and elaborations of how and where they seek for information to satisfy their learning needs and academic tasks in the UK (253 quotes) and in China (38 quotes); also it includes the external factors that influence their seeking behaviour, such as learning devices and learning contexts (158 quotes). 'Lack of information literacy skills, training and instructions' is a latent code that was interpreted from their explanation (13 quotes).

Participants discussed 'cultural factors' 192 times in the interviews, including the discussion of the broader research landscape, the temporal context, and the cultural context. During the interview, participants compared their learning experience in China and in UK. The 'course and discipline arrangement' contains codes that illustrated the ways of teaching and coursework assessment in the two countries (97 quotes); 'cultural intelligence' includes codes that reflected the ability and adaptability to live and study in a new country (73 quotes); 'learning atmosphere' comprises the codes that described the overall academic atmosphere in China and UK (14 quotes); and the 'living environment' is a code that reflected how the living environment influenced the way they learn and seek for information (8 quotes).

The last category created from the interviews is the 'views on future library system' and this category is directly related to the interview question where participants were asked about their opinions and expectations towards the future library system development (101 quotes). After the discussion around what they did in China and what they had been doing in the UK academic library, the codes in this category provide insights into the possibilities and their wishes for the future digital library developments. 'Expectations' contains codes that showed users' wishes and suggestions for the digital library

development (56 quotes); ‘smart library’ (16 quotes), ‘mobile library’ (12 quotes), and ‘views of technology in library’ (12 quotes) are the other three codes in this category that reflected users’ opinions and perspectives around these three specific concepts.

6.3.2 Connections across categories and abstract conceptions emerged from the interviews

In order to investigate the research question, how Chinese students experience the UK academic library in the Digital Age, and to explore the meanings behind the interview data, with the interpretive paradigm, the codes (quotes) were reviewed again and interpreted by the researcher through generating abstract conceptions to see what was implied from the data. The table below (Table 24) is the summary table of the 27 abstract conceptions or meanings that were found from the data, which were organised based on the four categories; see *Appendix K* for the complete list of abstract conceptions implied from data under each category with examples of quotes and codes.

Table 24 27 abstract conceptions emerged from codes

Ref number	Conception
Information seeking behaviour category	
[1]	They seek information from the library system with a clear goal or need which comes from current PG programme they are in
[2]	They view the academic library as a gateway or invitation (via the search box on library interface) to knowledge and exploration of questions and as a tool (via filter or advanced search function) to organise, categorise and make sense
[3]	They view the academic library as an authoritative resource provider where they can get the ‘thing’ they need for completing their current degree

[4]	Interface of digital library system is an entrance of 'physical market' (where they think they can get different types of information)
[5]	They perform most of activities digitally; Access to digital contents is of paramount importance in their intelligence works (digital natives)
[6]	Technologies are tools that bridge the physical and digital worlds (that merge distinctions between the physical and the digital)
[7]	Technology is a part of the context of interacting with the library (it is most helpfully viewed as part of context rather than a variable during information seeking process for its restraining rather than influencing role in this interaction process; it is the characteristics and features (affordance) of the tool that bound the activities they perform and the way they use and feel about)
[8]	Digital devices serve as the 'space' for most of their intelligence works (where they seek for information to understand and interpret, and produce outputs by writing)
[9]	Mobile devices serve as an interface or panel to navigating the physical world—moving in it and through it (it is not related to intellectual work which is preferred to be done in one place)
[10]	Boundaries between the academic and social are blurred through information seeking (they search both academic and non-academic information on the library system; social interaction with other people, such as their peers, is a channel they get academic information; they regard social interaction an important part in the system they are in—UK higher education system)
[11]	Seeking for information as a process of sense-making (they make sense of the concept, explore the meaning of it, understand it through multiple channels, and seek for it, which is an iterative process; they go back and forth, e.g: they search for a keyword, get some resources, but not sufficient to answer the question or produce research outputs, then they explore the meaning and search for it repetitively)

[12]	Understanding the meanings before conducting information seeking is regarded as an essential step in their intellectual activities (where Chinese and English materials and information are used to help them make sense)
[13]	They regard Google Scholar as important and authoritative as the university library system
Library UX category	
[14]	The academic library is regarded as an environment that is conducive to study (an affordance of the physical library is the accessibility of information which is easier to browse)
[15]	The physical world is more constraining than the virtual one (may take much more efforts and longer time to acquire similar result as they need)
[16]	With more reliance on the digital world, it is the environment and atmosphere rather than the collections and facilities in the physical library that influences their willingness to study there
[17]	They duplicate this 'environment' under varied contexts with the support of technologies (in dormitory, when they are travelling, etc.): not working in terms of physical/digital, as the resources used in study become less physical that existing in one place, so too this environment becomes less rooted in one place and can exist anywhere.
[18]	They place themselves in the system of UK higher education system, where they see academic library as a core part of it (Other information sources are also in this system, but are regarded marginalised (or not as authoritative as library))
[19]	Pleasant feeling of reading is valued (related to technology affordance) in the 'environment' they create
[20]	Their past limited experience on library training and information retrieval skills brings about frustrations, barriers and difficulties in seeking for desired information

[21]	Temporal and spatial changes (programme requirements, their skills and technological development) influenced the way they interact with the library and the way they seek for information
Cultural factors category	
[22]	Language is considered as a primary barrier in information-seeking
[23]	They have doubts about their language skills and believe that this makes the overall learning experience and academic performance imperfect
[24]	They have doubts on whether they can correctly describe the 'thing' they need
Views on future library system category	
[25]	UX expected--a well-functioned library environment with everything provided and labelled
[26]	Technology is expected to support their intelligence work anytime anywhere, creating a digital world with more content available
[27]	Digital technologies should make library system more intelligent and smarter (in terms of commanding users' online behaviour and preference, optimising results based on that and recommend resources—help them be aware of the existence of useful resources)

There are 27 abstract conceptions in total found through reviewing data and interpreting codes; they were firstly generated under the category where they come from (see the Table 25 below for the abstract conception numbers under each category).

Table 25 Abstract conceptions under each category

Category	Abstract conception number
Information seeking behaviour category	[1-13]
Library UX category	[14-21]
Cultural factors category	[22-24]
Views on future library system category	[25-27]

By analysing and understanding those abstract conceptions with the goal to answer the research question, it was found that Chinese students experience the UK academic library within three contexts, which are: Context 1: academic library experience as a part of the learning experience within an educational system; Context 2: academic library experience within the digital world; Context 3: academic library experience within the physical world.

(see the table below for the abstract conceptions that reflect library experience in the three contexts).

Table 26 Abstract conceptions that reflect certain experience context

Related abstract conception number	Context
[1], [3], [11], [12], [18], [20-21], [22-23]	Context 1: academic library experienced as a part of the learning experience within an educational system
[2], [4], [5], [8], [10], [13], [20-21], [22], [24], [26-27]	Context 2: academic library experienced within the digital world
[6-7], [9], [10], [14-17], [19], [25]	Context 3: academic library experienced within the physical world

Their experience that results from the first two contexts regards the academic library as a virtual gateway to knowledge or more cynically, a one stop 'shop' of resources which are authoritative in that they have already been deemed appropriate by the academic system in which the library resides. While their experience that relates to the third context views the academic library as a physical space or environment with co-located resources that is considered conducive to study.

Being experienced as a virtual gateway to knowledge, they view the academic library system as one of the information sources that is within a different academic system, in this case, the UK HE system, which is distinguished from the one they have been familiar with in their home country. It is regarded as an authoritative information source that is linked with completing their academic tasks; while other digital gateways and sources are also available, but they may not be deemed so appropriate even if they are preferred as easier to use. This way of experience implies two separate contexts where students put themselves in, which are the context of learning within a different academic system (context 1) and the context of the digital world (context 2).

Being experienced as a physical space, the academic library is seen as a physical environment with other co-located resources which may only have physical forms that are deemed inconvenient to use or have more constraints in some cases. It is experienced as a place with some facilities they need during the study, e.g. printers, desktops, toilets; and as a venue where they can study with their peers in a quiet atmosphere. Students can recreate versions of the same environment elsewhere (e.g. in their dorm) with their personal portable devices or digital technologies, where there are other facilities, e.g. tea-making, dorm common room, but not that co-location with all the resources and so there are trade-offs when choosing the environment. This way of experience implies another different context—which is within the physical world (context 3).

The two separate ways of experience are probed through the lens of the three contexts where students put themselves in and where the experiences are initially triggered. Different contexts are not necessarily experienced as different—they are to some extent experienced simultaneously. However, in order to understand how they experience the academic library, it is helpful to

treat the three contexts as distinct and to analyse them separately. Thus, the next section is the analysis of the three contexts of Chinese students' library experience.

6.3.3 Decoding library experience

This section draws upon the codes and quotes from the interviews and discusses the research question with related literature to explore the Chinese students' academic library experience in the three contexts found in analysing and understanding the meanings from the data.

6.3.3.1 Context 1: academic library experienced as a part of the learning experience within an educational system

When students experience the academic library as a part of the learning experience, the academic library constitutes an important part of the educational system they are situated in (UK Higher Education system in this case) that serves students with the same tenet of supporting learning and enhancing academic achievements (Brown & Malenfant, 2017). Situating in this context, Chinese students perceive themselves as learners in the role of PGT students and have the corresponding learning tasks to complete; the academic library, which is contextualised at the heart of this system, is regarded to be trustworthy, reliable, authoritative and is assumed to have the resources that would help them complete the current course and get their Master's degree, or in other words, should be the 'learning support', as participant 9 highlighted in interview:

Certainly, one source of information is UCL's own library Explore, that system is quite powerful. The most information for the ten or twenty essays I wrote was found on Explore. (participant 9)

They connect the academic library system with learning tasks (such as course essays) naturally as they put themselves in the academic system where there are specific requirements in completing the Master's degree (e.g. exams,

essays, dissertations, etc.) and the academic library is regarded to facilitate this process through providing high quality scholarly resources. If they view the academic library as a gateway that offers access to academic resources when they think of the library in the context of digital world (context 2, which is elaborated in section 6.3.3.2), they view it more as a digital assistant that helps them to find the 'right' resources in their learning and to make this learning process go smoother in the process of searching for information. Being in a different academic system, the appraisal criterion is based on the comparison between the past system they used to be situated in and the current system they are unfamiliar with; and it involves a transition of identity from a native student in the education system they are associated to from birth to an outsider and an international student in a different system. Rather than focusing on the scale of collections, the evaluation towards the academic library in the context of a different academic system focuses on the resource quality and whether knowledge and related concepts are explained clearly and explicitly.

Learning within the UK HE system which is different from the one they have been familiar with in their home country (Chinese HE system), they are confronted with different academic structures, requirements and expectations, and most importantly, with all the related activities conducted in a different language (Byrne et al., 2019). If we think about the academic library as a gateway to knowledge less in terms of access to resources but more about exploring meanings and connecting concepts, it becomes an issue as they, as international learners, encounter hurdles to build connections and use appropriate expressions to seek for the 'right' information and what they truly want in the library system. Thus, building connections and promoting understanding in the new educational system is regarded as more vital than the actual seeking and using of information in the way that it determines the

information strategy they use to handle learning tasks and the information sources they look for in the later stage. As a continuing process throughout the time abroad, it involves the general understanding of the academic structure and requirements (e.g. PGT programme curriculum, rules and procedures, and assessment and examination) (Hyldegård & Hertzum, 2013), familiarisation with academic tools (e.g. library system, referencing style), and more vitally, thinking and learning in a different language. They construct knowledge and come up with their own understanding of the new academic system through seeking information on their own or from others, and they refine this construction and understanding throughout the time here with ongoing tasks and experiences; this is what Waterman (1990, p. 41) refers to as 'structuring the unknown' to make the environment intelligible through building a 'repertoire' of understanding, or can be understood as a sense-making process in being confronted with a changing environment (Ancona, 2012).

Understanding of academic structure and requirements

This sense-making process, for some individuals, first starts in the pre-arrival stage when they plan for the study abroad, at which time the focus of sense-making is to be equipped with a general understanding of the academic structure and requirements in the new academic system and to be aware of the different tools and resources used in the new system. Information they received directly from the system (e.g. university, department or library), such as programme reading list and pre-arrival guide, is designed for this purpose to supply prospective students with useful information about the university and the programme; however, as international learners who have language barriers, Chinese students indicated an overwhelming and unpleasant feeling when talking about their preparation for the new academic system with the information they got from the university, as it is expressed by several participants:

The reference lists and reading list[...] Actually, I feel that it's too much and I can't finish reading that all. I need to judge and choose. (participant 14)

This implies an excessive amount of information for students who may need extra help in prioritising and reading in a different language; and this excess of information would give them an overwhelming feeling in preparing for the new educational system, which may cause a reluctance to proceed:

As for reading, I think, if possible, the faculty and staff can sort out some essential things [...]not directly give us a bunch of reading that we don't want to read further, or we may feel hard to understand. (participant 11)

Or they may turn to other information sources that they feel easier to help the sense-making, such as information in Chinese:

these are textbooks in the reading list and some are very theoretical and hard to understand. So I searched the Chinese versions and read them. (participant 10)

For international Chinese students, getting to know the background knowledge of the PGT programme is not as essential as understanding the meanings of the key concepts in a readable form. Giving them excessive information without considering how well they can comprehend would cause them turn to other information sources that they are used to in their old educational system. At this stage, they are struggling in the transition from the system they are familiar and comfortable with to the one that seems intimidating (Jindal-Snape & Rienties, 2016); and once they feel overwhelmed, they show reluctance and anxiety to change their learning method and cognitive style (by using their mother language), which is also described by Chatman and Wilson as avoiding 'emotional risk'—a way to cope with information needs and a fear of uncertainty when they feel the knowledge gap is too big to handle (Chatman, 2000; Wilson, 1997). The academic library, although not taking part in providing information directly at this stage, is expected to provide help around sorting and sifting the essential resources to a sensible length to give international students extra help from their expert view.

Compared to information they received from the system, Chinese students value information from knowledgeable others more (for example: senior Chinese students who were on PGT programme in the UK before) to make sense of the possible situations they may encounter in the new setting to get mentally prepared, as is explained by participant 12:

there are former senior Chinese students who learned this major in UCL and I asked them related questions about the course. They also recommended some helpful books[...] they have a full and comprehensive understanding of this course[...]to help me get prepared, which makes me aware of what I am going to have (in the course) and I don't feel confused at all. (participant 12)

They demonstrated a strong reliance on the Chinese student community in getting them prepared for a different educational system and helping them construct a general understanding through sharing personal experiences. This finding is in line with the previous work that stories from prior students, especially from the ones who have experienced the same situation, are vital in helping international students adapt to the new environment (Ishimura & Bartlett, 2013). Previous students also resonate with those prospective students' feeling of anxiety, uncertainty and worry as they experienced the same situation before and through sharing their stories; they give mentally comfort and confidence to them (Lindh, 2015, pp. 130–135).

Familiarisation with academic tools

Making sense of the academic tools in the new system is another action Chinese student take in this context which they assume would get instructions from the academic library. Instead of focusing on the scale of information they can get during this sense-making process, the correct method to find certain information via academic tools is emphasised when they interact with the library in this context.

The first aspect they pay attention to is understanding the way the library system works, namely its affordance and mechanism; some spend time exploring the system by themselves (see quote below from participant 4) and some receive training from the library (see quote from participant 15). In both ways they demonstrated a pathway to form their perceptions of what the academic library system looks like in the new educational system and what they can expect to obtain from it. Going through a process of gap-bridging, which involves exploring, seeking, processing and understanding (Dervin, 2000), they react differently in making sense of the library system:

Actually, I feel very confused when I first use our UCL library system[...]because when I was in China, our library system is only for retrieving physical books, it's like a book catalogue[...]if you want to search for articles, there is a link to CNKI, Wanfang Data, or other databases on our library website and I search directly in those databases. So, it's not like the UCL library explore system which have everything inside you can search for. At first, I was thinking what this system is and how to use it. (participant 4)

From this statement, it can be seen that compared to the UCL library system where any type of information can be searched, the Chinese academic library system is designed to retrieve physical books, serving as a library catalogue tool and connecting to other professional databases where digital resources could be found. Being confused by the different mechanism of the library system in China and UK at first, this participant spent time to explore the difference and build perceptions towards the new system; while another participant perceived it in a different way:

I only know that I can search for [physical] books [on UCL Explore library system] [...] [researcher then explained that other types of resources can also be found on Explore] [...] What? I generally just use Google Scholar, and I think it is the best[...]I never know! I regret it, I should have searched on it[...]I have been to [the library training], but it doesn't mean I should use it[...] (participant 15)

Similar with previous student's understanding, this participant presumed the UK library system was the same as the Chinese academic library system where only physical books can be retrieved; it also revealed a severe issue that even

with the targeted training from the library, some students are more accustomed to use the academic tools that they have been using in their past experience in which they have built up trust (in this case, Google Scholar). Considering that they only spend a short period of time for the PGT programme in UK (one year), some may not bother to spend time on exploring new academic tools when they can find familiar substitutes. Those students prefer to study in their comfort learning zones that have been developed by the cultural and social capital in their previous academic context (Ecclestone, 2004); they have their own habits of learning, directing the way they think, act and play their role, which is a result of their past experience (Costa et al., 2019). It is also a way in which they cope with the knowledge gap that they avoid inputting time and effort to seek for information when they perceive the gap unnecessary to deal with (Wilson, 1997). Their perceptions of the academic library then determine the way they interact with it and how they experience it.

The second aspect in making sense of the academic system are the tools and concepts that are related to academic requirements; they are essential in terms of improving the quality of academic outcomes. Nevertheless, participants highlighted the lack of knowledge on some concepts and criticised the library for not giving sufficient instructions and explanations to assist students who are new to this educational system; participant 7 felt uneasy making use of tools such as referencing styles and making sense of concepts such as 'peer review':

I feel that no one has ever taught you how to use APA or other reference styles [in China], and there is no restrictions on the format or how many references you need[...]it is a difficulty when writing essays. (participant 7)

There are some unclear marks in the results, such as peer review[...] But I don't quite understand the necessity and the reason of labelling it here[...] the problem is that the library hasn't guide us on this, so my

understanding is not the same as the real meaning[...] in China we don't have [or has not been taught] the concept of peer review. (participant 7)

It may be due to their UG academic level which is insufficient or a common overlook in academic concepts and tools, but this participant demonstrated a deficiency in understanding and using those concepts, which are common for native students, yet may be alien to international Chinese students' existing repertoire of academia knowledge. Stepping into a different educational system, especially the one that is using a different language, they are facing far more than just new field of knowledge, but with new structures and ways of working, and a distinct way of appraising. Perceiving the academic library in this context, they assume to get appropriate instructions from the library, which should play the role of 'study support' that enhances academic achievements.

The third aspect is understanding the mechanism of seeking for information in this new academic system and forming a new set of strategies to find academic resources. In some cases, this mechanism does not need to change for some students as they may feel the information that they find via past strategies is adequate in the new academic setting as a result of making sense of the current situation. It is perceived differently by individuals as they have different cognitive abilities to move between the what is and what can be through sense-making (Jaworski & Scharmer, 2000). For some individuals, they are more discerning about subtle changes in the mechanism of information seeking in the new system and would adjust their way to find more proper information; as it is demonstrated by participant 3:

[...] although it [UCL Explore system] provides those advanced search functions, but for users, we may have difficulties to distinguish what we want to search for [a concept/keyword they have] and what we really want [the actual meanings behind the concept/keyword] (participant 3)

The meanings towards a concept or keyword only get clear during the seeking and evaluation of information; as this participant illustrated that they

encountered hurdles in selecting the right keyword to search for what they really want by giving a further example:

For example[...] like the ‘social network analysis’(SNS), I may use the advanced search to search for articles that contain ‘social network’ and ‘construction’ in titles, but like many articles[...]would not put ‘social network’ in the title but actually used SNS as research method[...]which is not reflected in the title[...]but in references, so it needs deep excavation to get them. (participant 3)

Through seeking for information in the academic library system within the new educational system, this participant recognised the limitations of using certain information seeking strategies and found that the useful information could be found with other means (such as: in the reference, as noted). Being aware of the inadequacy of using the advanced search, a gap (cannot find ‘right’ information by certain keyword) is found during the process of sense-making and information seeking strategy is adjusted (to find related articles in reference list), which reflects a typical path information seekers go through when faced with a need or a gap (Wilson, 1981). Following the citations or references in the existing useful resources is also described as ‘chaining’ in Ellis’s model of information seeking (Ellis, 1989); this behaviour is not revealed until they find desired information cannot be obtained through general keyword searching and browsing. Chinese students spend additional time and efforts in understanding the mechanism behind the library system in the new environment, while the academic library, which is perceived to be the ‘study support’ and help them make use of the tools smoothly, did not play the active role in this respect.

Thinking and learning in a different language

A crucial part in making sense of the academic system is to cope with thinking and learning in a different language, which influences the way they seek for information and the overall learning experience abroad. They are generally confronted with a “double-language barrier” in understanding concepts and

building connections (Hyldegård & Hertzum, 2013, p. 14) and all the participants engaged in the study revealed an ongoing mental adjustment of thinking and learning in two languages; for example, as it is highlighted by participant 11 and participant 6:

I feel very tired this year. In fact, it's hard to totally understand what is being taught in class. Then I feel a bit tired when I have the practical session⁴³ right after the lecture. (participant 11)

In fact, I experienced a very painful process this year, because I am actually not very good at English. This course is mainly based on seminars [which involves a lot of pre-readings, thinking and discussions] (participant 6)

Both participants expressed negative feelings in the process of learning in the new educational system, mainly due to the language barrier; the multiple ways of receiving knowledge (such as practical sessions and seminars) also brings about challenges in adapting. They encounter adaptive challenges during this process, which requires them to review and make response to their existing 'repertoire' of understanding, a process of filling the "gap between an aspiration and an existing capacity" (Ancona, 2012, p. 4), which examines their problem-solving skills and the ability to cope with knowledge gaps in a different system with another language, or to say, the cognition skills developed in a different academic context (Kim et al., 2015).

The language barrier is intensified when they seek for information where they need to select the 'right' keyword to find the information and a straightforward result list is presented to show the outcome, which has a direct impact on subjectively perceived performance of the library system; just as participant 5 illustrated that it is not easy to find proper expressions and how they coped with language barriers in seeking for information:

sometimes probably because that I am not a native speaker, if I don't know how to express the keywords, I can't find the most relevant documents that I want[...] I may go to Google to search for the proper

⁴³ Practical session: practice or training session that in relate to the main lecturing, often held in a lab environment with the supervisor

word and search after browsing some authentic expressions[...]I sent an email to the teacher to ask if there were any keywords to recommend for writing that paper[...]and I feel the results became more relevant after I used the keywords he provided. (participant 5)

This participant demonstrated their strategies in facing the language barrier in seeking for information, which are Googling and asking knowledgeable others for keywords. The improved result relevance found after using others' recommendations shows that it is in most cases, the language issue that hinders Chinese students' library and learning experience. The student further illustrated this issue through an example of gaining understanding on 'serious game' via Googling and an improved search result:

I need to write the essay [...]about the application of cultural heritage in the game. I entered this long keyword into the Explore [library system], but many of the results were educational games, which were far away from what I want. The thing I want to search is not merely educational games, nor video games, but should be combined with culture heritage[...] However, [...]Google[...] recommended me with some keywords [...]of game as 'serious game', and there were several articles that analyse this kind of game related with cultural heritage. (participant 5)

They perceive the failure of searching for relevant resources as a result of an insufficient command of language; thus, they turn to other information sources with the goal to find the correct 'keyword' they can use to search. Actually, in most of the cases, as it is also demonstrated by participant 12 through an example, it is the grasp of terminologies and the choice of search keywords that hinders the way to find the 'right' information they need:

If there can be some academic vocabulary dictionaries provided for Chinese students or other international students in different languages, it will be better for us to know what to search. For example, in the material science, we have a word which is 气凝胶(aerogel) in Chinese, if I use the [general] dictionary to translate, it's just the combination of the two words, air and glue. However, it has a special name [...] Besides, there is no professional academic dictionary that I can refer to. (participant 12)

The different language systems describe concepts in diverse ways; without a tailored instruction on academic English usage, it is hard for international students to understand meanings and build connections among concepts. It

has been found that non-native speaking students exhibit problems in manipulating vocabularies, terminologies and expanding concepts during the seeking for information (DiMartino et al., 1995; Mehra & Bilal, 2007a). International Chinese students are found to be fully aware of this issue and they expect to get a helping hand from the system, which is currently an absent part of work. As a result of that, understanding the meanings before conducting information seeking in this context is regarded as essential in all the intellectual activities and is believed to be helpful to improve information seeking efficiency. Rather than focusing on extending the scale of information they seek when they perceive themselves to be in the context within the digital world (context 2), they concentrate on understanding meanings through looking for resources in both languages (Chinese and English) in this first context.

Understanding concepts through Chinese resources was highlighted frequently during the interviews in the way that: firstly, to understand concepts in the language they are familiar with (see quote from participant 10 and 7); secondly, to improve the reading speed of academic materials (see quote from participant 11); thirdly, to extend the scope of reading and add validity by multilingual materials (see quote from participant 2):

Sometimes, when I encounter a new topic that I have not heard before and if I look at it in English, if it's a little hard to understand, I will go to see it in Chinese first. (participant10)

[...] if I don't understand, I will search Chinese literature first. If I still don't understand the Chinese literature, I will often[...]search on social media[...]my undergraduate major is related to social media[...] I found that many people would use it as a platform for knowledge dissemination[...]so all the things are expressed in a very simple and straightforward way[...]I will also go to Quora and Zhihu, and I will read first English materials and then Chinese, this kind of reading order will be used for understanding the conceptual knowledge (participant 7)

The commonality between the two participants is that when they encounter a difficulty in understanding a concept or material, they would go for Chinese

resources, which they feel more confident in; and participant 7 also demonstrated their own way of understanding a topic, which is through social media platform. The preferred sequence of the language material being used is influenced by the cognitive style of thinking: how they get to know a concept; how they translate a concept into the mother language or how they understand a concept in a different language system. The sequence of information seeking tactics they use during the sense-making process is from academic resources (Chinese literature) to non-academic (Chinese social media), from elaborated (long journal articles) to simple and straightforward (short post on social media platforms). Interestingly, from their demonstrations, they look at the English resources first and then, when there is a hurdle to grasp the meaning, they go for Chinese resources and after that, they go back to English ones to renew their understanding. This can be seen as an ongoing and retrospective sense-making process during which individuals construct their repertoire of understanding through connecting concepts in two languages back and forth (Dervin, 1999). Building connections in two languages means additional time and effort they invest in understanding meanings and building connections. Participant 6 introduced the sources that assisted their understanding about the tasks within the new system:

[I would look for] Wikipedia when there are words that I don't understand; also translation software, like Google Translate is an essential tool for me and has a very high usage rate. Besides[...]I may use some vocabulary websites when writing the essay, such as Oxford Dictionary and Manchester reference book website⁴⁴ about how to write (participant 6)

Absorbing new knowledge requires time and Chinese resources are preferred for some students with the goal to speed up the process, especially for the knowledge that shares the same syntax among languages, such as programming; as it is indicated by participant 11 who used Chinese resources to speed up the learning process:

⁴⁴ Academic Phrasebank website by Manchester University

If it's a programming course[...]I think I read Chinese faster, so I go to the MOOC online to buy some programming Chinese courses. (participant 11)

In this case, they build understanding merely through Chinese when there is no apparent influence on learning outcomes; they cope with the risks in the way they have been accustomed to when facing with this kind of knowledge gap that does is deemed not requiring additional work on building connections.

The third way in which they use Chinese resources to make sense during learning aims at adding validity and extending the scope of reading, as it is explained by the participant who was taking the programme in museum and gallery education:

Every time when I write an essay, I will check if I need any Chinese materials or not; but it depends on my topic. For some materials, I cannot find much resources related to certain topics, which probably because of the field or there is less research done in China. (participant 2)

For some subjects that involve a cultural perspective, searching for resources in different languages extends global vision and add values to students' learning experience, especially for international students who study abroad in order to get such experience and insights. It can also be understood as a process of extending knowledge by seeking information from the existing knowledge source in Chinese and relating that to the new one in English.

From their statement, it can be inferred that the understanding stage in their information seeking activity is an essential step; it builds up the background and premise of information seeking and sets the direction of the search. In essence, it can also be seen as an iterative translation process where knowledge in English is reviewed and checked with Chinese to build connections between the two and form a complete picture. The previous information seeking behaviour model only identified the "exploration and 'formulation' of the focus of search, where users know the general search topic and they gather information to confirm the specific direction of search

(Kuhlthau, 2004). While for international students, understanding a new concept in a different language causes trouble as they need to go back and forth to make sense of the topic and confirm the right way to form a query (Mehra & Bilal, 2007a).

In most of the cases, it is the grasp of language that influences their interaction with the library system and, in the end, forms their library user experience and learning experience within the new educational system. The academic library, in this context, is perceived as the study support that helps with their transition across educational systems and languages. Perceiving themselves as international learners, they hope to receive language and other targeted support from the academic library and all the related parties that may help them adjust to the new educational system. Targeted academic support, such as providing the right terms or expressions of academic concepts, is indispensable in helping international students make up any inadequacy of language and helping them build connections between concepts in two languages. Yet, this kind of support is absent, and they go outside the system to gain a complete understanding; they therefore expressed strong expectations to obtain it within the system and from academic library which they regard more trustworthy:

I think it [academic concepts] should be somehow connected by using a semantic web[...]it should assist your search by giving you similar concepts and associated terminologies[...]I think it would be nice to have a small plugin [on library website] that helps with the language. (participant 4)

It has been asserted that multilingual information access facilitated with language tools is crucial in improving library user experience and promoting user-centred design (Nzomo et al., 2016). Hoping to see connections of concepts linking with each other semantically, they are, in effect, hoping to build connections between the two academic systems. Whether the academic

library is taking an active part in this process is shaping how they experience library and learning within a different educational system.

6.3.3.2 Context 2: academic library experienced within the digital world

When the academic library is experienced as a part of the digital world, it is escaping the academic system in terms of physical location and is perceived as a digital entrance to the massive online resources and information. The digital library interface is seen as a gateway or invitation to knowledge (via the search box on the library interface) and as a tool to organise, categorise and make sense (via filter or advanced search function). Chinese students perceive themselves as seekers of knowledge in this context whose task is to find the 'right' information to satisfy certain information needs in a convenient way. Their library experience under this context mostly reflects their information seeking behaviour in the library where strategies and actions are taken to fulfil information needs and the library is seen as one of the online sources or gateways where they look for information. In this case, the academic library system is perceived and evaluated with the similar process for other online sources. Instead of focusing on making sense of the new academic system and to set up theoretical or conceptual framework in a different language as what they do in Context 1, they are more concerned about making sense of the virtual interfaces they have to deal with to get the information they need.

Information seeking as a way of sense-making

Compared to concerning about the quality and authority of resources when they perceive academic library in the context within the UK HE system, they are more concerned about the scale of information they can get when they view the academic library system as part of the digital world, so the information they get from the library system is evaluated with other similar sources, for example, Google Scholar and academic databases in China. They

also care about the readability and convenience of searching, so authority becomes a less important thing and thus, they would go outside of the academic system to seek for information, for example, from Google, YouTube or social media platforms, which would also be compared with information from the academic library system. The independent and heuristic approach used in the UK master programme requires students to explore a concept, a topic or a field by themselves outside of lectures; this often includes the discovery and understanding of a question, and often assesses their information seeking and information literacy skills (Varga-Atkins & Ashcroft, 2004). Through the process of information seeking and discovering, Chinese students are making sense of the topic and generating their own understanding at the same time. Three information seeking strategies were found in the Chinese students' library experience, which are *exploring*, *searching* and *extending*; they demonstrated their unique information seeking approaches with the aim to make sense of the learning tasks.

Exploring

The information seeking starts when they identify a knowledge gap or receive an information task that generates a certain information need. At first, this information need may be a vague or broad topic, which requires them to explore and form the focus of their search. As defined as the 'initiation' stage by Kuhlthau in the information search process (ISP) model from 1991 and the 'starting' stage by Ellis in the information seeking behaviour model in 1989, this stage starts when a person become aware that there is an information task that needs to be completed, and a feeling of uncertainty exists (Ellis, 1989; Kuhlthau, 2004). Chinese students are found to seek for information outside the academic system at this stage, focusing on the efficiency and convenience of getting easily understandable information in various forms. Google, YouTube and social media platforms stand out when participants

demonstrated how they seek for information from those channels when they get a topic or academic task to work on.

The information type that can be found on Google is updated, broad and in some way, seems reliable for them (especially when they expressed how they trust Google more after comparing it with the past experience of using a similar search engine—Baidu back in China to search for learning related information, see quote from participant 5 and 10 below):

I feel in UK, I rely more on Google if search for new things, whether you use English or Chinese [to search], it is more reliable[...] I use Google more than UCL Explore, and it recommended me not only the latest, but also different types of information, like books or other things and indeed they are relevant to the keyword. (participant 5)

The gateway search for all types of resources as what Google does is preferred by this participant; and although the UCL Explore uses a similar gateway search form, it is not used as frequently as Google as they feel the results are more relevant. Participant 5 stated another reason for using Google after a comparison to the Chinese search engine, Baidu:

the academic search is designed better on Google than Baidu, so I search for articles and academic resources on it. Some articles can't be found in UCL's library system, but I can find it in Google, which is quite weird (participant 10)

The globalised and multilingual information on Google gives them an additional reason to seek for information there where information in different languages are related and would appear automatically when they type in one language (see quote from participant 8):

However, the Google search is very smart, for example, if I search for a country like Germany, after I type in this keyword, it will give me some English resources, and also some Chinese resources based on my system language, which is very intelligent. In other words, it links the word 'German' in Chinese and in English in their system. (participant 8)

Previous research has found that students who have grown up in the information explosion era or the so-called 'Google generation' rely on search

engines to seek for information because of the speedy and simple approach (Connaway et al., 2013; Rowlands et al., 2008b). The information seeking behaviour of the young generation revealed a considerable reliance on search engines and the lack of critical and analytical skills on evaluating information (Rowlands et al., 2008). The Internet is also found to be the starting point for much of graduate students' information seeking activities (Earp, 2008; George et al., 2006). In the meantime, convenience became an essential criterion in assessing whether the information source should be used for information seeking activities (Connaway, Dickey, & Radford, 2011) and information from the Internet is found to replace the role of other references and is used as background information in students' academic works (Martin, 2008). This characteristic is also found in international Chinese students in this thesis; it is worth nothing that some of them did not use a search engine for academic purposes when they were in China, while they changed to rely on Google when they are in UK. It is not only because of the different types of information that can be found via Google, but more about the gradually perceived trustworthiness and the evolving role in helping them understand concepts in an easily understandable way in a different language.

Another important information source they seek for at the initial stage of exploring is, surprisingly, YouTube. Compared to textual information, the visuals and videos are more intuitive and straightforward for Chinese students. They prefer searching for academic information on YouTube for other experts' illustrations on the topic, the practical experiments or the hand-on experience in the field; as demonstrated by participant 8 and 13 about how and why they seek information from YouTube for certain reasons and how they find it useful in terms of comprehending the concepts in their learning:

for example, there was a reading from a course in last term, which I can't understand. So I went to search on YouTube and I found that other foreigners can't understand it either, but there were some tutorials that

illustrate the topic in maybe ten minutes or so to explain to you what this person's article is talking about. After watching the video, I gradually understood it. (participant 8)

Searching for tutorials on YouTube is also a way of getting confidence to some extent, in the way that they can find other people who also need help in understanding the same topic and find virtual 'classmates' to learn about it together. It extends the lecture into the virtual form and gives them extra help on the things that they don't understand in the lecture.

YouTube videos [...]is more intuitive, because I feel that I might not understand the text well, but the video is especially clear. For example, for some engineering processing methods videos, watching videos is just like you are on the scene with them[...]some teachers will explain concepts in videos, which writes down the calculation process from beginning to the end, or solves a problem in some certain method, and it will be like the online open class[...] (participant 13)

For students in the major of engineering, as is explained by participant 13, tutorials in the video form are particularly useful in presenting the experiment process and demonstrating the detailed mathematical calculations; it is especially the case for international students who may need extra time in digesting what is taught in class in English. YouTube is seen as an effective platform of knowledge dissemination, where authors publish content within their expertise in the video form and build connections with virtual audiences from all over the world; it is also used by some educators to circulate knowledge in a more intuitive and simplified way (Chtouki et al., 2012). For Chinese students, the limited demonstration from the lectures may be not sufficient to understand the background and theory of knowledge; thus, they seek for information from YouTube to find more detailed demonstrations from other experts, devoting more time out of class to construct their knowledge. Besides, the videos are often supported with subtitles which makes it easier to understand.

Social media, as the other information source that appeared in the exploring stage in Chinese students' information seeking behaviour in reaction to academic tasks, is regarded as a useful platform where short and simple descriptions of concepts can be found. This is in line with the previous investigation into international students' use of social media as an important information source during their time abroad (Hamid et al., 2016). Notably, most of the social media platforms participants mentioned are Chinese social media apps, such as WeChat⁴⁵, Zhihu⁴⁶, and Weibo⁴⁷, as described by participant 7 and 13:

[...] there are fewer words on a Weibo post [...] so all the things will be expressed in a very simple and straightforward way. That's why I sometimes search Weibo for knowledge[...] Another way to get information for me is from Zhihu, for example, when I was studying statistics in last term, I really felt that it was difficult to understand[...] So I went to Zhihu and see what others feel about it; there are people who used a very funny way to explain the problem that stuck you at the time. (participant 7)

Two reasons were revealed from this participant's response, which are the simpler and fewer words used in describing information and the interesting way to explain a complicated issue; through the exploring strategy, the innovative ways of describing information are preferred by Chinese students by which they can easily understand topics and concepts. Another source of information from social media was the WeChat public account where educational institutions in China use to share information with users:

there are some public accounts on WeChat, for example, I followed some public accounts in our field, which is academic-led[...] and related to my area of expertise. (participant 13)

⁴⁵ WeChat 微信: Chinese multi-purpose messaging, social media and mobile payment app.

⁴⁶ Zhihu 知乎: Chinese question-and-answer website where questions are created, answered, edited and organised by the community of its users.

⁴⁷ Weibo 微博: Chinese microblogging website.

During the information exploration stage, understanding concepts in a quick and understandable way is their primary need and that makes social media platforms a good place to explore information (Baratchi et al., 2013). The prevalent use of social media has changed people's behaviour and habits for seeking information; the intuitions and organisations are also leveraging social media platforms to disseminate their service, share knowledge and communicate with users digitally in a quick and easy way (Gaál et al., 2015). Although the learning environment has changed to a different country, the participants are still accustomed to use the social media that they are familiar with. It reflects their choice of information during the process of sense-making in a different academic setting where language is a strong factor when they are at the initial stage of understanding. Boundaries between academic and social are blurred through information seeking as they would search academic and non-academic information at the same time to understand a topic; social interaction with other people is also seen as a good channel to get academic information in this situation.

Studies of international students have found that social media plays a core role in supporting their life abroad in terms of keeping social networking (Lin et al., 2012), attaining emotional support (Osatuyi, 2013), and searching necessary information for everyday life (Sin & Kim, 2013). However, in terms of seeking academic information in regard to their learning in the UK, the relevance and accuracy of information found through Chinese social media platforms should be doubted, which was also a concern found in other international students about the quality and accuracy of information from everyday life information sources such as social media (Sin, 2015).

Searching

When international Chinese students perform information seeking activities, they view the academic library system as a primary virtual gateway to knowledge where they assume that they will get abundant resources in regard to learning. They go through the process of familiarizing themselves with the digital library system, the primary academic tool, upon the arrival in the new academic environment; some adjust their information seeking strategy throughout the exploration to fit in the new library system in order to find desired information at the greatest extent, while others compare this new library system with other similar academic search systems, such as Google Scholar, and construct a new information seeking behaviour across multiple academic search platforms that they feel most effective and appropriate in satisfying their information need.

Chinese students presented two major ways of information seeking in face of different situations: firstly, when they only have a vague concept or topic to explore, they are inclined to search in both Google Scholar and the university library system to compare the search result, adjust search keywords and formulate a search focus (see quotes from 7 and 14);

If I have a very clear goal[...] I will directly put that word in the search box [in UCL Explore] [...] If I find that there are a lot of irrelevant results, I will open advanced search to define field and limit my search. As for the filter on the left, I will generally look for articles in type, because they are shorter. Besides, I will also limit the topics to CS and psychology and I don't look at other fields.

[...] if many things cannot be found [on library system] [...] will go to Google Scholar, find something that cannot be found in the Explore, and then put the article name in the Explore search to download that specific article, because Google Scholar has articles that are not permitted to download [...] I am writing my dissertation recently and I have to switch between Explore and Google Scholar. (participant 7)

This participant demonstrated a complete path of information seeking when there is a known word/concept to search for: keyword search in the university

library system—advanced search—filter for articles and limit the topic—if cannot find the desired article, keyword search in Google Scholar—find the right article name and search in university library. A combination of searching skills is found in this information seeking process and both major academic search engines were utilised in the adjustment of search keywords and locating of the right information. For this participant, the type of resources and the topic are the two useful facets in filtering and helping them find the right resources; these two facets were also found in participant 14's searching strategy:

I generally type keyword here in the search box, and I will use filter here. I generally will choose topic, which is architecture, and then the type, for which I will select the online resources. (participant 14)

In this situation, they refine the search result by using information retrieval techniques, such as filtering and narrowing down results via advanced search, and formulate the focus of their search, through which they reduce the uncertainty and gain confidence. It is what Kuhlthau defined in information seeking process (ISP) model as 'focus formulation', a stage that connects exploration of the topic and collection of related information (Kuhlthau, 1991). During this stage, they apply information retrieval and information literacy skills, identify and judge information they get, and construct their own understanding of the topic (Kundu, 2017); they also perceive it as the most difficult stage where they are unsure about the appropriate application of retrieval techniques, as it is doubted by participant 4 and 5:

[...] I attended the library training when I arrived in UCL and they taught me to use Boolean to assist search. Sometimes I want to use these techniques to limit my search, but it turned out the limit is somehow too much and for some reason I can't find anything[...]Probably I am not quite familiar of it and don't know how to use it properly. (participant 4)

Although the librarian taught us [retrieval techniques] before, I may not understand it at that time and not sure how to use it properly. (participant 5)

Even with library training on information retrieval techniques and with the awareness of using those techniques, Chinese students showed frustration and doubts in properly apply it in information seeking activities. Instead of holding more library training, the academic library should find practical ways to give international students more hand-on experiences.

Secondly, in the situation when they find and confirm the name, keyword, or title of resources from Google Scholar or other information sources, they go back to the university library system and copy in the known keyword to get free access to information (see quotes from participant 2, 11 and 12).

[...] I copy the title from the article I found in Google Scholar and paste into the Explore (participant 2)

[...] I just search directly by the title which is from the reading list given by the teacher; [...] if not through the teacher, I may first search in Google Scholar, and after I find what I want, I copy and paste the title of it and search in the Explore. (participant 11)

Both the two participants showed a reliance on Google Scholar and other information sources (such as their teacher) to filter the results and get the desired title before searching in the university library system; the reason was revealed by participant 12:

I feel that Google Scholar does better than the Explore [...] I will look at the abstract or short introduction of the article first in Google Scholar, and if have the access, I will look it directly. If I don't, I will put it in the Explore and search again. (participant 12)

Google Scholar is used to locate the name or title of proper resources; after they confirm the exact information, they go back to the library system which provides them with unlimited access of university purchased resources. In effect, they perceive the academic library in this case as a digital resource provider rather than a knowledge discovery tool. They also distinguish the two resource providers in this situation based on the applicability to their information needs and the mechanism to present the search results, which is what Ellis defined as 'differentiating' in the information seeking behaviour

model, an activity that distinguish information sources by approach or perspective (Ellis, 1989).

However, there are also participants who have the preconception that information sought from Google Scholar is adequate enough and there is no reason to change the existing information seeking behaviour by exploring the new library system, as it is explained by participant 15 who assumed that the university library system was a physical collection cataloguing tool and has never used it:

I think it may be because of my habit formed in China because I started to use Google Scholar [...] at that time. I've never used the UCL library system [...] In fact, I don't remember why I chose to use Google Scholar, but not our library system [...] I feel it [Google Scholar] has better algorithm. (participant 15)

Being satisfied with information found via a familiar information source, they make assumptions before the actual search and they have doubts about whether similar results can be found on the new system; therefore, they save time and just go for the familiar source. This shows their information coping strategy in estimating self-efficacy, that “an individual may be aware that use of an information source may produce useful information, but doubt his or her capacity properly to access the source, or properly to carry out a search” (Wilson, 1997, p. 563). Even being aware of the library system and the potential value it brings, some students would go for other sources which they are already confident to search for what they want.

Extending

The third stage found in Chinese students' information seeking process is extending the information sources and adding multilingual materials to their

knowledge construction by searching from Chinese academic search tools, such as CNKI⁴⁸.

[...] I will use CNKI [...] I feel this is especially the case when it was the first term, I relied on Chinese literature a lot. If I feel I don't understand this topic, I was more willing to see how this field was studied in China. (participant 1)

Having the learning experience in two countries, they develop a vision and mind in making sense of a field and constructing knowledge from different perspectives; seeking information from Chinese sources is their unique way of extending understanding and examining one source with the other. It is also a way of reducing risk in the transitioning to a different culture and academic system (Hicks, 2018).

Perceiving the academic library as a gateway to knowledge, they hope to get access to Chinese resources from this gateway and find the connections between the two; the information seeking in Chinese academic databases (differed from the university library system, they are independent professional databases) is also viewed as a part of the overall library experience. However, some complain that accessing the Chinese academic databases from the UCL Explore system is troublesome in terms of the weak integration of different databases (see quote from participant 12) and the ambiguous navigation on library interface (see quote from participant 4):

[...] if it [the article] is from the Wanfang database⁴⁹, after click [from Explore], it is not the article page, but the journal page. It won't tell you the year and issue, and you need to search by yourself. For a journal, for example, started from 1997, you need to find in such a long time-span and long list of publications, which is insane! So, I think the integration with different databases, especially Chinese databases, is not very strong. (participant 12)

⁴⁸ CNKI 中国知网: largest and continuously updated Chinese journals database.

⁴⁹ Wanfang database 万方数据库: a leading information content and service provider in China.

The search result in the UCL Explore system is not linked with the detail page of the journal article in certain Chinese databases (in this case, Wanfang), which would definitely cause extra time and effort in finding certain articles again in the Wanfang database. This kind of negative library experience would prohibit international students from searching for academic resources in their mother language on the UCL library system where the resources have actually been purchased. Although the library is aware of the academic resources in different languages, how to embed and integrate them is a big issue to solve in the future.

In Explore, the databases are listed according to ABCD characters and all the disciplines are mixed together, you have to search for art & humanity. When I search for CNKI, it is confusing that the name of it is not CNKI, so I have to search for 'Chinese' every time, it will come up with[...]a very confused name (see figure below for the name appeared in UCL Explore Database list for CNKI). Besides, a lot of resources in CNKI are not subscribed by UCL and I usually have no access of the articles I want. I have to find a friend in China to help me download. But Wanfang and CQVIP are fine, just a bit slow. (participant 4)

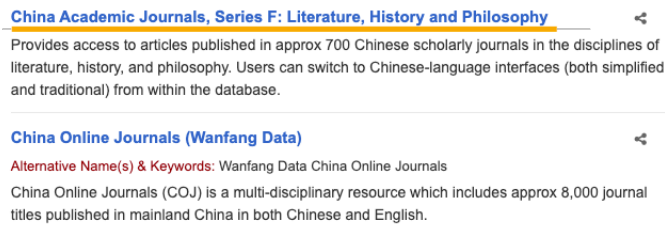


Figure 82 CNKI showing on UCL Explore Database list

As information seekers, they expect to have a similar experience using different information sources in terms of the interface design, virtual wayfinding and navigations, especially with the ones that are already connected to the university library system; while the negative experience of information seeking on Chinese academic databases is blamed on the thoughtless design of university library system (see quote from participant 13

below), which is taken into consideration when they evaluate the overall library experience.

The system can only be used to search for English resources; if you want to search for Chinese literature, it is not easy to find[...] It is difficult to log into CNKI here in UK. If I can't find Chinese literature, I may seek help from my friends in China to download for me and send to me. (participant 13)

The negative library experience would cause them to seek for information from other channels, including informal information sources, such as their friends. As an academic supporter, it is the academic library who should take up the responsibility to deliver supports and related services to all institutional users (Pinfield et al., 2017).

Exploring, searching and extending, are found to be the three primary stages Chinese students go through when they are information seekers in this context. Seeking for information is also a process of sensemaking for them, through which they find various types of information in the digital world to understand meanings and refine search results to satisfy their information need.

Convenience and efficiency (expectations)

Perceiving academic library system in the context of a wider digital world, which belongs to a completely different eco-system (the Internet), students have expectations that they hope the academic library system behaves in the same way as other things in this eco-system. They care about the user-friendly design of the library interface (see quote from participant 4, 6, and 11), and also about how effectively and conveniently they can get resources in the same way as other systems, for example, by improving the algorithm (see quote from participant 8) and implementing recommender systems (see quote from participant 10 and 12):

I don't like the design of the interface that every time when you log in, several pages will be open [...] anyway, I think it is complicated [...] The second thing is that there are a lot of information and messy, that I was

confused at first, and I didn't know what the Explore is for. (participant 4)

The design of the library interface, similar to other websites, is regarded as important by Chinese students as they are new to the academic library where a different language is used all around the place and if the organisation of information is considered as 'messy', it would cause confusion to most of them. Also, the library system name of 'Explore' is ambiguous to some students as participant 4 felt on the arrival to UCL as they need to understand it in a different language. The simple and straightforward design of interface, as has been already mentioned by many participants, is also stressed in improving the efficiency of seeking for information:

If the interface can be very simple, straightforward and convenient that can let me search for the book I want quickly is probably the biggest demand for me. (participant 6)

What is more, it is also hoped that major functions should be highlighted on the library interface to help international students identify the commonly used helpful services in the library, instead of putting them in a cluster on the interface:

In addition, I think there is too much information on the library homepage [...] I just feel there is no highlights of the most useful services. If these are commonly used functions, place them in more important places. (participant 11)

They show impatience when seeking information online which has been found to be a common characteristic in the Google generation (Connaway, Lanclos, & Hood, 2013); thus to cater for their information seeking behaviour, the interface design should be simple and straightforward, highlighting the core functions of the library system. Moreover, as international students, who would spend more time than native students to understand and get familiarised with the academic tool, they expect to use easily understandable tools to save time and improve their search efficiency.

Improving the search algorithm and implementing recommender systems are expected in the wish to receive more related information; as discussed in section 6.2.4.1, international students are confronted with language barriers, which are deemed to be the biggest issue in understanding and information seeking.

if the algorithm can be improved to make it smarter. (participant 8)

The algorithm is a complicated thing in designing the library system and it depends on multiple factors; in terms of what participant 8 suggested, it is more about making the search result more relevant to the search keyword and designing it to be smart semantically. Another suggestion made for improving the searching efficiency is to design personalised systems through technologies, for example:

I think it should be personalised, through techniques, like big data analysis, user preferences, for example, you may often search a certain type of books in the library, and then it will know that you may prefer this aspect of the resources, it will then give you some recommendations every day, just like what Zhihu⁵⁰ does. (participant 10)

Based on personal usage data, the library system is expected to be personalised to generate use patterns and recommend resources based on personal interests; in this way, the academic library is experienced as a digital knowledge tool:

[...][through]analysing user data, figure out the pattern and the book usually read, and then recommend resources that [...] in line with your interest. It can be based on your own habits of searching and provide you with more personalised recommendations. (participant 12)

By hoping to receive targeted information, they are literally hoping to make up their deficiency in generating related keywords and terminologies due to the language barrier.

⁵⁰ Zhihu has a content-based recommendation system which gives related information based on user profile.

6.3.3.3 Context 3: academic library experienced within the physical world

In this context, when the academic library is perceived in the physical world, they view the library building as a place or environment that is conducive for study where they can concentrate and immerse themselves in learning activities, as it is indicated by participant 13:

when I study in the library, I see everyone stays in the library till very late and there are still many people studying when I leave[...] everyone concentrates on learning, and there are group rooms we can discuss together. (participant13)

Students' perception of learning atmosphere is found to be a multi-sensory experience which is activated by bodily response in the space and is constructed by themselves (Cox, 2018). They perceive themselves to be someone that is moving around and living in the world who requires a stable physical space to conduct intelligent activities. In this sense, their bodily experience generates subjective feelings and sensations through moving around and physically being in the space (Evans & Baker, 2009; Hopwood & Paulson, 2012).

Chinese students are found to view physical library more as a study and social space rather than a place where physical collections are preserved. Being aware that the physical world is more constraining than the virtual one in terms of requiring more time and effort to acquire similar resources, digital technology is an important player in this context to facilitate and make up for the constraints, helping to build the desired environment for study.

Library as a study space

Students see the library as a physical space that is conducive to study and has co-located facilities and resources that are beneficial to their study, such as desktop, loanable laptops, printers, etc (see quote from participant 3 and 15

below); they view it as a place to work rather than searching information, which has also been found in previous research (Sadler & Given, 2016):

I am more willing to go to the library to study, because the library in UK has more comfortable learning environment and better facilities. Also, there are lots of services, for example, you can loan laptops from library, or you can use the desktop in Science Library, etc. (participant 3)

I have never been to the library to borrow books[...]I only go to the library to study. (participant 15)

Perceiving the library in this way, they hope to find their own place and create an environment with everything they need to perform intelligent work, whether it is with the support of the library facilities or digital technologies. They perceive it as “a hybrid of information resources and collaborative and independent workspace” (Bryant et al., 2009, p. 8).

When they are in this context, the activities they perform are mostly in the digital form (see quote from participant 4 below).

I use desktop as the main device in this library environment, because it has a larger screen and is connected to the UCL system[...] our university has the stable internet connection, so it is more stable, more convenient [...] Some of the files are stored on my own laptop, so if I want to check that part of the things, I open my laptop. (participant 4)

The desktops in the library are preferred by most of the Chinese participants, but in the meantime, they stated that their personal laptop is also used along with the desktop to search for documents, forming a personalised workplace all together with different devices. Digital devices serve as the ‘space’ for most of their intelligence work, where they seek for information to understand and interpret, and produce outputs by writing. Technologies are also seen as tools that bridge the physical and digital worlds, which is expected to support their intelligence work anytime anywhere, creating a digital world with all the information available, as participant 4 demonstrated in emphasising the crucial role technology plays in forming the way they study:

I think it [digital device] has a great impact on my study that help me

accomplish the same goal in free time and free locations [...] I have been using laptop when I was in undergraduate university, and I felt strongly the mental change from paper-based work to online work. (participant 4)

Technology has not only changed how the information is searched, stored and created, but more importantly, as participant 4 claimed, changed how they think, learn and work; this impact brought by technology has been discussed extensively in psychological studies (Greenfield, 2015), which is not expanded on in this thesis.

Social need

If looking at library as a physical place, which makes its context the real world, there appears to be a tension as students also want it to be a social space where they can connect with other physical entities, as expressed by participant 5:

[...] I never heard of any events from UCL library; but in my undergraduate library, there are many, including asking some researchers to do report or something like that. (participant 5)

This is also found in other students' perceptions that the library is seen more as a "place of collaborative learning and community interaction" (Montgomery & Miller, 2011, p. 229) or a "third place" proposed by sociologist Ray Oldenburg where they can freely relax, interact, and engage with their community (Oldenburg, 1989), rather than a place that merely holds physical collections. They have the need to connect with the community, boost knowledge, and learning collaboratively with their peers. This has also been strengthened as when the library is perceived as a learning space, it is serving the role of "facilitating social exchanges through which information is transformed into the knowledge of one person or group of persons" (Bennett, 2003, p. 4).

However, being social and being quite when studying is conflicted in this case, technology is helping with the issue in terms of creating a digital space for users to communicate and interact with peers:

[...] a communication platform? Like some forums, where you can communicate with other users [...] where users can discuss in this system or rate a book in this library system [...] I think it can be combined with the topic groups, like Douban⁵¹, where there are ratings and comments for books. (participant 10)

Instead of communicating with other library users face to face, they suggested an interesting way of socialising with others, which is through a library ‘virtual forum’, similar to the concept of academic social-networking sites. By discussing the books and resources under certain topics with other users who have similar academic interests, they wish to gain knowledge from their peers and satisfy social needs in the academic activities in a convenient format. This finding is in line with previous research on academic social-networking sites that there is a trend in academia that users communicate with each other online with the motivation to get professional knowledge, get self-promotion and to interact with their peers (Meishar-Tal & Pieterse, 2017).

Physical sensation

Perceiving the library in this context, the physical sensation they get from the physical library, for example, walking among bookshelves, reading physical books, etc, remarkably influences students’ library experience. The physical elements within the library form the special library sensation that boosts their behaviours and activities in the library; subconsciously, they get the idea that “this is a place to study and work” when they enter the physical library and see the related elements. This finding extends the understanding of the concept-- “library as place” (Bennett, 2005) and the “homeness” quality of libraries

⁵¹Douban 豆瓣: Chinese social networking service website that allows registered users to record information and create content related to film, books, music, recent events, and activities in Chinese cities.

(Mehta & Cox, 2019), that the physical facilities and the place of library buildings bring about the unique feeling and user experience and serve as the scene of their activities.

They pay much attention to the reading experience (one of the main activities in their learning) and they prefer reading in the physical form in terms of the feeling of holding and turning pages; nevertheless, this contradicts with the goal and expectation when they perceive the library in the digital world where they hope to get massive resources effectively and conveniently. This contradiction is intensified in the context when they recreate versions of the similar physical space (in the dorm) with digital technologies but without the co-located resources that the physical library holds; in this case, the desired feeling of reading (reading in a physical form) is simulated with digital devices (such as Kindle, tablets) as a trade-off; however, digital technology also has its limitations due to its affordance and is hard to replicate the same sensation in the physical world, which has been discussed in 6.2.1.3 Information seeking behaviour-Technologies.

Mobility to move through the physical world

Mobility is about moving through the physical world and navigating the space more effectively. For the experience in the context of the physical world, this mobility is to move through spaces, navigate the library floors and bookshelves, for example, how to get to a particular library, how to get to a seat, or to find water or to find a certain book on shelf. For Chinese students who come to London to study in a one-year span, which is short and intensive, the efficiency of the mobility of moving through the physical world is of great importance; it is interesting to find what information they use in planning out their movements in the physical world, as described by participant 10:

[...] I use timetable to see where I am going to have the lecture. I use PC

and study space availability on library system [...] to see which library has less people and then decide where to go. (participant 10)

In the context within the physical world, movement planning is regarded as an important preparation and therefore, relevant information about the physical library space is needed by students, especially for the universities which have several libraries.

Mobile devices serve as an interface or panel to navigating the physical world by moving in it and through it; Chinese students were found to use the mobile phone (in this case, the UCLGO app) to oversee the situation in the library and to adjust their movement in the physical world, as is described by participant 3:

[...] when it is the exam week and the library is very busy, I may first look at how many people in the library [by the UCLGO app]. If there is a lot of people like this (showing on app), I may go back home. (participant 3)

Instead of using it in the intellectual work which is preferred to be done in one place, mobile devices are preferred in this context as they are portable and connect to the Internet.

6.4 Make sense of academic library experience in context

Through analysing the data from the two qualitative approaches, cognitive mapping and semi-structured interview, Chinese students' UK academic library experience is revealed under the three contexts, which are: Context 1: academic library experienced as a part of the learning experience within an educational system; Context 2: academic library experienced within the digital world; Context 3: academic library experienced within the physical world.

If they perceive the academic library experience as a part of their learning experience within an educational system, it is actually not understood as a

concrete reality but rather as an abstract conception. Chinese students see it far more than an academic resources provider or a knowledge centre, rather, they view it as a learning facilitator or a trustworthy academic space (virtual and physical) that plays a crucial role in supporting their sense-making process throughout the learning experience in the new academic system, helping their learning transition in a different setting. They assume and expect it to provide necessary information and support for international students, especially in helping them making sense of the education system and requirements, easing and speeding up the transition into a different academic system.

When they perceive the academic library within the physical world, they view it more as a space conducive to study (individually or collaboratively) with essential co-located facilities while they perform most of their learning activities digitally. Less focusing on its function of collecting hardcopy materials, Chinese students perceive the physical library more as a professional workplace where they can think and study without interruption in a quiet atmosphere, which is in line with the previous findings on 'library as a learning place' or 'a learning environment' (Bennett, 2005; Juceviciene & Tautkeviciene, 2003). It was also found that Chinese students perceive it as a place where knowledge is constructed, where academic service is provided throughout their learning, which is in line with the idea of library's role of a 'service provider' (Pinfield et al., 2017). At the same time, they hope it to be in a space where they can socially engage and learn with their peers and find the sense of belonging, to gain motivations, supports and reduce the feeling of isolation, which is in in line with the concept of library as a 'third place' which emphasises on the functionality of collaborative learning (Montgomery & Miller, 2011) or library as a 'home' which stresses on the emotional feeling of belonging (Mehta & Cox, 2019).

To visualise the three contexts and their characteristics, a diagram (see Figure 83) has been created based on the findings from this thesis. The three circles in different colours are the three distinct contexts that were reflected from Chinese students' library experience; they are independent in the way that they have unique characteristics, which are summarised in the squares. The circles also overlap with each other, where tensions emerge as students pay attention to different things in the distinct contexts. If one evaluates students' experience in both context 1 and 2, conflicts emerge regarding to the resource quality versus information seeking efficiency, along with the extent of ease in using different interfaces (academic library interface versus other interfaces). When seeing the experience in both context 2 and 3, tension emerges as the physical sensation of using information is challenged by the convenience of use. While if viewing the experience in context 1 and 3, social experience in the new educational system is valued and therefore, endeavours should be made to satisfy this aspect in both contexts.

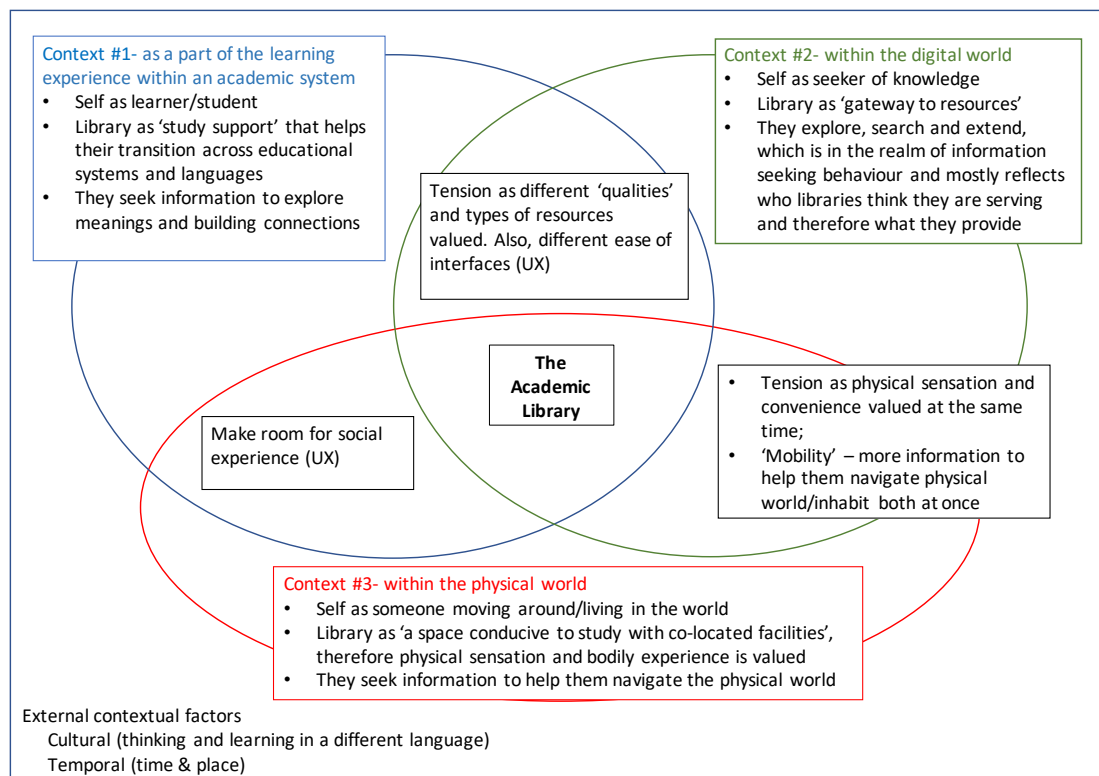


Figure 83 Three contexts found in international Chinese students' library experience

Chinese students put themselves in certain contexts when interacting with the academic library, but those contexts are not experienced in a distinct way; to some extent, they are intertwined with each other and in practice experienced simultaneously. Chinese students' library experience that is produced from the first two contexts (1-as a part of the learning experience within an educational system and 2-within the digital world) regards the academic library as a virtual gateway to knowledge or a one stop 'shop' of resources which are authoritative in that they have already been deemed appropriate by the academic system in which the library resides; while their experience that relates to the third context (3-within a physical world) views the academic library as a physical space or environment with co-located resources that is considered conducive to study. The three contexts are overlapping with each other; tensions and conflicts emerge when students perceive themselves and the library in multiple contexts as the requirements, information strategies and expectations for the academic library in the distinct contexts are different and that is the time when they have to make choices and go through the trade-off process.

Making sense of the students' library experience through context, it can be inferred that context plays an active role in determining and directing five aspects (see the table below for a summary), which are: how people perceive themselves; assumptions about what they can get from the library; information seeking strategies or tactics they use; appraisal or evaluation criteria to whether the academic library fulfils their needs; and requirements and expectations towards the library.

Table 27 The summary table of the five aspects determined by context

Context/aspects	Context#1: experience as part of the learning experience within an educational system	Context#2: experience within the digital world	Context#3: experience within the physical world
Aspect 1: How people perceive themselves	As an international student and an outsider	An information seeker and a digital 'surfer'	As a moving body with sensations
Aspect 2: Assumptions	Get language or other targeted supports that may help them adjust to a new educational system	Get any easily accessible online information or digital resources that are related to their current studies	Assume it to be a location with adequate and handy facilities that is conducive to study and easily navigable
Aspect 3: Information seeking strategies	Seek for resources in both Chinese and English to build connections and understand concepts	Seek and browse in a quick and efficient way to extend the scope of search	Seek for information to help the navigation and the use of physical library facilities

Aspect 4: Appraisal criteria	Whether it helps with the learning transition to a new educational system; the quality and trustworthiness of resources	Whether it is efficient to get sufficient academic resources; whether library is intelligent to know what they need (algorithm accuracy)	Whether the library space and facilities are friendly designed in terms of supporting their learning
Aspect 5: Requirements	Support their learning transition in terms of helping with meaning exploration and language assist	Provide massive academic resource in a speedy and smart way	Design handy and friendly library space that is conducive to learning

Pulling the five aspects in the three contexts together:

Firstly, in terms of how people perceive themselves: they see themselves as an international student and an outsider in a different educational system, an information seeker and a digital user in the digital world, or as a user navigating and finding his/her own place in a physical space.

Secondly, in regard to assumptions about what they can get from the library: if it is in a different educational system, they would assume to get language or other targeted support that may help them adjust to a new academic system; if it is in a part of the digital world, they would see academic library as one of the information sources where they can get any easily-accessible online information or digital resources that are related to their current studies; or if it is in a physical space, they would assume it to be a location with adequate and handy facilities that is conducive to study and easily navigable.

Thirdly, regarding to the information seeking strategies and tactics they use: being in a different academic system, they seek academic materials in both Chinese and English, and the information need is to explore and understand the concept connections, for example, CNKI database and they seek help from their Chinese community through WeChat and from other Chinese sources; being in the digital world, they seek and browse in a quick way and the library website is one of the gateways to knowledge; being in a physical space, they look for information to navigate in a mobile way which they can check information through the navigation, e.g. locate a book on shelf, floor map, etc.

Fourthly, in respects of the appraisal and evaluation criteria to whether the academic library fulfils their needs: when being in a different academic system, the appraisal criterion is based on a comparison between the past system they have been familiar with and the new system they are unfamiliar with, and it involves a transition of identity from a native student in the educational system they are associated with previously to an outsider and an international student in a different system. Rather than focusing on the scale of collections, the evaluation towards the academic library in the context of a different educational system focuses on the resource quality and whether knowledge and related concepts are explained clearly and explicitly. When being in the digital world, the appraisal of the academic library is similar to that of other online sources, the main criterion is efficiency and whether it is intelligent enough to predict users' online behaviour in terms of algorithm accuracy. When being in the physical world, the appraisal criterion is whether a pleasant space designed for study with necessary facilities can be found easily; in this case, the resource quality becomes a secondary evaluation criterion, while the accessibility to the physical parts of the library takes the priority.

Fifthly, concerning the requirements and expectations towards the library: if the academic library is perceived in a different academic system, it is expected to support learning and understanding in a different language and culture, multilingual resources are expected to be provided by the library; if it is perceived as a part of the digital world, it is required to provide massive online information in a speedy, convenient and smart way; if it is perceived as the physical world, it is expected to have handy and friendly facilities that could help them construct a pleasant space that is conducive to study and in the meantime, technologies that could help them navigate this space easily without brothing others.

These five aspects are interrelated, constituting people's perceptions, information interaction and behaviour, and their experiences. To categorise those aspects, in one way, they are reflecting people's perceptions with three different perspectives, which are: their perceptions of themselves or their identity and role, in other words, who they are in that context (aspect 1); their perceptions of the academic library, in other words, what system they are in and what they expect it 'to be' (aspect 2 and 5); their perceptions of the wider system in which they perceive the academic library and themselves 'to be' affects how they are assumed/supposed/ought to behave/evaluate things/activities in that system (aspect 3 and 4).

In another way, they can also be roughly grouped in the sense of the end and outcomes they bring, which are: people's perceptions (aspect 1 and 2); information interaction and behaviour (aspect 3); their subjective evaluations & experiences (aspect 4 and 5).

In both ways of analysing how the context is shaping students' experience in the academic library, it is the students who make sense of their role, task and

situation in the academic library within a wider system; context, in this process, plays a vital role in shaping this sense-making process. They may go back and forth iteratively in making sense of who they are and what they are expected to have and to do in this system depending on the context change, which remedies the weakness of previous models (either it is information seeking behaviour models or UX models) that are linear or sequential.

6.5 Innovative recommendations from Chinese students

In the communication with Chinese students under the research topic, many practical innovative ideas, recommendations and expectations were expressed, which have been presented in this chapter through the meaning exploration in the data. The main ideas for the change are summarised and listed as the main points below.

For physical library component: provide multi-screen devices to support user's multi-tasking in the academic library; design a self-return service where users can put the book back to the shelf themselves and shorten the clear-up time—in the meantime, with the use of book codes on shelves, their return can be tracked, which would form an ecological self-service; work with affiliated organisations or partners to provide extra services for library users (such as cafes, shops, side-line library products design).

For library website: implementation of diverse search input (such as, image, voice and statistical data) to increase search efficiency in the library system; have auto-recommendations based on keywords and user input to extend the search results and provide users with alternatives of information; online interactive feedback service, where library users are able to report any issues or problems with the library facilities.

For library app: add social functions on library app, where library users are able to use it as an academic social platform and they are able to interact with others and the library staff from mobile phone; a more interactive library app should be designed where library users can give feedback on likes or dislikes and the system can provide recommendations based on those feedbacks to form an interactive loop; implement library seat code scan on the library app, which could support the checking for whether the seat is occupied (especially when user leave the seat for a short time) and how long it is booked—by scanning the seat code, if it is an empty one, they can book the seat directly on their phone; borrow features from museum or gallery apps, where library collection can be displayed in map format to help navigation and visually indicate the location within the physical library; library app could embed with the GPS and Google map function that is able to lead library users to a library where they can find empty seats (library journey plan and guide); add library facilities information and current status on the mobile app, such as toilets, and water fountains.

6.6 Chapter conclusion

Through analysing data obtained from the library log, cognitive mapping and semi-structured interviews, it was evidenced that Chinese students make sense of their situation, role, and task through the library experience; context plays an active pivotal component in shaping how they perceive (perception) and deal with the situation within the library (sense-making within library). Their perceptions about themselves, the academic library and their relationship with the library determine how they seek for information (information seeking behaviour) and how they think and feel about the

experience (subjective evaluations); and that constitute the multi-faced overall library experience.

Three vital elements—context, perception, and sense-making—are found from the findings which take both concepts of information seeking behaviour and library UX into account in the same research context, pulling out a holistic understanding on Chinese students' academic library experience. This uncovering of library experience and the vital elements that form this experience will be discussed in relation to the research question and objectives in the subsequent chapter—Discussion.

Chapter 7: Discussion and the development of a framework theory

7.1 Chapter introduction

The aim of this thesis is to explore how Chinese students experience the UK academic library in the Digital Age. The critical research objectives were:

To investigate what Chinese students do in the UK academic library by looking into their information seeking behaviour;

To explore how Chinese students think and feel about the UK academic library by investigating their library UX;

To understand the library experience of Chinese students in UK in the Digital Age.

These three objectives are achieved through the mixed methods approach of library log analysis, cognitive mapping and semi-structured interviews. Building on the findings presented in the previous chapters, this one develops and discusses the findings within the literature context. An original framework theory of 'context-perception-sense-making' that is informed by the Chinese students' UK library experience is developed, which brings essential components of information seeking behaviour and UX together in the context of the academic library. The construction of this original framework is expanded and discussed within the wider literature.

7.2 What Chinese students do in the UK academic library?

This research question centres on discovering how Chinese students interact with the academic library, including their activities and information seeking behaviour, which constructs an essential part of their overall library experience.

From the findings, it is clear that their information activities and information seeking behaviour are context dependent. Building on the existing recognition of the significant role of the context in information behaviour research, which “constitutes necessary conditions for sufficient understanding of information needs and seeking phenomena” (Vakkari et al., 1997, p. 9), this research establishes a new and wider understanding of the context that triggers and shapes information seeking behaviour and the consequent library experience. Context is not a passive background or container that is constrained by temporal, spatial, or other factors, but is something that actively shapes how things in the academic library are perceived, assumed, handled, expected and experienced. It is the start of experience and the condition of how they interact with the information (components in the academic library). As international students who are learning in a digital-prevalent age where digital technologies are embedded in physical practices, they are being put in multiple contexts that are interrelated.

Through the interpretation of Chinese students’ library experience, it is found that ‘digital’ is a predominant theme in their information activities and information seeking behaviour in the academic library; however, from the findings, students do not disconnect the digital from the physical, and the two are overlapping with each other. This develops Gourlay and Oliver’s finding on university students’ digital practices where digital technology serves as a bridge that blurs the distinction between the two by creating and combining the analogue of the physical (Gourlay & Oliver, 2013); in Chinese students’ library experience, this thesis found that they barely distinguish the digital library component from the physical one and hardly feel the boundary during the interaction as digital devices are generally used in their library practices as bridges that connect the digital and the physical world. With the ubiquitous use of digital technologies, especially with the mobile devices, the setting or

context of use is 'hybrid' and the engagement with texts is various where the distinct features of the digital and the physical are hardly analysed in isolation (Gourlay, 2015). In the academic library practise, the distinction between the digital and the physical is blurred as the digital tools serve as bridges that connects different components of the library together, by which the original feature of certain components is overlooked. This finding runs counter to the view of "digital dualism" that distinguishes the digital and the physical as separate domains in student practices (Jurgenson, 2011); while it testified that digital and physical elements in their practice are intertwined with each other and mutually influence people's practice to varying degrees (Gourlay & Olive, 2018), which has been found in previous research. The finding from this thesis adds insights into the library field that the idea of "digital dualism" is unrealistic in students' library practice and experience and, therefore, the method of analysing the digital and the physical separately can only reveal a small part of the reality as it is hard to define which domain students' library practice or interaction actually sit in.

Most of the previous LIS studies centred the topic to either 'digital library' or 'physical library' and adopt distinct methodologies to learn about users in a certain domain (Greenstein & Thorin, 2002; Saracevic, 2000), assuming that users' interaction with one domain would not influence or be influenced by the other. However, as has been recognised by some researchers, "a more nuanced understanding is required of the complex, emergent relationships between the digital and print, the device and user, and the author and text" (Gourlay et al., 2015, p. 275). Nevertheless, with such recognition of the complexity, there is no standard nor agreed way to analyse this kind of complexity and to understand practices in different domains with a notion of connection. To uncover the complex practices, understand what they do and discover their priorities in practice, this thesis proposed a new way of analysing

the complexity by separating contexts, and understanding students' practices and behaviours in distinct layers of these contexts, as is illustrated in the data analysis chapter.

Through this new way of separating contexts, this thesis discovered that when Chinese students experience the academic library in the sense of a virtual gateway to knowledge (or in other words, experience it within an educational system and within the digital world), their information seeking in the academic library involves filling knowledge gaps, but more importantly, embraces making sense and exploring meanings, building connections in two languages and constructing knowledge. They are found in this thesis to spend more time than English-speaking students in the academic library system to explore meanings, compare, construct, alter and find the right thing, mostly due to the language barrier (e.g. searching for the right term for a concept in two languages—Chinese and English; watching YouTube illustration videos to understand a new term encountered in the new educational system). This original finding extends the existing information models that are linear and end after 'search, process and use' (such as Wilson's 1999 model) and brings in new insights into the understanding of human information seeking behaviour as Chinese students generally conduct three information seeking strategies—exploring, searching and extending, iteratively in their information seeking process. They make sense through searching, along with the strategies of exploring and extending facilitating the searching iteratively until their information need is satisfied. The finding from this thesis revealed that information seeking is a much more complicated process than simply going from information needs to information seeking and use that most models described as getting from A to B, like a step-by-step process; instead, it uncovers a new perspective of human information seeking behaviour via rounds of the sense-making process that Chinese students go through

repeatedly with contextual and situational change which involves thinking and understanding in two languages, which is a significant finding in analysing and understanding Chinese students and other international students' information seeking activities.

Exploring, searching and extending are the three strategies found in Chinese students' information seeking behaviour in their UK academic library experience; those three strategies are not information seeking stages or steps in sequence, instead, those are tactics or manners adopted throughout the information seeking process, which is similar in form to what is presented by Ellis in his model of information seeking behaviour where eight strategies (starting, chaining, browsing, differentiating, monitoring, extracting, verifying and ending) are described as elements that may occur in a random order (Ellis, 1989). However, albeit including detailed tactics information seekers might take to complete an information task, his model does not present the preparation nor the auxiliary work people do in facilitating the information seeking process, especially for information seeking tasks that involve understanding in two or multiple languages. The findings from this thesis extend Ellis's model in the way that it reveals the tactics that are used not only as the main information seeking strategy ('searching' in Chinese students' information seeking behaviour), but also the facilitating strategies ('exploring' and 'extending') that are used to support the main strategy in collaboration to achieve the goal of information seeking (see Figure 84 for a visual illustration). The three information seeking strategies are conducted in a temporal sense and therefore labelled as a layer of context.

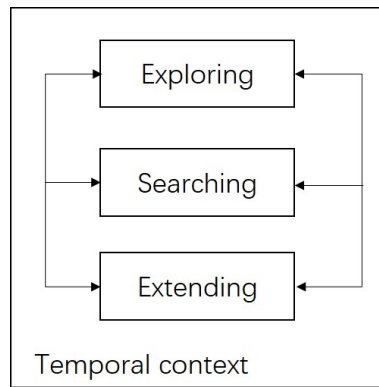


Figure 84 Exploring, searching and extending found in Chinese students' information seeking behaviour

Exploring, a tactic by which students seek easily understandable information outside the library system to explore and understand a topic or concept being searched, is regarded by Chinese students as the most important preparation for information seeking in the library and a strong factor in influencing the search result accuracy. It is slightly different from the 'starting' stage in Ellis's 1989 model of information seeking behaviour, which is defined as "characteristics of the information seeking patterns of researchers who are commencing work on a new topic or in a new area" (Ellis, 1989, p. 179), highlighting information seeker's personal strategies to handle a new information need. Exploring, in this case, in addition to being aware of an information need and personal use strategy to commence on a new topic, is more about understanding the background knowledge of their information needs, in other words, to know or understand what they are looking for. Language, as the largest barrier found in this thesis in the information seeking process of Chinese students, causes problems in connecting concepts in two languages and finding the appropriate keywords for searching. This has been found before and generally hinders international students' effective information seeking and interaction with the academic library (Liao et al., 2007; Liu & Winn, 2009; Mehra & Bilal, 2007b). More importantly, this strategy that Chinese students take throughout their information seeking activities illustrates their cognitive thinking style and information coping strategy

(Wilson, 1997) in a different educational system, showing how they process new information and approach the unknown. As a “tendency displayed by individual consistently to adopt a particular type of information processing strategy” (Ford, 2003, p. 189), cognitive style is determining how individuals approach an unknown topic and conduct information seeking. As has been elaborated by Ford (2003), the two dimensions of cognitive style, field-independent and field-dependent, respond differently in learning situations in either the “hypothesis-testing” or “spectator approach”. This thesis discovers that Chinese students generally take a spectator approach when encountering a new topic in information seeking activities; instead of trying out assumptions, they tend to see what others do by exploring illustrations, explanations and instructions from experts before conducting the work themselves. This new finding is crucial in understanding how Chinese students mediate unknown challenges in learning in a new setting and adding knowledge to the existing learning-related information behaviour (Ford, 2003).

This thesis found that extending is another unique strategy Chinese students adopt in the information seeking process, where they extend their understanding of the topic and the scope of search by searching for Chinese academic resources; this tactic is underlined in particular by students studying in the subjects of art and humanities where an international perspective is taken to have a global vision and understanding in a wider sense. Through this process, they make comparisons, construct and extend their knowledge to build a wider view on the topic. This strategy has not been found in any of the previous information seeking behaviour models as conceptually, it extends the scope of information seeking behaviour, and should be understood as a way of sense-making; it is in practice, another round of information seeking, albeit in a different language.

The three information seeking strategies found in this research contribute new insights into the understanding of the complexity of 'information seeking behaviour' and add understanding to ISB in a sense-making perspective. Information seeking is one way/method of making sense for oneself in a situation, if conceptualising sense-making in a broader sense or to understand it as the *external sense-making*. During the information seeking process, there are rounds of *internal sense-making* processes where information seekers explore meanings and enrich the 'repertoire of knowledge' in order to support the main process of information seeking. Exploring and extending as the two distinct information seeking strategies of Chinese students, do not only happen at the start nor at the end, they are additional processes that are going on alongside the 'normal' typical information seeking behaviour process; this is one of 'translation', of translating iteratively between concepts and frameworks built, understood and defined in different languages, which has not been found in previous information seeking research. This thesis finding is significant in the way that it shows how people learn and work in two or multiple languages, where information seeking involves translating across concepts and building connections. It also remedies the weakness of previous information seeking behaviour models that are linear and sequential in describing the process, such as the Information Search Process model by Kuhlthau (1991); this extends previous models by demonstrating multiple strategies that individuals might take simultaneously and iteratively during the information seeking process.

When the Chinese students study in the UK here experience the academic library within the physical world, the information they seek is mainly to help them 'navigate' in the physical world and find a place where they can be physically still and prepare for the mentally-active works; it is found in this thesis that the mobile phone is favoured as a handy tool to depict the physical

world in a digital form, and connect the two concurrently. The different library log data of Chinese users on their laptop (lower bounce rate and longer session duration) and mobile phone (higher bounce rate and shorter session duration compared to that on laptop) also illustrated the different learning tasks and context of usage on the two devices. Although a great amount of previous research on 'mobile library' and 'm-library' has demonstrated how students use mobile phones to learn, read, seek for information and produce digital content (Briggs & Liu, 2015; Canuel et al., 2017; Lippincott, 2010), to date, this has not covered the Chinese students' library experience. This thesis, notably, contributes new insights into the field that show that instead of performing complicated learning or information seeking tasks, Chinese students tend to use mobile phone as a navigation tool or a library assistant to help them moving through or in the physical library and to be aware of the status of library services. Even more importantly, despite being aware of the university mobile app and library mobile interface, they explicitly expressed a reluctance to perform learning-related activities on them due to the affordance of the mobile phone and contextual constraints that come with it; it has also been found that the mobile phone is mostly used for recreation or at the time when they are on the move, which confirms the previous research of Mahlangu & Dlodlo, 2013; and Wan et al., 2013. This finding provides an instructive understanding of Chinese students' library information seeking behaviour on digital devices in demonstrating the different preferred context of use, which will instruct the future library system design.

7.3 How Chinese students think and feel about the UK academic library?

Context is the core thing that shapes information seeking behaviour in the academic library. This thesis also proposes that it is the context that shapes

students' perceptions about themselves and the academic library, which consequently influences how they perceive, make sense and evaluate the academic library, or in other words, context-led perception is an important factor influencing Chinese students library UX and directing the way they think and feel about the academic library collectively. From the thesis findings, the academic library is not merely being perceived as a system or product, it is perceived as a part of the digital or physical world, or a part of the educational system with the students' identity transition in a multi-layered context. It demonstrated that the context of Chinese students' library experience is complicated and multi-layered, carrying temporal, spatial and social variables, which mediate their perceptions; this finding coincides with the "construal level theory" that has been proposed by other social scientists that the effect of temporal, spatial and social distance directs the way people anticipate, react and evaluate the future (Trope & Liberman, 2003).

The typical concept of UX is too limiting in terms of handling the experience of people's interaction with a product or a system only as a user, distinguishing the concept of UX as the "perceptions and responses that result from the use and/or anticipated use of a product, system or service" (ISO, 2010). It forces people to see themselves as only users of a certain product and narrows their experience to the result of the product use with the assumption that the context of experience is constrained to the time when the product or system is being used, or as roughly referred to in the previous UX model as "the context of use", indicating the setting or container of the experience in a temporal sense (Forlizzi & Ford, 2000). Admittedly, the temporal aspect of experience is important, especially in evaluating UX on a special design feature or task design in isolation which is what most of the UX research has been focusing on (Vermeeren et al., 2010); however, this overlooks the complexity of user and context. This thesis proposed that contextual change that involves

spatial, temporal, cultural and other relevant factors should be taken seriously into account in particular for understanding the UX from the perspective of people who experience a dramatic contextual change and identity transition, such as international students. Being socially engaged with the world, the user as a human being is a complex agent that “constantly flex their identities both individually and collectively” (Kurtz & Snowden, 2003, p. 464), directing the dynamic ways of reacting, perceiving and experiencing. Their perceptions about themselves and the world around, consequently, vary depending on changes of identity and context. More theoretically, if we see people only as ‘experiencing self’ that continually confronts and interacts with the world, their perception would be fleeting because of the temporality and their interpretation of the experience would exclude their self-retrospection (Doherty & Doherty, 2018). As has been demonstrated in previous work that to understand UX from a self-reporting perspective, the consolidation of experience should be viewed as a constructed through multiple selves, including ‘experiencing self’, ‘remembering self’ and ‘future-oriented self’ (Doherty & Doherty, 2018). Consequently, UX should be viewed and evaluated over a longer term, involving a certain time span, as has been exemplified by the ‘UX curve’ method proposed by Kujala et al., (2011), that demonstrated how UX changed through time. Based on these previous research on UX, this thesis demonstrates a new way of breaking down the complex context Chinese students put themselves in to analyse their compound identity and take their past learning experience in China into account which mediates their UK library UX throughout the time; this finding is also in line with the previous research on human experience such as flowing like a river from ‘moment to moment’ and personal memory or past experience mediates how they anticipate and evaluate the future experience (Karapanos et al., 2010; Norman, 2009).

Bringing new insights into the UX field, this thesis highlights the role of perception in understanding UX in the way that it goes before the students' interaction and continually influence the way they interact; it also changes throughout the time and process. This new finding challenges the previous UX model (such as the CUE model, see Figure 85) in which perception is claimed to emerge after the user's interaction and is understood in a narrow sense that it is built from the temporal interaction, or to call it 'perception of interaction' when using a certain system in a more precise way.

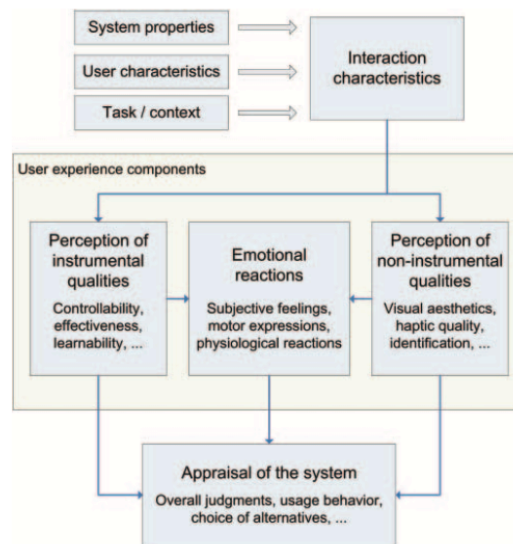


Figure 85 The CUE-model (Thüring & Mahlke, 2007, p. 262)

The finding from this thesis indicates that students library experience is much broader than that and involves more elements that break that temporality; in the meantime, it should also be distinguished from the concept of 'experience' which is the totality of human interactions with everything encountered (Law et al., 2009). This thesis proposes a new understanding of 'perception' in a broader sense for evaluating UX, or more precisely, to name it as 'perception of experience', which extends the typical definition of 'perception' in UX research which is the "process of acquiring and interpreting sensory information" (including hearing, vision, taste, smell and touch) (Beauregard & Corriveau, 2007, p. 328). This new idea of 'perception of experience' is how

people see themselves as having and employing agency in a context or in the world. UX in the setting of the academic library should see students' experience as people and the way they perceive themselves in relation to something labelled as 'the academic library'.

The findings from this thesis revealed that Chinese students perform most of their learning activities digitally and that they use digital devices to create a pleasant personal workspace or personal learning 'library', which is regarded as an important part within their library UX. Affordance of the digital technology and the physical sensation are found in this thesis to be key elements in the context of the physical world which constitutes a large part of Chinese students' library UX. They create their own cosy and safe 'territory' of learning within the physical library with digital technologies that create a sense of comfort physically that is in accordance with their needs (for example, as is illustrated by the participants in their cognitive mapping exercise).



Figure 86 'Territory' of learning in physical library

The affordance of digital technologies in this context facilitates the way students interact with the physical world and reflects the opportunities that the academic library could use to engage its users to improve the quality of library UX and learning activities in that context, which is in line with what has been illustrated by Billett (2001) in his study set in the context of the workplace. It demonstrates the idea that people's feeling of control over technology directs the way they perceive and handle digital devices, which coincides with

the previous research that “each experience is mediated at the same time by technical agents and by its media world” (Best, 2009, p. 411).

The personal laptop is found to be the indispensable digital device for Chinese students, which is in line with previous investigations of laptop usage in Higher Education institutions (Goyanes & Catalán-Matamoros, 2017; Kay & Lauricella, 2016). However, most of the previous research is centred on the in-class/out-class use or its influence on student academic performance without probing into how and why they use it under different situations and circumstances. The findings from this research remedy this aspect and add new understanding on why and how they use it in different contexts: rather than bringing it to the class (unless necessary or required), Chinese students use their laptop when they study on their own and throughout nearly all other learning activities, no matter where they are. Less focused on its relative portability, they value the irreplaceable affordance of a laptop with its appropriate screen size, massive virtual storage space for their learning materials and the multiple language support, especially the system language setting, translation software and other language-related academic tools. The thesis reinforced the notion that language is the main concern during non-English speaking international students’ learning abroad and their personal laptop creates a virtual environment that they are familiar with and feel safer in, which serves an important role in helping their transition to a different educational system. This is in harmony with previous research finding that digital technologies play active roles in helping students mediating the transition to a different learning context (Hicks, 2018).

7.4 How to understand the library experience of Chinese students in UK in the Digital Age?

From the exploration of what Chinese students do and how they think and feel about the UK academic library in the Digital Age, their perceptions, behaviours, activities, and feelings about the academic library collectively make up their library experience; significantly, context is found to be the base line that influences the library experience in this thesis. To understand their library experience, separating the contexts and viewing them discretely helps the discovery of the complexity and identifies the vital elements in their experience.

It should be noted that context is a complex thing to define and understand; philosophically, “the attempt to be thorough in understanding context leads to a total contextualisation, in which everything becomes the context of everything else. Such a contextualisation is equivalent to total relativity”; the method of contextualising everything would potentially lead to “total relativity” (Scharfstein, 1989, pp. xii–xiii). Agarwal summarised in his work that context has many facets and is perceived differently (Agarwal, 2017) and Dervin highlighted that context is not a permanent thing but changes over time (Dervin, 1997). This makes it a challenge for researchers to distinguish one context from another “with respect to their potential influence mechanisms” (Choi, 2003, p. 6). Even with this research setting which is within the academic library, its compound role and diverse ways to engage with the users expose it to multi-layered contexts. More importantly, students within the academic library are being put into a complex context, which consequently brings with it different ways of perceiving and interacting; their behaviour and experience in one context is at the same time influencing the others. In essence, the “complexity of the social world and associated human behaviour and the

complex nature of the human psyche” (Wilson, 2016, p. 1) is what this thesis has been exploring and uncovering; this new way of analysis, separating the three independent contexts, demonstrates students’ different priorities in perceptions, needs and information strategies in each distinct context.

Technically, context is the starting point of the library experience, and also the starting point of the interaction and information seeking behaviour. It determines how students perceive themselves in the library and how they cope with the present situation in that context as a result of this perception, reflecting their information-problem solving skills (Walraven et al., 2008) and information coping strategy (Wilson, 1997). Other students may have different contextual dimensions that trigger and shape their library experience but the three contexts found in this thesis are the specific ones that are clearly mapped by Chinese students. From the finding, Chinese students are found to perceive themselves differently and play multiple roles in interacting with the academic library. They see themselves as a learner or an international student, or a seeker of knowledge, or as an individual moving and living in the physical space, showing the contextual change influencing the way they engage with the world, which is in line with the existing knowledge on the impact of context (Choi, 2003). As a consequence of the different ways of perceiving and interacting with the academic library in context, their library UX is presented as a complex mixture that encompasses those separated interactions depending on which context they perceive themselves to be in or wanting to act at the present moment: if the interaction is happening in the physical library space, they pay much attention to the physical sensation and bodily experience instead of the performance of library services; while if the interaction is happening in the digital world, they pay more attention to functionality, accessibility, simple and straightforward design, language support, etc, in terms of helping them make sense. Viewing it as a long-term experience, their past retrospective library

experience, when they were in a different context (Chinese HE system), and current evolving experience with their cognitive skills and knowledge constructions developing along with the process constitute 'experience episodes' with contextual changes and forms their overall continuous library experience (Kujala et al., 2013).

Apart from context, perception, as discussed in 7.3, is another key element found in this thesis that shapes and influences the library experience. This perception involves how they consider and see themselves and how they perceive the academic library; it is formed before the interaction with the library (or to say, pre-perception) and is continually modifies during and after the experience. Although being recognised as an important influencer in UX research (which is generally understood as the 'perception of a product', see 7.3), it is overlooked in ISB research. Take Dervin's sense-making model as an example, where individual in context is illustrated as a person holding an umbrella (see Figure 87), it takes the individual's contextual dimensions into account (such as power structures, domain knowledge and culture), while it overlooks their perception of the context that they are in.

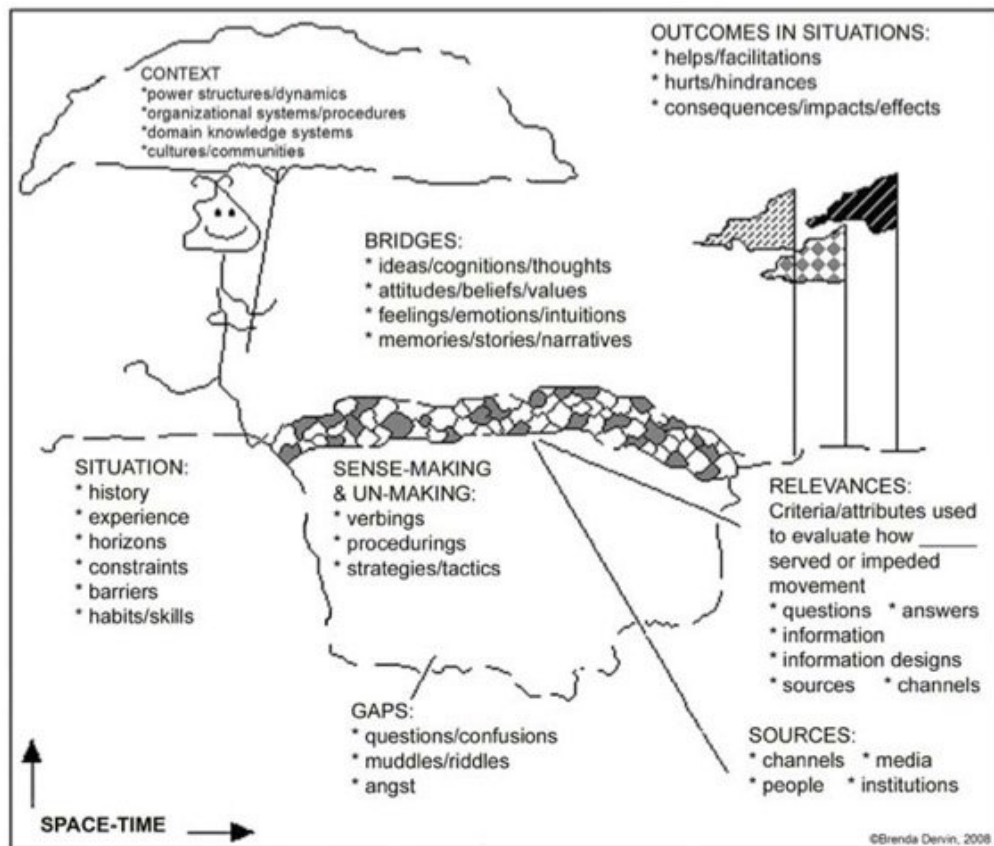


Figure 87 Sense-making theory with metaphors (Dervin, 2008, p. 17)

During the sense-making within the academic library, an individual's perception, as the way they view themselves in relation to the library, regulates and alters their intention, assumptions and goals in experiencing the library. They may go back and forth iteratively to make sense of who they are, what they are expected to have and what to do in this system depending on the context change. This thesis finding on the vital role perception plays extends Dervin's sense-making model regarding what is carried with the individual, that apart from the personal context, their perception goes with them during the whole sense-making process. It also provides insights into the ISB research by revealing perception's role in shaping and regulating an individual's information seeking behaviour, and ultimately shapes their library experience.

The perceptions, information activities and seeking behaviour (exploring, searching and extending), subjective feelings and expectations constitute the holistic library experience; this experience should not be simply classified into information behaviour nor UX, instead, should be viewed as how library users make sense of themselves and the library, their needs and situation continually, and bridge the gaps through the library with an evaluation of the outcomes. For Chinese students, their library experience is made up of continuous internal and external sense-making processes; context triggers and shapes those sense-making processes, and perception alters and influences those processes. This new understanding of Chinese students' library experience brings about the 'context-perception-sense-making' framework theory, which demonstrates the thesis findings and the core elements in their library experience: see 7.5 for the demonstration.

7.5 The 'context-perception-sense-making' framework theory

The findings from this thesis reveal how Chinese students experience the UK academic library in the Digital Age and deliver a framework theory of 'context-perception-sense-making' (see Figure 88), building on Figure 83 (Three contexts found in international Chinese students' library experience) in 6.4, is proposed to abstract the original thesis findings.

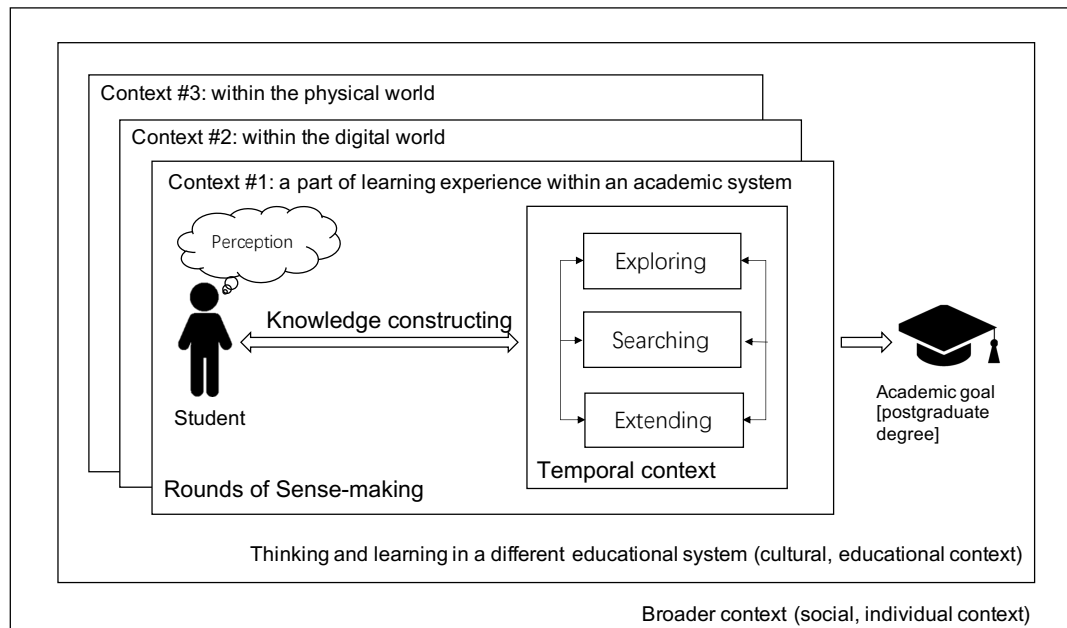


Figure 88 Chinese students' context-perception-sense-making in the UK academic library in the Digital Age

In this framework, each square represents a dimension of context as this thesis has demonstrated that the context of library experience is found to be multi-layered. In the Chinese students' view, multi-dimensional contexts are found that embrace their academic library experience; and those contexts overlap with each other and are experienced simultaneously. The very outer box represents the context in a broader sense and is labelled as the "broader context", which includes social and individual context dimensions (such as public order and morals, personalities, personal interests, etc.); they are at the very outside layer due to their psychological distance to the context of academic library. The second outer box represents the context dimension for the academic library experience in a different educational system and is labelled "thinking and learning in a different educational system" that involves cultural and educational context, where language is a crucial factor in influencing the library experience. In this layer of context, it depicts where the academic library is being viewed and where the library experience emerges, which is the premise for evaluating library experience in specific context. While the inner three overlapping boxes are the three contexts where the Chinese

library users put themselves in; as it is found in this research, Chinese students perceive the library in the three contexts—library experience as a part of the learning experience within an educational system, library experience within the digital world, and library experience within the physical world; whereas, other student groups may experience it in different contexts. The inner boxes depict where certain library user is situated and that forms the motivations and reasons for their library experience.

In the centre of the framework, it is the library user, who in this thesis, is the Chinese student who is studying on a PGT programme in UK, conducting rounds of sense-making activities in the academic library which is context-dependent. A vital element that goes with the library user is the ‘perception’, which includes the perception about oneself and about the library; it consequently, shapes how they view and think about the library, and leading the way of sense-making. Three information strategies are labelled at the right hand-side as the main sense-making methods of Chinese students in the academic library who generally conduct exploring, searching and extending to make sense of their current situation, therefore a temporal factor (in the framework, labelled as “temporal context”) is depicted in the framework. They are shown in a box with arrows leading towards three of them to show that they are not conducted in sequence, instead, they are performed along with each other iteratively until they find what they want and end in a singular sense-making process. Worthy to note, in their holistic library experience, multiple rounds of sense-making would be conducted as new information needs emerge.

In the middle, the framework depicts that through the sense-making process, knowledge is constructed with experiencing the academic library and this sense-making process ultimately leads to the academic achievements (in this

case, getting the Master's degree and completing their studies abroad, see the graduation cap at the right-hand side). That is their ultimate goal and positive anticipation of the outcome as the academic library experience is very much dependent on the information needs brought by the academic requirements.

As the primary research output, this framework illustrates that context, as the core element, plays a vital role in the library experience. Without considering the impact from the context, there would be no meaning to understand human behaviour (Ingwersen & Järvelin, 2005); rather than being some sort of a passive background that is constrained by different factors (Rieh, 2004; Savolainen, 2006) nor a time-space container that changes over time through human interaction and construction (Dervin, 1997), context is found to be actively shaping the way that students make sense of themselves and the library, and consequently framing their behaviours and experiences.

More importantly, context is shaping how students perceive themselves in relation to the concept of the 'academic library' and that brings in another vital element in the library experience—perception. Taking an interpretive position, human experience and activities are subjective in the way that they make sense in the way that they view themselves. The person who is perceiving the context is crucial in determining how they understand that context and respond accordingly, as has been elaborated in Agarwal's Contextual Identity Framework, which used social identity theory that takes the complexity of people's social identity into account and reveals that context is multi-levelled (Agarwal, 2017, pp. 86–98). Chinese students view the academic library as a crucial learning facilitator that supports their sense-making process alongside the process of thinking and learning in a different educational system and in two languages; they use the academic library to help them fill gaps and

construct knowledge, which ultimately helps them to obtain academic achievements.

7.6 Chapter conclusion

The chapter has reflected on the research objectives set to meet the research aims; and proposes a new framework theory of ‘context-perception-sense-making’ through a discussion of empirical findings from this thesis and a look back at the previous literature. Demonstrating what Chinese students do and how they think and feel about the academic library in the Digital Age, this chapter draws attention to the vital role of context which triggers and shapes the library experience and the important element of perception which shapes and alters the library experience, depicting a holistic picture of library experience. Illustrating the complexity and multi-layered characteristics of context, it also discusses the method of separating contexts to analyse and understand library experience in each distinct context. The implications of the thesis findings and the framework theory that has been created based on the thesis is further discussed and concluded in the final chapter—Conclusion.

Chapter 8: Conclusion

8.1 Chapter overview

This doctoral thesis has explored international Chinese students' UK academic library experience in the Digital Age, with UCL as the context of study. It recognises and builds on the previous work which has identified the impact of digital shifts and the transformative roles of the academic library, sitting at the heart of higher education delivery. In the context of HE, the globalisation of student markets has brought more diverse user groups into the library/HE domain. This thesis has explored students' library experience in this changing context through investigating what they do (information seeking behaviour) and how they think and feel (library UX) about the academic library from the perspective of Chinese students.

This chapter presents the headline findings and outlines further potential areas for research. It firstly reflects on the theoretical and methodological contributions of this study and explores these contributions specifically in respect to the Library and Information studies (LIS) field. It then proposes practical recommendations for different stakeholders at play based on the thesis findings. In addition, it examines the limitations of the study and suggests future directions for research.

8.2 Theoretical contributions

A central contribution of this thesis is the 'context-perception-sense-making' framework theory that has been created based on the interpretation of Chinese students' UK academic library experience. It represents a holistic picture of their information seeking behaviour and UX in a complex context.

Previous research has mainly explored the human focus and affective factors that influence both concepts but in a separate way, while this thesis has, uniquely and innovatively, examined the interrelationships between the concept of 'behaviour' and 'experience'. Building upon O'Brien (2011)'s discussion on the parallels between human information interaction and user experience, the findings and resulting framework theory developed for this thesis contribute a new way of assessing the two concepts by connecting and analysing them under the same research setting, the academic library. Through looking into the elements of information seeking behaviour and UX, such as human perceptions, behaviours, subjective responses and experiences, the complexity of contextual dimensions that library users are situated in is revealed which carries temporal, spatial, social and other related variables that are brought about by the transforming function and changing role of academic library that is undergoing a digital shift. Building upon Wilson's (1997) and Agarwal et al.'s (2009) recognition of the complex characteristic of context, the framework theory generated from this thesis separates the layers of context where students position themselves when perceiving the conception of the 'academic library', and analyses their perceptions, behaviours and experiences in each detached layer. This method of separation identifies the multiple layers of context where students perceive themselves and the academic library to be situated and depicts their sense-making process in each layer of context that, in the end, forms the overall library experience.

Within this framework, two central parameters—context and perception, are recognised and new insights are added through a deeper interpretive exploration. In terms of context, this research adds understanding to the role that context plays in shaping experiences. Decoding their library experience and exploring the multiple contexts implied from that, this research highlights context as an important determinant in actively shaping and forming library

experience during the sense-making process. Rather than seeing context as a passive background of research, a part of the environment, or a container of information activities and user interactions (Lamb et al., 2002) from the perspective of researcher, context is defined and analysed from the perspective of the student—people who spontaneously place themselves in the context, the ‘individual actor’ (Agarwal, 2017, p. 88) or the ‘acting subject’ (Farganis, 2014, p. 257). Analysing the context where students place themselves when thinking of the conception of the ‘academic library’, the framework of ‘context-perception-sense-making’ provides a new way of identifying, examining and evaluating students’ library experience, which separates the distinct perceptions, behaviours and subjective evaluations under diverse conditions. Demonstrating that those contexts are overlapping and intertwined with each other, this thesis facilitates a more complete understanding of the forming and shaping of library experience.

A recognition of the important role that perception plays in shaping the library experience forms another significant contribution of this thesis to the field in terms of extending the existing understanding of this concept in both information seeking behaviour and UX research. In further illustrating the concept, this research redefined perception in a broader sense and expresses it more clearly as the ‘perception of experience’, building on the typical understanding of perception in UX research that only focused on the perception that emerged after the interaction (Beauregard & Corriveau, 2007), which is the ‘perception of interaction’. By identifying that perception shapes and alters with the context in a state of flux, this study illustrates that students’ perceptions of themselves and the library go with them during the library experience and dominate how they assume, make sense, react, feel about upon the academic library and their expectations of it. Highlighting the role that perception plays in directing the way people respond and react to the

context, this thesis enriches the theory of information seeking behaviour by adding the element of perception into the existing models. Building on Wilson's (1996) model in emphasising stress/coping theory in activating information seeking behaviour and Dervin's (1998) sense-making model in illustrating people's mind-set as a context umbrella that is carried throughout the sense-making process, this thesis identifies perception as another key parameter in both shaping and mediating information seeking behaviour during the sense-making process.

Another significant contribution of this research is the recognition of the additional information seeking strategies that Chinese students reflect on in their library experience, which are exploring and extending, which go simultaneously with the 'normal' information seeking process—searching, in this thesis. By illustrating how Chinese students use their own tactics to satisfy their information needs, the three information strategies reveal an implicit iterative translation process among concepts and frameworks, showing how they construct knowledge and cope with information tasks in two languages in their new setting. It extends the scope of the 'normal' information seeking process and demonstrates information seeking behaviour as strategies or tactics rather than steps which perform iteratively during the construction of knowledge when meanings and concept connections need to be explored through learning and thinking in two languages.

The extended understanding of UX in the library context forms another theoretical contribution to the field. Recognising that the typical understanding of UX only sees people as users who interact with certain product and narrows their experience to time-space constrained moments (ISO, 2010), which overlooks the complexity of the user and context, this thesis demonstrates that Chinese students view the academic library far more than

a product or a service that they interact with in a temporal sense; instead, they perceive it in multiple contexts where they have different roles and requirements. Underscoring that contextual change influences the way students engage with the world (Choi, 2003), library experience is found to be a compound mixture of perceptions, interactions and evaluations from all related contexts where library users perceive themselves to be. More importantly, this thesis also indicates that library users are individuals who continually interact with the world and hold multiple social identities which also directs how they response and feel; therefore, library UX should be treated as a more holistic process which considers social, spatial and temporal change (Karapanos et al., 2010; Norman, 2009), especially for the library UX of international users who experience dramatic contextual changes.

8.3 Methodological contributions

The research design of an interpretive mixed methods research with a largely qualitative stand forms one of the methodological contributions, which employs a triangulation of multiple research methods to explore students' library experience from a holistic point of view. While a considerable number of library studies have investigated the concepts of UX and information behaviour separately in the library with different methodological emphasis (for example, Arshad & Ameen, 2015; Duke & Asher, 2012), this thesis connects the two under the same research setting with a combination of research methods to interpret a more holistic human experience. By adding the validation of data through both quantitative and qualitative methods, this thesis focuses on exploring the subjective experience and providing insights into the description and meaning extraction of library experience from the perspective of Chinese students who are situated in multi-layered context, as

well as providing a framework for the library theory development where user perspective is put at the core.

The use of cognitive mapping as an elicitation tool and as a way to identify the complexity of the context that participants experienced is another key methodological contribution to the field. Cognitive mapping provides ways to represent how individuals make sense of the environment around them; in this thesis, this sensemaking process extends to how they understand a specific concept and elicit their thinking in their individual context at that temporal moment (Kelly, 1955). The portrayal of this sense-making arouses a particular cluster of individual's knowledge and experience in the given context (Eden, 1992); it also shows how they present knowledge structures from their mind into a visual form in a limited timeframe. The use of cognitive mapping in this thesis extends its viability as far more than a visual approach to reflect on spatial memories, but as a sense-making tool to help participants reflect on their conception. More importantly, there is no preference on language when using cognitive mapping and so it does not restrict expression, which contributes to research crossing languages where there are often issues around understanding users in a different language. The supplementary explanation after the drawing of cognitive maps guaranteed the integrity and accuracy of the extracted meaning. In delivering the methodological impact of this thesis, cognitive mapping was introduced and practiced with this doctoral candidate's instruction in the virtual iConference held during the Covid lockdown in March 2020. The virtually engaged global participants practiced this method, photographing and sharing their maps online with additional discussion (Fu et al., 2020). The practice of cognitive mapping extends the methodological contribution of this thesis in the way of presenting the potential for future data collection at a distance and as a focus group.

In addition, a lesson can be learned from this study about researching people across languages. Providing them with a comfortable method to express themselves and letting them think and talk in their natural way is crucial in reflecting their experience; therefore, the interviews were conducted in Chinese, which guaranteed their understanding of the interview questions and a fluent expression of their thinking. A notable contribution from the interview in this study is the processing of interview recordings, the transcribing and translation process. NLP software was proved valuable in this study as the first step to roughly transcribe the audio recordings in order to effectively process them; then two rounds of manual checking ensured the accurate transcription. Translation comes after this with the main goal to understand meanings and find corresponding similar expressions in English rather than translating word by word. This is a good practice for a study that focuses on human experience, not language research, in terms of understanding what they mean, not how they say it through language.

There is notable value in this study of bringing together the qualitative approaches with the quantitative log analysis. The diverse possibilities that implied from the log data and statistical evidence provided insights into the qualitative data collection in terms of the cognitive mapping topic and interview questions design, serving as an outline which breaks down a complex phenomenon. The results from the three methods triangulate with each other, presenting reliable and valid research findings in a mixed methods research whose goal is to understand the complexity.

8.4 Contributions to Library and Information Studies

This research contributes to the LIS field by joining the behavioural and experiential perspectives together to assess library experience; more

importantly, this research accentuates the paramount role context plays in forming and shaping the library experience and calls upon more context-centred research in the LIS field to explore the complexity of human information activities.

Specifically, the perspective of Chinese students that this research takes to explore library experience offers new insights into the diversity of library users and the contexts which sit around them. The findings from this thesis revealed how the academic library plays its role in helping Chinese students' learning transition to a new educational system by supporting their sense-making process. Their unique information seeking behaviour is demonstrated through the three strategies—exploring, searching and extending, which expands the scope of information seeking and adds to the understanding of 'information seeking as a sense-making process' (Dervin, 1992; Solomon, 1997). They make sense of the wider context, the new academic system, the academic library and their temporal tasks continuously within relevant contexts; information seeking strategies are taken to support this process and constitute segmented episodes in sense-making in a longer-term sense. More importantly, as a large student population whose learning experience is crucial to universities in the UK (Gourlay, 2017; Ilieva et al., 2019), the exploration of Chinese students' library experience contributes to the field in terms of uncovering their unique information needs, ways of perceiving, interacting and experiencing and more vitally, reveals the cultural impact on influencing their context of experience and their perceptions, which further regulates the library experience. More significantly, it adds understanding to the cultural dimension of the Chinese community in the UK HE context, providing insights into the future research about cultural issues in HE.

8.5 Practical recommendations

Findings from this thesis deliver a picture of Chinese students' library experience, which provides for a number of practical recommendations to relevant stakeholders, including the ones that are within the research setting—the academia, and also the ones beyond. Upon thinking how the findings from this thesis can be taken and expanded in different stakeholders' context, the recommendations in this section are generated and ordered with importance.

For librarians in the UK HE context, the unique library experience that Chinese students reflected in this thesis highlights the importance:

- to investigate the information needs and perceptions of diverse library user groups to know about the barriers and demands they have;
- to promote experience-based and user-centred designs in the library, especially with international students who are confronted with a learning transition to a different educational system and need to explore meanings and build connections during their use of the academic library;
- additionally, to improve openness and accessibility to all library users, academic resources in different languages should be managed and maintained to strengthen the library system's connection to academic databases in other languages;
- as the laptop has been found as the essential digital technology that international students rely most on, librarians should take this behaviour into consideration when providing academic resources and online services and develop more laptop-based learning supports;
- for international students who are new to the educational system, it is important for the academic library to play a part in recommending authoritative academic software for them to download freely, such as

referencing software, academic dictionary, etc;

- particularly, as it has been reflected from this research, international students often encounter language barriers in seeking for relevant information and they expect to have corresponding support from the academic library; thus, a digital library system with keyword suggestion and a personalised system which captures the user's profile, including discipline or interested field, is expected to be developed to recommend search keywords and give updates on relevant resources;
- the finding from the study that reveals an inadequate knowledge of the university library system and the poor effect of library training for international Chinese student demonstrates the importance for academic libraries to add curriculum-based library and information literacy training into the course design and include a feedback session for students to reflect any issues after training;
- the social characteristic of Chinese students reflected from the study demonstrates the necessity for librarians to create channels for users to communicate and interact, whether it is online or offline. As the findings suggest, an online forum for users to discuss and give feedback in terms of the library services is preferred by Chinese students for its efficiency;
- also, as the physical library is seen more as a learning and social space, more library events should be held to facilitate collaborative learning and community interaction (Montgomery & Miller, 2011).

For departmental administrators,

- the insufficient pre-arrival instructions given by departments reflected by Chinese students and their anxiety about language illustrates the necessity for departmental administrators to elaborately prepare the pre-instructions for international students and select dedicated reading materials;
- multiple difficulty levels of reading materials should be provided for them

to choose from freely, including easily readable materials for students who may feel stressful about their language ability;

- in addition, as the home department is where students presume to get discipline-related assistance, discipline vocabulary list or dictionaries should be given to all students, especially international students, to supply them with the knowledge base in terms of vocabularies and language.

For academics:

- a large number of international communities should be paid attention to and there is a lesson to be learned about the student communities in terms of how they bring in their culture into their study;
- as the study has revealed, the continuing sense-making process that international Chinese students go through before and during their learning abroad, academics should play a role in building platforms or channels for international students to connect with their peers and communities, where tacit and contingent forms of information for learning can be obtained;
- more vitally, digital technology in the HE system should be considered within the context of use and be implemented as joining point that connects different contexts rather than only seeing the fancy functionality or capability in isolation.

There are also possibilities of this work that implies for stakeholders in a broader sense and global lessons can be learned from the Chinese students in the UK context.

For librarians beyond the academia:

- learning about different cultural groups and understanding the diversity of people's experience is essential in designing the library experience; this is a serious issue with public libraries where the user base is more diverse and therefore, more user studies should be conducted to enhance

understanding;

- the significant role that context plays in shaping the library experience that is revealed in this study advises librarians to investigate the library user's context of use before designing experience by breaking down the multi-layered context and investigating user perceptions and requirements in each layer;
- this is also a practice for librarians to contemplate the deficiency in library training and to update instructions to its diverse user groups.

For information professionals:

- there are lessons to be learned about good experiences from other countries and information professionals should be more globally connected in terms of understanding information services, technological possibilities and people's experience and behaviours;
- an example is to learn about information seeking behaviour with UX in different research settings on diverse cultural groups.

For Chinese researchers and librarians in academia:

- the library experience of international Chinese students in the UK has revealed some comparisons between the two countries' library services; the deficiencies that are mentioned by students can be improved by learning from each other and enhancing communications between the two countries;
- analysis between the Chinese library and the UK library illustrates the necessity for them both to improve both their tools and skill set for students.

8.6 Emergent Limitations

Whilst a number of limitations were recognised from the outset in 3.10, there are emergent limitations when reviewing the whole doctoral thesis in retrospect, which can be outlined from two aspects, theoretically and methodologically, indicating possible future research directions.

Theoretically, one limitation comes from the omission of considering and analysing the regional differences, family background, educational background or gender of participants in evaluating their library experience; these may have an impact on education quality, past library experience and their existing knowledge and skills and hence their ability to successfully adapt to a new educational system (Jacob & Holsinger, 2009). This thesis examined the international Chinese students who had an UG education in China and are enrolled on a one-year PGT programme in UK, which only ensured that they have past library experience in their home country and a reflection on the library experience in the two countries. During the data collection, participants' UG university and their gender were recorded with the initial thought to evaluate the impact from those factors on library experience; however, when analysing data, their behaviour, experience and expectations were found similar to each other and there were no comparison groups to help assess the impact from certain factors. Notwithstanding the possible impact from the regional disparities that generally exist among Chinese students (Liu & Ma, 2018), considering the research aim is mainly to explore and discover the phenomenon rather than to examine or generalise, this parameter was omitted in analysing data on purpose to focus more on the commonality.

Another limitation is brought about a dramatic change in library service delivery and students' learning, that the outbreak of COVID-19 pandemic

changed the way people work and study. With more library building closures, the library system maintenance and the way of delivering its service is being challenged with evolving user expectations. What's more, with most of the teaching going online, students, especially international students, are learning from their home country, which definitely brings a change in their library and learning experience in terms of receiving skills training and seeking information they need. In this thesis, as the data collection was conducted before this pandemic, students' behaviour and experience were found in the past normal condition. However, it will be an interesting research direction in the future to look into international students' library or learning experience under the pandemic, and also how the academic library delivers the service in this condition.

The third limitation is brought about the stand of the researcher in interpreting the data. In analysing the data, it is found that most of the Chinese students engaged in the study reflected some skills' gaps in seeking for information; instead of improving their information literacy and retrieval skills, they hoped the library could help them with language and provide them with the information they needed. As this thesis is exploring how they experience the library, including what they expect from the library, the researcher only interpreted their thinking based on their expression. However, as educators, it should be noted that there are skills we need to provide to them so that they can perform and harness their full abilities personally.

Methodologically, one limitation comes from the research methods of cognitive mapping. The complexity of the drawing topic and the time constraint brings about the issue that some participants may find it is hard to draw up their complete thinking and express their opinions freely in such a form. Although a follow-up supplementary explanation allows them to explain

their drawing and add any missing points, nevertheless there still exist possibilities that they may lose their train of thought and limit themselves to what has been presented on the map. Additionally, there could be more analysis and exploration of the way Chinese students express their thinking in a visual form and the way they organise elements on cognitive maps, which would elicit deeper understanding towards their thinking process and may reflect factors that influence their cognitive styles.

The second methodological limitation comes from the library system advancement in UCL since 2017. As it has been illustrated in Chapter 4, UCL Library has been improving its library system to meet users' requirements, and the continuing system advancement may cause a time lag in reflecting user experience.

The last methodological limitation is brought about by the doctoral study time scale and staging. The library log data that revealed partial Chinese students' behaviour was obtained from the academic year of 2017-2018 as it was the first stage of this doctoral study and served as the quantitative underpinning for the later qualitative data collection. The Chinese students, however, engaged in the qualitative data collection are PGT students in the academic year 2018-2019 as this was the second research stage, therefore, a time lag exists in the research data and so a sample difference is inevitable even though the participants come from the same ethnic group (Revelle, 2000).

Each of these limitations is noted for full transparency and to inform future research planning that may use similar methods. It is noted that no one research project can provide a complete picture. However, despite these limitations, reflecting on the choices made, these nevertheless hold up as strong decisions that did open and bring new knowledge to this domain.

8.7 Future directions

The framework theory generated from this thesis—'context-perception-sense-making'—needs to be further tested in the design and conduct of future empirical studies; it can also be tested and assessed by mapping to other existing models in tackling the same question to examine if there are any other relevant variables that should be included in the model.

This thesis does not evaluate the relationship between the library experience and students' academic performance; while a primary goal of the academic library and the eventual goal of library studies of the same kind is to improve students' academic achievement, this thesis focused on exploring and describing what they do and how they feel in the academic library, rather than the consequences or what it leads to. What is more, this thesis does not attempt to measure the impact of the library experience on international Chinese students' overall learning experience abroad. The findings from this thesis demonstrate that they treat the academic library as an important learning facilitator and a trustworthy academic tool, suggesting a vital role in shaping and influencing their learning experience. Nevertheless, the doctoral project staging holds back the additional data collection on the same group of students after their one-year study and it would also be an extension of the original goal of the study. However, both aspects could be further studied in future research and the students' self-evaluation on library experience's influence could be a good entry point.

From this research, some students mentioned how their experience of attending the summer language course before the start of the term or library training during the university induction week have, to some extent, prepared

them with the language and academic tools and influenced their way of using the academic library. However, this research does not look into that in any detail, considering the main research aim and the limited time frame. A comparison group of students who have taken the language course/library training and students who have not could be set up to assess the influence of those two forms of instructions on their future library experience.

To refrain from the possible influence brought by the sample difference that exists in this research due to the doctoral research staging, future research can compare the library log data over two or three years and investigate whether the same statistical difference exists in Chinese users, especially the statistics of bounce rate, session length and pages viewed in one session.

In addition, with the aim to explore the phenomenon, this thesis does not investigate the impact of gender or discipline difference on students' library experience, which would also be a good future research direction in terms of understanding other relevant contextual variables in shaping the library experience.

References

- Agarwal, N. K. (2017). *Exploring context in information behavior*. Morgan & Claypool Publishers.
- Agarwal, N. K., Xu, Y. C., & Poo, D. C. C. (2009). Delineating the boundary of “Context” in information behavior: Towards a contextual identity framework. *Proceedings of the American Society for Information Science and Technology*, 46, 1–29. doi: 10.1002/meet.2009.1450460252
- Agosti, M. (2008). Log data in digital libraries. *Post-Proceedings of the Forth Italian Research Conference on Digital Library Systems, IRCDL 2008*.
- Agosti, M., Crivellari, F., & Di Nunzio, G. M. (2012). Web log analysis: A review of a decade of studies about information acquisition, inspection and interpretation of user interaction. *Data Mining and Knowledge Discovery*, 24(3), 663–696. doi: 10.1007/s10618-011-0228-8
- Alben, L. (1996). Quality of experience: defining the criteria for effective interaction design. *Interactions*, 3(3), 11–15. doi: 10.1145/235008.235010
- Ali, P. M. N., & Nisha, F. (2011). Use of e-journals among research scholars at Central Science Library, University of Delhi. *Collection Building*, 30(1), 53–60. doi: 10.1108/01604951111105023
- Allan, B. (2016). *Emerging strategies for supporting student learning: a practical guide for librarians and educators*. Facet publishing.
- Ally, M., & Needham, G. (2008). *M-libraries: libraries on the move to provide virtual access*. Facet publishing.
- Ally, M., & Needham, G. (2010). *M-libraries 2: a virtual library in everyone’s pocket*. Facet publishing.
- Altbach, P. G., & Knight, J. (2007). The internationalization of Higher Education: motivations and realities. *Journal of Studies in International Education*, 11(290), 290–305. doi: 10.1177/1028315307303542
- Ancona, D. (2012). Sensemaking : framing and acting in the unknown. In *The handbook for teaching leadership : knowing, doing, and being* (pp. 3–19). SAGE.
- Angell, K. (2017). Emerging roles: academic libraries crossing the Digital Divide. *SLIS Connecting*, 6(1), 18–23. doi: 10.18785/slis.0601.05
- Arshad, A., & Ameen, K. (2015). Usage patterns of Punjab University Library website: a transactional log analysis study. *The Electronic Library*, 33(1), 65–74. doi: 10.1108/EL-

12-2012-0161

- Asher, A. (2013). *Coding library cognitive maps*. BiblioEthnoHistorioGraphy. Retrieved from <http://www.andrewasher.net/BiblioEthnoHistorioGraphy/coding-library-cognitive-maps/>
- Asher, A., & Miller, S. (2013). *So you want to do anthropology in your library? a practical guide to ethnographic research in academic libraries*.
- Atkinson, J. (2002). Four steps to analyse data from a case study method. *Australasian (ACIS)*, 1–11.
- Babbie, E. R. (2004). *The practice of social research (10th ed.)*. Thomson/Wadsworth.
- Babu, B. R., & O'Brien, A. (2000). Web OPAC interfaces: An overview. *Electronic Library*, 18(5), 316–326. doi: 10.1108/02640470010354572
- Baghrmian, M., & Carter, J. A. (2019). Relativism. In *The Stanford Encyclopedia of Philosophy* (Winter 201). Metaphysics Research Lab, Stanford University.
- Baker, E., Baker, D., & Evans, W. (2011). *Libraries and society : role, responsibility and future in an age of change* (D. Baker & W. Evans (eds.)). Oxford: Chandos.
- Baratchi, M., Meratnia, N., & Havinga, P. J. M. (2013). On the use of mobility data for discovery and description of social ties. *Proceedings of the 2013 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, ASONAM 2013*, 1229–1236. doi: 10.1145/2492517.2500263
- Barbosa, J. L. V., Barbosa, D. N. F., & Wagner, A. (2012). Learning in ubiquitous computing environments. *International Journal of Information and Communication Technology Education*, 8(3), 64–77. doi: 10.4018/jicte.2012070108
- Barefoot, H., Oliver, M., & Mellar, H. (2016). Informed choice? How the United Kingdom's key information set fails to represent pedagogy to potential students. *Quality in Higher Education*, 22(1), 3–19. doi: 10.1080/13538322.2016.1153899
- Barnes, C., & Tynan, B. (2007). The adventures of Miranda in the brave new world: learning in a Web 2.0 millennium. *ALT-J: Research in Learning Technology*, 15(3), 189–200. doi: 10.1080/09687760701673568
- Baron, S., & Strout-Dapaz, A. (2001). Communicating with and empowering international students with a library skills set. *Reference Services Review*, 29(4), 314–326. doi: 10.1108/00907320110408447
- Batra, A. (2008). *Typical bounce rates: Survey results*. Web Analysis, Behavioral Targeting, and Advertising. Retrieved from <http://webanalysis.blogspot.com/2008/03/typical-bounce-rates-survey-results.html#axzz5ica28t7j>

- Battleson, B., Booth, A., & Weintrop, J. (2001). Usability testing of an academic library web site: A case study. *Journal of Academic Librarianship*, 27(3), 188–198. doi: 10.1016/S0099-1333(01)00180-X
- Bauer, M. (2018). Ethnographic study of business students' information-seeking behavior: Implications for improved library practices. *Journal of Business and Finance Librarianship*, 23(1), 1–10. doi: 10.1080/08963568.2018.1449557
- Bawden, D., & Robinson, L. (2012). Information science research: what and how? In *Introduction to Information Science* (pp. 303–326). Facet publishing.
- Bayne, S. (2015). What's the matter with 'technology-enhanced learning'? *Learning, Media and Technology*, 40(1), 5–20. doi: 10.1080/17439884.2014.915851
- Bazeley, P. (2013). *Qualitative data analysis: practical strategies*. Los Angeles ; London : SAGE.
- Beauregard, R., & Corriveau, P. (2007). User experience quality: A conceptual framework for goal setting and measurement. *Digital Human Modeling. ICDHM 2007*, 325–332.
- Belkin, N. J. (1980). Anomalous states of knowledge as a basis for information retrieval. In *Canadian Journal of Information Science* (Vol. 5, pp. 133–143). doi: 10.1037/0735-7044.119.1.78
- Bell, S. J. (2014). Staying true to the core: designing the future academic library experience. *Libraries and the Academy*, 14(3), 369–382. doi: 10.1353/pla.2014.0021
- Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *NursingPlus Open*, 2, 8–14. doi: 10.1016/j.npls.2016.01.001
- Bennett, S. (2003). *Libraries designed for learning*.
- Bennett, S. (2005). *Library as place: rethinking roles, rethinking space* (Issue February). Council on Library and Information Resources.
- Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *The International Migration Review*, 21(3), 491–511.
- Best, K. (2009). When mobiles go media: Relational affordances and present-to-hand digital devices. *Canadian Journal of Communication*, 34(3).
- Betty, P. (2009). Assessing Homegrown Library Collections: Using Google Analytics to Track Use of Screencasts and Flash-Based Learning Objects. *Journal of Electronic Resources Librarianship*, 21(1), 75–92.
- Beyer, H., & Karen, H. (1999). Contextual design. *Interactions*, 6(1), 32–42. doi: 10.1145/291224.291229
- Billett, S. (2001). Learning through work: Workplace affordances and individual engagement.

- Journal of Workplace Learning*, 13(5), 209–214.
- Binsaleh, S., & Binsaleh, M. (2013). Mobile learning: What guidelines should we produce in the context of mobile learning implementation in the conflict area of the four southernmost provinces of Thailand. *Asian Social Science*, 9(13), 270–281. doi: 10.5539/ass.v9n13p270
- Blummer, B., & Kenton, J. M. (2014). Information research and the search process. In *Improving Student Information Search* (pp. 11–21). doi: 10.1533/9781780634623.11
- Bodycott, P. (2012). Embedded culture and intercultural adaptation: implications for managing the needs of Chinese Students. *Journal of Higher Education Policy and Management*, 34(4), 355–364. doi: 10.1080/1360080X.2012.689199
- Bohn, D. (2019). *Google is improving 10 percent of searches by understanding language context*. The Verge. Retrieved from <https://www.theverge.com/2019/10/25/20931657/google-bert-search-context-algorithm-change-10-percent-languauge>
- Bokhove, C., & Downey, C. (2018). Automated generation of ‘good enough’ transcripts as a first step to transcription of audio-recorded data. *Methodological Innovations*, 11(2), 205979911879074. doi: 10.1177/2059799118790743
- Bourdieu, P. (1984). *Distinction: a social critique of the judgement of taste*. Harvard University Press.
- Bowen, G. A. (2008). Naturalistic inquiry and the saturation concept: A research note. *Qualitative Research*, 8(1), 137–152. doi: 10.1177/1468794107085301
- Brannen, M. Y. (2004). When Mickey loses face: recontextualization, semantic fit, and the semiotics of foreignness. *The Academy of Management Review*, 29(4), 593–616.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2006), 77–101. doi: 10.1191/1478088706qp063oa
- Braun, V., & Clarke, V. (2013). *Successful qualitative research : a practical guide for beginners*. Los Angeles : SAGE.
- Briggs, S., & Liu, Y. (2015). A library in the palm of your hand : mobile services in top 100 university libraries. *Information TEechnology And Libraries*, 34, 133–148. doi: 10.6017/ital.v34i2.5650
- Brown, K., & Malenfant, K. J. (2017). *Academic library impact on student learning and success: findings from assessment in action team projects* (Issue April).
- Bryant, J., Matthews, G., & Walton, G. (2009). Academic libraries and social and learning space: A case study of Loughborough university library, UK. *Journal of Librarianship and*

- Information Science*, 41(1), 7–18. doi: 10.1177/0961000608099895
- Bryman, A. (1992). *Quantity and quality in social research*. Routledge.
- Buchanan, S., & Woodsworth, A. (2010). Planning strategically, designing architecturally : a framework for digital library services. In *Advances in librarianship* (pp. 159–180). Emerald Publishing Limited, Bingley, UK.
- Bucy, E. P. (2000). Social Access to the Internet. *Harvard International Journal of Press/Politics*, 5(1), 50–61. doi: 10.1177/1081180x00005001005
- Bukhari, S., Hamid, S., Ravana, S. D., & Ijab, M. T. (2018). Modelling the information-seeking behaviour of international students in their use of social media in Malaysia. *Information Research*, 23(4).
- Bullingham, L. (2015). *The library of the mind*. Slides Presented at NoWAL Conference 2015. Retrieved from <https://www.canva.com/design/DABVoBr4wYY/view>
- Bunce, L., Baird, A., & Jones, S. E. (2016). The student-as-consumer approach in higher education and its effects on academic performance. *Studies in Higher Education*, 42(11), 1958–1978. doi: 10.1080/03075079.2015.1127908
- Burn, R. B. (2000). *Introduction to research methods* (4th ed.). SAGE.
- Byrne, E., Brugha, R., & McGarvey, A. (2019). “A melting pot of cultures” -challenges in social adaptation and interactions amongst international medical students. *BMC Medical Education*, 19(1), 86. doi: 10.1186/s12909-019-1514-1
- Calhoun, K. (2014). *exploring digital libraies-foundations,practice,prospects*.
- Canuel, R., Mackenzie, E., Senior, A., & Torabi, N. (2017). *Apps for academic success : Developing digital literacy and awareness to increase usage*. 33, 135–152. doi: 10.3233/EFI-160085
- Case, D. O. (2012). *Looking for Information : a survey of research on information seeking, needs and behavior* (3 rd editi). Emerald Group Pub.
- Castells, M. (2010). *End of Millennium: The Information Age: Economy, Society, and Culture* (second edi). Hoboken: John Wiley & Sons, Incorporated.
- Catherall, P. (2005). *Delivering e-learning for information services in higher education*. Chandos Publishing.
- Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. Thousand Oaks, CA: Sage.
- Chatman, E. A. (2000). Framing social life in theory and research. *The New Review of Information Behaviour Research*, 1, 3–17.
- Choi, J. N. (2003). How does context influence individual behavior? multilevel assessment of

- the implementation of social innovations. *Prevention & Treatment*, 6(23). doi: 10.1037/1522-3736.6.0023c
- Chowdhury, G.G, & Chowdhury, S. (2011a). Information needs and user studies. In *Information users and usability* (pp. 25–52).
- Chowdhury, G.G, & Chowdhury, S. (2011b). *Information uses and usability in digital age*. Facet publishing.
- Chowdhury, Gobinda G. (2002). Digital divide: How can digital libraries bridge the gap? *International Conference on Asian Digital Libraries*, 379–391. doi: 10.1007/3-540-36227-4_43
- Chris, S. H., & Arthur, E. P. (2014). Chinese students' participation: the effect of cultural factors. *Education + Training*, 56(5), 430–446.
- Chtouki, Y., Harroud, H., Khalidi, M., & Bennani, S. (2012). The impact of YouTube videos on the student's learning. *2012 International Conference on Information Technology Based Higher Education and Training, ITHET 2012*. doi: 10.1109/ITHET.2012.6246045
- Chung, E., & Yoon, J. (2015). An exploratory analysis of international students' information needs and uses. *The Canadian Journal of Information and Library Science*, 39(1), 36–59. doi: 10.1353/ils.2015.0000
- CILIP. (2018). *CILIP Definition of Information Literacy 2018*. Retrieved from <https://infolit.org.uk/wp-content/uploads/2018/03/CILIP-Definition-Doc-Final-for-website.pdf>
- Cleveland, G. (1998). *Digital libraries: definitions, issues and challenges*.
- Coffey, A., & Atkinson, P. (1996). *Making sense of qualitative data : complementary research strategies*. Amanda Coffey, Paul Atkinson.
- Cohen, L. B. (2003). A two-tiered model for analyzing library web site usage statistics, part 2: log file analysis. *Libraries and the Academy*, 3(3), 517–526.
- Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education* (5th ed.). London : Routledge.
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education* (6th ed.). London : Routledge.
- Connaway, Lynn Silipigni. (2015). *The library in the life of the user: engaging with people where they live and learn*.
- Connaway, Lynn Silipigni, Hood, E. M., Lanclos, D., White, D., & Le Cornu, A. (2013). User-centered decision making: A new model for developing academic library services and systems. *IFLA Journal*. doi: 10.1177/0340035212472462

- Connaway, Lynn Silipigni, Lanclos, D., & Hood, E. M. (2013). "I find Google a lot easier than going to the library website" imagine ways to innovate and inspire students to use the academic library. *Association of College & Research Libraries*, 289–300.
- Connaway, Lynn Sillipigni, Dickey, T. J., & Radford, M. L. (2011). "If it is too inconvenient I'm not going after it:" Convenience as a critical factor in information-seeking behaviors. *Library and Information Science Research*, 33(3), 179–190. doi: 10.1016/j.lisr.2010.12.002
- Connolly, E., Fredrickson, J., & White, L. (2019). *Digital transformation for UK public libraries : five approaches to a "single digital presence"* (Issue June).
- Conteh-Morgan, M. (2003). Journey with new maps: adjusting mental models and rethinking instruction to language minority students. *ACRL Eleventh National Conference*.
- Cooley, M. (1989). *Human-centred Systems* (pp. 133–143). Springer, London.
- Corbin, J. M. (2015). *Basics of qualitative research : Techniques and procedures for developing grounded theory (4th ed.)*.
- Costa, C., Burke, C., & Murphy, M. (2019). Capturing habitus: theory, method and reflexivity. *International Journal of Research and Method in Education*, 42(1), 19–32. doi: 10.1080/1743727X.2017.1420771
- Courtright, C. (2007). Context in information behavior research. In *Annual Review of Information Science and Technology* (Vol. 41, Issue 1986, pp. 273–306). doi: 10.1002/aris.2007.1440410113
- Cox, A. M. (2018). Space and embodiment in informal learning. *Higher Education*, 75(6), 1077–1090. doi: 10.1007/s10734-017-0186-1
- Coyne, I. T. (1997). Sampling in qualitative research: purposeful and theoretical sampling; merging or clear boundaries? *Journal of Advanced Nursing*, 26, 623–630.
- Creswell, J. W. (2009). *Research design : qualitative, quantitative, and mixed methods approaches* (3rd ed.). SAGE.
- Creswell, J. W. (2015). Mapping the developing landscape of mixed methods research. In *SAGE Handbook of Mixed Methods in Social & Behavioral Research* (pp. 45–68).
- Cribb, G., & Schmidt, J. (2011). Accommodating shifting user expectations. *WLIC, 77th IFLA General Conference and Assembly*, 1–18.
- Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process*. SAGE.
- Cullen, R. (2001). Addressing the digital divide. *Online Information Review*, 25(5), 311–320. doi: 10.1108/14684520110410517

- D' Couto, M., & Rosenhan, S. H. (2015). How students research: implications for the library and faculty. *Journal of Library Administration*, 55(7), 562–576. doi: 10.1080/01930826.2015.1076312
- David, B. (2013). *Designing interactive systems : a comprehensive guide to HCI, UX and interaction design* (3rd editio). Harlow : Pearson.
- Davies, J. (2020). *Nine UK universities that rely on Chinese students for a fifth of their income*. Daily Mail. Retrieved from <https://www.dailymail.co.uk/news/article-8538179/Nine-UK-universities-rely-Chinese-students-FIFTH-income.html>
- Dearing, R. (1997). *Higher education in the learning society*.
- Dempsey, L. (2003). The recombinant library: portals and people. *Journal of Library Administration*, 39(4), 103–136. doi: 10.1300/J111v39n04_10
- Department of Business Innovation and Skills. (2011). *Higher education: Students at the heart of the system*. The Stationery Office.
- Dervin, B. (1992). From the mind's eye of the user: The sense-making qualitative quantitative methodology. In *Sense-making methodology reader*.
- Dervin, B. (1997). Given a context by any other name: methodological tools for taming the unruly beast. *Information Seeking in Context*, 38.
- Dervin, B. (1998). Sense-making theory and practice: an overview of user interests in knowledge seeking and use. *Journal of Knowledge Management*, 2(2), 36–46. doi: 10.1108/13673279810249369
- Dervin, B. (1999). On studying information seeking methodologically: the implications of connecting metatheory to method. *Information Processing and Management*, 35(1), 727–750.
- Dervin, B. (2000). Chaos, order, and sense-making: a proposed theory for information design. In *Information design* (pp. 35–57).
- Dervin, B. (2008). Interviewing as dialectical practice: sense-making methodology as exemplar. *International Association for Media and Communication Research Annual Meeting*.
- Desmet, P., & Hekkert, P. (2007). Framework of product experience. *International Journal of Design*, 1(1), 13–23.
- Dijk, J. A. G. M. (2017). Digital divide: impact of access. In *The International Encyclopedia of Media Effects* (pp. 1–11).
- DiMartino, D., DiMartino, D., Ferns, W. J., & Swacker, S. (1995). CD-ROM search techniques of novice end-users: is the English as a second language student at a disadvantage?

- College & Research Libraries*, 56(1), 49–59. doi: 10.5860/crl_56_01_49
- Doherty, K., & Doherty, G. (2018). The construal of experience in HCI: Understanding self-reports. *International Journal of Human Computer Studies*, 110, 63–74. doi: 10.1016/j.ijhcs.2017.10.006
- Donald, O. C. (2007). Models of information behavior. In *Looking for Information: A survey of research on information seeking, needs, and behavior* (pp. 120–141). Emerald Group Publishing Limited.
- Doolittle, P. E. (2014). Complex constructivism: a theoretical model of complexity and cognition. *International Journal of Teaching and Learning in Higher Education*, 26(3), 485–498.
- Downing, F. (1992). Image banks-dialogues between the past and the future. *Environment and Behavior*, 24(4), 441–470.
- Downs, R. M., & Stea, D. (1973). *Image and environment: cognitive mapping and spatial behavior*. Aldine Press.
- Downs, R. M., & Stea, D. (2011). Cognitive maps and spatial behavior: Process and products. In *The Map Reader: Theories of Mapping Practice and Cartographic Representation* (First Edit, pp. 312–317).
- Duan, X. (2016). How they search, how they feel, and how to serve them? information needs and seeking behaviors of Chinese students using academic libraries. *International Information and Library Review*, 48(3), 157–168. doi: 10.1080/10572317.2016.1204179
- Duke, L. M., & Asher, A. D. (2012). College Libraries and Student Culture: What We Now Know. *Reference & User Services*, 52(1), 61. doi: doi:10.1081/E-ELIS3-120008641
- Duke, L. M., & Asher, A. D. (2013). College libraries and student culture, what we now know. *Journal of Hospital Librarianship*, 13(2), 190–191.
- Duncker, E. (2002). Cross-cultural usability of the library metaphor. *ACM/IEEE Joint Conference on Digital Libraries (JCDL 2002)*.
- Earp, V. J. (2008). Information source preferences of education graduate students. *Behavioral and Social Sciences Librarian*, 27(2), 73–91. doi: 10.1080/01639260802194974
- Ecclestone, K. (2004). Learning in a comfort zone: cultural and social capital inside an outcome-based assessment regime. *Assessment in Education: Principles, Policy & Practice*, 11(1), 29–47. doi: 10.1080/0969594042000208985
- Eden, C. (1988). Cognitive mapping. *European Journal of Operational Research*, 36(1), 1–13. doi: 10.1016/0377-2217(88)90002-1
- Edirisingha, P. (2012). *Interpretivism and positivism (ontological and epistemological*

- perspective*). Research Paradigms and Approaches. Retrieved from <https://prabash78.wordpress.com/2012/03/14/interpretivism-and-postivism-ontological-and-epistemological-perspectives/>
- Eichelberger, R. T. (1989). *Disciplined inquiry: understanding and doing educational research*. Longman.
- Ellis, D. (1987). *The derivation of a behavioural model for information retrieval system design* (Issue 1). University of Sheffield.
- Ellis, D. (1989). A behavioural approach to information retrieval system design. *Journal of Documentation*, 45(3), 171–212.
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62(1), 107–115. doi: 10.1111/j.1365-2648.2007.04569.x
- Emmel, N. (2008). Participatory mapping: an innovative sociological method. In *Real Life Methods* (pp. 1–8).
- Ertmer, P. A., & Newby, T. J. (2013). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance Improvement Quarterly*, 26(2), 43–71. doi: 10.1002/piq
- Eshet-Alkalai, Y. (2004). Digital literacy: a conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia*, 13, 93–106.
- Evans, W., & Baker, D. (2009). *Digital library economics: an academic perspective*.
- Farganis, J. (2014). *Readings in social theory: the classic tradition to post-modernism*. James Farganis.
- Fenwick, T., Edwards, R., & Sawchuk, P. (2011). Emerging approaches to educational research: tracing the socio-Material. *Emerging Approaches To Educational Research: Tracing the Sociomaterial*. doi: 10.4324/9780203817582
- Fidel, R. (2008). Are we there yet? Mixed methods research in library and information science. *Library & Information Science Research*, 30(4), 265–272. Retrieved from <http://dx.doi.org/10.1016/j.lisr.2008.04.001>
- Fidel, R. (2012). *Human information interaction: an ecological approach to information behavior*.
- Ford, N. (2003). Towards a model of learning for educational informatics. *Journal of Documentation*, 60(2), 183–225.
- Ford, N. (2015a). Factors influencing information behaviour. In *Introduction to Information Behaviour* (pp. 99–132). Facet publishing.
- Ford, N. (2015b). *Introduction to information behaviour*. Facet publishing.

- Forlizzi, J., & Battarbee, K. (2004). Understanding experience in interactive systems. *Proceedings of the 5th Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques*, 261–268. doi: 10.1145/1013115.1013152
- Forlizzi, J., & Ford, S. (2000). The building blocks of experience: an early framework for interaction designers. *Proceedings of the 3rd Conference on Designing Designing Interactive Systems*, 419–423. doi: 10.1145/347642.347800
- Foster, N. F., & Gibbons, S. L. (2007). *Studying students: the undergraduate research project at the University of Rochester*. Association of College and Research Libraries.
- Fox, E. A. (1999). The digital libraries initiative: update and discussion. *Bulletin of the American Society for Information Science*, 26(1).
- Francis, J. J., Johnston, M., Robertson, C., Glidewell, L., Entwistle, V., Eccles, M. P., & Grimshaw, J. M. (2010). What is an adequate sample size? Operationalising data saturation for theory-based interview studies. *Psychology and Health*, 25(10), 1229–1245. doi: 10.1080/08870440903194015
- Frowe, I. (2001). Language and educational research. *Journal of Philosophy of Education*, 35(2), 175–186. doi: 10.1111/1467-9752.00219
- Fry, A., & Rich, L. (2011). Usability testing for e-resource discovery: how students find and choose e-resources using library web sites. *Journal of Academic Librarianship*, 37(5), 386–401. doi: 10.1016/j.acalib.2011.06.003
- Fu, Y. (2019). Exploring user experience on mobile library service by cognitive mapping. *Conference on Human Information Interaction and Retrieval (CHIIR '19)*, 397–400. doi: 10.1145/3295750.3298968
- Fu, Y., Inskip, C., & Lomas, E. (2020). Putting information behaviour on the cognitive map: exploring information seeking behaviours of academic researchers. *IConference 2020 Session for Internation Engagement*.
- Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, 20(9), 1408–1416.
- Gaál, Z., Szabó, L., Obermayer-Kovács, N., & Csepregi, A. (2015). Exploring the role of social media in knowledge sharing. *Electronic Journal of Knowledge Management*, 13(3).
- Gallivan, M., & Srite, M. (2005). Information technology and culture: Identifying fragmentary and holistic perspectives of culture. *Information and Organization*, 15(4), 295–338. doi: 10.1016/j.infoandorg.2005.02.005
- Ganster, L. (2011). Reaching out to international students: a focus-group approach to developing web resources and services. *College and Undergraduate Libraries*, 18(4),

- 368–384. doi: 10.1080/10691316.2011.624933
- Gaynor, E. (2003). Diffuse libraries: emergent roles for the research library in the digital age. *The Journal of Academic Librarianship*, 29(1), 56. doi: 10.1016/s0099-1333(02)00397-x
- George, C., Bright, A., Hurlbert, T., Linke, E. C., Clair, G. S., & Stein, J. (2006). Scholarly use of information: graduate students' information seeking behaviour. *Information Research*, 11(4).
- Gershon, N. (1995). Human information interaction. *Proceedings of WWW4 Conference*.
- Gibbons, S. (2019). *Cognitive mapping in user research*. Nielsen Norman Group. Retrieved from <https://www.nngroup.com/articles/cognitive-mapping-user-research/>
- Gibbs, G. (2007). *Analyzing qualitative data*. SAGE.
- Given, L. M. (2008a). Naturalistic inquiry. In *The SAGE Encyclopedia of Qualitative Research Methods* (pp. 548–550). doi: <http://dx.doi.org/10.4135/9781412963909.n280>
- Given, L. M. (2008b). Naturalistic inquiry. In *The SAGE Encyclopedia of Qualitative Research Methods* (pp. 548–550).
- Given, L. M., O'Brien, H., Absar, R., & Greyson, D. (2013). Exploring the complexities of information practices through arts-based research. *Proceedings of the ASIST Annual Meeting*, 50(1). doi: 10.1002/meet.14505001003
- Glaser, B. G., & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago, IL: Aldine.
- Godwin, P., & Parker, J. (2012). *Information Literacy Beyond Library 2.0* (P. Godwin & J. Parker (eds.)). Facet publishing.
- Golafshani, N. (2003). *Understanding reliability and validity in qualitative research*. The Qualitative Report. Retrieved from <https://nsuworks.nova.edu/tqr/vol8/iss4/6>
- Goldin, I., Narciss, S., Foltz, P., & Bauer, M. (2017). New directions in formative feedback in interactive learning environments. *International Journal of Artificial Intelligence in Education*, 27(3), 385–392. doi: 10.1007/s40593-016-0135-7
- Golledge, R. G., & Timmermans, H. (1989). Applications of behavioural research on spatial problems I: cognition. *Progress in Human Geography*, 14(1), 57–99.
- Gomm, R. (2008). *Social research methodology: a critical introduction*. Macmillan International Higher Education.
- Gooding, P. (2016). Exploring the information behaviour of users of Welsh Newspapers Online through web log analysis. *Journal of Documentation*, 72(2), 232–246. doi: 10.1108/MRR-09-2015-0216
- Goodyear, P., & Retalis, S. (2010). *Technology-enhanced learning: design patterns and*

- pattern languages*. Rotterdam: Sense Publishers.
- Gorman, G. E., & Clayton, P. (2005). *Qualitative research for the information professional : a practical handbook* (2nd editio). Facet publishing.
- Gourlay, L. (2015). 'Student engagement' and the tyranny of participation. *Teaching in Higher Education*, 20(4), 402–411. doi: 10.1080/13562517.2015.1020784
- Gourlay, L. (2017). Student engagement, "learnification" and the sociomaterial: critical perspectives on Higher Education policy. *Higher Education Policy*, 30(1), 23–34. doi: 10.1057/s41307-016-0037-1
- Gourlay, L., Lanclos, D. M., & Oliver, M. (2015). Sociomaterial Texts, Spaces and Devices: Questioning "Digital Dualism" in Library and Study Practices. *Higher Education Quarterly*, 69(3), 263–278. doi: 10.1111/hequ.12075
- Gourlay, L., & Olive, M. (2018). *Student engagement in the digital university: sociomaterial assemblages*. Routledge.
- Gourlay, L., & Oliver, M. (2013). Beyond 'the social': digital literacies as sociomaterial practice. In *Literacy in the Digital University* (pp. 93–108). Routledge.
- Gourlay, L., & Oliver, M. (2016). It's not all about the learner: reframing students' digital literacy as sociomaterial practice. In *Research, Boundaries, and Policy in Networked Learning* (pp. 77–92). Springer International Publishing.
- Goyanes, M., & Catalán-Matamoros, D. (2017). View of ubiquitous laptop use in higher education: multitasking and students' perception of distraction in a European setting. *First Monday*.
- Graham, R. W. (2005). Illustrating triangulation in mixed-methods nursing research. *Nurse Researcher*, 12(4), 7–18. doi: 10.7748/nr2005.04.12.4.7.c5955
- Gray, D. E. (2004). Theoretical perspectives and research methodologies. In *Doing research in the Real World* (3rd ed., pp. 16–34). SAGE.
- Grbich, C. (2013). *Qualitative data analysis: an introduction* (2nd ed.). London ; Thousand Oaks, Calif. : SAGE Publications.
- Green, J., & Thorogood, N. (2004). Analysing qualitative data. In *Qualitative Methods for Health Research (1st edn)* (pp. 173–200). London: Sage Publications.
- Greenfield, S. (2015). *Mind change: how digital technologies are leaving their mark on our brains*. Random House Incorporated.
- Greenstein, D., & Thorin, S. E. (2002). *The Digital Library: A Biography*. Retrieved from <https://files.eric.ed.gov/fulltext/ED472586.pdf>
- Greifeneder, E. (2014). Trends in information behaviour research. *Information Research*,

- 19(4). Retrieved from http://www.informationr.net/ir/19-4/istic/istic13.html#.V4lv_UOUVD8
- Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology*, 29(2), 75–91. doi: 10.1126/science.146.3642.347
- Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigm in qualitative research. In *Handbook of qualitative research* (pp. 106–117). SAGE.
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough?: an experiment with data saturation and variability. *Field Methods*, 18(1), 59–82. doi: 10.1177/1525822X05279903
- Hall, E. (1989). *Beyond culture*. Anchor.
- Hamid, S., Bukhari, S., Ravana, S. D., Norman, A. A., & Ijab, M. T. (2016). Role of social media in information-seeking behaviour of international students: A systematic literature review. *Aslib Journal of Information Management*, 68(5), 643–666. doi: 10.1108/AJIM-03-2016-0031
- Hancock, B. (1998). *An introduction to qualitative research*.
- Hargittai, E. (2002). Second-level digital divide: Differences in people's online skills. *First Monday*, 7(4). doi: 10.5210/fm.v7i4.942
- Hassenzahl, M. (2003). The thing and I: understanding the relationship between user and the product. In *Funology: From Usability to Enjoyment* (pp. 31–42).
- Hassenzahl, M., & Tractinsky, N. (2006). User experience - A research agenda. *Behaviour and Information Technology*, 25(2), 91–97. doi: 10.1080/01449290500330331
- Have, T. (2004). *Understanding qualitative research and ethnomethodology*. London: Sage Publications.
- Heale, R., & Forbes, D. (2013). Understanding triangulation in research. *Evid Based Nurs*, 16(4), 98. doi: 10.1136/eb-2013-101494
- HESA. (2019). *Higher Education student statistics: UK, 2017/18*. Retrieved from <https://www.hesa.ac.uk/news/17-01-2019/sb252-higher-education-student-statistics>
- Hicks, A. (2018). *The theory of mitigating risk: Information literacy and language-learning in transition*. Diss. Högskolan i Borås.
- Hittleman, D. R., & Simon, A. J. (1997). *Interpreting educational research: an introduction for consumers of research*. Prentice Hall.
- Hofstede, G. (2011). Dimensionalizing cultures: the Hofstede model in context. *Online Readings in Psychology and Culture*, 2(1), 1–26. doi: 10.9707/2307-0919.1014

- Hofstede, G. (2020). *What about China?* Hofstede Insights. Retrieved from <https://www.hofstede-insights.com/country/china/>
- Hofstede, G. H. (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*. Sage Publications.
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *National Culture*. Hofstede Insights. Retrieved from <https://hi.hofstede-insights.com/national-culture>
- Holtzblatt, K., & Beyer, H. (1997). *Contextual design: defining customer-centered systems*. Elsevier.
- Hopwood, N., & Paulson, J. (2012). Bodies in narratives of doctoral students' learning and experience. *Studies in Higher Education, 37*(6), 667–681. doi: 10.1080/03075079.2010.537320
- Horan, M. (1999). What students see: sketch maps as tools for assessing knowledge of libraries. *The Journal of Academic Librarianship, 25*(3), 187–201.
- Houlihan, M., Wiley, C. W., & Click, A. B. (2017). International students and information literacy: a systematic review. *Reference Services Review, 45*(2), 258–277. doi: 10.1108/EL-01-2017-0019
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15*(9), 1277–1288. doi: 10.1177/1049732305276687
- Hughes, A., & Kitson, M. (2012). Pathways to impact and the strategic role of universities: New evidence on the breadth and depth of university knowledge exchange in the UK and the factors constraining its development. *Cambridge Journal of Economics, 36*(3), 723–750. doi: 10.1093/cje/bes017
- Hughes, H. (2005). Actions and reactions: Exploring international students' use of online information resources. *Australian Academic and Research Libraries, 36*(4), 169–179. doi: 10.1080/00048623.2005.10755308
- Hughes, H. (2007). Critical incident technique. In *Exploring methods in information literacy research* (pp. 49–66). Wagga: Centre for Information Studies, Charles Sturt University.
- Hughes, H. (2010). International students' experiences of university libraries and librarians. *Australian Academic and Research Libraries, 41*(2), 77–89. doi: 10.1080/00048623.2010.10721446
- Hughes, H. (2013). International students using online information resources to learn: Complex experience and learning needs. *Journal of Further and Higher Education, 37*(1), 126–146. doi: 10.1080/0309877X.2011.644778
- Hyldegård, J., & Hertzum, M. (2013). Coping with private and academic information needs

- abroad: an exploratory study of international students. *Paper Presented at the SIG-SI Workshop on the Social Informatics of Work and Play at the ASIST&T Annual Meeting 2016*.
- IFLA. (2016). Access and opportunity for all. *IFLA Journal*, 24.
- Ilieva, J., Killingley, P., & Tsiligiris, V. (2019). *The shape of global Higher Education: international comparisons with Europe*.
- Ingwersen, P., & Järvelin, K. (2005). Information retrieval in context-IRiX. *ACM SIGIR Forum*, 39(2), 31–39. doi: 10.1145/1113343.1113351
- Ishimura, Y., & Bartlett, J. C. (2013). Uncovering the research process of international students in North America: Are they different from domestic students? *Information Research*.
- ISO. (2010). ISO 9241-210 Human-centred design for interactive systems. In *Ergonomics of human-system interaction*.
- ISO. (2018). ISO 9241-11 Usability: Definitions and concepts. In *Ergonomics of human-system interaction*.
- Jacob, W. J., & Holsinger, D. B. (2009). Inequality in education: A critical analysis. In *Inequality in education: Comparative and international perspectives* (pp. 1–33). The Netherlands: Springer.
- Jansen, B. J. (2006). Search log analysis: What it is, what's been done, how to do it. *Library and Information Science Research*, 28(3), 407–432. doi: 10.1016/j.lisr.2006.06.005
- Jansen, B. J. (2009). *Understanding user –web interactions via web analytics*. Morgan & Claypool Publishers.
- Jansen, B. J., & Rieh, S. Y. (2010). The seventeen theoretical constructs of information searching and information retrieval. *Journal of the American Society for Information Science and Technology Banner*, 61(8), 1517–1534.
- Jaworski, J., & Scharmer, C. O. (2000). *Leadership in the new economy: sensing and actualizing emerging futures*. Generon Consulting.
- Jindal-Snape, D., & Rienties, B. (2016). *Multi-dimensional Transitions of International Students to Higher Education*. Routledge.
- JISC. (2011). *Mobile learning-A practical guide for educational organisations planning to implement a mobile learning initiative*. JISC.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1(2), 112–133. doi: 10.1177/1558689806298224

- Johnston, B., & Webber, S. (2003). Information literacy in higher education: A review and case study. *Studies in Higher Education, 28*(3), 335–352. doi: 10.1080/03075070309295
- Jonassen, D. (1991). Evaluating constructivistic learning. *Educational Technology, 31*(9), 28–33.
- Jones, C., & Shao, B. (2011). The net generation and digital natives: implications for higher education. *Higher Education Academy*.
- Jordan, P. W. (2002). *Designing pleasurable products: an introduction to the new human factors*. CRC press.
- Juceviciene, P., & Tautkeviciene, G. (2003). Academic library as a learning environment: how do students perceive it. *European Conference on Educational Research, University of Hamburg, 1–15*.
- Jurgenson, N. (2011). *Digital dualism versus augmented reality*. The Society Pages. Retrieved from <https://thesocietypages.org/cyborgology/2011/09/13/digital-dualism-and-the-fallacy-of-web-objectivity/>
- Kakai, M., Odongo, R. I., & Bukenya, I. M. N. K. (2004). A study of the information seeking behavior of undergraduate students of Makerere University , Uganda. *World Libraries, 14*(1), 1–22.
- Kang, H., & Chang, B. (2016). Examining culture’s impact on the learning behaviors of international students from Confucius culture studying in Western online learning context. *Journal of International Students, 6*(3), 779–797.
- Kapitzke, C. (2001). Information literacy: The changing library. *Journal of Adolescent & Adult Literacy, 44*(5), 450–456. Retrieved from <http://www.jstor.org/stable/40017102>
- Kaplan, S. (1973a). Cognitive maps, human needs and the designed environment. In *Environmental Design Research* (pp. 275–283).
- Kaplan, S. (1973b). Cognitive maps in perception and thought. In *Image and Environment* (pp. 63–78).
- Karapanos, E., Zimmerman, J., Forlizzi, J., & Martens, J. B. (2010). Measuring the dynamics of remembered experience over time. *Interacting with Computers, 22*(5), 328–335. doi: 10.1016/j.intcom.2010.04.003
- Kassim, N. A. (2009). Evaluating users ’ satisfaction on academic library performance. *Malaysian Journal of Library & Information Science, 14*(2), 101–115.
- Kay, R., & Lauricella, S. (2016). Assessing laptop use in higher education: The Laptop Use Scale. *Journal of Computing in Higher Education, 28*(1), 18–44.
- Kehinde, A. A., & Obi, S. A. (2016). Information needs and seeking behaviour of masters’

- students in the faculty of communication and information sciences, University of Ilorin, Kwara State. *Library Philosophy and Practices*, 1463, 1–30.
- Keller, S., & Conradin, K. (2010). *Semi-structured interviews*. SSWM. Retrieved from <http://www.sswm.info/content/semi-structured-interviews>
- Kelly, G. A. (1955). *The psychology of personal constructs: A theory of personality*.
- Kerne, A. (1998). Cultural representation in Interface Ecosystems : Amendments to the ACM/interactions Design Awards Criteria. *ACM*, 37–43.
- Khalid, M. S., & Pedersen, M. J. L. (2016). Digital exclusion in Higher Education contexts: a systematic literature review. *Procedia - Social and Behavioral Sciences*, 228, 614–621. doi: 10.1016/j.sbspro.2016.07.094
- Kharpal, A. (2019). *Everything you need to know about WeChat — China’s billion-user messaging app*. CNBC. Retrieved from <https://www.cnbc.com/2019/02/04/what-is-wechat-china-biggest-messaging-app.html>
- Kiernan, K. S. (1994). Gateways, gatekeepers, and roles in the information omniverse. *Electronic Networks, Proceedings of the Third Symposium, Ed. Ann Okerson*, 13–15.
- Kim, Y. K., Edens, D., Iorio, M. F., Curtis, C. J., Romero, E., San, M., & College, A. (2015). Cognitive skills development among international students at research universities in the United States. *Journal of International Students*, 5(4), 526–540.
- Kirkwood, A., & Price, L. (2014). Technology-enhanced learning and teaching in higher education: what is “enhanced” and how do we know? A critical literature review. *Learning, Media and Technology*, 39(1), 6–36. doi: 10.1080/17439884.2013.770404
- Kitchin, R. M. (1994). Cognitive maps: what are they and why study them? *Journal of Environmental Psychology*, 14, 1–19.
- Kitchin, R. M., & Freundschuh, S. (2000). *Cognitive mapping: past, present, and future*. Routledge.
- Kitson, G. C., Sussman, B., Williams, G. K., Zeehandelaar, R. B., Shickmanter, B. K., & Steinberger, J. L. (1982). Sampling issues in family research. *Journal of Marriage and the Family*, 44, 965–981.
- Kjaergaard, A., & Jensen, T. B. (2008). Appropriation of information systems: Using cognitive mapping for eliciting users’ sensemaking. *ICIS 2008 Proceedings - Twenty Ninth International Conference on Information Systems*, 1–17.
- Koganuramath, M. M., & Angadi, M. (2003). Design and development of digital library : an initiative at TISS. *5th National MANLIBNET Convention, Jamshedpur (India)*.
- Komlodi, A., & Carlin, M. (2004). Identifying cultural variables in information-seeking

- behavior. *Proceedings of the Tenth Americas Conference on Information Systems (AMCIS)*, 1–6. doi: 10.1255/ejms.292
- Kuhlthau, C. (1991). Inside the search process: Information seeking from the user's perspective. *Journal of the American Society for Information Science*, 42(5), 361–371.
- Kuhlthau, C. (2004). *Seeking meaning: a process approach to library and information services* (2nd ed.).
- Kujala, S., Roto, V., Väänänen-Vainio-Mattila, K., Karapanos, E., & Sinnelä, A. (2011). UX curve: a method for evaluating long-term user experience. *Interacting with Computers*, 23, 473–483. doi: 10.1016/j.intcom.2011.06.005
- Kujala, S., Vogel, M., Obrist, M., & Pohlmeier, A. E. (2013). Lost in time: the meaning of temporal aspects in user experience. *Conference on Human Factors in Computing Systems - Proceedings*, 2, 559–564. doi: 10.1145/2468356.2468455
- Kundu, D. K. (2017). Models of information seeking behaviour: a comparative study. *International Journal of Library and Information Studies*, 7(4), 393–405.
- Kurtz, C. F., & Snowden, D. J. (2003). The new dynamics of strategy: Sense-making in a complex and complicated world. *IBM Systems Journal*, 42(3), 462–483.
- Kusch, M. (2018). Scientific realism and social epistemology. In *The Routledge Handbook of Scientific Realism* (pp. 261–276).
- Labaree, R. V. (2020). *Organizing your social sciences research paper: qualitative methods*. USC Libraries. Retrieved from <https://libguides.usc.edu/writingguide/qualitative>
- Lahlafi, A., & Rushton, D. (2015). Engaging international students in academic and information literacy. *New Library World*, 116(5–6), 277–288. doi: 10.1108/NLW-07-2014-0088
- Lamb, R., King, J. L., & Kling, R. (2002). Informational environments: organizational contexts of online information use. *Journal of American Society for Information Science and Technology*, 54(2), 97–114.
- Lanclos, D. (2013). *The anthropologist in the stacks: playing with cognitive mapping*. Blogger. Retrieved from <http://atkinsanthro.blogspot.co.uk/2013/11/playing-with-cognitive-mapping.html>
- Laurel, B. (1993). *Computers as theatre*. Addison-Wesley.
- Law, E. L.-C., Roto, V., Hassenzahl, M., Vermeeren, A. P. O. S., & Kort, J. (2009). Understanding, scoping and defining user experience. *Proceedings of the 27th International Conference on Human Factors in Computing Systems - CHI 09*, 719. doi: 10.1145/1518701.1518813
- Leidner, D. E., & Kayworth, T. (2006). A review of culture in information systems research:

- toward a theory of information technology culture conflict. *MIS Quarterly*, 30(2), 357–399.
- Lewis-Beck, M., Bryman, A., & Futing Liao, T. (2004). Pilot study. In *The SAGE Encyclopedia of Social Science Research Methods*. Sage Publications, Inc.
- Li, X., Long, X., Long, Y., & Liang, C. (2019). A scoring system of oral English-Chinese translation based on frame semantic analysis. *6th International Conference on Systems and Informatics (ICSAI)*.
- Liao, Y., Finn, M., & Lu, J. (2007). Information-seeking behavior of international graduate students vs. American graduate students: A user study at Virginia Tech. *College & Research Libraries*, 68(1), 5–25.
- Lin, J.-H., Peng, W., Kim, M., Kim, S. Y., & LaRose, R. (2012). Social networking and adjustments among international students. *New Media & Society*, 14(3), 421–440. doi: 10.1177/1461444811418627
- Lincoln, Y. S. (2002). Insights into library services and users from qualitative research. *Library and Information Science Research*. doi: 10.1016/S0740-8188(01)00107-4
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. Sage Publications Ltd.
- Lindh, K. (2015). *Breathing life into a standard : the configuration of resuscitation in practices of informing*. Lund University.
- Lippincott, J. K. (2010). A mobile future for academic libraries. *Reference Services Review*, 38(2), 205–213. doi: 10.1108/00907321011044981
- Liu, G., & Winn, D. (2009). Chinese graduate students and the Canadian academic library: a user study at the University of Windsor. *The Journal of Academic Librarianship*, 35(6), 565–573.
- Liu, W. H., & Ma, R. (2018). Regional inequality of higher education resources in China. *Frontiers of Education in China*, 13(1), 119–151. doi: 10.1007/s11516-018-0005-1
- Logan, R. J., Augaitis, S., & Renk, T. (1994). Design of simplified television remote controls: a case for behavioral and emotional usability. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 38(5), 365–369. doi: 10.1177/154193129403800503
- Lougee, W. P. (2002). Library roles in a digital age. In *Diffuse Libraries: Emergent Roles for the Research Library in the Digital Age* (pp. 5–21).
- Lynch, C. (2000). From automation to transformation: forty years of libraries & information. *Educause Review*, 35(1), 60–68.
- Mack, L. (2010). The philosophical underpinnings of educational research. *Semantic Scholar*,

5–11.

- Mahlangu, H. B., & Dlodlo, N. (2013). Usage of mobile-devices for recreation among the millennial generation. *African Journal for Physical Health Education, Recreation and Dance, 19*(3), 661–677.
- Mandel, L. H. (2010). Toward an understanding of library patron wayfinding: Observing patrons' entry routes in a public library. *Library and Information Science Research, 32*(2), 116–130. doi: 10.1016/j.lisr.2009.12.004
- Marchionini, G. (1995). *Information seeking in electronic environments*. Cambridge University Press.
- Marchionini, G. (1996). *Information Seeking in Electronic Environment*. Cambridge University Press. Retrieved from https://www.researchgate.net/publication/228057967_Information_Seeking_in_Electronic_Environment
- Marshall, S. L., & While, A. E. (1994). Interviewing respondents who have English as a second language: challenges encountered and suggestions for other researchers. *Journal of Advanced Nursing, 19*(3), 566–571. doi: 10.1111/j.1365-2648.1994.tb01122.x
- Martin, J. (2008). The information seeking behavior of undergraduate education majors: does library instruction play a role? *Evidence Based Library and Information Practice, 3*(4), 4–17. doi: 10.18438/b8hk7x
- Marx, R. W., Winne, P. H., & Walsh, J. (1985). Cognitive processing in the classroom. In *The International Encyclopedia of Education* (pp. 795–808). Pergamon.
- Marzano, M. (2007). Informed consent, deception, and research freedom in qualitative research: a cross-cultural comparison. *Qualitative Inquiry, 13*(3), 417–436. doi: 10.1177/1077800406297665
- Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. *FORUM: Qualitative Social Research, 11*(3), 151–163.
- Matsumoto, D., & Hwang, H. C. (2013). Assessing cross-cultural competence: a review of available tests. *Journal of Cross-Cultural Psychology, 44*(6), 849–873. doi: 10.1177/0022022113492891
- Maxwell, J. A., & Wooffitt, R. (2005). *Qualitative research design: an interactive approach*.
- Mayega, S. (2008). *Library information services in the digital age*.
- McCarthy, J., & Wright, P. (2004). Technology as experience. *Interactions, 11*(5), 42. doi: 10.1145/1015530.1015549
- McCormack, A. (2017). *What is the digital age?* Retrieved from

- <https://www.ademccormack.com/digital-strategy/society/what-is-the-digital-age/>
- McCusker, C., & Babington, D. (2018). *The 2018 digital university-staying relevant in the digital age*. Retrieved from www.pwc.co.uk/publicsector
- McKechnie, L., Dixon, C., Fear, J., & Pollak, A. (2006). Rules of (mis) conduct: user behaviour in public libraries. *Annual Conference of CAIS/Actes Du Congrès Annuel de l'ACSI*, 1–10.
- Mckinlay, N. J., Pattison, H. M., & Gross, H. (1996). An exploratory investigation of the effects of a cultural orientation programme on the psychological well-being of international university students. *Higher Education*, 31(3), 379–395. doi: 10.1007/BF00128438
- McSweeney, B. (2002). Hofstede ' s model of national cultural differences and their consequences: A triumph of faith-a failure of analysis. *Human Relations*, 55(January 2002), 89–118.
- Mehra, B., & Bilal, D. (2007a). International students' perceptions of their information seeking strategies. *Proceedings of the 35th Annual Conference of the Canadian Association for Information Science*, 1–14.
- Mehra, B., & Bilal, D. (2007b). International students' information needs and use of technology. *Proceedings of the American Society for Information Science and Technology*, 1–8.
- Mehta, P., & Cox, A. (2019). At home in the academic library? a study of student feelings of "homeness." *New Review of Academic Librarianship*. doi: 10.1080/13614533.2018.1547774
- Meishar-Tal, H., & Pieterse, E. (2017). Why do academics use academic social networking sites? *International Review of Research in Open and Distance Learning*, 18(1), 1–22. doi: 10.19173/irrodl.v18i1.2643
- Merriam, S. B. (1998). *Qualitative research and case study applications in education* (2nd, Revis ed.). Jossey-Bass Publishers.
- Mertens, D. M. (1998). *Research methods in education and psychology : integrating diversity with quantitative and qualitative approaches*. SAGE.
- Miles, M., & Huberman., M. (1994). *Qualitative data analysis : an expanded sourcebook* (2nd ed.). Thousand Oaks ; London : Sage.
- Mirnig, A. G., Meschtscherjakov, A., Wurhofer, D., Meneweger, T., & Tscheligi, M. (2015). A formal analysis of the ISO 9241-210 definition of user experience. *Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems - CHI EA '15*, 437–450. doi: 10.1145/2702613.2732511
- Mirza, M. S., & Mahmood, K. (2012). Electronic resources and services in Pakistani university

- libraries : A survey of users ' satisfaction. *International Information & Library Review*, 44(3), 123–131. doi: 10.1016/j.iilr.2012.07.005
- Molesworth, M., Nixon, E., & Scullion, R. (2009). Having, being and higher education: The marketisation of the university and the transformation of the student into consumer. *Teaching in Higher Education*, 14(3), 277–287. doi: 10.1080/13562510902898841
- Montgomery, C. (2010). *Understanding the international student experience*. Basingstoke : Palgrave Macmillan.
- Montgomery, S. E., & Miller, J. (2011). The third place: the library as collaborative and community space in a time of fiscal restraint. *College and Undergraduate Libraries*, 18(2–3), 228–238. doi: 10.1080/10691316.2011.577683
- Moore, G. T., & Gollidge, R. G. (1976). *Environmental knowing: theories, research, and methods*. Stroudsburg, Pa. : Dowden, Hutchinson & Ross.
- Morrison, E. W. (2002). Information seeking within organizations. *Human Communication Research*, 28(2), 229–242. doi: 10.1111/j.1468-2958.2002.tb00805.x
- Morse, J. (2000). Determining sample size. *Qualitative Health Research*, 10(1), 3–5.
- Morse, J. M., & Niehaus, L. (2009). *Mixed method design: principles and procedures*. Milton, Abingdon: Routledge.
- Myers, M. D. (2009). *Qualitative research in business & management*. SAGE.
- Naumer, C., Fisher, K., & Dervin, B. (2008). Sense-Making: a methodological perspective. *CHI2008 Workshop on SenseMaking Florence*, 1–5. doi: 10.1002/asi.20690
- Neuman, W. L. (2014). *Social research methods : qualitative and quantitative approaches* (7th editio).
- Newton, N. (2010). *The use of semi-structured interviews in qualitative research: strengths and weaknesses*. Academia.Edu. Retrieved from http://www.academia.edu/1561689/The_use_of_semi-structured_interviews_in_qualitative_research_strengths_and_weaknesses
- Nicholas, D. (2010). The virtual scholar: the hard and evidential truth. In *Digital Library Futures: user perspectives and institutional strategies* (pp. 23–31).
- Nicholas, D., Huntington, P., Jamali, H. R., & Watkinson, A. (2006). The information seeking behaviour of the users of digital scholarly journals. *Information Processing and Management*, 42(5), 1345–1365. doi: 10.1016/j.ipm.2006.02.001
- Nicholas, D., Huntington, P., Lievesley, N., & Wasti, A. (2000). Evaluating consumer website logs: A case study of The Times/The Sunday Times website. *Journal of Information Science*, 26(6), 399–411. doi: 10.1177/016555150002600603

- Norman, D., Miller, J., & Henderson, A. (1995). What you see, some of what's in the future, and how we go about doing it. *Conference Companion on Human Factors in Computing Systems - CHI '95, January*, 155. doi: 10.1145/223355.223477
- Norman, D., & Nielsen, J. (2008). *The definition of user experience (UX)*. Nielsen Norman Group. Retrieved from <https://www.nngroup.com/articles/definition-user-experience/>
- Norman, Don A. (2011). *Living with complexity*. The MIT Press.
- Norman, Donald A. (2009). Memory is more important than actuality. *Interactions*, 16(2), 24–26. doi: 10.1145/1487632.1487638
- Nzomo, P., Ajiferuke, I., Vaughan, L., & McKenzie, P. (2016). Multilingual information retrieval & use: perceptions and practices amongst bi/multilingual academic users. *Journal of Academic Librarianship*, 42(5), 495–502. doi: 10.1016/j.acalib.2016.06.012
- O'Brien, H. L. (2011). Weaving the threads of experience into human information interaction (HII): probing user experience (UX) for new directions in information behaviour. In *New Directions in Information Behaviour* (pp. 69–92). Emerald Publishing.
- Ochs, E. (1979). transcriptions as theory. In *In Developmental Pragmatics*. New York, NY: Academic Press.
- OCLC. (2012). *User studies*. OCLC Research. Retrieved from <https://www.oclc.org/research/themes/user-studies.html>
- Oladokun, O. S., & Aina, L. O. (2009). Library and information needs and barriers to the use of information sources by continuing education students at the University of Botswana. *Information Development*, 25(1), 43–50. doi: 10.1177/0266666908101263
- Oldenburg, R. (1989). *The great good place*. St Paul, Minnesota.
- Oluwaseun, A. A. (2016). Barriers to information seeking in the digital libraries. In *Information Seeking Behavior and Challenges in Digital Libraries* (pp. 291–303).
- Ørom, A. (2000). Information science, historical changes and social aspects: A nordic outlook. *Journal of Documentation*, 56(1), 12–26. doi: 10.1108/EUM0000000007133
- Osatuyi, B. (2013). Information sharing on social media sites. *Computers in Human Behavior*, 29(6), 2622–2631. doi: 10.1016/j.chb.2013.07.001
- Oudenaren, J. S. Van. (2010). Strategies for institutions: responding to the digital challenge: the world digital library perspective. In *Digital Library Futures: user perspectives and institutional strategies* (pp. 97–106).
- Padilla, A. M., & Perez, W. (2003). Acculturation, social identity, and social cognition: A new perspective. *Hispanic Journal of Behavioral Sciences*, 25(1), 35–55. doi: 10.1177/0739986303251694

- Pareek, A. K., & Rana, M. (2013). Study of Information Seeking Behavior and Library Use Pattern of Researchers in the Banasthali University. *Library Philosophy and Practices*, 887, 1–10.
- Paterson, L., & Low, B. (2011). Student attitudes towards mobile library services for smartphones. *Library Hi Tech*, 29(3), 412–423. doi: 10.1108/07378831111174387
- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). London : Sage.
- Peile, C., & McCouat, M. (1997). The rise of relativism: The future of theory and knowledge development in social work. *British Journal of Social Work*, 27(3), 343–360. doi: 10.1093/oxfordjournals.bjsw.a011217
- Pelz, B. (2008). *Interpretive research*. Research Methods for the Social Sciences. Retrieved from <https://courses.lumenlearning.com/atd-herkimer-researchmethodsforsocialscience/chapter/chapter-12-interpretive-research/>
- Pinch, S., Sunley, P., & Macmillen, J. (2009). Cognitive mapping of creative practice: A case study of three English design agencies. *Geoforum*, 41(3), 377–387. doi: 10.1016/j.geoforum.2009.10.012
- Pinfield, S., Cox, A., Rutter, S., & Cox, A. M. (2017). *Mapping the future of academic libraries: a report for SCONUL*.
- Pinto, M., Fernández-Pascual, R., Caballero-Mariscal, D., & Sales, D. (2020). Information literacy trends in higher education (2006–2019): visualizing the emerging field of mobile information literacy. *Scientometrics*, 124(2), 1479–1510. doi: 10.1007/s11192-020-03523-4
- Ponelis, S. R. (2015). Using interpretive qualitative case studies for exploratory research in doctoral studies: a case of information systems research in small and medium enterprises. *International Journal of Doctoral Studies*, 10.
- Potter, N. (2012). *UX in libraries resource list-a structured instruction to UX and ethnography*. Retrieved from <https://www.ned-potter.com/ux-in-libraries-resource-list>
- Preston, I. (2019). *Women, economics and UCL in the late 19th Century*. UCL Department of Economics. Retrieved from <https://www.ucl.ac.uk/economics/about-department/women-economics-and-ucl-late-19th-century>
- Priestner, A., & Borg, M. (2016a). Uncovering complexity and detail. In *User experience in libraries-Appling ethnography and human-centered design* (pp. 1–8).
- Priestner, A., & Borg, M. (2016b). *User experience in libraries : Appling ethnography and human-centred design*.
- Quinn, B. (2015). The McDonaldization of academic libraries? *College and Research Libraries*,

- 76(3), 339–352. doi: 10.5860/crl.76.3.339
- Revelle, W. (2000). Individual differences. In *Encyclopedia of Psychology*. doi: 10.1002/(ISSN)1099-0984
- Rieh, S. Y. (2004). On the web at home: information seeking and web searching in the home environment. *Journal of the American Society for Information Science and Technology*, 55(8), 743–753. doi: 10.1002/asi.20018
- Ritchie, J., Lewis, J., & Elam, G. (2003). Designing and selecting samples. In *Qualitative research practice. A guide for social science students and researchers* (pp. 77–108). Thousand Oaks, CA: Sage.
- Robertson, J. L., Yuan, W., & Ballegoie, M. Van. (2015). Does format matter? reader preferences in an academic library context. *Proceedings of the Charleston Library Conference*. doi: 10.5703/1288284316263
- Robson, A., & Robinson, L. (2013). Building on models of information behaviour: linking information seeking and communication. In *Journal of Documentation* (Vol. 69, Issue 2). doi: 10.1108/00220411311300039
- Romney, A. K., Batchelder, W., & Weller, S. C. (1986). Culture as consensus: A theory of culture and informant accuracy. *American Anthropologist*, 88(3), 13–38.
- Rosenthal, T. L., & Zimmerman, B. J. (1978). *Social learning and cognition*. London : Academic Press.
- Rowlands, I., Nicholas, D., Williams, P., Huntington, P., Fieldhouse, M., Gunter, B., Withey, R., Jamali, H. R., Dobrowolski, T., & Tenopir, C. (2008). The Google generation: The information behaviour of the researcher of the future. *Aslib Proceedings: New Information Perspectives*, 60(4), 290–310. doi: 10.1108/00012530810887953
- Rusbridge, C. (1998). Towards the hybrid library. *D-Lib Magazine*, 4(7–8), 9–37. doi: 10.1045/july98-rusbridge
- Russell Group. (2020). *University College London*. Retrieved from <https://russellgroup.ac.uk/about/our-universities/university-college-london/>
- Sabri, D. (2011). What's wrong with "the student experience"? *Discourse: Studies in the Cultural Politics of Education*, 32(5), 657–667. doi: 10.1080/01596306.2011.620750
- Sadler, E., & Given, L. M. (2016). Affordance theory: A framework for graduate students' information behavior. *Journal of Documentation*, 63(1), 115–141. doi: 10.1108/00220410710723911
- Saldana, J. (2016). *The coding manual for qualitative researchers* (Third Edit). Sage Publications.

- Salganik, M. J. (2019). *Bit by bit: social research in the digital age*. Princeton University Press.
- Sandelowski, M. (1995). Sample size in qualitative research. *Research in Nursing & Health*, 18(2), 179–183. doi: 10.1002/nur.4770180211
- Sandelowski, M. (2010). What's in a name? Qualitative description revisited. *Research in Nursing and Health*, 33(1), 77–84. doi: 10.1002/nur.20362
- Saracevic, T. (2000). Digital library evaluation: toward evolution of concepts. *Library Trends*, 49(3), 350–369.
- Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H., & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality and Quantity*, 52(4), 1893–1907. doi: 10.1007/s11135-017-0574-8
- Savolainen, R. (1993). The sense-making theory: Reviewing the interests of a user-centered approach to information seeking and use. *Information Processing and Management*, 29(1), 13–28. doi: 10.1016/0306-4573(93)90020-E
- Savolainen, R. (1995). Everyday life information seeking: Approaching information seeking in the context of “way of life.” *Library and Information Science Research*, 17(3), 259–294.
- Savolainen, R. (2006). Time as a context of information seeking. *Library & Information Science Research*, 28, 110–127.
- Savolainen, R. (2008). *Everyday information practices: a social phenomenological perspective*. Lanham, Md. ; Plymouth : Scarecrow Press.
- Savolainen, R. (2009). Small world and information grounds as contexts of information seeking and sharing. *Library and Information Science Research*, 31(1), 38–45. doi: 10.1016/j.lisr.2008.10.007
- Savolainen, R. (2015). The interplay of affective and cognitive factors in information seeking and use: Comparing Kuhlthau's and Nahl's models. *Journal of Documentation*, 71(1), 175–197. doi: 10.1108/JD-10-2013-0134
- Scharfstein, B.-A. (1989). *The dilemma of context*. NYU Press.
- Schoorman, D. (2000). What really do we mean by “internationalization?” *Contemporary Education*, 71(4), 5–7.
- Schreier, M. (2012). *Qualitative content analysis in practice*. Los Angeles ; London : SAGE.
- Schwartz-Shea, P., & Yanow, D. (2014). Interpretive research design: concepts and processes. *Critical Policy Studies*, 8(1), 116–118.
- SCONUL. (2004). *The value of academic libraries*. The Society of College, National and University Libraries (SCONUL). Retrieved from <https://www.sconul.ac.uk/page/the->

value-of-academic-libraries

- Scotland, J. (2012). Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms. *English Language Teaching*, 5(9), 9–16. doi: 10.5539/elt.v5n9p9
- Selwyn, N. (2016). *Is technology good for education?* Cambridge: Polity Press.
- Shaffer, C., Vardaman, L., & Miller, D. (2010). Library usage trends and needs of international students. *Behavioral and Social Sciences Librarian*, 29(2), 109–117. doi: 10.1080/01639261003742231
- Shannon, C. E. (1949). Communication theory of secrecy systems. *Bell System Technical Journal*, 28(4), 656–715.
- Sharif, M., Saad, M., & Zainab, A. N. (2009). An investigation of information seeking behaviour of Computer Science and Information Technology undergraduates: A qualitative approach. *Malaysian Journal of Library and Information Science*, 14(3), 15–34.
- Sharpe, R., Beetham, H., & Freitas, S. De. (2010). *Rethinking learning for a digital age: How learners are shaping their own experiences*. Routledge.
- Shin, Y., Im, C., Oh, H., & Kim, J. (2017). Design for experience innovation: understanding user experience in new product development. *Behaviour & Information Technology*, 36(12), 1218–1234. doi: 10.1080/0144929X.2017.1368709
- Shoham, S., & Klain-Gabbay, L. (2019). The academic library: Structure, space, physical and virtual use. *Journal of Academic Librarianship*, 45(5), 102053. doi: 10.1016/j.acalib.2019.102053
- Siemens, G. (2005). Connectivism: a learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 1–9.
- Simons, H. (2009). *Case study research in practice*. SAGE.
- Sin, S.-C. J. (2015). Demographic differences in international students' information source uses and everyday information seeking challenges. *The Journal of Academic Librarianship*, 41(4), 466–474.
- Sin, S. C. J., & Kim, K. S. (2013). International students' everyday life information seeking: The informational value of social networking sites. *Library and Information Science Research*, 35(2), 107–116. doi: 10.1016/j.lisr.2012.11.006
- Smith, C., & Crespo-Dubie, D. (2018). *What is the Digital Age and the Internet of Things?* Retrieved from [http://smithandassociates.us.com/sites/default/files/The Digital Age and the Internet of Things SA.pdf](http://smithandassociates.us.com/sites/default/files/The%20Digital%20Age%20and%20the%20Internet%20of%20Things%20SA.pdf)

- Solomon, P. (1997). Discovering information behavior in sense making. I. time and timing. *Journal of the American Society for Information Science*, 48(12), 1097–1108.
- Spink, A., & Cole, C. (2006). *New directions in human information behavior*. Springer-Verlag.
- Stake, R. E. (1995). *The art of case study research*. SAGE.
- Stanley, T., & Knowles, J. (2016). Demonstrating value in research libraries: the shared service standards initiative. *Performance Measurement and Metrics*, 17(2), 188–193. doi: 10.1108/PMM-04-2016-0015
- Stone, G., & Collins, E. (2003). Library usage and demographic characteristics of undergraduate students in a UK university. *Performance Measurement and Metrics*, 14(1), 25–35. doi: 10.1108/14678041311316112
- Straub, D. W. M., Loch, K. D., & Hill, C. E. (2001). Transfer of information technology to the arab world: a test of cultural influence modeling. *Journal of Global Information Management*, 9(4), 6–28. doi: 10.4018/jgim.2001100101
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage.
- Suarez, D. (2007). What students do when they study in the library: using ethnographic methods to observe student behavior. *Electronic Journal of Academic and Special Librarianship*, 8(3), 1–21.
- Tait, E., Martzoukou, K., & Reid, P. (2016). Libraries for the future: The role of IT utilities in the transformation of academic libraries. *Palgrave Communications*, 2(1), 1–9. doi: 10.1057/palcomms.2016.70
- Talja, S., Keso, H., & Pietilä, T. (1999). The production of “context” in information seeking research: a metatheoretical view. *Information Processing and Management*, 35, 751–763.
- Teijlingen, E. R. van, & Hundley, V. (2001). *The importance of pilot studies*. Retrieved from <https://sru.soc.surrey.ac.uk/SRU35.html>
- Thomas, D. C., & Inkson, K. C. (2017). Cultural knowledge. In *Cultural Intelligence* (3rd ed.). Berrett-Koehler.
- Thomas, D. R. (2003). *A general inductive approach for qualitative data analysis*.
- Thorson, K., & Wells, C. (2016). Curated flows: a framework for mapping media exposure in the digital age. *Communication Theory*, 26, 309–328. doi: 10.1111/comt.12087
- Thüring, M., & Mahlke, S. (2007). Usability, aesthetics and emotions in human-technology interaction. *International Journal of Psychology*, 42(4), 253–264. doi: 10.1080/00207590701396674

- Tidwell, J. (2006). *Designing interfaces*. O'Reilly.
- Tolman, E. C. (1948). Cognitive maps in rats and men. *Psychological Review*, *55*(4), 189–208.
doi: 10.1037/h0061626
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, *110*(3), 403–421.
doi: 10.1037/0033-295X.110.3.403
- Tuli, F. (2011). The basis of distinction between qualitative and quantitative research in social science: reflection on ontological, epistemological and methodological perspectives. *Ethiopian Journal of Education and Sciences*, *6*(1). doi: 10.4314/ejesc.v6i1.65384
- Tunkelang, D. (2009). Faceted search. In *Synthesis lectures on information concepts, retrieval, and services* (pp. 1–80).
- UCL. (2016). *UCL education strategy 2016 – 21*. 28. Retrieved from https://www.ucl.ac.uk/teaching-learning/sites/teaching-learning/files/migrated-files/ucl_education_strategy_june2017_finalv2_web.pdf
- UCL. (2017). *UCL's global engagement strategy*. Retrieved from https://www.ucl.ac.uk/global/sites/global/files/ucl_global_engagement_strategy.pdf
- UCL. (2018). *Annual review 2018*. Retrieved from <https://www.ucl.ac.uk/2034/annual-review-2018>
- UCL. (2020a). *Key statistics about UCL*. UCL. Retrieved from <https://www.ucl.ac.uk/about/what/key-statistics>
- UCL. (2020b). *Student statistics-student and registry services*. University College London. Retrieved from <https://www.ucl.ac.uk/srs/student-statistics>
- UCL Library Service. (2015). *UCL library services strategy 2015-18*.
- United Nations. (2015). Transforming our world: the 2030 agenda for sustainable development. In *Division for Sustainable Development Goals*. doi: 10.1163/157180910X12665776638740
- Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing and Health Sciences*, *15*(3), 398–405. doi: 10.1111/nhs.12048
- Vakkari, P., Savolainen, R., & Dervin, B. (1997). Foreword. *Information Seeking in Context: Proceedings of an International Conference on Research in Information Needs, Seeking and Use in Different Contexts*, 7–9.
- Varga-Atkins, T., & Ashcroft, L. (2004). Information skills of undergraduate business students – a comparison of UK and international students. *Library Management*, *25*(1/2), 39–55. doi: 10.1108/01435120410510247

- Veenstra, A. F. E. (2013). Developing an open data lifecycle model based on literature and practice. *21st European Conference on Information Systems, ECIS 2013, June 5-8, Utrecht, The Netherlands*.
- Vermeeren, A., Law, E. L., & Roto, V. (2010). User experience evaluation methods: current state and development needs. *Proceedings of the 6th Nordic Conference on Human-Computer Interaction*, 521–530.
- Villén-Rueda, L., Senso, J. A., & de Moya-Anegón, F. (2007). The use of OPAC in a large academic library: a transactional log analysis study of subject searching. *Journal of Academic Librarianship*, 33(3), 327–337. doi: 10.1016/j.acalib.2007.01.018
- Walraven, A., Brand-gruwel, S., & Boshuizen, H. P. A. (2008). Information-problem solving: A review of problems students encounter and instructional solutions. *Computers in Human Behavior*, 24(3), 623–648. doi: 10.1016/j.chb.2007.01.030
- Wan, Y., Zhang, X., Jung, J.-Y., & Kim, Y.-C. (2013). From the wired to wireless generation? Investigating teens' Internet use through the mobile phone. *Telecommunications Policy*, 37(8), 651–661.
- Wang, F., & Hannafin, M. J. (2005). Design-based research and technology-enhanced learning environments. *Educational Technology, Research and Development*, 53(4), 5–23.
- Wang, K. T., Heppner, P. P., Wang, L., & Zhu, F. (2015). Cultural intelligence trajectories in new international students: Implications for the development of cross-cultural competence. *International Perspectives in Psychology: Research, Practice, Consultation*, 4(1), 51–65. doi: 10.1037/ipp0000027
- Want, P. (1990). The history and development of mobile libraries. *Library Management*, 11(2), 5–14. doi: <https://doi.org/10.1108/EUM00000000000825>
- Waterman, R. H. (1990). *Adhocracy: the power to change*.
- Webster, K. (2017). *Reimagining the role of the library in the digital age: changing the use of space and navigating the information landscape*. LSE Blog. Retrieved from <https://blogs.lse.ac.uk/impactofsocialsciences/2017/02/15/reimagining-the-role-of-the-library-in-the-digital-age-changing-the-use-of-space-and-navigating-the-information-landscape/>
- Whiteside, J., & Wixon, D. (1987). The dialectic of usability engineering. *INTERACT 87–2nd IFIP International Conference on Human-Computer Interaction*, 17–20. doi: 10.1016/b978-0-444-70304-0.50013-3
- Whitmire, E. (2003). Cultural diversity and undergraduates' academic library use. *Journal of Academic Librarianship*, 29(3), 148–161. doi: 10.1016/S0099-1333(03)00019-3

- Williams, P., & Gunter, B. (2006). Triangulating qualitative research and computer transaction logs in health information studies. *Aslib Proceedings*, 58(1/2), 129–139. doi: 10.1108/00012530610648725
- Wilson, H. (2015). *Libraries without walls: when students become the core design consideration*. Retrieved from <https://www.architectureanddesign.com.au/features/comment/libraries-without-walls-when-students-become-the-c>
- Wilson, T. (1981). On user studies and information needs. *Journal of Documentation*, 37(1), 3–15. doi: 10.1108/EL-01-2017-0019
- Wilson, T. (1999). Exploring models of information behaviour: The 'uncertainty' project. *Information Processing and Management*, 35(6), 839–849. doi: 10.1016/S0306-4573(99)00029-1
- Wilson, T. (2000). Human information behavior. *Informing Science*, 3(2), 49–55. doi: 10.1186/1472-6963-7-190
- Wilson, T. (2006). On user studies and information needs. *Journal of Documentation*, 62(6), 658–670. doi: 10.1108/00220410610714895
- Wilson, T. D. (1997). Information behaviour: an interdisciplinary perspective. *Information Processing & Management*, 33(4), 551–572.
- Wilson, T. D. (1999). Models in information behaviour research. *Journal of Documentation*, 55(3), 249–270. doi: 10.1108/EUM0000000007145
- Wilson, T. D. (2016). A general theory of human information behaviour. *Information Research*, 21(4).
- Wilson, T., & Streatfield, D. R. (1977). Information needs in local authority social service departments: an interim report on project INISS. *Journal of Documentation*, 33(4), 277–293. doi: 10.1108/EL-01-2017-0019
- Wilson, T., & Streatfield, D. R. (1979). Information needs in local authority social service departments: a second report on project INISS. *Journal of Documentation*, 35(2), 120–136. doi: 10.1108/EL-01-2017-0019
- Wu, H., Garza, E., & Guzman, N. (2015). International student's challenge and adjustment to college. *Education Research International*, 2015, 1–9. doi: 10.1155/2015/202753
- Wu, S. K., & Lanclos, D. (2011). Re-imagining the users' experience: An ethnographic approach to web usability and space design. *Reference Services Review*, 39(3), 369–389. doi: 10.1108/EL-01-2017-0019
- Yi, J. K., Lin, J.-C. G., & Kishimoto, Y. (2003). Utilization of counseling services by international


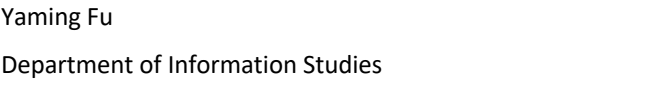

- students. *Journal of Instructional Psychology*, 30(4).
- Yin, R. K. (1994). *Case study research: design and methods* (2nd editio). SAGE.
- Yin, R. K. (2014). *Case study research : design and methods* (5th ed.). SAGE.
- Yoon, J., & Chung, E. (2017). International students' information needs and seeking behaviours throughout the settlement stages. *Libri*, 67(2), 119–128. doi: 10.1515/libri-2016-0048
- Yusuf, F., & Iwu, J. (2010). Use of academic library: a case study of Covenant University, Nigeria. *Chinese Librarianship: An International Electronic Journal*.
- Zeisel, J. (1975). *Sociology and architectural design*. Russel Sage Foundation.
- Zhang, X., & Liu, X. (2014). Information service in college and university libraries based on the characteristics of "Generation Y" readers' information. *Journal of Medical Informatics*, 35(4), 67–71.
- Zimmerman, D., & Paschal, D. B. (2009). An exploratory usability evaluation of Colorado State University Libraries' digital collections and the Western Waters Digital Library Web sites. *Journal of Academic Librarianship*, 35(3), 227–240. doi: 10.1016/j.acalib.2009.03.011

Appendix A: Participant Information

Number	Programme	Undergraduate University	Gender
1	MA Museums and Galleries in Education (Institute of Education-IOE)	Nanjing University	F
2	MA Museums and Galleries in Education (IOE)	Nanjing University of Art	F
3	MSc project & enterprise management (The Bartlett School of Architecture)	Tianjin University of Technology	M
4	MSc Digital Humanity (Department of Information Studies-DIS)	Fudan University	F
5	MSc Digital Humanity (DIS)	Communication University of China	F
6	MSc Digital Anthropology	Communication University of China	F
7	MSc Human-Computer Interaction (UCL Interaction Centre-UCLIC)	Wuhan University	F
8	MSc Digital Anthropology	Fudan University	F
9	MA Linguistics (Phonology)	Fudan University	F
10	MA Comparative business economics (SSEES)	Central China Normal University	F
11	MSc Digital Humanity (DIS)	Communication University of China	F
12	Advanced Materials Science (Engineering)	Northeast Forestry University	F
13	Advanced Materials Science (Engineering)	Northeast Forestry University	F
14	Space syntax: architecture and cities (Bartlett)	Tongji University	M
15	MSc Drug Design (Medicine)	Central China Normal University	M

Appendix B: Research information sheet

Pilot study information sheet

<p>Information Sheet for SmartLibrary: using cognitive mapping to promote UCL mobile library development</p> <p>You will be given a copy of this information sheet.</p> <p>Title of Project: SmartLibrary</p> <p>This study has been approved by the UCL Research Ethics Committee (Project ID Number): 4507/001</p> <p>UCL ChangeMakers Project Manager: Abbie King</p> <p>Work Address: </p> <p>Contact Details: </p> <p>Project Lead: Yaming Fu</p> <p>Department: Department of Information Studies</p> <p>Email: </p> <p>Study Purpose: We would like to invite you to participate in this research project which aims to explore students' perspectives and expectations on the UCL newly-built library Explore tool on mobile access. This study will inform its further development. This project is run through the UCL ChangeMakers, supported by the UCL Centre for Research-based Education. More details about the scheme can be found here: www.ucl.ac.uk/changemakers</p> <p>Details of Study: This is a small-scale study of the perspectives of postgraduate students in Department of Information Studies and also students from the program of Information Management for Business. We are collecting your views and experiences of the mobile library through cognitive mapping and an interview. The participation will be recorded in order that it can be transcribed and analysed. The audio recordings will not be shared. Participants' names will be anonymised. The results of the data analysis could be shared with staff and students in your programme and more widely across UCL with the aim of further improving teaching, learning and the evolution of the mobile library.</p> <p>On arrival to the exercise, you will be asked to review the consent form provided with this information sheet and you will have the opportunity to ask any questions. If you participate, you will be given an explanation of the cognitive mapping task and what the study aims to achieve. Each participant will be given three coloured pens and some paper. You will be asked to draw a cognitive map of your perceptions of the mobile library using each pen for two minute. You don't need to be good at drawing.</p> <p>Following the drawing exercise you will be asked to label your drawing/diagram. We will also ask you about your thoughts regarding the aim of the research and how you use the mobile library. The session should take no more than 30 minutes.</p> <p>It is possible that you could be recognised. It is up to you to decide whether to take part or not; choosing not to take part will not disadvantage you in any way. If you do decide to take part you are still free to withdraw at any time and without giving a reason. If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form.</p> <p>Please discuss the information above with others if you wish or ask us if there is anything that is not clear or if you would like more information.</p> <p>All data will be collected and stored in accordance with the Data Protection Act 1998.</p>	
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Formal data collection information sheet

Information Sheet for **Exploring the User Experience and Information Behaviour in the Smart Library**

You will be given a copy of this information sheet.

Title of Project: **Exploring the User Experience and Information Behaviour in the Smart Library**

This study has been approved by the Chair of the DIS Research Ethics Committee (REC).

Project Contact: Yaming Fu

Department: DIS (Department of Information Studies)

Email: 

We would like to invite you to participate in this research project which aims to learn about library users in the mobile age to better understand their information seeking behaviour and UX within the context of technological shifts. This research engages libraries with a deeper understanding around explicit goals to update their mobile services and improve the digital learning environment.

Details of Study: This is a case study with a focus on international Chinese students who will be specifically looked into to discover this issue with a cross-cultural viewpoint. We are collecting your views and experiences of mobile library through cognitive mapping and semi-structured interviews. The participation will be recorded in order that it can be transcribed and analysed. Participants' names will be anonymised. The audio recordings will not be shared. The results of the data analysis could be used in any of the output of this PhD research project. Your cognitive maps and quotes from interview may be used in any of the output of this PhD research project (you will have options to agree on this in the consent form).

On arrival to the exercise, you will be asked to review the consent form provided with this information sheet and you will have the opportunity to ask any questions. If you participate, you will be given an explanation of the cognitive mapping task and what the study aims to achieve. Each participant will be given three coloured pens and some paper. You will be asked to draw a cognitive map of your perceptions of the mobile library using each pen for two minutes. You don't need to be good at drawing. Following the drawing exercise you will be asked to label your drawing/diagram. You will then be asked about your thoughts regarding the aim of the research and how you use the mobile library. You can choose to speak English or Chinese during the session. The session should take no more than one hour.

It is possible that you could be recognised. It is up to you to decide whether to take part or not; choosing not to take part will not disadvantage you in any way. Any participant can withdraw from the study up until the data is aggregated and their identifying data will be destroyed, up to the end of the PhD project. If you decide to take part you will be given this information sheet to keep and be asked to sign a consent form.

Please discuss the information above with others if you wish or ask us if there is anything that is not clear or if you would like more information.

All data will be collected and stored in accordance with the Data Protection Act 1998.

Appendix C: Research script for pilot study

Interviewer: (around 8 min)

You will be asked to draw a cognitive map of your perceptions of the mobile library using each pen for two minutes.

Ask participant to draw their thinking on “mobile-accessible digital library system or mobile library”

- Explain mobile library: library service accessed from mobile devices; not a van carrying books
- Explain cognitive mapping: A cognitive map is a visual presentation of your mind world
- In other words, put your thoughts on this piece of paper, drawing your perspective, thinking or expectations on the mobile accessible library service and mobile library app. You can draw places, devices or things in your study life that you regard as helpful to your study needs in regard to provide learning resources and information to you or help you in use these resources.
- **Assure participant that people draw this in different ways and include text, and there’s no right or wrong way to draw up your mind.** You can include keywords, phrases, abbreviations, characters, rough scribbles, or diagrams in your drawing. You can also draw a concept map or mind map if that helps you with representing your thinking.

Things that might help you with generating the thinking on “mobile library”: (around 20 min)

1. Now: Mobile behavior
 - How and where do you use your mobile devices to support your study and look for study-related information (mobile learning habits)?
 - Library services, devices, places or things that are helpful regarding your study needs
2. Past: Use of UCL Explore catalog on mobile phone
 - How you use your mobile phone to access library service or catalogue?
 - Prefer old or new Explore tool, why?
 - Your experience on using the library Explore tool on your mobile phone
 - How do you think of the library Explore tool on mobile phone (emotional related)? Why?
3. Future: Library mobile app
 - Considering there is a mobile library app, what would you like to be able to do with it?
 - Functions or services you want, as well as the functions you don’t want, why?
 - How do you think of the mobile library app?

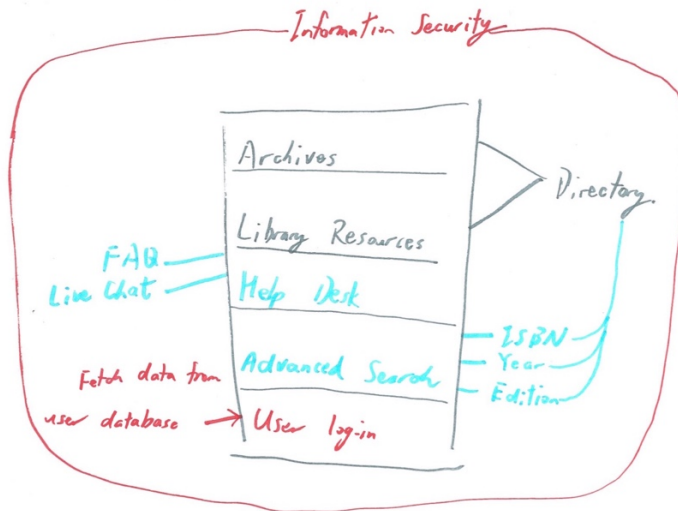
Think about both what you do now and what you would like to be able to do as technologies and possibilities evolve

4. Backup questions

- How do you think of the method of cognitive mapping?

Appendix D: Cognitive maps collected in pilot study

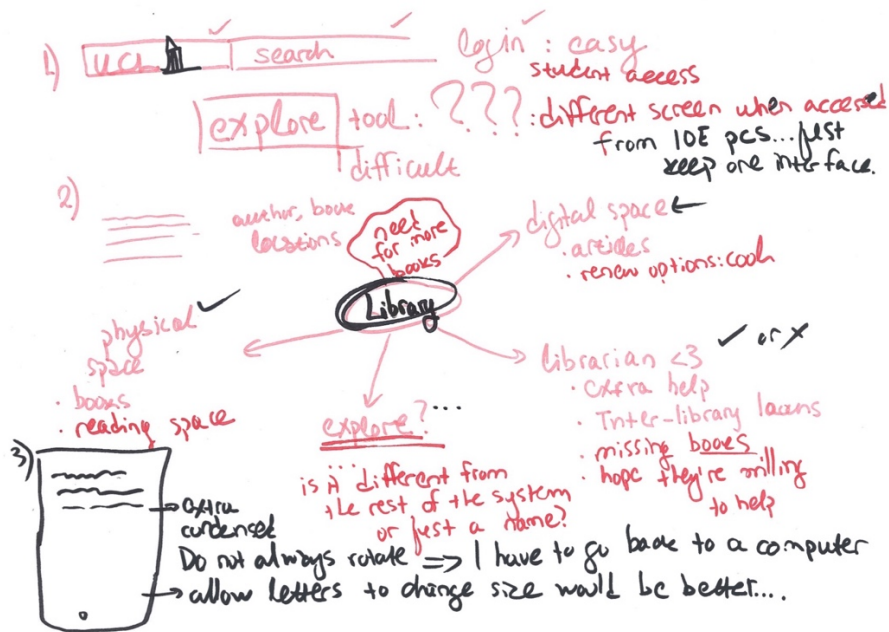
Cognitive map 01-Student from IMB



Cognitive map 02-Student from IMB



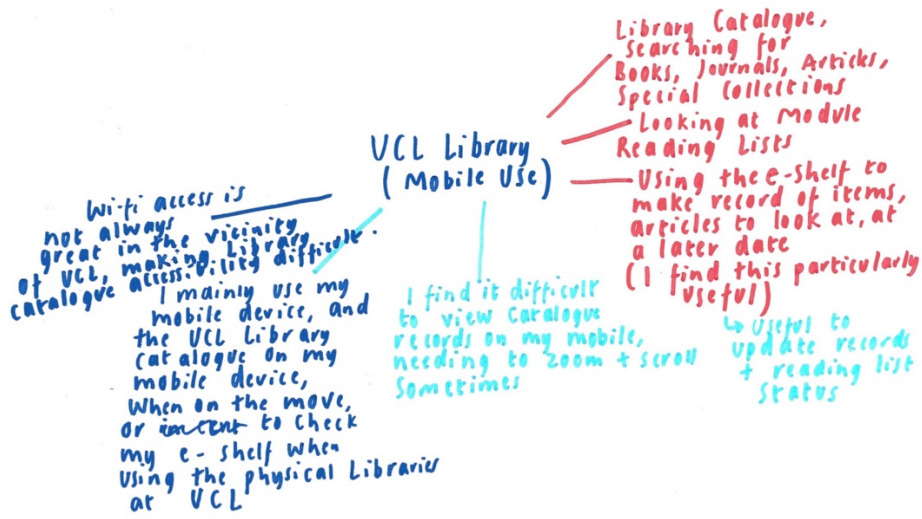
Cognitive map 03-Student from Publishing



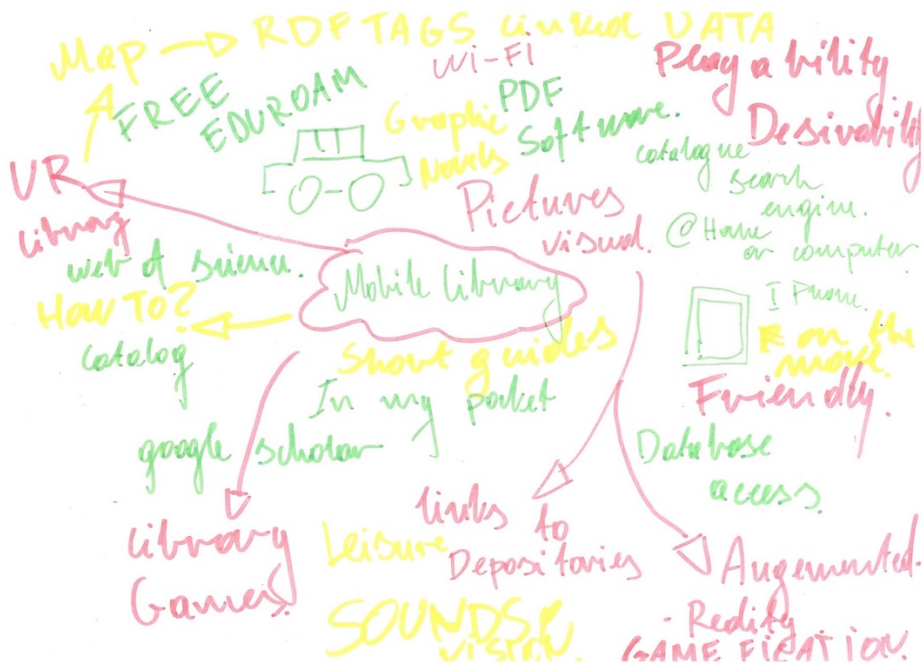
Cognitive map 04-Student from Publishing



Cognitive map 05-Student from Librarian



Cognitive map 06-Student from Librarian



Appendix E: Cognitive map codes in pilot study

Code	Frequency	Position	F/P Index
Library resources			
'Explore' Search (library catalogue)	7	1,1,1,2,1,1,1	6.14
Books, articles, journals, archives, newspapers	6	1,2,1,1,1,1	5.17
Physical libraries	3	1,2,1	2.26
Book status track	5	3,3,3,1,2	2.08
Database (web of science, etc)	2	1, 1	2
Library resources	1	1	1
Directory	1	1	1
Open access	1	1	1
Advanced search	1	2	0.5
ISBN, Year, Edition	1	2	0.5
Library services			
User Log-in	5	3,1,1,2,3	2.5
Wifi, eduroam	3	3,1,2	1.5
Reading list	1	1	1
Librarian	1	1	1
Inter library loans	1	1	1
E-shelf	1	1	1
Room booking	2	2,3	0.8
Seat available navigation	1	2	0.5
Renew options	1	2	0.5
Reading space	1	2	0.5
Online Help desk	1	2	0.5
UCL map or find a place	1	3	0.33
Live chat	1	3	0.33

Code	Frequency	Position	F/P Index
FAQ	1	3	0.33
Fetch user data (user database)	1	3	0.33
Expectations on mobile-accessible digital library			
Accessibility	5	3,1,2,2,3	2.27
UCL Logo	2	1,1	2
Playability, desirability, gamification	3	2, 2, 2	1.5
information security (fingerprint, face id tech)	3	3,2,3	1.13
Concept of mobile library	3	1,1,1	1
app layout (design of app)	2	1,3	1
Colour scheme	2	2,3	0.8
Screen rotation, change letter size	2	3,2	0.8
Connection with other library institutions	2	3,2	0.8
Pictures/visual/ vision	2	2, 3	0.8
Short guides, how to	2	3, 3	0.67
Floor plan	1	2	0.5
Portable, compact	1	2	0.5
Apps technology	1	2	0.5
User-friendly	1	2	0.5
VR library, virtual library tour	1	2	0.5
Interaction	1	3	0.33
Graphic novels	1	3	0.33
Mobile learning behaviour			
Location/place-on the move	4	3,1,1,3	2
Location/place-Science library	2	2,3	0.8
Mobile phones	2	2,3	0.8

Code	Frequency	Position	F/P Index
Devices usage	1	2	0.5
Desktops	1	2	0.5
Laptop	1	2	0.5
ios/Android	1	2	0.5
Tablets or iPad	1	2	0.5
Different behaviour on laptop, phone and tablet	1	3	0.33
Others			
Research	1	1	1
Global research	1	1	1
Comparison across the world	1	1	1
Academia	1	1	1
Professors	1	1	1
Universities	1	1	1
Students	1	1	1
Masters	1	1	1
PhD	1	1	1
Alumni	1	1	1
Academic bodies	1	1	1
PDF software	1	1	1
Google scholar	1	1	1
Technological advancement	1	2	0.5
Use of RDF tags, linked data	1	3	0.33

Appendix F: Research Script for formal data collection

- Before the session: email confirmation (information sheet, time and venue); prepare A4 paper, color pens, printed information sheet, printed consent form, Amazon voucher, sign-up sheet, recorder, laptop, mobile phone
- On the arrival: explain information sheet and sign consent form; confirm participant's information (programme, age range, gender, undergraduate university)
- Explain the research method, cognitive mapping, to the participant

Cognitive mapping (10 mins)

You will be asked to draw a cognitive map of your perceptions of the **mobile library** or **digital library** using three different colored pens. You need to change the pen color in every two minutes and I will give you notice when the time is up.

You can draw your perspectives, thinking, experience or expectations on the **digital library service**. You can draw places, technologies, applications or things in your study life that you regard as helpful to your study needs. You can also draw how you have been using the library system.

You can draw this map in different ways and there's no right or wrong way to draw up your mind. You can include words, texts, keywords, phrases, abbreviations, characters, rough scribbles, or diagrams in your drawing. You can also draw a concept map or mind map if that helps you with representing your thinking.

Semi-structured interview (around 40 mins)

(1) Can you explain your cognitive map (in the order of your drawing)? Can you try to label all the elements on your map?

(2) As an international learner: your learning experience in China and UK? Your cultural experience?

(3) As an information seeker: What information/where/how do you seek for to satisfy your study needs? What/how you find information on the library system? How you use technology to support your information seeking?

(4) As a library user: How do you use our library system? (habits/technology/functions) How do you evaluate it? (What you like/don't like) Your suggestions and expectations? Your perspective on the concept of 'smart library'?

Prompts

Culture:

- Based on your learning experience in China and UK, can you explain the difference you find?
- Have you done anything to prepare your learning in UK? Do you find it useful?
- When you were in China, what information did you usually search for meeting learning needs? And how did you search for them?
- When you are in UK, what information did you usually search for meeting learning needs? And how did you search for them?
- Do you find your learning habits changed because of the country?
- What the library system you used in China is like? In terms of the interface, way of structuring the resources and the user experience (UX)
- What do you prefer about the library system in China and the library system in UK?

Information seeking behaviour:

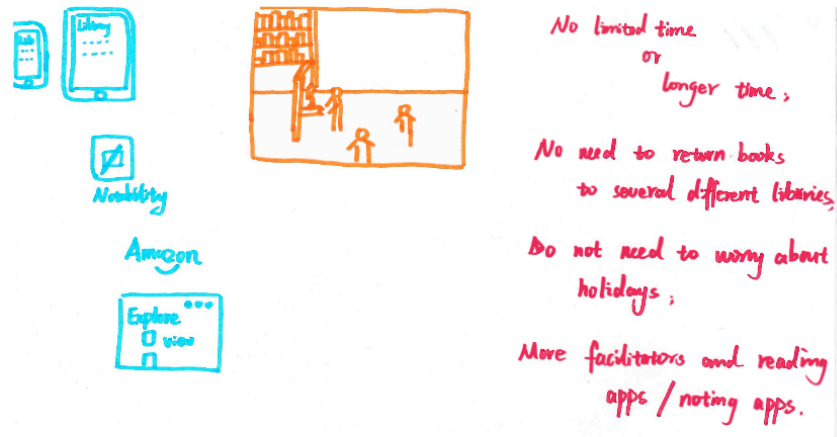
- What activities do you usually do in your learning process? Can you think up of the scenarios or contexts of your different learning activities? (locations, tasks and information you need to find)
- How do you use different devices in your study? Can you explain in detail the different context/situation/environment/time you use different devices? (is there a preference)
- Do you use your mobile phone to learn? How?
- How long do you usually spend to seek information on the library system? What's your habit of using the library system?
- What information do you usually find on our library service page? On Explore? (Can you show me how you do on the library page?) (Information behaviour)
- Are there any difficulties you encounter when you are using the library system in UK? (UX) If so, why do you think you cannot find it? Can you think up an example/a time when you failed to seek for something? (critical incident analysis)

Library UX:

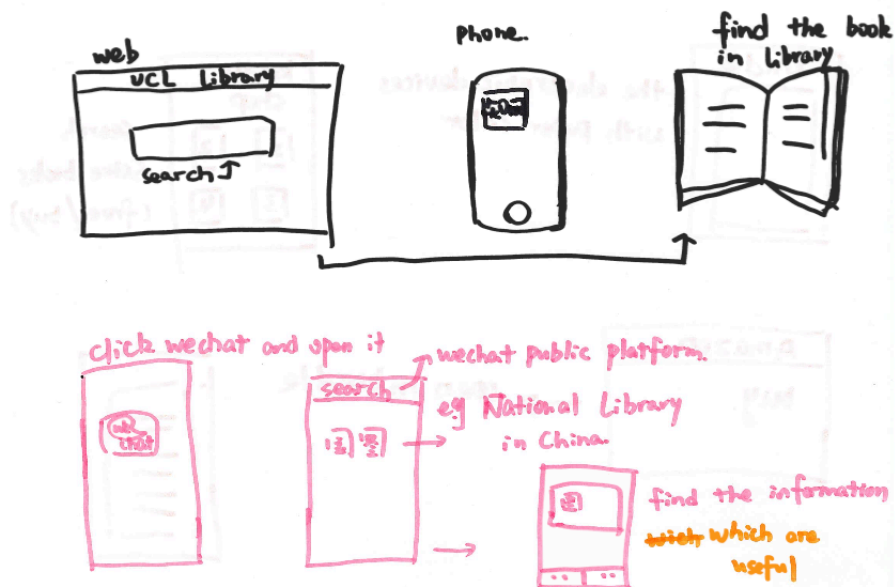
- Have you used a mobile library app before? How is it?
- What information do you usually find on the mobile library? On UCLGO?
- How do you evaluate our library system? How do you evaluate it on different devices?
- What functions do you find most useful and satisfied? What functions you rarely use?
- From the perspective of international student, do you have any suggestions to help improve the library system?
- What's your understanding and expectations of the concept of 'mobile library' and 'smart library'?
- How do you think our library should leverage the technology or different devices to improve its services in the future?

Appendix G: Cognitive Maps Collected in formal data collection

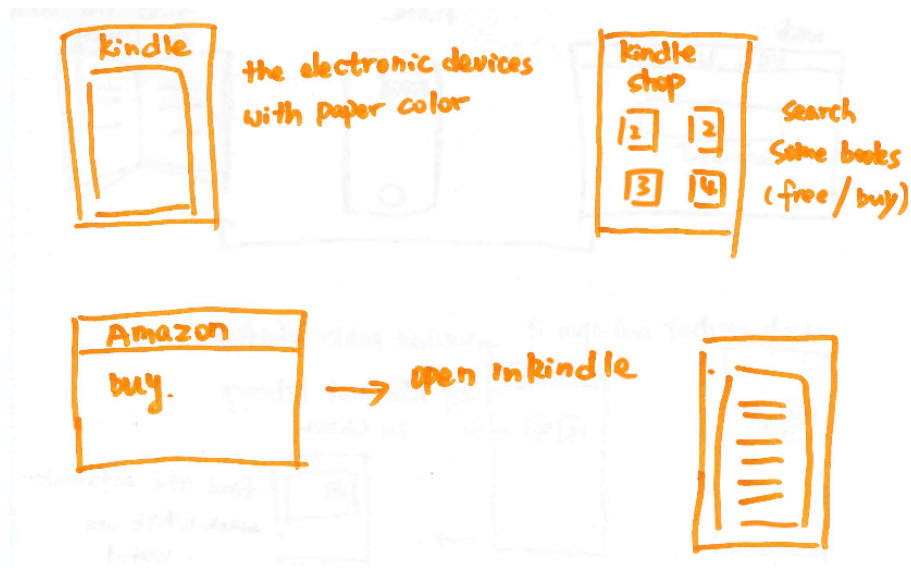
Cognitive map by participant 1



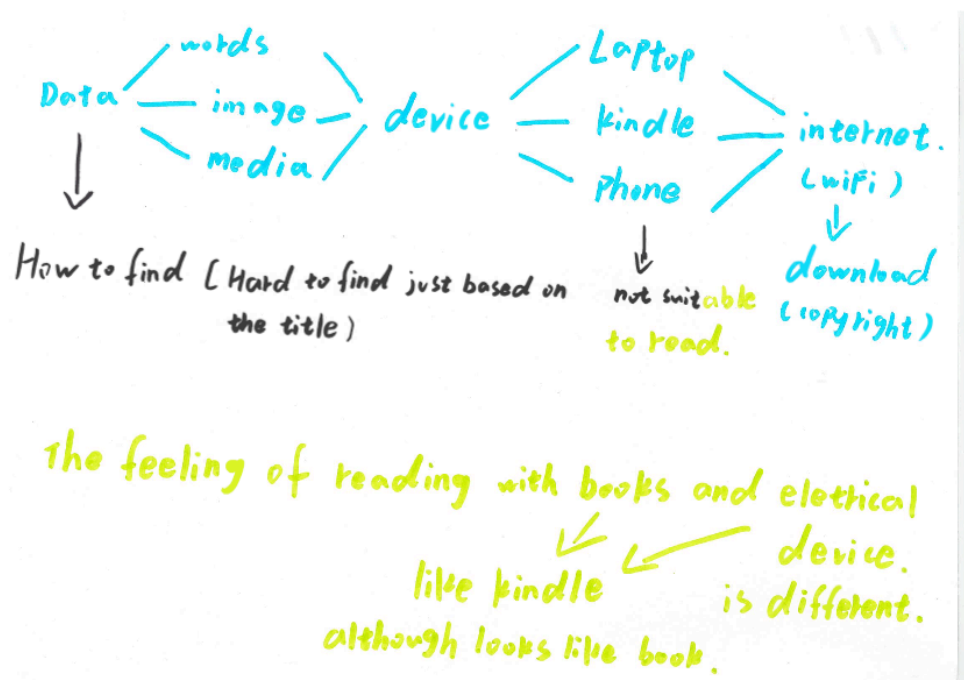
Cognitive map by participant 2 (front side)



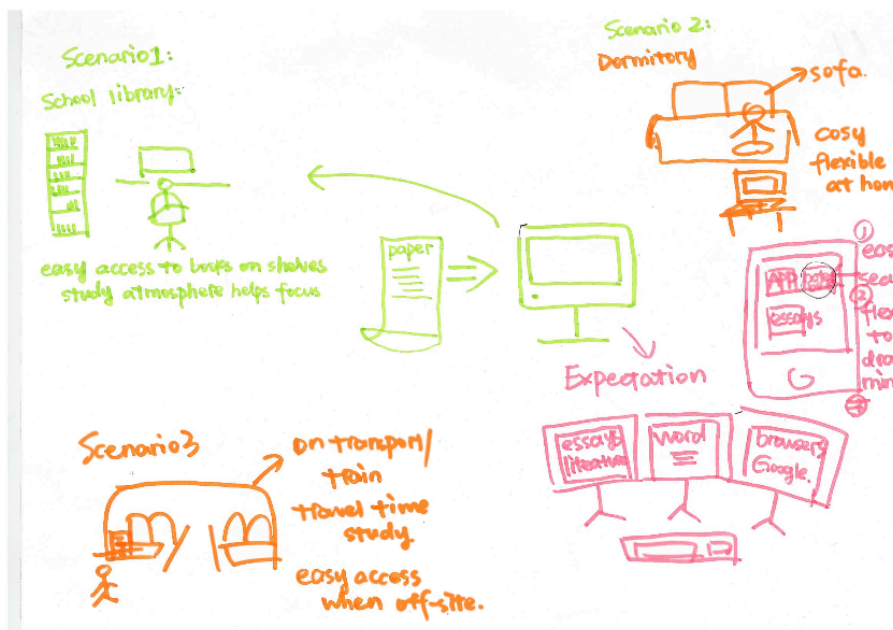
Cognitive map by participant 2 (back side)



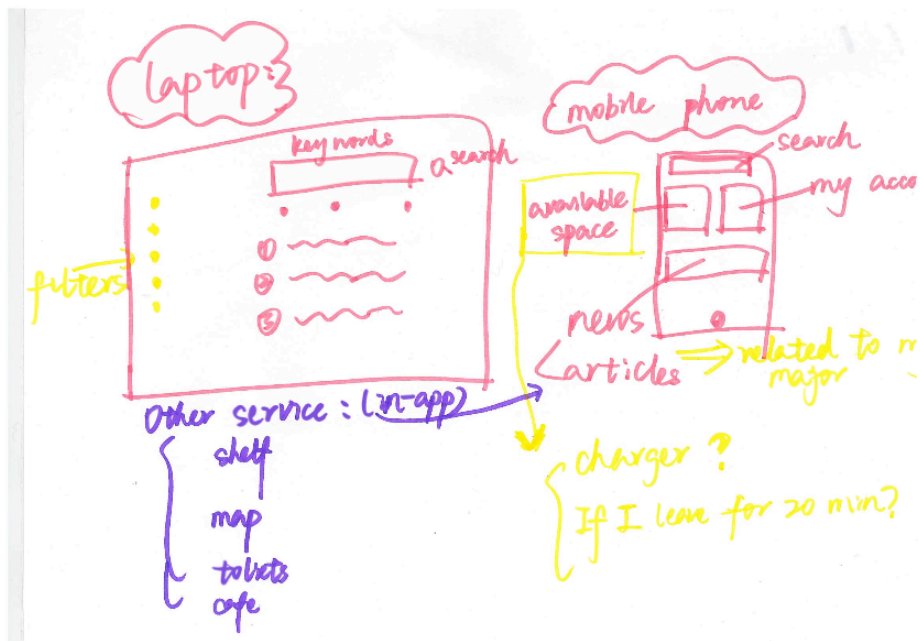
Cognitive map by participant 3



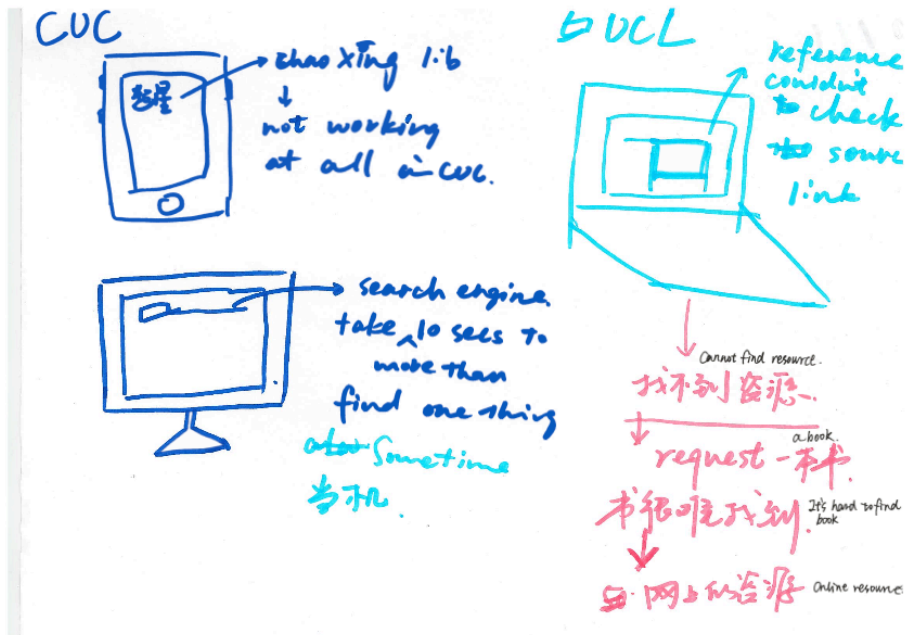
Cognitive map by participant 4



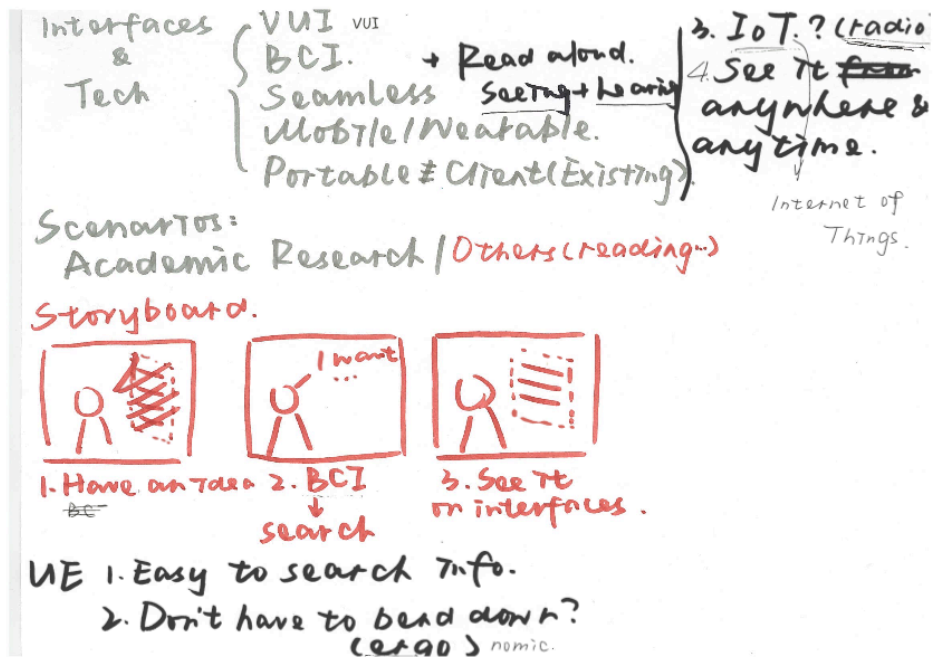
Cognitive map by participant 5



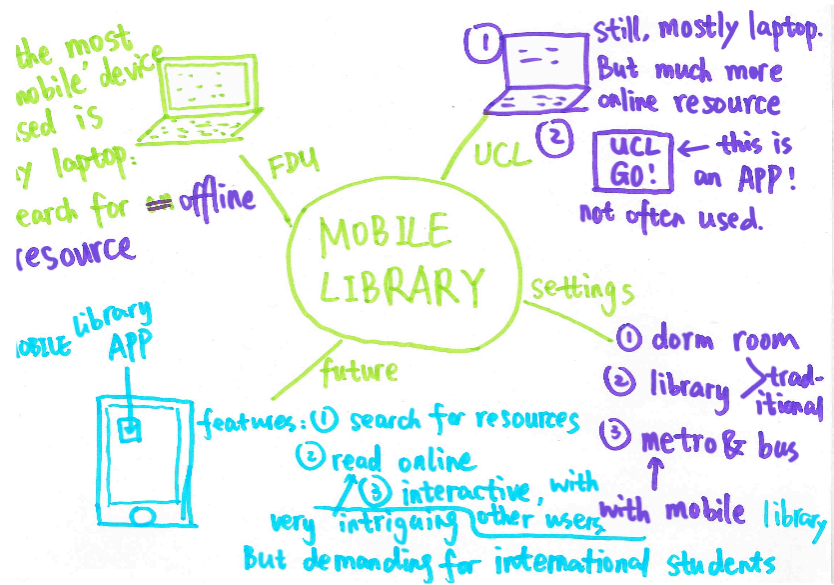
Cognitive map by participant 6



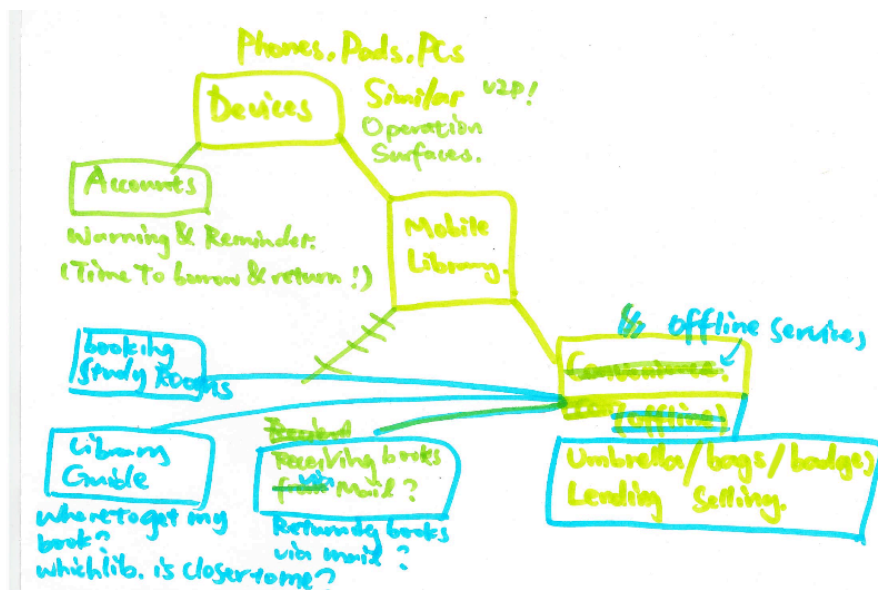
Cognitive map by participant 7



Cognitive map by participant 8



Cognitive map by participant 9



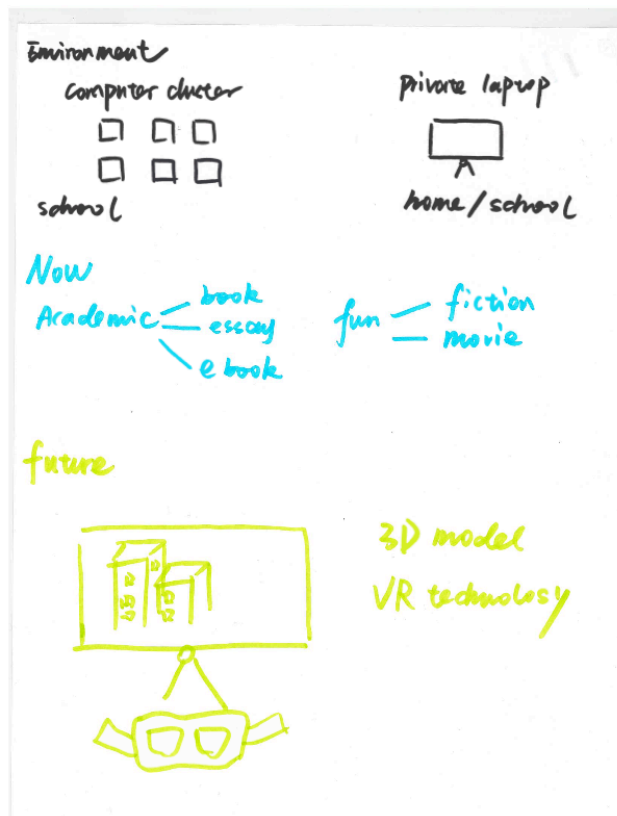
Cognitive map by participant 10

- 1) before going to lib:
 - a. check for available space / pc
(maybe in the future there can be some guide/map)
 - b. inform of the loans/holds
- 2) in the lib.
 - a. search for favorites (water / first-aid ...)
 - b. books (which shelf → how to go →)
 - c. feedback (noise / food / no crashdown ...)
 - d. online journals/materials
- 3) leave the lib.
 - a. order for tomorrow's seat
 - b. recommend on books

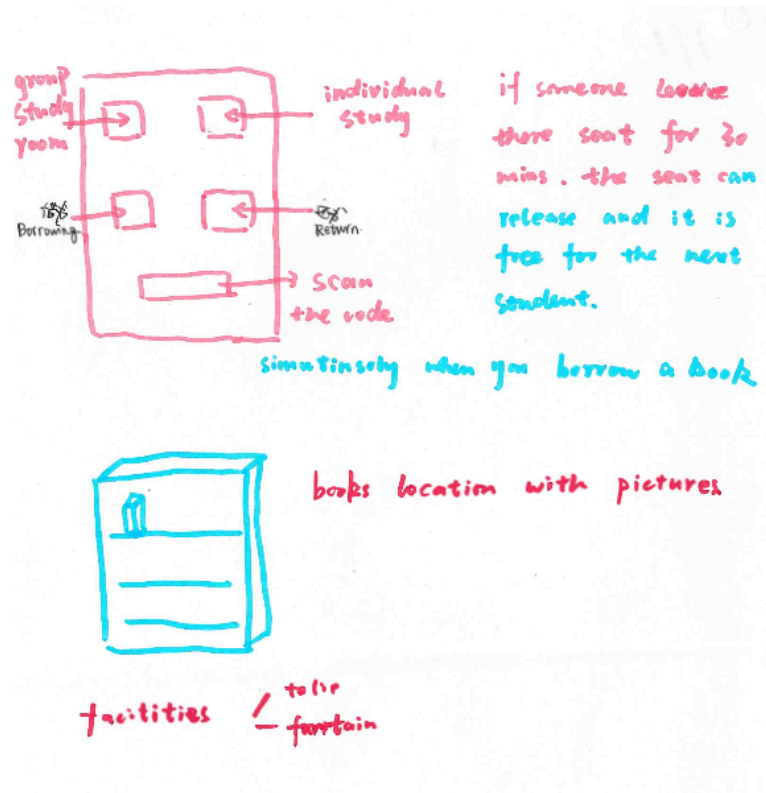
Cognitive map by participant 11

- services {
- literature search
 - room booking
 - available room checking
 - available seat checking
 - space guiding
 - robot guiding (search for books)
 - different functional rooms music/chat/rest
 - drink / food supply . laptop supply . charge device supply
- file sync

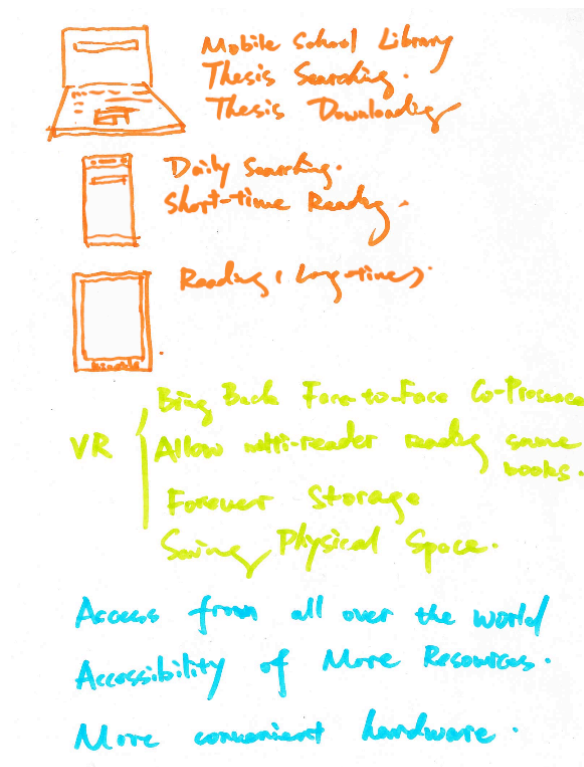
Cognitive map by participant 12



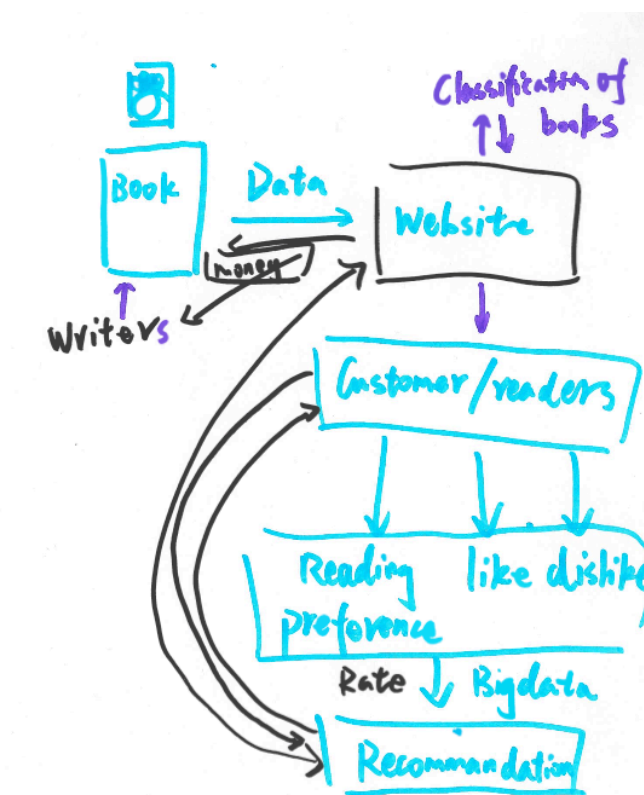
Cognitive map by participant 13



Cognitive map by participant 14



Cognitive map by participant 15



Appendix H: Interview transcription sample

-----Chinese transcription 中文转写-----

Interviewee 1---IOE: MA Museums and Galleries in Education---Nanjing University---Female

R: 你可以先把你刚刚画的 Cognitive map 解释一下吗？

P: 然后就是说移动图书馆，然后第一个想到的就是我们可以用手机，然后用 PAD，然后这些设备，然后就想着用这些读书的话，肯定要做一些笔记什么的，然后就想到了有一些适合 PAD 用的一些 app，然后来做笔记，看电子书什么的，然后就想说书从哪来？就画了一个亚马逊，然后还有 UCL 自己的图书馆可以为 online 有好多书啊，杂志啊就很方便。然后后来我又想，因为要从学校里边借书什么的，然后有的时候在学校图书馆自习的时候，就可以用学校的那种设备、电脑什么的来用他们的数字图书馆，就不用抱着书楼上楼下的跑，然后等到第三次换笔的时候，我就想有什么比较方便，或者我为什么要用这些，然后就想到上次期末的时候，因为要借书就从好几个不同的图书馆来借，然后就整整用了一下午的时间去找书、借书，然后还书的时候就抱了好多的书，然后往不同的图书馆还然后当时就特别生气，因为图书馆之间都离得挺远的，有的要还到主图，有的还到 IOE，然后书很重，大概有 20 多本抱着特别重，然后更坑爹的是那一天考古学院休息，然后我又抱回来了，想还不能还，对，然后就想要是全部都能数字化的话就太方便了。借的时间又长，也不用到处去还书，也不用担心人家是不是放假了，我白拿来了什么的，因为我们住的还比较方便，好歹就一趟地铁，要住的远的话这一天气死了

R: 好的，然后就是说最后这个部分你就写了一些你希望的，类似于期许的东西，好的。然后这个就放在这里，然后我们现在就开始正式的 Interview。然后这个 interview 分成三个部分，第一个部分我会问你以文化这个角度为切入点，问你一些作为一个国际的留学生，并且你以前有过在中国读书的体验，会问到你的一些经历，还有就是你的体验，然后第二个部分就是你作为一个信息搜寻者你的一些信息行为还有你的习惯。然后第三个部分就是你作为图书馆的用户你的用户体验。第一个部分，因为你本科是南京大学的，然后你现在到 UCL 读了硕士，然后你觉得从一个宏观宏观的角度上来说，或者就是以学习的环境和学习的氛围来说，中国和英国学习的环境上面有哪些不同的地方？或者是主要的不同。

P: 我觉得对我来说最大的不一样，就是因为住的不一样了，所以就引起很大的不一样。因为在中国的时候就是住在学校里，然后出门不管是去教室上自习，去图书馆上自习都很方便，就会愿意出去，在这边的话，因为毕竟不是住在学校里，然后交通还挺贵，所以就很少去图书馆了。除非说是借书的时候，一般都是去借的话，我都是比如说在图书馆上搜，搜好攒好，然后攒一个相册的，然后一次性去借，因为硕士能一次借 20 本，然后就一次性攒够大概十几本的时候一起借回来。

R: 好的，在中国的话，你一般是去到图书馆学习，然后在图书馆就直接借？

P: 对，基本上都不借出去，现翻，然后因为国内限制也很多，就是南大当时我记得是本科生一人最多只能借五本书，也就是说你还没有怎么借书，然后就没有办法借出去了，所以就都在里面看。

R: 那对于学习的方式来说有什么不同的地方？

P: 方式主要应该还是硕士和本科的不一样。本科主要就是上课，然后下了课就大家该干嘛干嘛。然后有的时候考试之前复习一下，然后这面就是无时无刻的都在看书，都得自己来。

R: 就是说之前可能更多的是上课，然后老师输出，然后准备考试，但是在这边的话可能更多的都是自主学习的时间，独立学习的时间。好，那就是你来英国之前有没有做哪些关于学习上的准备？

P: 有，搜了好多专业相关的书杂志什么的，先看了看。因为既担心因为突然从本科变成硕士，担心会有更深的东西，然后自己不懂或者什么的，然后另一个也是语言的担忧。所以主要看了一些这些专业书。

R: 那你是从什么途径找的，还是你这样随意的搜，还是你通过学校老师给的什么东西搜的？

P: 就是翻墙在外网上面搜的，然后有一些是本科老师推荐的反而是，因为当时跟硕士的老师不太熟，也不太不好意思问，然后后来其实发现你完全可以问他们，但是当时不太熟，就不知道他们什么秉性，反而是去问本科老师，然后可能自己在搜索引擎上面直接搜这个主题，然后得到的。

R: 那就是说像你们院有一些提前准备的 reading list 之类的，你会看吗？

P: 他其实老师有给我们发 reading list，但是因为我当时邮箱出了问题，我没有收到那封邮件，然后等我来了以后我才知道的。但是之后基本上每一周上课之前，老师都会给 reading list，然后那些会提前看。

R: 好的，你觉得在你之前做的这些准备，尤其是看专业书这一块，就是对你的帮助大吗？

P: 我觉得还行，他不是那种很具体的帮助，比如说老师讲了什么，我以前看到过，然后我就全懂了，不是这样。大概说因为老师他上课本身跟我们最后的论文什么的关系其实不是很大。老师就是天马行空的讲，给你一些启发，然后前面都是属于积累素材和想法的阶段，就没有那么直接的帮助，但是他会给你有一些想法，让你有一些思考，还是有帮助，但是不直接的。

R: 好的，然后的话就是针对你的学习习惯，你可以跟我简单的介绍一下，你在本科的时候学习习惯是什么样的，然后来到这边学习习惯是什么样。

P: 其实本科的时候，因为我格外喜欢我这个专业，所以本科的时候基本上就是上课的时候好好听一听，然后考试之前好好复习一下，但是平时都是自己看书，但是看的都不是那么和考试相关的书，因为我学

原来学文物鉴定的话，就看一些鉴定周边的书，然后觉得很有趣。然后来这边的话看得可都是学术相关的书、杂志什么的，因为怕有的时候老师上课会听不懂，然后感觉自己经常在看书，可是在写论文的时候还是很蒙。

R: 好的，刚刚你有介绍道你的学习习惯，那么针对你在学习当中需要搜索的信息，你在中国是怎样搜索这些信息的，然后在英国是怎样搜索这些学习相关的信息的？

P: 在中国的时候，因为大家都用知网什么的，然后用学校的又很方便，基本上大部分都是看杂志了，就是知网上面的期刊，然后反而看出版成书的这种会少一点。然后也是因为专业的原因，我觉得，因为我这个专业的书就是成册出版的书，都是属于比较社会学派的，对你的学术的帮助不是特别的大。然后主要就看期刊，但是在这面看的是书多一点...

R: 那这个书是纸质书还是电子的书？

P: 纸质的多一点。大部分因为学术相关的还是纸质的书多一点。然后但是也有一些从学校网站上搜的电子书，然后因为我上个学期写的一个论文的主题就是比较的...做的人比较少吧，然后我当时就是像在国内一样的搜索习惯，然后在图书馆上比如搜关键字，然后出来的东西就特别少，而且不是跟我想要的是一样的，我专门去问了老师，我说老师我找不到相关的资料我怎么办？然后他告诉我的是，他就给我示范，基本上全部都是在搜索引擎上在，在 google 上找，然后会让我看里边从里面看新闻，有看期刊，然后还有看各种政府文件，然后我们老师对政府文件特别的重视，所以他交给我是你确定一个主题以后，完全可以在 google 上搜，不用特别的专业的在图书馆上或者是学术引擎上这样的。

R: 我总结一下，你在中国的时候主要用的还是这种学术的引擎，比方说知网，然后找的可能更多的就是期刊什么的，但是现在在英国你一般就是会去借一些纸质的书，或者是在 google 里面搜，或者是你们老师可能跟你教了可以去政府的文件上面去找一找。你刚有说到，其实如果这些书有电子版的话，你其实是会更喜欢电子版的是吗？

P: 是的

R: 但是因为可能也许和学科有关系，但是你们这个学科可能更多的都是一些纸质的书？

P: 它有一些很关键的著作，只有纸质版的，然后就是核心的一些理论的书，往往在图书馆上只能去借纸质的，一些周边一点的或者一些新的书，基本上都可以 view online，或者 download 的那种。

R: 好的。那你在南京大学的时候用的图书馆系统是什么样的？你可以大概给我形容一下吗？

P: 我们学校的图书馆的系统...我在南大的那个时候，就是我们系统维护的不是特别好，然后经常就是会卡、搜不出什么东西来。但是我听他们去年好像整个校园网全部都重装了。但是之前的话就是很难从里面搜，我一般都不直接在网上面搜，就是去去图书馆里边的那种终端的那种机器上面，对，会比你在电脑上搜方便的多

R: 其实可能更多的是和校园网有关系？

P: 是。

R: 那图书馆系统的界面大概是什么样？他组织资源的方式大概是什么样的？

P: 跟这面应该差不多的，然后中间是资讯，然后上面有搜索栏，旁边有一些其他的相关的链接什么的。然后搜书的话没有能在网上直接阅读或者那种的链接。一般都是告诉你是在哪一个书架或者是在哪个院，因为南大他本身也有两个院，他会告诉你这个书在鼓楼还是在仙林这样子。但是南大就图书馆有一点特别好的，就是你在图书馆借的书可以还到各个地方去图书馆。

R: 那以前你们南大的图书馆系统里面，对于这种在线的期刊，他是怎么样检索的？还是只是对纸质书提供一个书目检索的功能？

P: 这个我真不太确定，因为我没有南大的图书馆的检索过期刊，因为期刊直接就在知网上找就很方便。

R: 好的，然后的话就是对于我们学校的 explore 系统，就是图书馆系统而言，（打开了网站）它的两个界面，一个是图书馆的一个服务，然后这个是 explore 的主界面，那么一般你会在 Explore 里面搜索的是哪些类型的资源，然后你都是怎么操作的？

P: 哪些类型的...我一般都是直接搜领域。除非是有老师推荐的书，我会直接搜书名，第一学期的学的东西比较像理论梳理这样的，我就会搜就直接搜一个作者的名字，然后从他第一本发行的书一直看到最近的。

R: 好的，也就是说其实你更多的是搜索一些抽象性的概念，就直接点进去看，可能就看一些相关的文章，然后再从里面挑？

P: 对。

R: 好的，那么你在用英国的图书馆系统的时候，有遇到一些困难吗？或者你觉得有什么时候是你没有搜到你想要的东西？

P: 有啊，有的时候搜关键字出来的，跟你要的可能不太是一个东西。

R: 那你觉得原因有可能是什么呢？

P: 学科交叉应该是，因为比如说我要写 Human remains，它可能是跟考古有关的，当然这个跟我也有关，它可能是跟博物馆展览有关的，然后这两种都是我需要的。但是好多他又是跟解剖学、自然科学相关的，但是这种就是我完全不懂的东西，就跟我没什么关系，但是有的时候反而这些会放在前面，然后就会让我看了两页之后就觉得没有我要的东西。

R: 你觉得除了可能有时候找不着自己想要的之外，还有遇到过什么觉得这个系统不好用的时刻吗？

- P: 经常需要输用户名和密码。
- R: 这个很麻烦？
- P: 对，尤其是你正在看一本书的时候，你不可能说我一个两一两个小时看完一整本书，你有可能看半天，然后他会让你输三次密码，然后就觉得很烦。
- R: 好的，然后的话就是用户名和密码太频繁？
- P: 对。
- R: 你觉得英国的图书馆系统和中国的图书馆系统相比的话，你喜欢什么？不喜欢什么？
- P: 中国的话，我喜欢的就是，对我来说找书比较容易，因为它的分类就是秉承一个标准的。但是英国这边的图书馆，就像 IOE 的图书馆，它就是分教育的、非教育的，然后上下又分层，上面的是这个排序，下面的又换成了字母那样的排序，然后有的时候找书就特别困难。然后中国图书馆不喜欢的...我觉得主要是我们学校的问题，就是原来的网站真的特别的鸡肋，就是不知道用它来干什么。你找书吧有的时候又找不到，然后在上边操作你自己的账户，比如说你的学生号什么的，经常卡，经常看不到你借了什么书，也不会提示你什么借的期限之类的。但是我觉得英国这边做的特别好，就是你快到期的时候，他就给你发一个邮件，你就知道我快到期了，我是续借还是还，然后以免超期。但是这边不好的就是他提示的时间稍微有一点早，好像一般都是三天，然后等三天之后我就忘了。有的时候你就想着我要去还了，但是你可能有其他的事耽误正好三天过去，然后就超期了。然后再一个就是他还书的这个，你必须从哪借，从哪还。就比较的麻烦。
- R: 好的，我总结一下，就是说在中国图书馆系统可能更多的它就只是起到一个检索的作用，然后你也不是很经常的去用图书馆系统，然后更多的就是在实体图书馆里面直接去找你想要的书，然后在这边的话你会经常在这上面搜，可能到期的提示做的还可以，但是还不够人性化？
- P: 是的
- R: 好的。然后我们现在开始第二个部分，第二个部分就是关于你的信息行为的就是你做你平时搜索信息的时候你的一些习惯和行为，然后你在学习生活当中一般会搜索的信息都包括什么？就是这个学习是一个可能很广义的学习，就可能他它不单单是你为了 coursework 去找这个信息，这个就是一个广义上的，你一般就是和学习相关的信息你都会找哪些？然后从哪些途径去找？
- P: 会订杂志，现在有订 MA 的杂志，然后没事去图书馆借书什么的，然后有跟专业相关的，会找老师发邮件，有没有什么推荐的书之类的，然后再一个就是直接在 google 上找。因为自从上次问完老师以后，发现他写论文也是直接在 google 上搜，什么都会看。新闻，然后博客，政府文件，然后包括一些图片，他什么都会看。我就发现他们这边，也许是我们专业还挺重视博客的，
- R: 就是那种可能也是比较著名的人，著名的学者之类的？
- P: 对，一些写手这样。
- R: 然后你刚说到杂志，这个杂志是实体的杂志，然后他就直接寄到宿舍？
- P: 对
- R: 然后的话你就是在英国，你现在搜索的信息以及途径是这样的，这个和你之前在中国为了学习相关的搜索，相像吗？
- P: 有相似也有不相似，我在本科的时候没有没有订过实体的杂志，因为有知网就什么都有了，然后但是也会找老师问一些书，因为我们专业太小众了，直接在网图书馆上搜的话，搜出来的都是比较社会的那种收藏一类的书，学术的很少，所以都会去找老师问。然后再者的话，在国内不相信搜索引擎，百度搜出来的都没办法用于学术。
- R: 你在国内不会用搜索引擎去搜索？
- P: 对
- R: 好。刚刚有提到你会搜索这样的信息来满足你的学习的需求。但是刚刚我发现好多其实是以实体为主，可能有时候在谷歌上面会搜一些类似于片段化的或者是碎片式的信息，那么你经常会接触到的设备就是电脑和实体吗？你还会用到一些其它的设备吗？比方说 iPad 或者是手机，你是怎么样用其它的设备的？
- P: 对，其实是平时读书的话，我主要会用 pad 来读。因为用 notability 那种软件的话，可以做笔记，画重点就很方便，包括上课的时候也是那样的，但是如果说是写论文的话，我现在需要真正的写出东西来的时候，我就是用电脑，然后从 explore 上面下那种书边看边就是做那些 refs，然后一些引用的直接把它摘下来，这样比较方便。
- R: 就是说如果说你只是阅读的话，你一般可能习惯性的用 pad，但是如果是涉及到写的时候，你就会用你的 laptop。你刚刚说可能会写东西的时候，你会下一些东西吗？然后边边看文章，然后边写，你这个时候是会 laptop 用来写，然后 pad 用来看，还是你看和写都在 laptop 上？
- P: 其实是这样的，就是我第一个学期的时候，就是所有的书全部都下在 pad 上面，然后包括做笔记，然后引用、摘出来都额外放一个文件夹，就是说这些东西都是我论文要用到的。然后等到期末在整理的时候，就是开始往出写的时候，我就觉得这样有点复杂。你有的时候这些整理的不是很是顺序，或者有一些碎片的东西，你当时有了灵感，然后你再翻回头看的时候，你就觉得，我这是干嘛用的来着，就忘了。然后我第二个学期整个换了看书的时候的灵感，就是这边看着也在上面做笔记，但是这一天结束以后就会把这个全部都就是归在电脑上的一个文档里面，然后就按照我可能是我论文的思路这样一 part 一 part

的往下写。然后等我写论文的时候再集中看书的时候，我就是直接边看边写，下面开着文档，上面看着书，就同时都在 la Top 上进行，就没有 pad 什么事了。

R: 也就是说可能在学期当中你只是在阅读，在吸收这个知识的时候，你是一般会用到 pad，然后但是你在阅读之后总结完了之后会把它们全部都放到 laptop 上，然后你最后的写作的时候会用到只用 laptop 来做？

P: 是的，其实这是一个变化的过程，因为第一学期到结束的时候，就觉得整理起来很费时间，然后时间不够用了。所以到第二学期我就把整理放在平时来做。

R: 那么 pad 上面除了阅读功能以外，然后你还有用到哪些和学习相关的功能吗？

P: 字典。然后读书笔记，包括上课的笔记，然后有一些录音，然后会拍 PPT

R: 你会用 PAD 去拍 PPT？

P: 对。

R: 然后就除了 PAD 之外，你会用手机去学习吗？

P: 很少，因为在本科养成了这个习惯，用 pad 来拍 PPT 做笔记。然后其实一开始大一、大二的时候是用手机，然后发现大家都用 PAD，然后直接可以做笔记，我觉得手机好不方便，然后就把手手机完全化成了娱乐设备，PAD 化成了学习设备。

R: 好的，然后可能手机上面手机上面比方说更广义上的学习呢？还是手机其实就是一个娱乐和交流的一个设备也没有，比如说我今天在外面，然后想晚上闲下来了想读个书，然后还是用手机。

P: 然后我是那种比较喜欢看小说写小说的，所以它对我来说，但是写小说看小说对我来说是属于休息的过程，没有那么学术

R: 好的。还有一个关于你习惯的问题，一般你平时经常去图书馆学习吗？

P: 在这一边其实从来没有过。都是借书回来。

R: 都是借书回来，然后在家里面学习，也就是说图书馆的 desktop 你一般是不用的，对吧？

P: 对，除非借书的时候，除非借书和打印的时候。

R: 也就是说你的学习习惯，其实一般学习地点就是在宿舍，然后用自己的 laptop 和 iPad？

P: 对。

R: 好的，刚刚我们有提到你有时候其实是在我们图书馆系统里面找不到你想要的资源的，然后你可以想到一个比较具体的例子，当时找了什么，然后没有找出来，结果是什么样的，没有找到之后你怎么做了？

P: 就是我刚刚说的那个例子。找 human remains 的东西，因为我想做的就是因为这个争议很大，到底应不应该在博物馆展览，就是各执一词，然后我就蛮想做这个的，当时在图书馆里面找的时候就是找到跟博物馆相关的，因为争论现在已有的争论特别多的都是关于一些道德的问题呀，包括该不该还回去，原住民或者说是宗教的问题，但是对于教育本身、还有博物馆展览它的用处本身的讨论是很少的，我在这个上面搜的话，大部分都是关于一些道德，然后关于一些自然科学的东西，就是跟我想要的东西差别很大。

R: 然后之后你你怎么做了？

P: 我就去找老师了，因为他也觉得这个东西比较新的一个想法，他跟我说你就是在 google 上面找，多看，然后从里面找你的灵感，然后去反驳一些，或者是赞同一些这样的来写。

R: 也就是说可能没有当时没有找到的原因，是因为这个领域太新了，而且它又涉及到一些交叉学科，

P: 对

R: 所以找不到你想要的东西，但是之后你就在 google 里面可能去搜一些非官方，但是可以提供灵感和思路的这样一些东西，好的。然后你一般就是用图书馆系统，都是在一个什么样的情境下去会用到图书馆系统？

P: 比如说我现在觉得我需要看一些专业相关的书，然后我会去找，然后我现在比如说开始要准备毕业论文，然后我想找一些灵感或者是相关的话题，然后我就会在上面搜关键词，找一些书先回来翻读那样。然后再一个就是老师推荐了 reading，然后要在上面具体的来搜某一本书下下来。

R: 好的，其实更多的还是和自己的专业，还有 coursework 或者是老师给的一些 reading list 的有关的，就是在你有这些 task 的时候，是你会去看图书馆的这个系统？

P: 没错。跟国内其实蛮不一样的，因为在本科的时候，看书的话就是很杂，从明朝那些事往下看，就完全看这种什么都有的，有时候看一些游记，旅游的这些东西什么都会看，但是在这里面全部都是专业相关的、跟论文相关的，基本上没有什么广泛的那种阅读。

R: 你觉得原因是什么呢？

P: 原因是更多的时间我愿意去下载一些中文的来看。

R: 好，那你一般会下中文的文献来看吗？或者是中文的一些和学习相关的这些书？

P: 是。

R: 你一般是用什么东西来下载中文的资料呢？

P: 有的时候就是用网盘。然后再具体专业相关一点的话，就是更专业一点的话，还是会用知网，在淘宝上买了知网的号，然后来看。

R: 所以说其实相对于文献或者是和学习相关的，你可能更偏向于去看中文的文献或者是中文的一些东西，但是和你们专业和 coursework 相关的，就不得不去看一些英文的？

P: 是这样,我感觉还是第一学期这样多一点,还是对中文文献有依赖性,觉得我这个话题还不是太懂的时候,我愿意去看一些中国人是怎么做的,然后等到第二个学期的时候就发现,其实国内的学术和现在这边是有一个时间差的。国内觉得很新的东西在这边其实已经做到已经是那种老生常谈的旧东西了,反而我就会开始不太看中国的专业的这种相关的,反而去看英文的,但是会泛读一些,因为毕竟以后回去工作,就像一些博物馆的杂志,各个馆长的一些写的东西,博客什么的就看一些中文的。

R: 好的,然后现在你看到这个系统在这里,然后图书馆是分 explore 上面有这些 tabs,就是它的一些入口,然后还有主要的搜索引擎,你平时一般用的功能或者平时一般会点的都是哪些?

P: 我基本上会用的就是主要的搜索引擎,对,有的时候最多分类,然后如果就是还书或者是要延期什么的,就直接从我的账户上面登。我试过一次用 store request,但是不巧的是那时候 IOE 的不能用。所以没尝试成,

R: 好的,那一般比方说你搜了一个关键字,进去之后左边会有一个 filter,你一般会用 filter 去细化你的检索吗?

P: 会,因为更多的时候我愿意用 online 的一些书,我第一选择先会去看他的 online 有没有,然后会下来,因为比去借书更方便,而且没有数量的限制。

R: 也就说 filter 里面你经常用的就是 type。好的。还有一个图书馆的主页,里面有一些部门,还有一些其它的 services,一般你会在这个界面上面一般会用到哪些功能或者哪些部分吗?

P: 我在来之前在学习之前研究过,到了这边以后反而没有怎么用,就是来之前为了整个了解,每个看了一遍,反而来这边都没有用就没有用过。

R: 所以说你其实还是用 explore 比较多,就直接去检索了。好的,我懂了,你知道我们图书馆是有一个 UCL GO,就是整个学校的一个 APP 你用过吗?

P: 只有第一个星期用,后来发现操作起来对我来说不是那么方便,所以我就没有再用了。

R: 你知道那个里面其实有图书馆的可以检索的功能,还有图书馆可以查座位的功能吗?

P: 不知道

R: 你是应该相当于去年的 9 月来的,然后那个时候看了一下,后来就没有再看了?

P: 对的,因为本身苹果的浏览器它不是可以有不同的标签能保存,然后图书馆的标签老在那个里面,然后直接打开浏览器就直接可以看,然后就没有用过 APP。

R: 就是说你其实还是会再从手机上面看图书馆的系统,但只不过不是从 APP 进去的,就是从浏览器进去的,对,那你在什么情况下会看手机上面去看着图书馆的系统呢?

P: 基本上每天都会看,就像查邮件一样,每次查完邮件,因为我第一次借书的时候超期忘还了,然后罚了,罚了我多少钱来着忘记了,反正我就觉得这是一个问题,然后每次查完邮件以后,然后上图书馆再看一下,然后有的时候等公交会比较烦,然后就搜一些书,看看有没有能看得能借的。

R: 所以说你用你的手机去看图书馆系统的时候,一般就会把它当成一个定期 check 的一个功能,用它的地点一般是在等车的时候,就是在路上的时候

P: 对,比较碎片化的时间。

R: 好的,然后接下来我们就开始第三个部分,就是你作为一个图书馆的用户你的一些体验。你刚刚说过你没有用过 UCL GO,那么你之前的经历里面有没有用过任何一种移动图书馆的 APP,在国内也好,或者在这边移动图书馆的 APP?

P: 好像没有过。

R: 好的,你刚刚也说你一般会用手机去看图书馆的系统,会直接通过浏览器进去,你对他的评价是怎么样的?那个点进去之后的网页其实是和我们 explore 是一样的,你觉得从手机上面看它的效果或者是你对他的评价是什么样的?你觉得这个用着怎么样?

P: 我觉得差不多,跟在电脑上用差不多。然后我以前用南大的系统就会觉得就是字很小,因为上面字很多,在这边 explore 主要就是看我的账户,要不然就是直接查书,因为他只有那一条,就不会觉得字很小,然后手指点不到什么的,但是我现在知道 APP 有这个以后我可能会转来用 APP,因为总觉得 APP 会比网页更方便。

R: 你觉得在设计移动客户端的图书馆系统的时候,你觉得他应该和网页上的图书馆有什么区别吗?

P: 当然要有,因为又要想到它应该更重点突出,因为它只有那么小一个屏幕,如果还有很多其他的资讯的话,你可能没处点,再一个是要考虑流量的问题,就不要有那么多有的没的视频图片,乱七八糟的东西。

R: 好的,你觉得针对于移动客户端的话,它需要有哪些功能?刚说的除了检索还有可以看自己的账户之外,你觉得他可以有一些其他的功能吗?

P: 比如说有一些开放的时间什么的这种,关于图书馆的信息,对,就不会出现那种抱着好多书去了,然后发现他放假了,而且居然连图书馆都进不去的那种。虽然我不怎么去,因为我是那种喜欢边看电视边写作业的人,所以我没办法去图书馆学习。但是对大部分人来说,就觉得跟大家一起学习会有动力,所以肯定比如说哪里有什么资源,哪里有空位,对大多数人来说都很重要。

R: 好的。关于你个人使用图书馆系统的一个习惯的问题,你一般在用图书馆 explore 来查文章的时候,你是会把他一直在这样在背景页这样打开着,然后想到就去查,还是可能你现在需要搜索你才会把它打开,然后搜索完就把它在关上,你会一直放在那吗?

P: 我会一直放这, 比如说我今天就是要写论文的时候我是一直会开着, 但是如果说我只是想找一本书来读, 我找到了这本书, 然后我就会去看书, 就把它关掉, 但是就有一点不好的, 如果说我把这个 explore 开上半天, 甚至没有那么长的时候, 它不是让你输密码, 是让你关掉浏览器重新打开。

R: 然后就觉得就很不够人性化?

P: 对。就 get 不到这个点意义在哪里。

R: 好的, 然后的话你在用我们图书馆系统的时候, 有哪些功能是让你觉得特别满意的, 然后有哪些功能上你觉得特别就不太满意的?

P: 我觉得特别满意的就是能直接在网上看资源, 因为以前南大的图书馆是完全没有的, 就是 view online 特别好, 对, 而且他会给你到不同的这种网站上去, 给你相当于一个链接, 你在不同网站上找资源, 但是有一点就是, 我的同学, 我一直记得他第一个学期刚来的时候, 他不知道就是能在外网可以直接这样搜。他在家里面搜了教授推荐的书以后没办法下下来, 然后他就以为必须连到校园网上才能在网上下载这些资料, 所以他每次专门又跑去, 然后下载然后再回来, 后来我告诉他, 不是的, 你登出登陆你的账户以后直接下载就可以了。

R: 其实像这样的比较可能对于他们外国人来说是习以为常的事情, 但是这样的信息其实是可以提前告诉我们, 然后最好是有一个培训或者是 instruction 的东西, 可以提前告诉我们图书馆是怎么样用的, 尤其是像比方说和网络 eduroam 这种相关的, 或者是和下载的要求相关的这些东西

P: 是的。

R: 作为一个国际学生, 除了刚我们说到的可以给一些 instruction 给我们这样的国际学生之外, 你还对我们的图书馆系统有什么样的建议吗? 就是你站在一个中国学生的角度, 觉得图书馆可以怎样改进它的系统, 它的服务能够更好地服务这些国际学生?

P: 我觉得提前有一个说明什么的特别重要。因为要不然的话就全靠自己探索, 但是因为我在放假的时候没事干, 就把这些所有的东西都过了一遍, 但是大部分人没有这个时间, 直接用的话就很蒙, 就不知道该怎么办。然后再一个的话, 因为讲实话, 我用实体图书馆真的太少了, 而且我就是不习惯在图书馆去学习, 基本上没有在里面待过很久的时间, 偶尔看看书, 也不是正经的学习。但是听同学讲过, 就是开门的时间不是很按照规定来, 有的时候去了发现早就开了, 然后就没人了, 有的时候发现很晚才开, 在门口一直等着。

R: 就是这种图书馆开放时间的信息...

P: 应该有一个更更严格一点, 就是你在网上说说给大家知道, 你如果今天有要推迟的话, 大家不用在外面等一个小时那种, 然后如果今天早到的话, 你也可以告诉大家。

R: 然后下一个问题就是关于刚刚我们一开始我提到的移动图书馆, 还有一个更广义的词是智慧图书馆, 然后对于你来说, 你对这两个词都是什么样的理解?

P: 因为它移动图书馆, 然后我想的话就只是那种直接可以在移动设备上看书的图书馆, 然后我觉得智慧图书馆它可能会是在, 比如说检索或者是一些其他服务上面, 更加人性、智能的这种。它不仅仅限于你在移动设备上看书, 可能会有一些其他的, 比如说它能让你在线做笔记, 然后就不用去买 APP 了。

R: 它可以结合一些其他的功能。

P: 对。或者给你一些根据你的日常的浏览习惯, 给你推荐一些书。

R: 也就是说可以加入这种推荐的算法, 比方说根据你浏览过什么, 推荐相关的东西。也就是说移动图书馆是在各个移动端上看书很方便的。但是智慧图书馆更能够贴近个性化、人性化的一个服务。

P: 是的。

R: 你觉得设备或者是这种科技, 包括一些 APP 在你的学习当中是一个什么样的角色?

P: 电脑的话主要就是写东西, 我曾经想尝试过, 以为电脑带起来的话还要带充电器, 续航的时间没有那么长, 就想能不能用 PAD 加键盘来取代他。后来发现还是用电脑、鼠标的这种写东西更加方便一点。所以基本上对我来说, 电脑是写东西, 阅读的时候就是用 pad, 其他看一些名著或者小说之类的, 休闲的时候就用手机。

R: 好的, 那么你觉得图书馆应该怎么样借助这些科技来让他的服务更好?

P: 尽量就是能把这些东西都有 online 的资源, 还有一些就是, 尤其在国内的时候看的都是古文献, 但是有很多那种馆藏的, 不太容易借给学生的, 比较脆弱的这些古文献都是没办法带出图书馆的, 借的时间又特别有限, 应该是一个小时, 然后到阅览室去看, 其实完全可以避免这个事情, 如果说一次性扫描的话, 大家都可以看, 你也不会有一人进去看一个小时翻一遍, 又一人进去看一个小时翻一遍, 反而也会破坏, 就一次性的扫描是不是会更方便一点。

R: 所以说其实对于图书馆来说, 最重要的还是把这些馆藏能够提供数字化版本的, 就提供一些数字化版本, 其实还是实现它最基本的功能, 就是提供所有用户需要的资源是最重要的。

P: 对的。

R: 好, 今天的 interview 就到这里。

-----English translated transcription-----

Interviewee 1---IOE: MA Museums and Galleries in Education---Nanjing University---Female

R: Can you explain your cognitive map in the order of your drawing?

P: Speaking of the mobile library, the first thing I thought up with is that we can use mobile phone, pad, this kind of devices. Then I thought if using these devices to do reading, you must take some notes; therefore, I remembered some apps that are suitable for pad to take notes and read e-books, etc. After that, I was thinking where the books come from? So, I drew the Amazon, and also, the library system of UCL where there are lots of online books and journals, which is very convenient. Sometime I need to borrow books from our libraries, and if I study at the library, I can use the devices, desktops in the library to log on to the digital library, and that's the time when I don't need to carry books walking around. When it comes to the third pen, I was thinking what is easy to use and why should I use them. I remembered last term, when it was the exam week, I borrowed books from several libraries and spent the whole afternoon finding and borrowing books. When I need to return them, I carried so many books and went to several different libraries, which was so annoying. Cause the libraries are far away from each other and some books are from the main library, some form the IOE library; the books are heavy and I need to carry around 20 books. The most frustrating thing is that the day when I returned the books, our department library was closed due to a bank holiday or something and I didn't know until I went there and I couldn't return all of them. That's why I was thinking it will be much more convenient if all the books can be digitized, when you can borrow longer time, no need to return and no worries about the closure date.

R: So, the last part you drew your expectations. ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. You had your undergraduate in Nanjing University in China and now you came to UK to continue your study as a master student, in terms of the learning environment, or to say, the learning atmosphere, is there any difference between these two countries? How you experienced in these two countries?

P: I think the biggest difference for me is that because I live differently, it makes a big difference. Because when I was in China, I lived in the school, it is very convenient to go to the library or classrooms for self-study. I will be willing to go out. But now I am not living in school and the traffic is very expensive, so it makes me rarely go to the library unless the time when borrowing books. If to borrow books, I generally will search well before hand and save enough books for an album big, and then borrow them in one go. Master student can borrow 20 books at a time, so I will borrow it back together when I have enough for a dozen or so.

R: ok, when you were in China, you generally will go to the library to study and borrow books when you are in the library?

P: yes, generally I won't borrow books and take it out of the library. Basically, I will read them in the library and because there are borrowing limitations back in China, as I remembered, undergraduate can only borrow no more than five books on their account, which means you can barely borrow books out of the library. So that's why I read at the library.

R: in terms of the way of study, is there any difference?

P: I think it is the difference brought by different way of the master's and the undergraduate. The undergraduate course is mainly for lecturing, and out of the lecture, everyone will do other things individually. Sometimes will do revisions before the exam. However, in UK, I read all the time and everything need to be done by myself.

R: That is to say, there may be more classes before, and mainly the teacher's outputs, and prepare for the exam; but here there will be more time for independent learning. Ok, what preparations have you made for learning before you came to the UK?

P: Yes, I searched a lot of books, magazines related to my major and looked them at first. I was worried about entering into a master program from the undergraduate course, and there will be deeper knowledge that I don't understand. Besides, there was a concern on language. That's why I mainly did some reading on major related books.

R: Where did you find this kind of information?

P: Some of them I used VPN to search on the external network. Some were recommended by my undergraduate teacher and I searched such concepts on search engines. I was not

familiar with the tutor in UK at that time and felt embarrassed to ask, but I actually found that they are easy with answering questions when I arrived here.

R: Has your department prepared some reading list for you?

P: The tutor actually sent an email with reading list, but I had a problem with my mailbox at that time and didn't receive that email. Basically, every week before the class, tutor will give us the reading list, and I will have a look ahead of the lecture.

R: Ok, do you think the preparations you made before, especially the professional books, are helpful for your study in UK?

P: I think they are in some way. Although it's not the concrete or specific help to make me understand all the things in the lecture, but it helps my understanding; besides, there is no big relationship between the lecture content and your final dissertation. The lecture content is just to give you some inspiration, and everything before the coursework is kind of like a stage of accumulating knowledge and ideas. The tutor will give you some ideas to help your thinking, but it's not the direct assistance.

R: Alright, the next question is related to your learning habits. Can you introduce me your leaning habits when you were in China and now in UK?

P: Actually, when I was an undergraduate, I was completely into my major. Basically, the learning habits is like attending lectures and reviewing the course content before exams. The other time I did reading according to my own interests, which was not directly related to the course content, but was in that area. For example, because my major was the original cultural relics identification, I looked at some of the books around the identification, which I found very interesting. However, after I came to UK, all the learning materials I read are academic-related books and magazines, because I am worried about understanding the content in the lecture. Sometimes I still feel blind when I write the dissertation even that I often read academic books.

R: Ok, just now you introduced your learning habits, as for the information related to your study, how do you search for them in China, and in the UK?

P: In China, because I lived in the university and by using the campus network, it was very convenient to use CNKI. Basically, most of the time I would read articles and journals from that, but read less on the publication of books. I think it is also due to the reasons brought by my major, the published books in my field are mostly belonged to sociology, which are not that helpful in terms of academic use. That's why I read more journal articles when I was in China, but here, I feel that I read more books...

R: Do you mean hard copies books or digital books?

P: Mostly hard copies. Most of the academically related books are paper-based, but also sometimes e-books downloaded from the Explore system. Last term, when I was writing an essay, I searched the keyword as I did in China in our library system, and I'm not sure it is because the topic hasn't been explored too much or what, I couldn't find the resources I want. Then I asked my tutor, and he gave me a demonstration, which basically was done in the Google. He showed me the news, journals, and various Government documents. I feel that my tutor pays special attention to the government documents and from his demonstration, I knew that after a writing concept is confirmed, you definitely can search on google, no need to start with the professional or academic search engines.

R: From your explanation, you actually prefer the digital version of the resources, right?

P: Yes.

R: But sometimes because of your discipline, there are more paper-based books than the digital ones?

P: Some key monographs only have paper version and some core theory-based textbooks can only be borrowed the hard copies in our library. Except for some peripheral or new books that can be viewed online or downloaded on your local machine.

R: Ok. What kind of library system did you use at Nanjing University? Can you describe it to me?

P: The system of the library in our school... At the time of Nanjing Uni, there was not so much maintains for our library system, and it often disrupted and failed to search. I heard that last year it seemed that the entire campus network was reinstalled. But before, it was very difficult to search online. I usually go to the self-service terminals located in the library, which was much more convenient than searching on your own computer.

R: Do you think that is probably related to the campus network?

P: Exactly.

R: What is the interface of the library system when you were in Nanjing Uni? How it organizes resources?

P: Similar to the library system in UK. In the middle is the information and news, then there is a search bar above, and there are some other related links next to it. If you search for books, you can't read them directly on the Internet or that kind of download links. It is generally telling you the location of the books, like which bookshelf or which campus, because Nanjing Uni has two campuses, so you need to look at the location of the books, either it is in the Gulou campus or Xianlin campus (the two campuses of Nanjing University). However, there is a good thing about the Nanjing Uni library that you can return books to any of the library, not necessarily where you borrow them.

R: How did you search for online journals in your library system? Or is it just the function of providing a bibliography search for paper books?

P: To be honest, I am not sure about this because I haven't used that library system to search for journals, because it is already very convenient to find the journals from CNKI.

R: Ok, for the UCL Explore system, the main interface of search is here like this (opened the Explore interface). In general, what types of resources will you search in Explore, and how do you search?

P: What types of... I usually search a concept or filed directly. Unless there is a book recommended by the tutor, I will search directly for the title. The first term is more like a summary of theoretical knowledge, so I would search for the name of an author and then read his books from the original publish to recent ones.

R: Ok, that is to say, in fact, you always search for some concepts. And you will look at some related articles, and then pick from them?

P: Right.

R: Ok, then have you encountered any difficulty when using our library system? Or is there any time you can't find the resources you want?

P: Of course, I have. Sometimes the results searched by some keywords are not what you truly want.

R: What do you think about the reason for that?

P: Probably because of the interdisciplinarity. For example, I want to search for 'Human remains' and it may be related to archaeology, it may be related to museum exhibitions, but both are what I need. However, a lot of the resources are related to anatomy or natural science, which has nothing to do with me, but sometimes it will be placed at the front of the result list. After like two pages, I will feel that there is nothing I want.

R: Apart from that sometimes you can't find what you want, is there any other difficulties you meet in our system?

P: The username and password are often required.

R: is it very troublesome?

P: Yes, especially when you are reading a book. You can't say that finish reading the whole book for one or two hours, you may read it for a long time, but the system will require you to enter the password three times or so, which is very annoying.

R: What do you like and dislike about the UCL library system compared to the Chinese library system?

P: In my case, what I like about the Chinese library system is that it is easier for me to find a book because the classification is based on a standard. But the library in UK, take the IOE library as an example, the classification is messy. There are books divided into education and non-education and some books are sorted by letters, some changed to another way of sorting, so it is especially difficult to find a book. What I don't like about the Chinese library... I think it's mainly the problem of the library website and I just don't know what to do with it. It is designed for finding books, but sometimes you can't find the book you want. Speaking of managing account on that website, for example, to manage your student number, the Internet connection was often broken down and it wouldn't give prompt about the books you borrowed or the due dates. However, I think UCL library is doing a very good job in this aspect. It will send you an email about your borrowing status and due dates in case of overdue. What's not good is that the reminder time is a little bit early, which is usually three days before; and I usually forget after three days. Sometimes you are thinking that I am going to return, but you may have other things happening in these three days, which may lead to

overdue. Another thing I don't like about is the requirement of returning books to where you borrowed them, which is so troublesome.

R: Ok. Then we will start the second part of the interview now and it is about your information behavior. Can you describe your habits or behaviours when you are searching for learning related information? Here the learning can be understood as a broad term, and you can think about what information do you usually look for and how you find it?

P: I subscribe for art and museum magazines and sometimes I go to our library to borrow some books. If it is the information related to the courses, I would usually send emails to tutor to ask if there is any recommended book. Another way to find study related information is to directly search on Google and this habit is strengthened after last time the tutor showed me how he searched online, like news, blogs, government documents, or even some pictures. Actually, I found that the tutor in my major pay much attention to the blogs.

R: Is it the blogs written by the professional scholars perhaps?

P: Yes, some blogs are from such person.

R: You just said you subscribed magazines, is this magazine a physical paper one and send directly to the dormitory?

P: Yes.

R: Ok, so is such way of searching for study related information in UK similar to what you do in China?

P: There are similarities and dissimilarities. When I was in the undergraduate course, I didn't subscribe to any physical magazines, because I can have everything including the magazines on CNKI. I actually usually ask teacher for some discipline-related books, cause my major haven't been explored too much and if you search online, the books are mostly related to sociology and historical collections, etc. That's why I often go to the teacher for information. Another thing is that I don't believe in search engine, like Baidu, in China. Baidu can't be used for academics.

R: You don't use search engine to search study related information in China?

P: Yes.

R: Ok. I found that you usually read physical books or search for some fragmented information on Google. So, except for your laptop, do you use any other devices?

P: Yes, in fact, I will mainly use iPad to do reading. It is very convenient to use the software like notability to take notes and add points to it. I also use it when I am in the class. However, if I need to write essays or really need to write something, I use my laptop. I would download some books from the Explore system and cite along with writing, which is more convenient.

R: That is to say, if you just read, you would use the pad, but if it involves writing, you will use your laptop. Can you explain how these two devices were used in detail?

P: Actually, it is like this. When I was in the first semester, I downloaded all the books and materials on iPad and I did things like taking notes, citing and I put all of them in a separate folder. That folder means that these things will be needed in my thesis. However, when it was the end of the term and when I organized them, I think that was a bit complicated. Sometimes I didn't sort the articles in order, or there are fragmented ideas because I may have inspirations at any time. When you look back, it's so easy to forget it. Therefore, when it comes to the second term, I changed the way of using these devices. I still take notes and write some ideas on iPad, but at the end of the day, I will put all of the information in a document on my laptop, which will be organized according to my thesis structure. Then when I need to write the thesis, I just read that document on laptop. The reading and writing will be only conducted on the laptop.

R: That is to say, during the term, you may use iPad to do reading and learn knowledge, but after reading, you will put the summary on your laptop. At the end of the term, when you write the thesis, you will only use laptop to do it?

P: Yes, in fact, this is a changing process. Because when it was the end of the first term, I feel that it takes a lot of time to organize it. So, in the second term, I organize all the materials every day.

R: Except for reading, is there any other things you will do on iPad?

P: Dictionary. Reading note software, including the notes took in class, and some recordings, and the photos of lecture slides.

R: In addition to iPad, will you use your mobile phone to learn?

P: Very few, the habit of taking photos of slides and taking notes was developed during the undergraduate stage. In fact, I used mobile phone when I first entered university, then I found that everyone used iPad, which can take notes directly. I felt that the mobile phone was inconvenient, so I completely turned the mobile phone into an entertainment device, and iPad became a learning device.

R: Ok, so what activities do you usually do with your mobile phone?

P: For example, if I am outside today (like travelling), and then I want read e-books before going to bed, I will use my mobile phone. I am into reading novels and writing novels, so it is a relaxed way for me rather than academic works.

R: Ok. There is also another question about your learning habits. Generally, do you usually go to the library to study?

P: I have never been to the library to study since I came to UK. I usually borrow books and bring them to study at home.

R: That is to say, the library's desktop is generally not used for you, right?

P: Yes, unless to borrow books or print documents.

R: Ok, we just mentioned that you sometimes can't find the resources you want in our library system. Can you think up of a specific example of a failed search, like what did you try to find at that time? What was the result? What did you do after not finding it?

P: It's just the example like I said before, when I tried to find resources around the topic of 'human remains', which is a controversial topic. People are discussing whether it should be exhibited in the museum and there are different voices. When I was looking for it in the library system, the ones that were related to museum are mostly about ethical issues, like indigenous people or religious issues. However, there is less discussion around the meaning for education or for museum exhibitions. Most of the results are about ethics and natural science, which is very different from what I want.

R: So, what you did after this?

P: I went to the tutor and he also thought this is a new area of research. He told me that you can search it on google, and find inspirations from it. Judge it and think critically about it and then write based on this.

R: That is to say, it was because the field is too new or it involves some interdisciplinary subjects?

P: Yes.

R: Ok. In general, under what context or situation do you use our library system?

P: For example, when I need to read some discipline-related books, I will go to our library system to search. Now I am preparing my dissertation and I want to find some inspirations or related topics, I will search some keywords in the library system and borrow some books to read. Another situation is, when my tutor recommended some reading, I will search for specific books in our system.

R: Ok, in fact, your search is very related to your coursework or discipline?

P: That's right. It's quite different from what I did in the undergraduate course. I read very broadly when I was in China and the topics are extensive, like 'Stories about Ming Dynasty' and other similar historical books. Sometimes I also read some travel books. However, after I came UK, all of the reading is related to my coursework or the thesis. There is basically no that extensive reading.

R: Do you think why is that?

P: The reason is I am willing to download some Chinese books in most of the time.

R: Ok, do you usually look at Chinese literature?

P: Yes.

R: How do you download them?

P: Sometimes I use network drive, like Baidu Drive. If I want to find academic resources, I will use CNKI and I bought a CNKI account from Taobao for me to download resources freely.

R: So, in fact, the information that is relative to your broad learning, you are inclined to use Chinese literature, but with your coursework or discipline, you will look at English resources?

P: I feel this is especially the case when it was the first term, I relied on Chinese literature a lot. If I feel I don't understand this topic, I was more willing to see how this field was studied in China. However, when it came to the second term, I found that there is a research gap between China and UK. What I think is very new in China is actually the kind of old things that have been talked a lot here in UK. Then, instead, I will start to look at the English resources

and read extensively. In the meantime, because I will go back to China to work, so like some museum magazines or the museum curators' blogs in China, I will still read them in particular just for my future work.

R: Ok, you can see that our digital library is divided into two parts, one is the services webpage and another is the Explore search interface. What functions do you usually use?

P: I basically use the main search engine (Explore). Sometimes I use the filter on the left side or logging into my account to check the status of the books to return or prolong them. I tried to use the Store Request once, but unfortunately the IOE library store was closed at that time.

R: Ok, so how do you use the filter?

P: Because I am more willing to use some online books, I would filter out the online versions of the resources. Besides, there is no limitation on the loan numbers and it is more convenient than borrowing physical books.

R: Ok, so you usually filter the 'type' of the resources. Alright, also, there is the library services webpage. Will you use any functions on this page?

P: I studied that page before I came to study. However, after I came here, I didn't use it. I used to read it all just to get to know what is there.

R: Ok, I understand. Have you used the app for our university, UCL GO?

P: I only used it for the first week. Later I found the operation was not so convenient for me, so I didn't use it anymore.

R: Do you know that there are some functions related to library services, like search engine and seat availability check?

P: I don't know.

R: Ok, so actually, you only had a look on it in last October when you just came, but you didn't see it again?

P: Yes, because I can save bookmarks on my ios mobile phone and I saved the library website as a bookmark. If I want to check something with the library system, I will directly open it in the browser to see.

R: That is to say, you still check the library system from your mobile phone, but it is not from the APP, but is directly from the browser, right, then under what circumstances you will use the library system on your mobile phone?

P: Basically, I look at it every day, just like checking emails. The first time when I borrowed books from the library, I forgot the due date and I got the fine of...I forgot how much was the fine. Anyway, I realize this problem, and every time when I check my email, I will go to my library account to see the loan status. And sometimes when I was waiting for the bus, I will search for some books to see if any of the result is worthy to download.

R: So, when you use your mobile phone to use the library system, you will use it like a regular check. The location for using it is usually when you are waiting for the bus, like on the road.

P: Yes, I use it in these fragmented times.

R: Ok, then let's start the third part of the interview, which is your experience as a library user. You just said that you haven't used UCL GO. Have you used any mobile library app in your previous experience, either in China or here?

P: I think I never used any library apps before.

R: Ok, you just said that you usually use your mobile phone to look at the library system and you will go directly through the browser. How do you evaluate it? How do you feel when you are using it through your mobile phone?

P: I think it's similar with using it on the laptop. Compared to the one I used in Nanjing University, the characters are very small because there are a lot of words on the library system interface. However, here in UK, I use Explore to mainly check my account, or go search books directly. There is just a search box on the main interface, and it is very simple and clear to see the characters. You don't need to worry about that the finger can't point anything. But now I know that the UCLGO has the library functions, I may turn to use the APP, because I always feel that the APP is more convenient than the webpage.

R: Do you think there should be difference when designing the mobile library system from the library system on the laptop?

P: Of course! It only has a small screen, so it should be more focused. If there are too many information, it will lose the point and focus. Besides, it should consider the mobile phone data and shouldn't include the useless images or videos, or other messy things.

R: Ok, then in addition to search and viewing my account, is there any other functions you think should be included in the mobile library?

P: There should be, like, for example, the opening time or information about the library. Then you can avoid the situation when you want to return books but the library is closed. Besides, although I prefer to study at my dormitory with the TV sound going on and I don't go to the library to study, I think for students who like to study with peers in the library, it will be convenient to have information about the library resources, seat availability, etc., which are more important for most of the students.

R: Ok. Regarding your habit of using our library system, will you always keep it open at the background or you will open it when you need to search something?

P: I will always keep it open. For example, when if I am writing an essay today, it will always be open, but if I just want to find a book to read and I have found it, I will just turn it off to do reading. There is one thing which is not so good, if I open the Explore for some time, not even a long time, it will ask you to enter your username and password. If you have been opening that page for a longer time, sometimes it will ask you to close the browser and open it again, which...it doesn't make any sense, really.

R: Ok, what do you prefer about the Explore system and what do you dislike about it?

P: What I am particularly satisfied with is the fact that I can look at the resources directly on the Internet, the view online part, because I can't do that when I was in the Nanjing University. Also, it will link you to other websites where you can view and download the resources, which makes you search across all the purchased websites. Right, there is one thing happened to one of my friends, I always remember that when he first came in the first term, he did not know that he could search our library resources directly by the Internet and he thought that he had to connect to the campus network to download, so he went to campus every time only to download the resources he want. So actually, the things that is normal to the local students are not usual to us as international students.

R: But such information can actually tell us that it is better to have some training or instructions in advance to show us how the library is used, especially things like the Eduroam network, or downloading resources?

P: Yes.

R: As an international student, apart from the library training like we mentioned before, is there any other suggestions you want to give to our library to improve its system and services to better serve international students' needs?

P: I think it is especially important to have instructions in advance, otherwise, it just depend on students' own exploration. I had nothing to do during the summer before I came, so I tried and explored everything about the UCL website, including the library website; but most of the students don't have this time. If they use the system directly after they come, they can be blind and don't know what to do with it. Another thing is thing is that according to my classmates who usually go to the library to study, because you know that I prefer to study at home and rarely go to the library, they said that the opening hour of the libraries is confusing sometimes. In some cases, it was discovered that it has been opened early, and then there was no seat. Sometimes it has not opened yet and they have to wait at the door. There should be a stricter information about the opening hours of the library, at least have some notifications when it is not opened as usual time.

R: Then the next question is about the mobile library that I mentioned at the beginning, and there is a broader term called smart library. How do you understand these two terms?

P: Speaking of the mobile library, I think it is the library system that you can read books directly on your mobile devices. Then the smart library might be, for example, put emphasis on its search function or some other services to make it more human and intelligent. It's not limited to reading on your mobile device, but also some other functions, for example, it allows you to take notes online, and then you don't have to buy any apps.

R: It can combine with some other features?

P: Right. Or give you some book recommendations based on your daily browsing habits.

R: That is to say, it can add some recommendation algorithm, for example, based on what you have browsed, to recommend related things. Mobile library should be very convenient to read on various mobile devices, while the smart library is a more personalized, humanized service.

P: Yes.

R: What do you think of the role of technology, including digital devices or apps, in your study?

P: The laptop is mainly about writing things. I was worried about battery life of laptop and carrying the charger, so I tried to use a keyboard with my iPad to replace the laptop. Later, I found that it is still more convenient to use the laptop and mouse to write things. So basically, for me, the laptop is to write things, iPad is for reading, other casual things, like reading novels, is on mobile phone.

R: Ok, how do you think the library should use these technologies to make its system and service better?

P: Try to be make all the resource online. Some of them, especially in China, like ancient books or special collections, that are not easily accessible to students. These ancient documents are allowed to bring out of the library. The loan time is strictly limited, like around an hour? and you have to go to the reading room to see it. In fact, this can be avoided. If the library can scan them once, everyone can watch it online. Letting people to read it in person still can cause damage, right? It will be more convenient by a one-time scan.

R: So, in fact, the most important thing for libraries is to provide digital versions of these collections. The library resources are core for all users.

P: Right.

R: Ok, today's interview is finished. Thank you!

Appendix I: List of codes identified from cognitive maps

Complete list of codes (from maps and supplementary explanations)

Name of code	Type
Cultural factors	Category
Identity	
Proper expression	
Views on future library system	Category
Offline expectations	Subcategory
Borrow and return books	
Desktop, multi-screen	
Opening hours	
Other services	
Online expectations	Subcategory
Design issue	
Library website (web version)	
Related apps for learning	
Technologies	
Library app design	Subsub category
Book study rooms	
Check space availability	
Concerns	(coded from supplementary explanation)
Guide	
Library services (other)	
Map or visualisation of information	
My account	
Notifications	
Other functions	
Personalised and customised functions	
Read online	
Search	
Seat reservation	
Social functions	

Name of code	Type
Other expectations	Subcategory
UX expected	Subcategory
A well-functioned library environment with everything provided and labelled	
Desired feeling of reading	
Information seeking behaviour	Category
China Library and library services	Subcategory
Chaoxing Library app	
CNKI	
Terminal machine	
Website	
WeChat	
WeChat public account	
Information seeking activities	Subcategory
Downloading	
Reading e-books	
Search academic resources	
Search other things	
Writing papers	
Locations and contexts	Subcategory
Home or dormitory	
Physical library	
Commuting	
Travelling	
Technologies	Subcategory
Devices	
Desktop	
iPad	
Kindle	
Laptop	
Mobile phone	
UCL Library and library services	Subcategory
Book request	

Name of code	Type
Bookshelves	
Borrow and return service	
Desktop	
Explore system	
Filter	
Search interface	
Finding and locating books	
Librarian	
Network connection	
UCLGO app	
PC	
Space availability	
Library user experience	Category
China Library UX	Subcategory
Chinese campus network	(coded from supplementary explanation)
Difficulties	
UCL Library UX	Subcategory
Offline Difficulties	(coded from supplementary explanation)
Offline positive UX	
Online difficulties	
Resource type (digital or hard)	

Weight analysis (for codes on the maps):

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Cultural issues					
Identity		2	2	3	0.66
Proper expression (language related)		4	4	2.5	1.6
Information seeking behaviour					
Information seeking activities	Sub-category				

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Search academic resources		4	4	1.75	2.29
Reading e-books		3	4	2.25	1.78
Search other things		2	2	1.5	1.33
Writing papers		1	2	2	1
Downloading		1	1	2	0.5
China Library and library services	Sub-category				
Chaoxing Library app		1	1	1	1
CNKI		1	1	1	1
WeChat		1	1	2	0.5
WeChat public account		1	1	2	0.5
Technologies	Sub-category				
Laptop		7	8	1.38	5.8
Mobile phone		6	6	1.17	5.13
Desktop		2	2	1	2
iPad		1	2	1	2
Kindle		3	4	2.5	1.6
Devices		2	2	1.5	1.33
Locations and contexts	Sub-category	1	1	1	1
Locations and contexts--Physical library		5	5	1.4	3.57
Locations and contexts--Home or dormitory		3	3	1.67	1.8
Locations and contexts--Commuting		2	2	1.5	1.33
Locations and contexts--Travelling		1	1	2	0.5
UCL Library and library services	Sub-category				
UCL Library and library services--Explore system	Sub-sub category				
UCL Library and library services--Explore system--Search interface		3	3	1	3

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Find books (locating books)		1	1	1	1
UCL Library and library services-- Book shelf		1	1	1	1
UCLGO app--PC		1	1	1	1
UCLGO app--Space availability		1	1	1	1
UCL Library and library services-- Borrow and return of books		1	1	2	0.5
UCL Library and library services-- Desktop		1	1	2	0.5
Network connection		1	1	2	0.5
UCLGO app	Sub-sub category	1	1	2	0.5
UCL Library and library services-- Explore system--Filter		1	1	3	0.33
Views on future library system					
Online expectations	Sub- category				
Technologies		5	6	1.83	3.28
Library app design	Sub-sub category	3	3	2.33	1.29
Library app design--Library services (other)		5	6	1.83	3.28
Library app design--Book study rooms		3	4	1.75	2.29
Library app design--Personalised and customised functions		3	3	1.33	2.26
Library app design--Seat reservation		3	3	1.33	2.26
Library app design--Map or visualisation of information		4	4	2	2
Library app design--Search		3	3	1.67	1.8
Library app design--Social functions		3	3	2	1.5
Library app design--My account		2	2	1.5	1.33
Library app design--Notifications		2	2	1.5	1.33
Library app design--Check space availability		1	1	1	1
Library app design--Guide		1	1	3	0.33

Name of code	Type of code	Files (n/15)	Frequency	Mean position	F/P index
Library app design--Other functions		1	1	3	0.33
Library app design--Read online		1	1	3	0.33
Related apps for learning		1	1	3	0.33
Design issue		1	1	2	0.5
Library website (web version)					
Offline expectations	Sub-category				
Borrow and return books		2	3	2	1.5
Accessibility issues		1	1	3	0.33
Desktop, multi-screen		1	1	3	0.33
Opening hours		1	1	3	0.33
UX expected	Sub-category				
UX expected--A well-functioned library environment with everything provided and labelled		3	3	2.33	1.29
UX expected--The feeling of reading		1	1	3	0.33
Other expectations	Sub-category (also a code)	1	1	2	0.5
Library user experience					
China Library UX	Sub-category	1	1	1	1
China Library UX--Difficulties		1	1	1	1
UCL Library UX	Sub-category				
Online difficulties		2	3	2.33	1.29
Resource type (digital or hard)		3	3	2.33	1.29
Offline positive UX		1	1	1	1

Appendix J: List of codes identified from interviews

Name	Description	Files	Refs
Cultural factors	This category contains codes that are related to external contextual factors, including their cultural identity, cultural transition, adaptation, cultural intelligence and how they perceive the differences between the education of UK and China and how those contextual factors had influenced their learning.	15	192
Course and discipline arrangement		15	97
China course and discipline arrangement		10	22
China-Lecturing is the main method of teaching		6	8
China-The assessment is based on one exam		4	7
China-The course or exam is based on one or two textbooks		4	7
Differences	They are experiencing different ways of teaching and learning; They may prefer or dislike or getting used to it	14	40
Degree difference leads to changed way of learning	Undergraduate/postgraduate program makes differences in learning and information seeking.	9	10
Different learning tasks in China and UK cause unease to them	e.g. in China, most of the coursework are based on textbook; while in UK, extensive reading is required to complete the coursework. In China, the assessment is mostly based on single textbook; while in UK, there are different forms of assessment, like essays, group works, presentations, etc.	10	18
Similarities		1	1
UK course and discipline arrangement		13	32
UK-Diversified forms of learning		3	4

Name	Description	Files	Refs
UK-Independent study holds an important position		6	9
UK-The assessment is based on several methods	including exams, papers, online tests, presentations, etc.	3	6
UK-The coursework requires extensive reading	The extensive reading and independent learning requires them to read outside the classroom, which may not relate to the course slides, assignment or exam.	3	3
UK-The learning goal is clear		2	2
UK-They feel pressured in learning	They feel occupied with coursework or they feel it is hard to get good grades in UK.	4	8
Culture intelligence		15	73
Perspectives on cultural preparation		12	34
Command of English has a strong impact on their learning experience		8	10
Not satisfied with the information given by university or department	Or is not what they truly need	4	6
They rely on Chinese community to seek for information	They tend to seek information about learning abroad from Chinese peers who have studied in this country before.	4	6
They showed anxiety before coming to UK	They used the words like “worried, panicked, not sure...” to describe their uncertainty before studying in UK	4	4
Preparation		15	39
Asking others	This might be from senior students, teachers, friends, etc. Chinese students tend to seek help from the Chinese community, which has the same cultural background with them.	5	7
From UCL	and department	8	11
Language course		2	2
Self-learning		7	8
Learning atmosphere		7	14
Good learning atmosphere in UK		6	7

Name	Description	Files	Refs
Learning atmosphere in China		5	7
Living environment	Where they live has a big impact on how they learn and how they search for information. The different living environment in China (live in the campus) and UK (live out of and far away from campus) is influencing where and how they learn	7	8
Information seeking behaviour		15	462
Current Information seeking behaviour	stages	15	253
Assessing		4	4
Resources quality have a strong impact on learning outcomes	What resources/how much resources/what type of resources is influencing their way of learning/information seeking behaviour/learning outcomes	3	3
Behaviour-forming	This code means the changing and forming of current information seeking behavior after they came to UK to study. This seeking behavior is not only related to the stages of information seeking, but also the devices, location and approaches of seeking.	9	19
Exploring		6	11
Google		2	2
Other websites	Specific websites like Wikipedia	3	3
Social media platforms	For example, WeChat, Facebook, Weibo, etc.	4	4
Identifying		3	3
Information needs		3	6
Active information needs		2	2
Passive information needs		3	4
Modifying	Modify keywords, concepts or topics of search	13	47
Barrier caused by language and culture	Their understanding of the UK culture and the command of English cause barriers for them to form search queries and search what they truly want.	8	21
Concept search		4	5
Filter		10	12
Others' instructions	from their tutor, professor, department, etc. to teach them how to search related information	3	6

Name	Description	Files	Refs
	from all sources(not only from library system, but from Google, specialized websites, government websites, etc.)		
Title search		2	3
Searching		15	100
Chinese academic resources		11	19
Explore		14	41
Google Scholar		11	21
Other websites		2	2
Tutor's suggestion or course content	For example, the reading list, the references on slides, the resources mentioned during class	9	16
Sifting		12	23
They prefer digital resources		11	19
Trust-building		5	10
Reliance on Google Scholar	rather than Explore	5	10
Understanding		10	17
Chinese resources		6	8
Past papers		2	2
Understand meanings	translation tools and vocabulary banks are used	1	1
YouTube		4	5
Using and reading		4	10
They read as a hobby more when they were in China	This type of reading may be novels, magazines that are related or not related to their study. but is not an assignment from teachers or not related to coursework	2	4
They read more academic materials in UK	in most of the time	4	6
External factors		15	158
Contexts, locations, scenarios of learning		14	33
Learning contexts in China		5	5
Learning contexts in UK		14	28
Devices in learning		15	125

Name	Description	Files	Refs
Mobile phone		14	51
Easily be disturbed	by notifications from other apps texts, emails, etc.	1	1
They prefer to use mobile phone as a quick way to search	Not academic; BUT emphasis on “quick” look-up. The information includes the concepts, quick knowledge (that is designed for some apps), events or other type of information that does not require full attention.	10	16
They use mobile phone to search when it is inconvenient to use other devices		3	3
The preference on choosing which device to use is dependent on the context		9	13
They prefer to do different learning tasks on different devices		14	16
UCL desktop		7	7
Lack of Information literacy skills, training and instructions	in the process of adapting to a new way of learning	8	13
Past information seeking behaviour		15	38
Resources in China		15	30
User Experience		15	485
China library UX		15	105
China digital library		15	54
A retrieval system to find physical books		7	8
Campus network is essential for the use of library system in China		2	2
Functions		9	12
Interface design		5	6
The maintenance of the library website is poor	due to the slow campus network, the system disruption, or other reasons	2	4

Name	Description	Files	Refs
China physical library		8	18
Limitation on borrow and return	There are restrictions on borrowing and returning. For example, the number of books that is permitted on hold is around 5 for undergraduates.	1	2
They use terminal machines to search for books		6	6
CNKI		10	25
The resource quality on CNKI cannot be guaranteed		2	2
They rely on CNKI to search for academic resources	rather than their own library systems	8	10
Library as a place to study	They use library as a place where they can concentrate on their work	3	4
Physical library environment has an impact on their learning and their willingness to study in the library		8	13
Reading experience	e.g. reading on a larger screen; reading in a focused environment; in a comfortable position	5	8
UCL library UX		15	266
Issues with UCL UX	including cultural issues appeared in using the library system or in the process of learning.	15	72
They are not familiar with some concepts or words or slangs used in the library system	e.g. peer review	4	7
They feel difficult to find what they really want	This sometimes due to the expression of the query, sometimes relates to the availability of resources.	9	14
They only use Explore system	and never or rarely use other services on the library homepage. e.g. room booking, open access, etc.	7	9
They regard the Explore as the same library retrieval tool as what they used in China	They have the misunderstanding of what the Explore can do; they treat it as a retrieval tool for physical books just as what they used in China.	5	7

Name	Description	Files	Refs
UCL library homepage		7	7
Library trainings		9	26
Even with the library training, they do not master information seeking in Explore	they still feel difficult to use retrieval skills properly	5	6
They have strong hope to receive instructions or trainings about the university services	Or they feel it is important to receive such instructions	7	9
Negative UCL UX		15	76
Difficulties (CIT)		14	31
They can't find seats in library	Too many people, exam week, etc.	4	4
Username and password are frequently asked		5	8
Positive UCL UX		13	38
Notification of dues		2	2
Suggestions for UCL library		14	44
Availability information should be updated all the time	on study rooms, libraries, PCs	2	2
Library open hour is an important information	that should be accurate and updated	2	3
There can be more library events		2	5
They hope everything can be designed in a straightforward way and can be labelled clearly		8	14
UX of using mobile library		15	89
CNKI mobile app		1	1
Explore through browser		5	11

Name	Description	Files	Refs
Other mobile library		6	9
UCLGO		14	56
They don't know there is library services on UCLGO		7	9
They rarely use UCLGO even that they have it or used it	They rarely/don't like/ignore UCLGO even that they have downloaded it/used it/know its existence/ ..	11	15
Views on future library system		15	101
Expectations		15	56
Improve algorithm		4	8
Mobile library should be connected with other studying function	e.g. taking notes, e-reading, etc.	2	2
Mobile library should be connected with social functions		7	7
Recommendations on resources, personalisation		8	10
They wish there could be support with language in the library system		6	10
Mobile library		12	12
Smart library		13	16
Views of technology in library		10	12

Appendix K: Abstract conceptions implied from the data

Information seeking behaviour category

1. They seek information from library system with a clear goal/need which comes from current PG program they are in
 - a. Codes in maps: 'search academic resources' (they search when they have explicit keywords or concepts they get from the course), 'writing papers'
 - b. Codes in interviews: 'information need'
2. They view academic library as a gateway or invitation (via the search box on library interface) to knowledge and exploration of questions and as a tool (via filter or advanced search function) to organise, categorise and make sense.
 - a. Codes in maps: 'Explore system', 'search interface', 'filter'
3. They view academic library as an authoritative resource provider where they can get the 'thing' they need for completing their current degree
 - a. Codes in interviews: 'Explore'
4. Interface of digital library system is an entrance of 'physical market' (where they think they can get different types of information)
 - a. Codes in maps: 'Explore system', 'search interface' (they draw library interface on the map to represent the gateway/entrance to library resources)
5. They perform most of activities digitally; Access to digital contents is of paramount importance in their intelligence works (digital natives)
 - a. Codes in maps: 'resources type (digital or hard)'
 - b. Codes in interviews: 'they wish to have more digital resources available'
6. Technologies are seen as tools that bridges the physical and digital worlds (that merge distinctions between the physical and digital)
 - a. Codes in maps: 'technologies' in subcategory of 'expectations'
 - b. Codes in interviews: 'contexts, locations, scenarios of learning'
7. Technology as part of the context of interacting with the library (it is most helpfully viewed as part of context rather than a variable during information seeking process for its restraining rather than influencing role in this interaction process; it is the characteristics and features (affordance) of the tool that bound the activities they perform and the way they use and feel about)
 - a. Codes in maps: codes under sub-category 'technologies'
 - b. Codes in interviews: 'they do different tasks on different devices'
8. Digital devices serve as the 'space' for most of their intelligence works (where they seek for information to understand and interpret, and produce outputs by writing)
 - a. Codes in maps: 'desktop, multi-screen'
 - b. Codes in interviews: 'devices in learning'
9. Mobile devices serve as an interface/panel to navigating the physical world—moving in it and through it (it is not related to intellectual work which is preferred to be done in one place)

- a. Codes in maps: 'UCLGO app', codes in 'library app design'
 - b. Codes in interviews: 'they prefer mobile phone as a quick way to check information', 'UCLGO', 'mobile library should be connected with social functions'
10. Boundaries between academic and social are blurred through information seeking (they search academic and non-academic information on library system; social interaction with other people, such as their peers, is a channel they get academic information; they regard social interaction an important part in the system they are in—UK higher education system)
- a. Codes in maps: 'search for other things' (see both academic and non-academic as part of the library system), 'WeChat', 'social function' in 'library app design expectation', 'other expectations' (library workflow)
 - b. Codes in interviews: 'there can be more library events'
11. Seeking for information as a process of sense-making (they make sense of the concept, explore the meaning of it, understand it through multiple channels, and seek for it, which is an iterative process; they go back and forth, e.g: they search for a keyword, get some resources, but not sufficient to answer the question or produce research outputs, then they explore the meaning and search for it repetitively)
- a. Codes in maps: 'information seeking activities'
 - b. Codes in interviews: (in the category "information seeking behaviour") exploring, understanding, searching, modifying, assessing, trust-building and behaviour-forming
12. Understanding the meanings before conducting information seeking is regarded as an essential step in their intellectual activities (where Chinese and English materials and information are used to help them make sense)
- a. Codes in interviews: 'exploring' and 'understanding'
13. They regard Google Scholar as much important and authoritative as the university library system
- a. Codes in interviews: 'Google Scholar' in 'searching'

UX category

14. The academic library is regarded as an environment that is conducive to study (an affordance of the physical library is the accessibility of information/resources which are easier to browse)
- a. Codes in maps: 'physical library', 'bookshelves', '(UCL) desktop', 'librarian', 'offline positive UX',
 - b. Codes in interviews: 'library as a place to study';
15. The physical world is more constraining than the virtual one (may take much more efforts and longer time to acquire similar result as they need)
- a. Codes in maps: 'borrow and return service', 'book request', 'offline difficulties', 'opening hours'
 - b. Codes in interviews: 'they can't find available seats in the library',
16. With more reliance on the digital world, it is the environment/atmosphere rather than the collections/facilities in the physical library that influences their willingness to study there
- a. Codes in maps: 'physical library' (the map from participant 4)

- b. Codes in interviews: ‘physical library environment has an impact on their learning and willingness to study in the library’
- 17. They duplicate this ‘environment’ under varied contexts with the support of technologies (in dormitory, when they are travelling, etc.): not working in terms of physical/digital, as the resources used in study become less physical that existing in one place, so too this environment becomes less rooted in one place and can exist anywhere.
 - a. Codes in maps: ‘home or dormitory’, ‘apartment common room’, ‘commuting’, ‘travelling’, ‘self-study’, ‘laptop’, ‘Kindle’, ‘iPad’
 - b. Codes in interviews: ‘devices in learning’, ‘learning contexts’
- 18. They place themselves in the system of UK higher education system, where they see academic library as a core part of it (Other information sources are also in this system, but are regarded marginalised (or not as authoritative as library))
 - a. Codes in interviews: ‘course and discipline arrangement’, ‘searching’
 - b. They transferred from one system (Chinese higher education system) to another in UK along with the changes in academic requirement, the program setting, teaching strategies, etc, adjusting the way they seek for information and make use of the library.
 - c. When they perform activities in this system, library is the core place where they seek for ‘expert’/‘professional’ information; but under the cases when they cannot find what they want, they go to other sources that they still regard are within this system (for example, Google Scholar and search engines)
- 19. Pleasant feeling of reading is valued (related to technology affordance) in the ‘environment’ they create
 - a. Codes in maps: ‘desired feeling of reading’
 - b. Codes in interviews: ‘reading experience’
- 20. Their past limited experience on library training and information retrieval skills brings about frustrations, barriers and difficulties in seeking for desired information
 - a. Codes in interviews: subcategory ‘lack of information literacy skills, training and instructions’, code ‘they regard Explore as the same library retrieval tool they used in China’, ‘they have strong hope to receive instructions and library trainings’
- 21. Temporal and spatial changes (program requirements, their skills and technological development) influenced the way they interact with the library and the way they seek for information
 - a. Codes in maps: subcategory of ‘China library UX’
 - b. Codes in interviews: subcategory of ‘China library UX’, ‘course and discipline arrangement’

Cultural factors category

- 22. Language is considered as a primary barrier in information-seeking
 - a. Codes in maps: ‘language’

- b. Codes in interviews: ‘understanding’, ‘they are not familiar with some words or slangs used in the library system’, ‘they wish there could have language support in the library system’
- 23. They have doubts in their language skills and believe that makes the overall learning experience and academic performance imperfect
 - a. Codes in interviews: ‘different learning tasks caused unease to them’ (for example from participant 11 *“The bad thing is that I feel it’s too tired. In fact, it’s hard to totally understand what is being taught in class right after the lecture. Then I feel a bit tired when I have the practical session”*; and from participant 6 *“In fact, I experienced a very painful process this year, because I am actually not very good at English. This course is mainly based on seminars”*)
- 24. They have doubts on whether they can correctly describe the ‘thing’ they need
 - a. Codes in maps: ‘online difficulties’, ‘proper expression’
 - b. Codes in interviews: ‘they feel difficult to find what they really want’, ‘improve library system algorithm’, ‘difficulties (CIT)’

Views on future library system

- 25. UX expected--a well-functioned library environment with everything provided and labelled
 - a. Codes in maps: (this is a latent code generated from maps)
 - b. Codes in interviews: ‘they hope everything can be designed in a straightforward way’
- 26. Technology is expected to support their intelligence work anytime anywhere, creating a digital world with more content available
 - a. Codes in interviews: ‘views of technology in library’ (for example, from participant 4 *“I think it has a great effect on my study that help me accomplish the same goal in free time and free locations. For example, if I go back to China, I still have the access to see the websites here which is very good and changed my way of learning. I have been using laptop when I was in undergraduate university, and I felt strongly the mental change from paper-based work to online work”*)
- 27. Digital technologies should make library system more intelligent and smarter (in terms of commanding users’ online behaviour and preference, optimising results based on that and recommend resources—help them be aware of the existence of useful resources)
 - a. Codes in interviews: quotes in category ‘views on future library system’ (for example from participant 12 *“I think it is not only users operating the system, it’s also analysing user data, to figure out the pattern, the book you usually read, and then recommend resources that more suitable for you and in line with your interest. It can be based on your own habits of searching and provide you with more personalized recommendations”*)

Appendix L: Glossary

CNKI 知网

The largest and continuously updated Chinese journals database in the world. Coverage is from 1951 onwards with some journals dating back to their first issue. It is a key national information construction project under the lead of Tsinghua University, and supported by PRC Ministry of Education, PRC Ministry of Science, Propaganda Department of the Communist Party of China and PRC General Administration of Press and Publication. (www.cnki.net)

ChinaMaxx Digital Library/ Chaoxing Digital Library 超星数字图书馆

A large collection of Chinese publications. It has a collection of 780,000 titles of Chinese literature. Most of the holdings are books published since 1949 and a few are from earlier years. About 35,000 new titles are added to the collection every year.

Wanfang Database 万方数据库

An affiliate of the Chinese Ministry of Science and Technology, provides access to a wide range of database resources, serving as a gateway to Chinese culture, medicine, business, science, engineering, etc. (www.wanfangdata.com)

MBALIB 智库

An encyclopedia with an open content that everyone can participate in. The goal is to focus on the creation of knowledge in the field of economic management. Articles from the MBALib are always free and open access.

Duxiu 读秀中文学术搜索

A full-text search interface to more than three million Chinese bibliographic entities in all subjects dating from the early 1930s to the present. It contains over 600 million pages of text, including about two million books, as well as journal articles, conference papers, video clips etc. New material is added monthly.

CQVIP 维普

China's first Chinese journal database research institution.

CSMAR (China Stock Market & Accounting Research Database) 国泰安数据库

CSMAR Database is created by GTA based on the academic requirement. CSMAR is the first database focusing on the economy and finance in China, which covers information of stocks, listed firms, funds etc. It contains over 120 databases, 3,000 subjects, thousands of indicators.

China Campus network (CCN) 校园网

CCN is committed to facilitating quality access to Chinese Higher Education for international students and maximizing their benefits from ChinaOpportunity, through the provision of International Foundation Programs and Careers Development Programs & Services.

Self-service terminals 图书馆自助服务终端机

Library self-service machine

Baidu Drive/Baidu Wangpan 百度云盘

A Cloud service provided by Baidu. It offers a cloud storage service, client software, file management, resources sharing, and Third-Party Integration.

NetEast Open Courses 网易公开课

To deliver "Power to the People" by using the latest Internet technologies to enhance meaningful information sharing and exchange.

Appendix M: Cognitive mapping and interview transcriptions

R: Researcher

P: Participant

Participant 1

Chinese transcription

Interviewee 1---IOE: MA Museums and Galleries in Education---Nanjing University---Female

R: 你可以先把你刚刚画的 Cognitive map 解释一下吗？

P: 然后就是说移动图书馆，然后第一个想到的就是我们可以用手机，然后用 PAD，然后这些设备，然后就想着用这些读书的话，肯定要做一些笔记什么的，然后就想到了一些适合 PAD 用的一些 app，然后来做笔记，看电子书什么的，然后就想说书从哪来？就画了一个亚马逊，然后还有 UCL 自己的图书馆可以为 online 有好多书啊，杂志啊就很方便。然后后来我又想，因为要从学校里边借书什么的，然后有的时候在学校图书馆自习的时候，就可以用学校的那种设备、电脑什么的来用他们的数字图书馆，就不用抱着书楼上楼下的跑，然后等到第三次换笔的时候，我就想有什么比较方便，或者我为什么要用这些，然后就想到上次期末的时候，因为要借书就从好几个不同的图书馆来借，然后就整整用了一下午的时间去找书、借书，然后还书的时候就抱了好多的书，然后往不同的图书馆还然后当时就特别生气，因为图书馆之间都离得挺远的，有的要还到主图，有的还到 IOE，然后书很重，大概有 20 多本抱着特别重，然后更坑爹的是那一天考古学院休息，然后我又抱回来了，想还不能还，对，然后就想要是全部都能数字化的话就太方便了。借的时间又长，也不用到处去还书，也不用担心人家是不是放假了，我白拿来了什么的，因为我们住的还比较方便，好歹就一趟地铁，要住的远的话这一天气死了

R: 好的，然后就是说最后这个部分你就写了一些你希望的，类似于期许的东西，好的。然后这个就放在这里，然后我们现在就开始正式的 Interview。然后这个 interview 分成三个部分，第一个部分我会问你以文化这个角度为切入点，问你一些作为一个国际的留学生，并且你以前有过在中国读书的体验，会问到你的一些经历，还有就是你的体验，然后第二个部分就是你作为一个信息搜寻者你的一些信息行为还有你的习惯。然后第三个部分就是你作为图书馆的用户你的用户体验。第一个部分，因为你本科是南京大学的，然后你现在到 UCL 读了硕士，然后你觉得从一个宏观宏观的角度上来说，或者就是以学习的环境和学习的氛围来说，中国和英国学习的环境上面有哪些不同的地方？或者是主要的不同。

P: 我觉得对我来说最大的不一样，就是因为住的不一样了，所以就引起很大的不一样。因为在中国的时候就是住在学校里，然后出门不管是去教室上自习，去图书馆上自习都很方便，就会愿意出去，在这边的话，因为毕竟不是住在学校里，然后交通还挺贵，所以就很少去图书馆了。除非说是借书的时候，一般都是去借的话，我都是比如说在图书馆上搜，搜好攒好，然后攒一个相册的，然后一次性去借，因为硕士能一次借 20 本，然后就一次性攒够大概十几本的时候一起借回来看。

R: 好的，在中国的话，你一般是去到图书馆学习，然后在图书馆就直接借？

P: 对，基本上都不借出去，现翻，然后因为国内限制也很多，就是南大当时我记得是本科生一人最多只能借五本书，也就是说你还没有怎么借书，然后就没有办法借出去了，所以就都在里面看。

R: 那对于学习的方式来说有什么不同的地方？

P: 方式主要应该还是硕士和本科的不一样。本科主要就是上课，然后下了课就大家该干嘛干嘛。然后有的时候考试之前复习一下，然后这面就是无时无刻的都在看书，都得自己来。

R: 就是说之前可能更多的是上课，然后老师输出，然后准备考试，但是在这边的话可能更多的都是自主学习的时间，独立学习的时间。好，那就是你来英国之前有没有做哪些关于学习上的准备？

P: 有，搜了好多专业相关的书杂志什么的，先看了看。因为既担心因为突然从本科变成硕士，担心会有更深的东西，然后自己不懂或者什么的，然后另一个也是语言的担忧。所以主要看了一些这些专业书。

R: 那你是从什么途径找的，还是你这样随意的搜，还是你是通过学校老师给的什么东西搜的？

P: 就是翻墙在外网上面搜的, 然后有一些是本科老师推荐的反而是, 因为当时跟硕士的老师不太熟, 也不太不好意思问, 然后后来其实发现你完全可以问他们, 但是当时不太熟, 就不知道他们什么秉性, 反而是去问本科老师, 然后可能自己在搜索引擎上面直接搜这个主题, 然后得到的。

R: 那就是说像你们院有一些提前准备的 reading list 之类的, 你会看吗?

P: 他其实老师有给我们发 reading list, 但是因为我当时邮箱出了问题, 我没有收到那封邮件, 然后等我来了以后我才知道的。但是之后基本上每一周上课之前, 老师都会给 reading list, 然后那些会提前看。

R: 好的, 你觉得在你之前做的这些准备, 尤其是看专业书这一块, 就是对你的帮助大吗?

P: 我觉得还行, 他不是那种很具体的帮助, 比如说老师讲了什么, 我以前看到过, 然后我就全懂了, 不是这样。大概说因为老师他上课本身跟我们最后的论文什么的关系其实不是很大。老师就是天马行空的讲, 给你一些启发, 然后前面都是属于积累素材和想法的阶段, 就没有那么直接的帮助, 但是他会给你有一些想法, 让你有一些思考, 还是有帮助, 但是不直接的。

R: 好的, 然后的话就是针对你的学习习惯, 你可以跟我简单的介绍一下, 你在本科的时候学习习惯是什么样的, 然后来到这边学习习惯是什么样。

P: 其实本科的时候, 因为我格外喜欢我这个专业, 所以本科的时候基本上就是上课的时候好好听一听, 然后考试之前好好复习一下, 但是平时都是自己看书, 但是看的都不是那么和考试相关的书, 因为我学原来学文物鉴定的话, 就看一些鉴定周边的书, 然后觉得很有趣。然后来这边的话看得可都是学术相关的书、杂志什么的, 因为怕有的时候老师上课会听不懂, 然后感觉自己经常在看书, 可是在写论文的时候还是很蒙。

R: 好的, 刚刚你有介绍道你的学习习惯, 那么针对你在学习当中需要搜索的信息, 你在中国是怎么样搜索这些信息的, 然后在英国是怎么样搜索这些学习相关的信息的?

P: 在中国的时候, 因为大家都用知网什么的, 然后用学校的又很方便, 基本上大部分都是看杂志了, 就是知网上面的期刊, 然后反而看出版成书的这种会少一点。然后也是因为专业的原因, 我觉得, 因为我这个专业的话就是成册出版的书, 都是属于比较社会学派的, 对你的学术的帮助不是特别的大。然后主要就看期刊, 但是在这面看的是书多一点...

R: 那这个书是纸质书还是电子的书?

P: 纸质的多一点。大部分因为学术相关的还是纸质的书多一点。然后但是也有一些从学校网站上搜的电子书, 然后因为我上个学期写的一个论文的主题就是比较的...做的人比较少吧, 然后我当时就是像在国内一样的搜索习惯, 然后在图书馆上比如搜关键字, 然后出来的东西就特别少, 而且不是跟我想要的是一样的, 我专门去问了老师, 我说老师我找不到相关的资料我怎么办? 然后他告诉我的是, 他就给我示范, 基本上全部都是在搜索引擎上在, 在 google 上找, 然后会让我看里边从里面看新闻, 有看期刊, 然后还有看各种政府文件, 然后我们老师对政府文件特别的重视, 所以他交给我是你确定一个主题以后, 完全可以在 google 上搜, 不用特别的专业的在图书馆上或者是学术引擎上这样的。

R: 我总结一下, 你在中国的时候主要用的还是这种学术的引擎, 比方说知网, 然后找的可能更多的就是期刊什么的, 但是现在在英国你一般就是会去借一些纸质的书, 或者是在 google 里面搜, 或者是你们老师可能跟你教了可以去政府的文件上面去找一找。你刚有说到, 其实如果这些书有电子版的话, 你其实是会更喜欢电子版的是吗?

P: 是的

R: 但是因为可能也许和学科有关系, 但是你们这个学科可能更多的都是一些纸质的书?

P: 它有一些很关键的著作, 只有纸质版的, 然后就是核心的一些理论的书, 往往在图书馆上只能去借纸质的, 一些周边一点的或者一些新的书, 基本上都可以 view online, 或者 download 的那种。

R: 好的。那你在南京大学的时候用的图书馆系统是什么样的? 你可以大概给我形容一下吗?

P: 我们学校的图书馆的系统...我在南大的那个时候, 就是我们系统维护的不是特别好, 然后经常就是会卡、搜不出什么东西来。但是我听他们去年好像整个校园网全部都重装了。但是之前的话就是很难从里面搜, 我一般都不直接在网上面搜, 就是去去图书馆里边的那种终端的那种机器上面, 对, 会比你在电脑上搜方便的多

R: 其实可能更多的是和校园网有关系?

P: 是。

R: 那图书馆系统的界面大概是什么样? 他组织资源的方式大概是什么样的?

P: 跟这面应该差不多的, 然后中间是资讯, 然后上面有搜索栏, 旁边有一些其他的相关的链接什么的。然后搜书的话没有能能在网上直接阅读或者那种的链接。一般都是告诉你是在哪一个书架或者是在哪个院, 因为南大他本身也有两个院, 他会告诉你这个书在鼓楼还是在仙林这样子。但是南大就图书馆有一点特别好的, 就是你在图书馆借的书可以还到各个地方去图书馆。

R: 那以前你们南大的图书馆系统里面, 对于这种在线的期刊, 他是怎么样检索的? 还是只是对纸质书提供一个书目检索的功能?

P: 这个我真不太确定, 因为我没有南大的图书馆的检索过期刊, 因为期刊直接就在知网上找就很方便。

R: 好的, 然后的话就是对于我们学校的 explore 系统, 就是图书馆系统而言, (打开了网站) 它的两个界面, 一个是图书馆的一个服务, 然后这个是 explore 的主界面, 那么一般你会在 Explore 里面搜索的是哪些类型的资源, 然后你都是怎么操作的?

P: 哪些类型的...我一般都是直接搜领域。除非是有老师推荐的书,我会直接搜书名,第一学期的学的东西比较像理论梳理这样的,我就会搜就直接搜一个作者的名字,然后从他第一本发行的书一直看到最近的。

R: 好的,也就是说其实你更多的是搜索一些抽象性的概念,就直接点进去看,可能就看看一些相关的文章,然后再从里面挑?

P: 对。

R: 好的,那么你在用英国的图书馆系统的时候,有遇到一些困难吗?或者你觉得有什么时候是你没有搜到你想要的东西?

P: 有啊,有的时候搜关键字出来的,跟你要的可能不太是一个东西。

R: 那你觉得原因有可能是什么呢?

P: 学科交叉应该是,因为比如说我要写 Human remains,它可能是跟考古有关的,当然这个跟我也有关,它可能是跟博物馆展览有关的,然后这两种都是我需要的。但是好多他又是跟解剖学、自然科学相关的,但是这种就是我完全不懂的东西,就跟我没什么关系,但是有的时候反而这些会放在前面,然后就会让我看了两页之后就觉得没有我要的东西。

R: 你觉得除了可能有时候找不着自己想要的之外,还有遇到过什么觉得这个系统不好用的时刻吗?

P: 经常需要输用户名和密码。

R: 这个很麻烦?

P: 对,尤其是你正在看一本书的时候,你不可能说我一个两一两个小时看完一整本书,你有可能看半天,然后他会让你输三次密码,然后就觉得很烦。

R: 好的,然后的话就是用户名和密码太频繁?

P: 对。

R: 你觉得英国的图书馆系统和中国的图书馆系统相比的话,你喜欢什么?不喜欢什么?

P: 中国的话,我喜欢的就是,对我来说找书比较容易,因为它的分类就是秉承一个标准的。但是英国这边的图书馆,就像 IOE 的图书馆,它就是分教育的、非教育的,然后上下又分层,上面的是这个排序,下面的又换成了字母那样的排序,然后有的时候找书就特别困难。然后中国图书馆不喜欢的...我觉得主要是我们学校的问题,就是原来的网站真的特别的鸡肋,就是不知道用它来干什么。你找书吧有的时候又找不到,然后在上边操作你自己的账户,比如说你的学生号什么的,经常卡,经常看不到你借了什么书,也不会提示你什么借的期限之类的。但是我觉得英国这边做的特别好,就是你快到期的时候,他就给你发一个邮件,你就知道我快到期了,我是续借还是还,然后以免超期。但是这边不好的就是他提示的时间稍微有一点早,好像一般都是三天,然后等三天之后我就忘了。有的时候你就想着我要去还了,但是你可能有其他的事耽误正好三天过去,然后就超期了。然后再一个就是他还书的这个,你必须从哪借,从哪还。就比较的麻烦。

R: 好的,我总结一下,就是说在中国图书馆系统可能更多的它就只是起到一个检索的作用,然后你也不是很经常的去用图书馆系统,然后更多的就是在实体图书馆里面直接去找你想要的书,然后在这边的话你会经常在这上面搜,可能到期的提示做的还可以,但是还不够人性化?

P: 是的

R: 好的。然后我们现在开始第二个部分,第二个部分就是关于你的信息行为的就是你做你平时搜索信息的时候你的一些习惯和行为,然后你在学习生活当中一般会搜索的信息都包括什么?就是这个学习是一个可能很广义的学习,就可能他它不单单是你为了 coursework 去找这个信息,这个就是一个广义上的,你一般就是和学习相关的信息你都会找哪些?然后从哪些途径去找?

P: 会订杂志,现在有订 MA 的杂志,然后没事去图书馆借书什么的,然后有跟专业相关的,会找老师发邮件,有没有什么推荐的书之类的,然后再一个就是直接在 google 上找。因为自从上次问完老师以后,发现他写论文也是直接在 google 上搜,什么都会看。新闻,然后博客,政府文件,然后包括一些图片,他什么都会看。我就发现他们这边,也许是我们专业还挺重视博客的,

R: 就是那种可能也是比较著名的人,著名的学者之类的?

P: 对,一些写手这样。

R: 然后你刚说到杂志,这个杂志是实体的杂志,然后他就直接寄到宿舍?

P: 对

R: 然后的话你就是在英国,你现在搜索的信息以及途径是这样的,这个和你之前在中国为了学习相关的搜索,相像吗?

P: 有相似也有不相似,我在本科的时候没有订过实体的杂志,因为有知网就什么都有了,然后但是也会找老师问一些书,因为我们专业太小众了,直接在网图书馆上搜的话,搜出来的都是比较社会的那种收藏一类的书,学术的很少,所以都会去找老师问。然后再者的话,在国内不相信搜索引擎,百度搜出来的都没办法用于学术。

R: 你在国内不会用搜索引擎去搜索?

P: 对

R: 好。刚刚有提到你会搜索这样的信息来满足你的学习的需求。但是刚刚我发现好多其实是以实体为主，可能有时候在谷歌上面会搜一些类似于片段化的或者是碎片式的信息，那么你经常会接触到的设备就是电脑和实体吗？你还会用到一些其它的设备吗？比方说 iPad 或者是手机，你是怎么样用其它的设备的？

P: 对，其实是平时读书的话，我主要会用 pad 来读。因为用 notability 那种软件的话，可以做笔记，画重点就很方便，包括上课的时候也是那样的，但是如果说是写论文的话，我现在需要真正的写出东西来的时候，我就是用电脑，然后从 explore 上面下那种书边看边就是做那些 refs，然后一些引用的直接把它摘下来，这样比较方便。

R: 就是说如果说你只是阅读的话，你一般可能习惯性的用 pad，但是如果是涉及到写的时候，你就会用你的 laptop。你刚刚说可能会写东西的时候，你会下一些东西吗？然后边边看文章，然后边写，你这个时候是会 laptop 用来写，然后 pad 用来看，还是你看和写都在 laptop 上？

P: 其实是这样的，就是我第一个学期的时候，就是所有的书全部都下在 pad 上面，然后包括做笔记，然后引用、摘出来都额外放一个文件夹，就是说这些东西都是我论文要用到的。然后等到期末在整理的时候，就是开始往出写的时候，我就觉得这样有点复杂。你有的时候这些整理的不是很是顺序，或者有一些碎片的东西，你当时有了灵感，然后你再翻回头看的时候，你就觉得，我这是干嘛用的来着，就忘了。然后我第二个学期整个换了看书的时候的灵感，就是这边看着也在上面做笔记，但是这一天结束以后就会把这个全部都归在电脑上的一个文档里面，然后就按照我可能是我论文的思路这样一 part 一 part 的往下写。然后等我写论文的时候再集中看书的时候，我就是直接边看边写，下面开着文档，上面看着书，就同时都在 laptop 上进行，就没有 pad 什么事了。

R: 也就是说可能在学期当中你只是在阅读，在吸收这个知识的时候，你是一般会用到 pad，然后但是你在阅读之后总结完了之后会把它们全部都放到 laptop 上，然后你最后的写作的时候会用到只用 laptop 来做？

P: 是的，其实这是一个变化的过程，因为第一学期到结束的时候，就觉得整理起来很费时间，然后时间不够用了。所以到第二学期我就把整理放在平时来做。

R: 那么 pad 上面除了阅读功能以外，然后你还有用到哪些和学习相关的功能吗？

P: 字典。然后读书笔记，包括上课的笔记，然后有一些录音，然后会拍 PPT

R: 你会用 PAD 去拍 PPT？

P: 对。

R: 然后就除了 PAD 之外，你会用手机去学习吗？

P: 很少，因为在本科养成了这个习惯，用 pad 来拍 PPT 做笔记。然后其实一开始一大二的时候是用手机，然后发现大家都用 PAD，然后直接可以做笔记，我觉得手机好不方便，然后就把手手机完全化成了娱乐设备，PAD 化成了学习设备。

R: 好的，然后可能手机上面手机上面比方说更广义上的学习呢？还是手机其实就是一个娱乐和交流的一个设备也没有，比如说我今天在外面，然后想晚上闲下来了想读个书，然后还是用手机。

P: 然后我是那种比较喜欢看小说写小说的，所以它对我来说，但是写小说看小说对我来说是属于休息的过程，没有那么学术

R: 好的。还有一个关于你习惯的问题，一般你平时经常去图书馆学习吗？

P: 在这一边其实从来没有过。都是借书回来。

R: 都是借书回来，然后在家里面学习，也就是说图书馆的 desktop 你一般是不用的，对吧？

P: 对，除非借书的时候，除非借书和打印的时候。

R: 也就是说你的学习习惯，其实一般学习地点就是在宿舍，然后用自己的 laptop 和 iPad？

P: 对。

R: 好的，刚刚我们有提到你有时候其实是在我们图书馆系统里面找不到你想要的资源的，然后你可以想到一个比较具体的例子，当时找了什么，然后没有找出来，结果是什么样的，没有找到之后你怎么做了？

P: 就是我刚刚说的那个例子。找 human remains 的东西，因为我想做的就是因为这个争议很大，到底应不应该在博物馆展览，就是各执一词，然后我就蛮想做这个的，当时在图书馆里面找的时候就是找到跟博物馆相关的，因为争论现在已有的争论特别多的都是关于一些道德的问题呀，包括该不该还回去，原住民或者说是宗教的问题，但是对于教育本身、还有博物馆展览它的用处本身的讨论是很少的，我在这个上面搜的话，大部分都是关于一些道德，然后关于一些自然科学的东西，就是跟我想要的东西差别很大。

R: 然后之后你你怎么做了？

P: 我就去找老师了，因为他也觉得这个东西比较新的一个想法，他跟我说你就是在 google 上面找，多看，然后从里面找你的灵感，然后去反驳一些，或者是赞同一些这样的来写。

R: 也就是说可能没有当时没有找到的原因，是因为这个领域太新了，而且它又涉及到一些交叉学科，

P: 对

R: 所以找不到你想要的东西，但是之后你就在 google 里面可能去搜一些非官方，但是可以提供灵感和思路的这样一些东西，好的。然后你一般就是用图书馆系统，都是在一个什么样的情境下去会用到图书馆系统？

P: 比如说我现在觉得我需要看一些专业相关的书, 然后我会去找, 然后我现在比如说开始要准备毕业论文, 然后我想找一些灵感或者是相关的话题, 然后我就会在上面搜关键词, 找一些书先回来翻读那样。然后再一个就是老师推荐了 reading, 然后要在上面具体的来搜一某一本书下下来。

R: 好的, 其实更多的还是和自己的专业, 还有 coursework 或者是老师给的一些 reading list 的, 就是在你有这些 task 的时候, 是你去看图书馆的这个系统?

P: 没错。跟国内其实蛮不一样的, 因为在本科的时候, 看书的话就是很杂, 从明朝那些事往下看, 就完全看这种什么都有的, 有时候看一些游记, 旅游的这些东西什么都会看, 但是在这里面全部都是专业相关的、跟论文相关的, 基本上没有什么广泛的那种阅读。

R: 你觉得原因是什么呢?

P: 原因是更多的时间我愿意去下载一些中文的来看。

R: 好, 那你一般会下中文的文献来看吗? 或者是中文的一些和学习相关的这些书?

P: 是。

R: 你一般是用什么东西来下载中文的资料呢?

P: 有的时候就是用网盘。然后再具体专业相关一点的话, 就是更专业一点的话, 还是会用知网, 在淘宝上买了知网的号, 然后来看。

R: 所以说其实相对于文献或者是和学习相关的, 你可能更偏向于去看中文的文献或者是中文的一些东西, 但是和你们专业和 coursework 相关的, 就不得不去看一些英文的?

P: 是这样, 我感觉还是第一学期这样多一点, 还是对中文文献有依赖性, 觉得我这个话题还不是太懂的时候, 我愿意去看一些中国人是怎么做的, 然后等到第二个学期的时候就发现, 其实国内的学术和现在这边是有一个时间差的。国内觉得很新的东西在这边其实已经做到已经是那种老生常谈的旧东西了, 反而我就会开始不太看中国的专业的这种相关的, 反而去看英文的, 但是会泛读一些, 因为毕竟以后回去工作, 就像一些博物馆的杂志, 各个馆长的一些写的东西, 博客什么的就看一些中文的。

R: 好的, 然后现在你看到这个系统在这里, 然后图书馆是分 explore 上面有这些 tabs, 就是它的一些入口, 然后还有主要的搜索引擎, 你平时一般用的功能或者平时一般会点的都是哪些?

P: 我基本上会用的就是主要的搜索引擎, 对, 有的时候最多分类, 然后如果就是还书或者是要延期什么的, 就直接从我的账户上面登。我试过一次用 store request, 但是不巧的是那时候 IOE 的不能用。所以没尝试成,

R: 好的, 那一般比方说你搜了一个关键字, 进去之后左边会有一个 filter, 你一般会用 filter 去细化你的检索吗?

P: 会, 因为更多的时候我愿意用 online 的一些书, 我第一选择先去看他的 online 有没有, 然后会下来, 因为比去借书更方便, 而且没有数量的限制。

R: 也就说 filter 里面你经常用的就是 type。好的。还有一个图书馆的主页, 里面一有一些部门, 还有一些其它的 services, 一般你会在这个界面上面一般会用到哪些功能或者哪些部分吗?

P: 我在来之前在学习之前研究过, 到了这边以后反而没有怎么用, 就是来之前为了整个了解, 每个看了一遍, 反而来这边都没有用就没有用过。

R: 所以说你其实还是用 explore 比较多, 就直接去检索了。好的, 我懂了, 你知道我们图书馆是有一个 UCL GO, 就是整个学校的一个 APP 你用过吗?

P: 只有第一个星期用, 后来发现操作起来对我来说不是那么方便, 所以我就没有再用了。

R: 你知道那个里面其实有图书馆的可以检索的功能, 还有图书馆可以查座位的功能吗?

P: 不知道

R: 你是应该相当于是去年的 9 月来的, 然后那个时候看了一下, 后来就没有再看了?

P: 对的, 因为本身苹果的浏览器它不是可以有不同的标签能保存, 然后图书馆的标签老在那个里面, 然后直接打开浏览器就直接可以看, 然后就没有用过 APP。

R: 就是说你其实还是会再从手机上面看图书馆的系统, 但只不过不是从 APP 进去的, 就是从浏览器进去的, 对, 那你在什么情况下会看会从手机上面去看看图书馆的系统呢?

P: 基本上每天都会看, 就像查邮件一样, 每次查完邮件, 因为我第一次借书的时候超期忘还了, 然后罚了, 罚了我多少钱来着忘记了, 反正我就觉得这是一个问题, 然后每次查完邮件以后, 然后上图书馆再看一下, 然后有的时候等公交会比较烦, 然后就搜一些书, 看看有没有能看得能借的。

R: 所以说你用你的手机去看图书馆系统的时候, 一般就会把它当成一个定期 check 的一个功能, 用它的地点一般是在等车的时候, 就是在路上的时候

P: 对, 比较碎片化的时间。

R: 好的, 然后接下来我们就开始第三个部分, 就是你作为一个图书馆的用户你的一些体验。你刚刚说过你没有用过 UCL GO, 那么你之前的经历里面有没有用过任何一种移动图书馆的 APP, 在国内也好, 或者在这边移动图书馆的 APP?

P: 好像没有过。

R: 好的, 你刚刚也说你一般会用手机去看图书馆的系统, 会直接通过浏览器进去, 你对他的评价是怎么样的? 那个点进去之后的网页其实是和我们 explore 是一样的, 你觉得从手机上面看它的效果或者是你对他的评价是什么样的? 你觉得这个用着怎么样?

P: 我觉得差不多, 跟在电脑上用差不多。然后我以前用南大的系统就会觉得就是字很小, 因为上面字很多, 在这边 explore 主要就是看我的账户, 要不然就是直接查书, 因为他只有那一条, 就不会觉得字很小, 然后手指点不到什么的, 但是我现在知道 APP 有这个以后我可能会转来用 APP, 因为总觉得 APP 会比网页更方便。

R: 你觉得在设计移动客户端的图书馆系统的时候, 你觉得他应该和网页上的图书馆有什么区别吗?

P: 当然要有, 因为又要想到它应该更重点突出, 因为它只有那么小一个屏幕, 如果还有很多其他的资讯的话, 你可能没处点, 再一个是要考虑流量的问题, 就不要有那么多有的没的视频图片, 乱七八糟的东西。

R: 好的, 你觉得针对于移动客户端的话, 它需要有哪些功能? 刚说的除了检索还有可以看自己的账户之外, 你觉得他可以有一些其他的功能吗?

P: 比如说有一些开放的时间什么的这种, 关于图书馆的信息, 对, 就不会出现那种抱着好多书去了, 然后发现他放假了, 而且居然连图书馆都进不去的那种。虽然我不怎么去, 因为我是那种喜欢边看电视边写作业的人, 所以我没办法去图书馆学习。但是对大部分人来说, 就觉得跟大家一起学习会有动力, 所以肯定比如说哪里有什么资源, 哪里有空位, 对大多数人来说都很重要。

R: 好的。关于你个人使用图书馆系统的一个习惯的问题, 你一般在用图书馆 explore 来查文章的时候, 你是会把他一直在这样在背景页这样打开着, 然后想到就去查, 还是可能你现在需要搜索你才会把它打开, 然后搜索完就把它在关上, 你会一直放在那吗?

P: 我会一直放这, 比如说我今天就是要写论文的时候我是一直会开着, 但是如果说我只是想找一本书来读, 我找到了这本书, 然后我就会去看书, 就把它关掉, 但是就有一点不好的, 如果说我把这个 explore 开上半天, 甚至没有那么长的时候, 它不是让你输密码, 是让你关掉浏览器重新打开。

R: 然后就觉得就很不够人性化?

P: 对。就 get 不到这个点意义在哪里。

R: 好的, 然后的话你在用我们图书馆系统的时候, 有哪些功能是让你觉得特别满意的, 然后有哪些功能上你觉得特别就不太满意的?

P: 我觉得特别满意的就是能直接在网上看资源, 因为以前南大的图书馆是完全没有的, 就是 view online 特别好, 对, 而且他会给你到不同的这种网站上去, 给你相当于一个链接, 你在不同网站上找资源, 但是有一点就是, 我的同学, 我一直记得他第一个学期刚来的时候, 他不知道就是能在外网可以直接这样搜。他在家里面搜了教授推荐的书以后没办法下下来, 然后他就以为必须连到校园网上才能在网上下载这些资料, 所以他每次专门又跑去, 然后下载然后再回来, 后来我告诉他, 不是的, 你登出登陆你的账户以后直接下载就可以了。

R: 其实像这样的比较可能对于他们外国人来说是习以为常的事情, 但是这样的信息其实是可以提前告诉我们, 然后最好是有一个培训或者是 instruction 的东西, 可以提前告诉我们图书馆是怎么样用的, 尤其是像比方说和网络 eduroam 这种相关的, 或者是和下载的要求相关的这些东西

P: 是的。

R: 作为一个国际学生, 除了刚我们说到的可以给一些 instruction 给我们这样的国际学生之外, 你还对我们的图书馆系统有什么样的建议吗? 就是你站在一个中国学生的角度, 觉得图书馆可以怎样改进它的系统, 它的服务能够更好地服务这些国际学生?

P: 我觉得提前有一个说明什么的特别重要。因为要不然的话就全靠自己探索, 但是因为我之前在放假的时候没事干, 就把这些所有的东西都过了一遍, 但是大部分人没有这个时间, 直接用的话就很蒙, 就不知道该怎么办。然后再一个的话, 因为讲实话, 我用实体图书馆真的太少了, 而且我就是不习惯在图书馆去学习, 基本上没有在里面待过很久的时间, 偶尔看书, 也不是正经的学习。但是听同学讲过, 就是开门的时间不是很按照规定来, 有的时候去了发现早就开了, 然后就沒位子了, 有的时候发现很晚才开, 在门口一直等着。

R: 就是这种图书馆开放时间的信息...

P: 应该有一个更更严格一点, 就是你在网上说说给大家知道, 你如果今天有要推迟的话, 大家不用在外面等一个小时那种, 然后如果今天早到的话, 你也可以告诉大家。

R: 然后下一个问题就是关于刚刚我们一开始我提到的移动图书馆, 还有一个更广义的词是智慧图书馆, 然后对于你来说, 你对这两个词都是什么样的理解?

P: 因为它移动图书馆, 然后我想的话就只是那种直接可以在移动设备上看书的图书馆, 然后我觉得智慧图书馆它可能会是在, 比如说检索或者是一些其他服务上面, 更加人性、智能的这种。它不仅仅限于你在移动设备上看书, 可能会有一些其他的, 比如说它能让你在线做笔记, 然后就不用去买 APP 了。

R: 它可以结合一些其他的功能。

P: 对。或者给你一些根据你的日常的浏览习惯, 给你推荐一些书。

R: 也就是说可以加入这种推荐的算法, 比方说根据你浏览过什么, 推荐相关的东西。也就是说移动图书馆是在各个移动端上看书很方便的。但是智慧图书馆更能够贴近个性化、人性化的一个服务。

P: 是的。

R: 你觉得设备或者是这种科技, 包括一些 APP 在你的学习当中是一个什么样的角色?

P: 电脑的话主要就是写东西，我曾经想尝试过，以为电脑带起来的话还要带充电器，续航的时间没有那么长，就想能不能用 PAD 加键盘来取代他。后来发现还是用电脑、鼠标的这种写东西更加方便一点。所以基本上对我来说，电脑是写东西，阅读的时候就是用 pad，其他看一些名著或者小说之类的，休闲的时候就用手机。

R: 好的，那么你觉得图书馆应该怎么样借助这些科技来让他的服务更好？

P: 尽量就是能把这些东西都有 online 的资源，还有一些就是，尤其在国内的时候看的都是古文献，但是有很多那种馆藏的，不太容易借给学生的，比较脆弱的这些古文献都是没办法带出图书馆的，借的时间又特别有限，应该是一个小时，然后到阅览室去看，其实完全可以避免这个事情，如果说一次性扫描的话，大家都可以看，你也不会有一人进去看一个小时翻一遍，又一人进去看一个小时翻一遍，反而也会破坏，就一次性的扫描是不是会更方便一点。

R: 所以说其实对于图书馆来说，最重要的还是把这些馆藏能够提供数字化版本的，就提供一些数字化版本，其实还是实现它最基本的功能，就是提供所有用户需要的资源是最重要的。

P: 对的。

R: 好，今天的 interview 就到这里。

English translated transcription

Interviewee 1---IOE: MA Museums and Galleries in Education---Nanjing University---Female

R: Can you explain your cognitive map in the order of your drawing?

P: Speaking of the mobile library, the first thing I thought up with is that we can use mobile phone, pad, this kind of devices. Then I thought if using these devices to do reading, you must take some notes; therefore, I remembered some apps that are suitable for pad to take notes and read e-books, etc. After that, I was thinking where the books come from? So, I drew the Amazon, and also, the library system of UCL where there are lots of online books and journals, which is very convenient. Sometime I need to borrow books from our libraries, and if I study at the library, I can use the devices, desktops in the library to log on to the digital library, and that's the time when I don't need to carry books walking around. When it comes to the third pen, I was thinking what is easy to use and why should I use them. I remembered last term, when it was the exam week, I borrowed books from several libraries and spent the whole afternoon finding and borrowing books. When I need to return them, I carried so many books and went to several different libraries, which was so annoying. Cause the libraries are far away from each other and some books are from the main library, some from the IOE library; the books are heavy and I need to carry around 20 books. The most frustrating thing is that the day when I returned the books, our department library was closed due to a bank holiday or something and I didn't know until I went there and I couldn't return all of them. That's why I was thinking it will be much more convenient if all the books can be digitized, when you can borrow longer time, no need to return and no worries about the closure date.

R: So, the last part you drew your expectations. ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. You had your undergraduate in Nanjing University in China and now you came to UK to continue your study as a master student, in terms of the learning environment, or to say, the learning atmosphere, is there any difference between these two countries? How you experienced in these two countries?

P: I think the biggest difference for me is that because I live differently, it makes a big difference. Because when I was in China, I lived in the school, it is very convenient to go to the library or classrooms for self-study. I will be willing to go out. But now I am not living in school and the traffic is very expensive, so it makes me rarely go to the library unless the time when borrowing books. If to borrow books, I generally will search well before hand and save enough books for an album big, and then borrow them in one go. Master student can borrow 20 books at a time, so I will borrow it back together when I have enough for a dozen or so.

R: ok, when you were in China, you generally will go to the library to study and borrow books when you are in the library?

P: yes, generally I won't borrow books and take it out of the library. Basically, I will read them in the library and because there are borrowing limitations back in China, as I remembered, undergraduate can only borrow no more than five books on their account, which means you can barely borrow books out of the library. So that's why I read at the library.

R: in terms of the way of study, is there any difference?

P: I think it is the difference brought by different way of the master's and the undergraduate. The undergraduate course is mainly for lecturing, and out of the lecture, everyone will do other things individually. Sometimes will do revisions before the exam. However, in UK, I read all the time and everything need to be done by myself.

R: That is to say, there may be more classes before, and mainly the teacher's outputs, and prepare for the exam; but here there will be more time for independent learning. Ok, what preparations have you made for learning before you came to the UK?

P: Yes, I searched a lot of books, magazines related to my major and looked them at first. I was worried about entering into a master program from the undergraduate course, and there will be deeper knowledge that I don't understand. Besides, there was a concern on language. That's why I mainly did some reading on major related books.

R: Where did you find this kind of information?

P: Some of them I used VPN to search on the external network. Some were recommended by my undergraduate teacher and I searched such concepts on search engines. I was not familiar with the tutor in UK at that time and felt embarrassed to ask, but I actually found that they are easy with answering questions when I arrived here.

R: Has your department prepared some reading list for you?

P: The tutor actually sent an email with reading list, but I had a problem with my mailbox at that time and didn't receive that email. Basically, every week before the class, tutor will give us the reading list, and I will have a look ahead of the lecture.

R: Ok, do you think the preparations you made before, especially the professional books, are helpful for your study in UK?

P: I think they are in some way. Although it's not the concrete or specific help to make me understand all the things in the lecture, but it helps my understanding; besides, there is no big relationship between the lecture content and your final dissertation. The lecture content is just to give you some inspiration, and everything before the coursework is kind of like a stage of accumulating knowledge and ideas. The tutor will give you some ideas to help your thinking, but it's not the direct assistance.

R: Alright, the next question is related to your learning habits. Can you introduce me your leaning habits when you were in China and now in UK?

P: Actually, when I was an undergraduate, I was completely into my major. Basically, the learning habits is like attending lectures and reviewing the course content before exams. The other time I did reading according to my own interests, which was not directly related to the course content, but was in that area. For example, because my major was the original cultural relics identification, I looked at some of the books around the identification, which I found very interesting. However, after I came to UK, all the learning materials I read are academic-related books and magazines, because I am worried about understanding the content in the lecture. Sometimes I still feel blind when I write the dissertation even that I often read academic books.

R: Ok, just now you introduced your learning habits, as for the information related to your study, how do you search for them in China, and in the UK?

P: In China, because I lived in the university and by using the campus network, it was very convenient to use CNKI. Basically, most of the time I would read articles and journals from that, but read less on the publication of books. I think it is also due to the reasons brought by my major, the published books in my field are mostly belonged to sociology, which are not that helpful in terms of academic use. That's why I read more journal articles when I was in China, but here, I feel that I read more books...

R: Do you mean hard copies books or digital books?

P: Mostly hard copies. Most of the academically related books are paper-based, but also sometimes e-books downloaded from the Explore system. Last term, when I was writing an essay, I searched the keyword as I did in China in our library system, and I'm not sure it is because the topic hasn't been explored too much or what, I couldn't find the resources I want. Then I asked my tutor, and he gave me a demonstration, which basically was done in

the Google. He showed me the news, journals, and various Government documents. I feel that my tutor pays special attention to the government documents and from his demonstration, I knew that after a writing concept is confirmed, you definitely can search on google, no need to start with the professional or academic search engines.

R: From your explanation, you actually prefer the digital version of the resources, right?

P: Yes.

R: But sometimes because of your discipline, there are more paper-based books than the digital ones?

P: Some key monographs only have paper version and some core theory-based textbooks can only be borrowed the hard copies in our library. Except for some peripheral or new books that can be viewed online or downloaded on your local machine.

R: Ok. What kind of library system did you use at Nanjing University? Can you describe it to me?

P: The system of the library in our school... At the time of Nanjing Uni, there was not so much maintains for our library system, and it often disrupted and failed to search. I heard that last year it seemed that the entire campus network was reinstalled. But before, it was very difficult to search online. I usually go to the self-service terminals located in the library, which was much more convenient than searching on your own computer.

R: Do you think that is probably related to the campus network?

P: Exactly.

R: What is the interface of the library system when you were in Nanjing Uni? How it organizes resources?

P: Similar to the library system in UK. In the middle is the information and news, then there is a search bar above, and there are some other related links next to it. If you search for books, you can't read them directly on the Internet or that kind of download links. It is generally telling you the location of the books, like which bookshelf or which campus, because Nanjing Uni has two campuses, so you need to look at the location of the books, either it is in the Gulou campus or Xianlin campus (the two campuses of Nanjing University). However, there is a good thing about the Nanjing Uni library that you can return books to any of the library, not necessarily where you borrow them.

R: How did you search for online journals in your library system? Or is it just the function of providing a bibliography search for paper books?

P: To be honest, I am not sure about this because I haven't used that library system to search for journals, because it is already very convenient to find the journals from CNKI.

R: Ok, for the UCL Explore system, the main interface of search is here like this (opened the Explore interface). In general, what types of resources will you search in Explore, and how do you search?

P: What types of... I usually search a concept or filed directly. Unless there is a book recommended by the tutor, I will search directly for the title. The first term is more like a summary of theoretical knowledge, so I would search for the name of an author and then read his books from the original publish to recent ones.

R: Ok, that is to say, in fact, you always search for some concepts. And you will look at some related articles, and then pick from them?

P: Right.

R: Ok, then have you encountered any difficulty when using our library system? Or is there any time you can't find the resources you want?

P: Of course, I have. Sometimes the results searched by some keywords are not what you truly want.

R: What do you think about the reason for that?

P: Probably because of the interdisciplinarity. For example, I want to search for 'Human remains' and it may be related to archaeology, it may be related to museum exhibitions, but both are what I need. However, a lot of the resources are related to anatomy or natural science, which has nothing to do with me, but sometimes it will be placed at the front of the result list. After like two pages, I will feel that there is nothing I want.

R: Apart from that sometimes you can't find what you want, is there any other difficulties you meet in our system?

P: The username and password are often required.

R: is it very troublesome?

P: Yes, especially when you are reading a book. You can't say that finish reading the whole book for one or two hours, you may read it for a long time, but the system will require you to enter the password three times or so, which is very annoying.

R: What do you like and dislike about the UCL library system compared to the Chinese library system?

P: In my case, what I like about the Chinese library system is that it is easier for me to find a book because the classification is based on a standard. But the library in UK, take the IOE library as an example, the classification is messy. There are books divided into education and non-education and some books are sorted by letters, some changed to another way of sorting, so it is especially difficult to find a book. What I don't like about the Chinese library... I think it's mainly the problem of the library website and I just don't know what to do with it. It is designed for finding books, but sometimes you can't find the book you want. Speaking of managing account on that website, for example, to manage your student number, the Internet connection was often broken down and it wouldn't give prompt about the books you borrowed or the due dates. However, I think UCL library is doing a very good job in this aspect. It will send you an email about your borrowing status and due dates in case of overdue. What's not good is that the reminder time is a little bit early, which is usually three days before; and I usually forget after three days. Sometimes you are thinking that I am going to return, but you may have other things happening in these three days, which may lead to overdue. Another thing I don't like about is the requirement of returning books to where you borrowed them, which is so troublesome.

R: Ok. Then we will start the second part of the interview now and it is about your information behavior. Can you describe your habits or behaviours when you are searching for learning related information? Here the learning can be understood as a broad term, and you can think about what information do you usually look for and how you find it?

P: I subscribe for art and museum magazines and sometimes I go to our library to borrow some books. If it is the information related to the courses, I would usually send emails to tutor to ask if there is any recommended book. Another way to find study related information is to directly search on Google and this habit is strengthened after last time the tutor showed me how he searched online, like news, blogs, government documents, or even some pictures. Actually, I found that the tutor in my major pay much attention to the blogs.

R: Is it the blogs written by the professional scholars perhaps?

P: Yes, some blogs are from such person.

R: You just said you subscribed magazines, is this magazine a physical paper one and send directly to the dormitory?

P: Yes.

R: Ok, so is such way of searching for study related information in UK similar to what you do in China?

P: There are similarities and dissimilarities. When I was in the undergraduate course, I didn't subscribe to any physical magazines, because I can have everything including the magazines on CNKI. I actually usually ask teacher for some discipline-related books, cause my major haven't been explored too much and if you search online, the books are mostly related to sociology and historical collections, etc. That's why I often go to the teacher for information. Another thing is that I don't believe in search engine, like Baidu, in China. Baidu can't be used for academics.

R: You don't use search engine to search study related information in China?

P: Yes.

R: Ok. I found that you usually read physical books or search for some fragmented information on Google. So, except for your laptop, do you use any other devices?

P: Yes, in fact, I will mainly use iPad to do reading. It is very convenient to use the software like notability to take notes and add points to it. I also use it when I am in the class. However, if I need to write essays or really need to write something, I use my laptop. I would download some books from the Explore system and cite along with writing, which is more convenient.

R: That is to say, if you just read, you would use the pad, but if it involves writing, you will use your laptop. Can you explain how these two devices were used in detail?

P: Actually, it is like this. When I was in the first semester, I downloaded all the books and materials on iPad and I did things like taking notes, citing and I put all of them in a separate folder. That folder means that these things will be needed in my thesis. However, when it

was the end of the term and when I organized them, I think that was a bit complicated. Sometimes I didn't sort the articles in order, or there are fragmented ideas because I may have inspirations at any time. When you look back, it's so easy to forget it. Therefore, when it comes to the second term, I changed the way of using these devices. I still take notes and write some ideas on iPad, but at the end of the day, I will put all of the information in a document on my laptop, which will be organized according to my thesis structure. Then when I need to write the thesis, I just read that document on laptop. The reading and writing will be only conducted on the laptop.

R: That is to say, during the term, you may use iPad to do reading and learn knowledge, but after reading, you will put the summary on your laptop. At the end of the term, when you write the thesis, you will only use laptop to do it?

P: Yes, in fact, this is a changing process. Because when it was the end of the first term, I feel that it takes a lot of time to organize it. So, in the second term, I organize all the materials every day.

R: Except for reading, is there any other things you will do on iPad?

P: Dictionary. Reading note software, including the notes took in class, and some recordings, and the photos of lecture slides.

R: In addition to iPad, will you use your mobile phone to learn?

P: Very few, the habit of taking photos of slides and taking notes was developed during the undergraduate stage. In fact, I used mobile phone when I first entered university, then I found that everyone used iPad, which can take notes directly. I felt that the mobile phone was inconvenient, so I completely turned the mobile phone into an entertainment device, and iPad became a learning device.

R: Ok, so what activities do you usually do with your mobile phone?

P: For example, if I am outside today (like travelling), and then I want read e-books before going to bed, I will use my mobile phone. I am into reading novels and writing novels, so it is a relaxed way for me rather than academic works.

R: Ok. There is also another question about your learning habits. Generally, do you usually go to the library to study?

P: I have never been to the library to study since I came to UK. I usually borrow books and bring them to study at home.

R: That is to say, the library's desktop is generally not used for you, right?

P: Yes, unless to borrow books or print documents.

R: Ok, we just mentioned that you sometimes can't find the resources you want in our library system. Can you think up of a specific example of a failed search, like what did you try to find at that time? What was the result? What did you do after not finding it?

P: It's just the example like I said before, when I tried to find resources around the topic of 'human remains', which is a controversial topic. People are discussing whether it should be exhibited in the museum and there are different voices. When I was looking for it in the library system, the ones that were related to museum are mostly about ethical issues, like indigenous people or religious issues. However, there is less discussion around the meaning for education or for museum exhibitions. Most of the results are about ethics and natural science, which is very different from what I want.

R: So, what you did after this?

P: I went to the tutor and he also thought this is a new area of research. He told me that you can search it on google, and find inspirations from it. Judge it and think critically about it and then write based on this.

R: That is to say, it was because the field is too new or it involves some interdisciplinary subjects?

P: Yes.

R: Ok. In general, under what context or situation do you use our library system?

P: For example, when I need to read some discipline-related books, I will go to our library system to search. Now I am preparing my dissertation and I want to find some inspirations or related topics, I will search some keywords in the library system and borrow some books to read. Another situation is, when my tutor recommended some reading, I will search for specific books in our system.

R: Ok, in fact, your search is very related to your coursework or discipline?

P: That's right. It's quite different from what I did in the undergraduate course. I read very broadly when I was in China and the topics are extensive, like 'Stories about Ming Dynasty' and other similar historical books. Sometimes I also read some travel books. However, after I came UK, all of the reading is related to my coursework or the thesis. There is basically no that extensive reading.

R: Do you think why is that?

P: The reason is I am willing to download some Chinese books in most of the time.

R: Ok, do you usually look at Chinese literature?

P: Yes.

R: How do you download them?

P: Sometimes I use network drive, like Baidu Drive. If I want to find academic resources, I will use CNKI and I bought a CNKI account from Taobao for me to download resources freely.

R: So, in fact, the information that is relative to your broad learning, you are inclined to use Chinese literature, but with your coursework or discipline, you will look at English resources?

P: I feel this is especially the case when it was the first term, I relied on Chinese literature a lot. If I feel I don't understand this topic, I was more willing to see how this field was studied in China. However, when it came to the second term, I found that there is a research gap between China and UK. What I think is very new in China is actually the kind of old things that have been talked a lot here in UK. Then, instead, I will start to look at the English resources and read extensively. In the meantime, because I will go back to China to work, so like some museum magazines or the museum curators' blogs in China, I will still read them in particular just for my future work.

R: Ok, you can see that our digital library is divided into two parts, one is the services webpage and another is the Explore search interface. What functions do you usually use?

P: I basically use the main search engine (Explore). Sometimes I use the filter on the left side or logging into my account to check the status of the books to return or prolong them. I tried to use the Store Request once, but unfortunately the IOE library store was closed at that time.

R: Ok, so how do you use the filter?

P: Because I am more willing to use some online books, I would filter out the online versions of the resources. Besides, there is no limitation on the loan numbers and it is more convenient than borrowing physical books.

R: Ok, so you usually filter the 'type' of the resources. Alright, also, there is the library services webpage. Will you use any functions on this page?

P: I studied that page before I came to study. However, after I came here, I didn't use it. I used to read it all just to get to know what is there.

R: Ok, I understand. Have you used the app for our university, UCL GO?

P: I only used it for the first week. Later I found the operation was not so convenient for me, so I didn't use it anymore.

R: Do you know that there are some functions related to library services, like search engine and seat availability check?

P: I don't know.

R: Ok, so actually, you only had a look on it in last October when you just came, but you didn't see it again?

P: Yes, because I can save bookmarks on my ios mobile phone and I saved the library website as a bookmark. If I want to check something with the library system, I will directly open it in the browser to see.

R: That is to say, you still check the library system from your mobile phone, but it is not from the APP, but is directly from the browser, right, then under what circumstances you will use the library system on your mobile phone?

P: Basically, I look at it every day, just like checking emails. The first time when I borrowed books from the library, I forgot the due date and I got the fine of...I forgot how much was the fine. Anyway, I realize this problem, and every time when I check my email, I will go to my library account to see the loan status. And sometimes when I was waiting for the bus, I will search for some books to see if any of the result is worthy to download.

R: So, when you use your mobile phone to use the library system, you will use it like a regular check. The location for using it is usually when you are waiting for the bus, like on the road.

P: Yes, I use it in these fragmented times.

R: Ok, then let's start the third part of the interview, which is your experience as a library user. You just said that you haven't used UCL GO. Have you used any mobile library app in your previous experience, either in China or here?

P: I think I never used any library apps before.

R: Ok, you just said that you usually use your mobile phone to look at the library system and you will go directly through the browser. How do you evaluate it? How do you feel when you are using it through your mobile phone?

P: I think it's similar with using it on the laptop. Compared to the one I used in Nanjing University, the characters are very small because there are a lot of words on the library system interface. However, here in UK, I use Explore to mainly check my account, or go search books directly. There is just a search box on the main interface, and it is very simple and clear to see the characters. You don't need to worry about that the finger can't point anything. But now I know that the UCLGO has the library functions, I may turn to use the APP, because I always feel that the APP is more convenient than the webpage.

R: Do you think there should be difference when designing the mobile library system from the library system on the laptop?

P: Of course! It only has a small screen, so it should be more focused. If there are too many information, it will lose the point and focus. Besides, it should consider the mobile phone data and shouldn't include the useless images or videos, or other messy things.

R: Ok, then in addition to search and viewing my account, is there any other functions you think should be included in the mobile library?

P: There should be, like, for example, the opening time or information about the library. Then you can avoid the situation when you want to return books but the library is closed. Besides, although I prefer to study at my dormitory with the TV sound going on and I don't go to the library to study, I think for students who like to study with peers in the library, it will be convenient to have information about the library resources, seat availability ,etc., which are more important for most of the students.

R: Ok. Regarding your habit of using our library system, will you always keep it open at the background or you will open it when you need to search something?

P: I will always keep it open. For example, when if I am writing an essay today, it will always be open, but if I just want to find a book to read and I have found it, I will just turn it off to do reading. There is one thing which is not so good, if I open the Explore for some time, not even a long time, it will ask you to enter your username and password. If you have been opening that page for a longer time, sometimes it will ask you to close the browser and open it again, which...it doesn't make any sense, really.

R: Ok, what do you prefer about the Explore system and what do you dislike about it?

P: What I am particularly satisfied with is the fact that I can look at the resources directly on the Internet, the view online part, because I can't do that when I was in the Nanjing University. Also, it will link you to other websites where you can view and download the resources, which makes you search across all the purchased websites. Right, there is one thing happened to one of my friends, I always remember that when he first came in the first term, he did not know that he could search our library resources directly by the Internet and he thought that he had to connect to the campus network to download, so he went to campus every time only to download the resources he want. So actually, the things that is normal to the local students are not usual to us as international students.

R: But such information can actually tell us that it is better to have some training or instructions in advance to show us how the library is used, especially things like the Eduroam network, or downloading resources?

P: Yes.

R: As an international student, apart from the library training like we mentioned before, is there any other suggestions you want to give to our library to improve its system and services to better serve international students' needs?

P: I think it is especially important to have instructions in advance, otherwise, it just depend on students' own exploration. I had nothing to do during the summer before I came, so I tried and explored everything about the UCL website, including the library website; but most of the students don't have this time. If they use the system directly after they come, they can be blind and don't know what to do with it. Another thing is thing is that according to my classmates who usually go to the library to study, because you know that I prefer to study at

home and rarely go to the library, they said that the opening hour of the libraries is confusing sometimes. In some cases, it was discovered that it has been opened early, and then there was no seat. Sometimes it has not opened yet and they have to wait at the door. There should be a stricter information about the opening hours of the library, at least have some notifications when it is not opened as usual time.

R: Then the next question is about the mobile library that I mentioned at the beginning, and there is a broader term called smart library. How do you understand these two terms?

P: Speaking of the mobile library, I think it is the library system that you can read books directly on your mobile devices. Then the smart library might be, for example, put emphasis on its search function or some other services to make it more human and intelligent. It's not limited to reading on your mobile device, but also some other functions, for example, it allows you to take notes online, and then you don't have to buy any apps.

R: It can combine with some other features?

P: Right. Or give you some book recommendations based on your daily browsing habits.

R: That is to say, it can add some recommendation algorithm, for example, based on what you have browsed, to recommend related things. Mobile library should be very convenient to read on various mobile devices, while the smart library is a more personalized, humanized service.

P: Yes.

R: What do you think of the role of technology, including digital devices or apps, in your study?

P: The laptop is mainly about writing things. I was worried about battery life of laptop and carrying the charger, so I tried to use a keyboard with my iPad to replace the laptop. Later, I found that it is still more convenient to use the laptop and mouse to write things. So basically, for me, the laptop is to write things, iPad is for reading, other casual things, like reading novels, is on mobile phone.

R: Ok, how do you think the library should use these technologies to make its system and service better?

P: Try to be make all the resource online. Some of them, especially in China, like ancient books or special collections, that are not easily accessible to students. These ancient documents are allowed to bring out of the library. The loan time is strictly limited, like around an hour? and you have to go to the reading room to see it. In fact, this can be avoided. If the library can scan them once, everyone can watch it online. Letting people to read it in person still can cause damage, right? It will be more convenient by a one-time scan.

R: So, in fact, the most important thing for libraries is to provide digital versions of these collections. The library resources are core for all users.

P: Right.

R: Ok, today's interview is finished.

Participant 2

Chinese transcription

Interviewee 2---IOE: MA Museums and Galleries in Education--- Nanjing University of Art-- -Female

可以解释一下你的图吗？

我画了有几组图，第一组是我首先想到 mobile library 之后就是 UCL 的 library 系统可以在电脑上面打开网页，然后查需要的那些文章的关键词，会出来一些东西，包括一些 articles 还有一些 book，书的话就可以进一步在图书馆里面找到然后我中间又想到一个点，就是在国内的时候大家可能会用到知网，知网有一个手机的 APP，可以在手机上面打开，并且登陆用学校账号的话资源也是 Free 的。还有第二组图是画了一个手机，里面有微信，微信点开了之后，比如说你想查一些图书馆的有关信息，或者是图书馆的各种公众号的一些文章什么的，就直接查图书馆的名字。比如说国家图书馆，查出来之后这底下可能有几个选项，就可以点击一下看看有没有想要的信息，如果 没有的话可以再去官网查。第三个是 kindle 电子书，它算是一个具有移动性的，屏幕显示就跟纸一样的设备，kindle shop 有的时候会有一些打折的东西，

有的时候是 free 的, 有时候可能就只要一块钱, 就可以从里面选一些你想看的又便宜的书, 当然如果有一些老师指定的书也可以在亚马逊上打开, 然后查那个书, 然后再买 kindle 版本的价格, 就会更便宜一点。当然也可以从 UCL library 里面查, 有的是 Free 的, 也可以在 kindle 上看, 就可以把这些书打开然后开始看就行了。

好的, 也就是说你其实经常用 kindle 来阅读一些书?

对的。

好的, 我们现在就开始 interview。分成三个部分, 第一个部分就是以文化作为切入点, 作为一个国际学生, 对比你之前在中国的上学经历和现在在这边的经历, 我会问你一些问题。就学习氛围和学习环境来说, 你觉得你在中国的时候和现在来到英国有什么比较大的区别吗?

学习氛围, 我觉得...因为我当时学校是属于艺术院校, 所以学术氛围不是很浓厚, 但是实践氛围比较浓。英国的话就是感觉学术氛围相对而言比较浓厚, 因为相对来说你的资源更广了, 因为我们当时图书馆里面的书籍基本上都是艺术类的, 然后分成什么音乐、美术, 就是说这种更专业一点的书; 文化类的或者社会类的书就基本上不太有, 所以说英国的话书籍资源上更全, 大家也更努力一点。我当时去图书馆, 我们学校的图书馆的话就是人相对除了考试周的时候多一点, 平时就不太多。但是英国的话我感觉我平时去一下, 尤其是 student center, 每天去都基本上没有座位, 有的座位就比较偏那种, 所以说大家都非常的努力, 不管是不是假期都会去学习, 所以我觉得学术氛围会更浓一点。但是我觉得这边的实践机会的话, 除了专业上老师给的, 其他的稍微少, 毕竟可能学制短一点。但是我之前的学校每个学期都有一些实践类的活动, 因为针对我们专业课的, 也是算在专业课的评估打分上的, 包括你会自己领导一些, 比如说, 因为我当时学的是文化产业管理, 会办一些集市, 文创集市去卖博物馆的文创产品, 可以在博物馆搭建一个自己的摊位, 去相当于销售盈利那种。还有包括还有一些舞台戏剧类的, 灯光各方面都会学习到。但是我在这边的话感觉时间稍微少一点, 平时除了有一些参观一些 heritage site, 还有一个实习的话也是围绕的博物馆教育为主的, 所以说这方面的差距还是有的。

就学习习惯来说, 你觉得你从中国到这边来, 你的学习习惯有什么改变?

我觉得其实我在国内也不是特别积极那种, 但是我在这儿因为有论文 deadline 压迫的情况下, 我会稍微的比之前积极很多。我觉得我的进步就是在论文写作上, 我之前的时候, 国内写一个论文, 虽然我也会超一些字数, 或者说写的比较多, 比较追求完美那种, 但是那时候写论文的时候我会更多的是看别人的一些文章, 然后再整合。但是在这我就感觉我会看完文章再提出一些新的观点, 然后和自己的论文 topic 相结合再去写, 就感觉更创新了一点。包括上学期上写一个 funding proposal, 相当于自己来策划一个文化项目, 去找一些信托公司, 或者说是那种提供 funding 的国家类的公司去要 funding, 这个时候就需要你的项目有创新点, 所以说我还觉得蛮有意思的。当然之前写作业的时候, 我觉得也会有一些, 比如说做一些 APP 或者是网站那种, 然后这上上学期也是有一个做网站的任务, 但是我感觉这边老师对学生的要求非常严格, 打分上也更加严格, 你可能觉得作业写的很好, 各方面都很好, 但是老师都会挑出来各种问题,

好的。你以前学习的时候一般都会在哪里学, 学习的时候都会找哪些方面的信息?

我本科的时候学习就是哪都有, 在外面坐着学, 在咖啡馆里学, 因为我当时考雅思练口语就是去咖啡馆里。也有在图书馆里学, 就看看书或者杂志这种的; 也有在家里学, 就是不一定。但是我觉得在哪学就说明利用的资源不太一样, 环境不太一样, 因为咖啡馆的话虽然吵一点, 但是对练口语挺有利的。我在宿舍里是学不了的, 我在宿舍里就是注意力分散, 学着就去看剧聊天去了, 图书馆里也是会学, 比如说我会选择在图书馆, 我想高效率的写完一些东西或者高效率的看完一些东西, 我就会选择图书馆。包括一些书籍, 我可能在网上了, 说图书馆里有我就会去, 但我有时候也会选择去南京图书馆, 公共图书馆, 那个地方需要早点起去占座位, 但是那边的书也更全一点。中午有的时候还会去那种要付费的那种非常安静的那种学习的地方, 在南京有一家叫什么状元什么的地方, 反正是一个小时大概有几块钱, 但是非常的安静, 往那一坐注意力非常集中的那种, 也可以从早学到晚, 那个地方没有闭馆的时间, 24 小时的, 这种还挺好的。现在我也是去 science library 还有 IOE 的图书馆, 还有 student center 去过两次, 但因为人太多了我就再也没去过。要不然就是在家学习, 我就可能效率低一点, 但是我有时候懒得化妆就在家了, 但是没有去过咖啡馆, 我室友好像去过咖啡馆, 因为他是那种闭卷考试, 我是写论文, 可能性质不同。

好的, 你当时来英国之前, 就是你还在中国的时候, 有为了这边的学习做什么准备吗?

没有, 因为我其实是考雅思, 考完了之后过来读语言班, 但是我是读的 KCL 的语言班, 后来雅思又考到了, 然后我才去 UCL 的 IOE 这个专业的。因为一开始 KCL 那个专业也是文创的专业, 因为英国只有这个学校有这个专业, 后来我又觉得英国硕士一年学不到什么东西, 专业内容非常的广, 我本科四年学的东西也非常的广, 所以我就想换一个更专业的 program。当然我一开始以为这个 museum & gallery education 是一个偏向策展 curation 这方面的, 但是后来我发现这个其实是关于教育的, 所以在这个之前我也没有做什么 reading, 是来了之后每节课之前老师会给一些 reading 我才会去读。

好, 其实也就相当于当时你们这个专业可能也提前帮你们准备的 reading list, 你没有来得及看, 因为是比较临时的换了专业, 换了学校?

是的。

好的, 那你在中国的时候为了学习会找哪些方面的信息?

我可能会在网上查一查和学习相关的信息。比如说有的时候我觉得学习氛围不太好，或者说我学不下去，我需要一个怎么样的地方，然后 24 小时的那家自习室就是我在网上查出来的，当时就是查了一下哪个地方适合学习。还有就是，我可能需要某一本书，或者说是我不仅要看书，可能写一个作业要看展览，然后我就需要看哪些地方有 exhibition，又是符合我写的论文主题的，或者说哪个展品是符合主题的，我会查出来，然后再去那个展览馆去看。如果在家学习的话，自然就是在网上查一些文章，然后再下载出来，这个时候下载因为不是用学校的网，会需要付费，当然也没有关系，反正就是会查一些文章，会查一些学习必用的东西。有的时候会，比如说我们当时要写一个艺术经纪人的策划，你作为一个艺术家的经纪人，如何让他的作品提高卖点，我当时就选择的是我们院里面的一个老师，我对这个老师又进行了一些采访，通过了解他的绘画风格，来思考怎样提高它的卖点这种。然后我们毕业的一个汇报是策划一个展览，我当时是选的一个美术学院的学姐，在我们学院做了一个比较小型的展览，这个就不仅要看书了，你展览要怎么策划，对学姐进行一些前期的了解，她在作画的时候分哪几个步骤，在展览的内容里你可能会有一些她的速写，包括一些白描的作品，了解她前期没成型的画到后面的画的过程，然后总体你以一个什么样的主题来展示绘画风格，这种需要感觉有点像采访的类型。还有就是我之前本来想读 PHD 然后老师跟我说有一个田野调查的方法，我当时就有去拍卖行进行一个短期的实习，就是通过研究这些中国的拍卖行目前的运营方式，盈利方式，当然一个实习生可能看不出来里面有什么问题，但是这也是学习的一个方式，我可能也有点收获。

你刚刚说的文章，一般都会在哪里网站上呢？

国内的话就是知网，英国的话我一般是从谷歌学术上查，查到文章之后再从 UCL explore 里面把文章 title 复制过去直接找到那个资源下载下来。

好的，那对比在中国时候为了学习收集的这些信息和途径，你在英国是怎么做的？

我感觉在英国我主要还是查资料，可能那些资料不仅有谷歌学术上面那些内容，还有因为我学的博物馆专业，还有 museum association, 它网上会有一些文章，包括每个月寄来的杂志我都会看一看，可能后面写论文的时候会用上。然还有老师推荐的一些网站，我们前期会进行一个 tutor meeting，老师会根据你的主题推荐一些网站，我就会查那些网站，看看其他博物馆到底是怎么运作的，再来一个对比。

那你在国内的时候，学习期间会用到的设备或者说科技都有哪些？然后现在在英国会用什么，有什么改变吗？

在中国我 iPad、kindle 都用。可能 iPad 就是用来，因为我当时学习需要看一些辅导课，所以 iPad 用来看视频。但是我到了英国我就不怎么用 iPad 了，我就直接用 kindle，我觉得 kindle 非常方便。而且很多书都在 kindle 上有，然后国内的时候我觉得有些书在 kindle 上没有，在亚马逊上查不到买不了，我就只能买实体书，但在英国都有 kindle 版本就很方便。电脑的话就是都会用，我在国内的时候不会用电脑做笔记，我直接是拿一个笔和纸笔和本就这样做笔记，但是在这边我会下一个 OneNote 来做笔记。然后操作的话，在国内你会查知网，然后连接学校的网站或者是万方。在这儿就用图书馆自己的网站。

你在国内的时候，你们学校的图书馆网站大概是什么样的？你可以回忆一下它的界面，或者功能吗？

我感觉比这的复杂一些。我们学校图书馆的网站在外面是看不到的，必须要连着学校的局域网才能看。比如你要查一本书，你不仅要输那个名字，还有点出来年份的区间，查出来之后会告诉你你在哪有一本。因为我们就一个图书馆，一共四层，他会告诉你在哪个区域，然后你去找这种，但是一些学校的一些杂志是查不到的，只有一些书，会告诉你哪些是可借的，哪些是不可借的。感觉跟这里有点像吧，也是会告诉你你在哪里有这个书，但是可能查的时候在英国只需要输名字，但是那个时候又要输入名字、年份，还有一些各种框框，但我忘了那些框是干啥的。

也就是说那个系统是去查阅实体书的位置的，如果你要查在线的资源，它就会有链接到比方说万方这些？对的。

图书馆系统而言，你可以看到我们学校图书馆系统是分成一个主页和一个 explore，检索页面，在服务页面你都会用哪些？

这个页面感觉不太怎么用，但是我记得有一个是，除了 explore resource 之外，还有一个我会用订座位的，一天只能订两个这种，但是别的好像没看过。

explore 里面你一般都是怎么检索的？

我一个是 google 学术上面找到之后直接 copy，还有一个就是，比如说我要写一个有关于博物馆教育对 visitor 影响的，我就会在这里输入一个（操作中，输入“museum education on visitors”）...

你会用布尔检索的这个技巧来加双引号检索吗？

对，我就用这个叫什么，我不知道这个名字，但是就是这些符号就是我上语言班的时候老师教的。老师说这样比较能查出来需要的东西。

检索出来之后这边有 filter，你一般会用哪些？

我其实可能就是顶多点一下这个 book，但是其他的不会，我可能会就是点开看他跟我相不相关或者距今的年份，然后是不是说特别有名的，或者说它特别旧了，我到底应该不应该用。当然谷歌学术上面有引用次数，可能会看引用次数它是多还是少，他到底可信不可信，作者是哪个学校的，他的学术水平怎么样。

你更偏向于纸质版本的资源还是电子版本的？

我更偏向于电子版的，因为我比较懒。

但是你更偏向于看书籍，而不是那种 articles 吗？

不是，因为我觉得除了书籍之外的 articles 都有点像，都可以直接下载的，但是书的话如果看到你觉得有用的，可能你需要去借或者说是去买，所以就不太一样。

好的，高级检索你会用吗？

不会，这怎么用啊...

那上面也有种 e-journals, database 入口你有用过吗？

没有。

好，我们学校图书馆系统和你在中国的时候用的图书馆系统，可能包括知网而言，做个对比的话，可以评价一下大概你喜欢什么，不喜欢什么？

我相对而言比较喜欢英国的系统，因为我感觉更方便一点，直接输一下自己想要的内容，可以出来很多。但是国内的话你必须得输得相对而言比较明确一点，才能找到你想要的那本书。然后的话，还有我们学校的图书馆系统没有订座位的，你需要去图书馆找座位，或者说是申请一个学期的长期座位，反正就不太一样。当然我觉得如果说长期座位的话是比方便一些的，因英国的话如果要订座位，只能一天定两个小时，大早上过来了就只能去两个小时，刚进入状态就走了，所以就不太方便。

你在中国，如果是搜网上的资源，你会用知网，你觉得知网的话，它其实就有点像我们学校 explore 的系统了，你觉得就这两个对比的话，大概可以评价一下吗？

我觉得知网的话就是东西可能更多。但是我觉得比如说一些文章写的挺烂的，都在上面，参差不齐的，感觉就是 copy 的那种。但是都在上面，可能是因为一些杂志掏钱就可以发表，对，所以说就要求不太高，但是有一些核心的文章写得还蛮好的，就需要自己去慢慢地找，你可能看摘要不太够，把它下载再看才行。

就网站的结构而言，因为其实知网上面可能他会有很多不同的链接，但是像我们学校的图书馆它几乎没有额外的信息，它就是一个很简单搜索的界面，你觉得这两个相比的话，你更喜欢哪一个？

我觉得对于我来说差不多，因为我们学的专业都可能比较专一点，所以说我们在查一个，比如说什么图书馆或者文博知识管理平台，我们查一个的话，可能点出来跟你在直接查关键词的效果差不多。因为我觉得没有太大区别，如果我说更倾向哪，我可能还是更倾向于 UCL，我觉得更方便就是简单一点。

我们现在开始第二个部分，就是你作为一个信息的搜索者，你的一些行为习惯，你一般在你的学习过程当中，你都会做哪些活动？

我觉得干啥都是在学习。我觉得除了写论文，可能要查一些资料之外，然后比如说在一些 heritage site 的参观上，比如说有一个 London metropolitan archive，就是放一些伦敦档案图书的一个机构，他自己的一个网站是可以查出来大部分的内容的，除了有关于国家机密的那种查不到，就是说他提供给了伦敦市民的一个平台大家就可以在上面去查，我觉得非常有效，而且也非常方便。然后还有，现在我在圣保罗大教堂做实习，平时有一些各种各样的活动，有关于一些儿童教育的，还有家庭教育的，还有一些 collection management，管理一些文物这种的，反正都会去做。我在其中就会去考虑这个实践是和我之前的哪个想法有关，或者说是跟我之前看过哪个书里面的点有关，我可能会归总一下，我觉得也算是一种学习，因为我们这个也是要写 report。然后还有就是上课，我一般课前会看一下他给的那些 list，但是我可能看不完，大概的看一下，然后把 list 的文章都是 pdf 版本，我就是勾出来重要的句子，就是用马克笔在电脑上。然后准备考试，我们就是写论文，首先先有个自己的 idea，这个 idea 可能是在一些参观或者说社会体验当中，有的可能是看一些网站杂志上面有的，而且是上课过程当中老师讲的时候有的这都有可能。然后我可能会列好几个 idea，再去找老师给我这些 idea 作出评价，我再敲定我选哪个。我再想针对的 specific 人群，做出一个这方面的分析，完了之后我敲定了之后再去看这个资料。资料的话有可能是老师推荐的书，有可能是我在 google 学术或者是 UCL explore 查的，谷歌学术上面有的时候查的可能有些 UCL 账号不能下载的，我可能会考虑借同学的一些账号去他们学校找一下。查完了之后我就开始看，边看边总结，然后分类完了开始写。

好的，然后就是在你刚刚说的这么多的活动当中，你也有用电脑，又用 kindle，又用可能少的时候用 iPad，你是怎么在学习用这几个设备的？

电脑比较常用，因为就是查论文写论文。当我用 kindle 的时候，当我确定了我的论文的题目之后，这个 topic 是怎样的，我从里面找出来有关于主题的句子，我再把它发到电脑上，然后再用电脑把它总结出来，然后总结完了之后再删，删完了再 paraphrase 这种都会有。然后 iPad 基本上不用了。我觉得有可能我还用电脑看一下 YouTube 上的视频，我觉得有些方面就是跟我的论文 topic 相关的，我也会相对而言借鉴一些。

电脑和 kindle 的话，一般你来学校会带他们吗？

会，如果 Kindle 上没有要看的书就不带了，有要看的书就带，但是电脑的话会带到学校来。上课的时候会用电脑做笔记。

好的，你有用手机来学习吗？

对，手机我是有，我有一个，比如说我查微信公众号的一些文章，会用手机来查。或者是 twitter，比如说你在写一个文章的时候，你要举一些案例，要了解这个地方这个机构做些什么东西，就看一下他的推特上面发过什么，或者是 ins 上面发过什么，了解一下大概总结一下这种。

你的手机上面有什么关于学习的 APP 吗？

我很久之前下过一个，但是我删了，就是专注软件，学习的时候不能打开手机。现在的话字典有很多。之前比如说 TED, BBC NEWS, 学雅思的。专门学习的好像没有，就有那种上网课的，有一个叫流利阅读，我有用它就是看一些文章，别的好像，包括手机可以用的 word, PPT 这种，可能比如说我在外面的时候为了提高效率这种。还有 CNKI 手机端，还有卫报，老师推荐的，有一些文章新闻什么的。别的就没有什么了。

你一般用手机来获取学习类的知识花费的时间多吗？

我觉得不少，就是电脑用的挺多的，手机在我比较懒的时候用的比较多，我可能不想开电脑，就在床上等着会用手机查查。或者是在外面可能不太方便用电脑的时候，我这个人就有点拖延症，突然忘了这个事情我今天要完成，怎么办，我只能用手机完成。

也就是说上面还是会做一些和学习相关的事情的？

还挺全能的。

好的。你一般来学校学习的时候，你会用我们学校提供图书馆提供的 desktop 吗？

有的时候会用。我一般用的时候是我没带电脑的时候，但是我有一次就是我用它打开了其他的网页，被管理员说了，在 IOE 的图书馆，说我不能打开其他的网页，只能查那个图书馆的网页，然后后来我就不太怎么用了。

也就是 desktop 是你没有带自己电脑的时候会去用？

对，因为比如说我那天我只有半个小时的 tutor session，然后我打印出来了一些内容，但是我发现讲的时候我需要补充点什么，我可能去上面查一下，然后再用笔往上写写。

好的。你一般学习的时候依赖我们图书馆的系统吗？

我觉得挺依赖的。写论文的时候挺依赖的，可能是百分之六七十都是在上面查的，剩下的可能会在谷歌学术，还有一些网站，比如说 specific 的，因为我是写有关于针对盲人儿童或者有关老年痴呆患者的，我就会去找相关的网站，可能有相关的案例。还有一些 3D 打印，有一个网站上面，忘了什么网站，反正就一个网站上面列了很多博物馆做过什么样的 3D 打印项目，产生了什么样的影响那种就还挺好的。

好的。还有一个习惯的一个问题，你一般学习的时候是会把我们 explore 系统打开放在背景里，还是只有在想到查某个东西的时候才会打开我们的系统？

查东西的时候打开。

好的，你在用 explore 系统的时候有遇到什么困难吗？或者有遇到什么时候你想查某东西没有查出来的时候？

有过，好像是我当时在，因为我之前准备一个面试，是有关于一个文化项目策划和运营的。就是有关于文化产业管理了，我当时查了一些东西在学校的网站，我查的是 cultural project strategic planning and management，但是出来的结果都不太相关。唯一有一个有关的就是文化机构的项目策划，有点像博物馆什么的，还是有用的，但是那篇文章的倾向不是说有关于盈利或者市场开拓或者是增加博物馆的潜在访客的，它是有关于怎样提高文化项目内涵的，所以实际上还是不太相关。

你当时就是发现这些文章不相关之后，你怎么办了？

我就在国内找的，就看北大的一个叫刘立波，反正就是一个老师出的一本书，是有关于文化项目策划和管理的，我就把那本书看了一遍，直接从亚马逊上买的看了一遍。

你当时找这个老师的资料，你是从知网上面看吗？还是直接在谷歌百度里面搜？

我不是，我当时就在就比较着急，就查了什么京东，淘宝，亚马逊，就直接在这种买书的网站上面直接去搜了书，对，直接查文化项目策划就出来了这些。

针对刚刚说的查不到的情况，你觉得原因大概是什么样子？

原因会是什么呢？我觉得难道是没有研究？

你觉得和你当时输入的关键字有关吗？

我当时那个关键字就是直接说的是文化项目，可能是我觉得或许是有关，就是国内和国外这边的称呼不太一样，所以说国内能查到，但是国外他这称呼不太一样，我直接翻译过来，可能就是表达的方式不一样，所以有可能很多的就查不到。

还有一些其他的困难吗？

别的倒是没有特别的。有一点特别烦，我有时候待的时间长，它让我重新登录，然后不停地输入用户名，密码。

你当时就是来 UCL 之后你大概花了多长的时间让自己适应 explore 这个系统？

我觉得一天吧，挺快的。

像我们图书馆一般开学的时候会有 training，你有去过吗？

没有。但是花了挺快的时间就适应了系统。

好。们现在开始最后一个部分就是关于你作为一个图书馆的用户你的体验，你刚画这个图里面你有写就是你在国内的时候有用过知网的 APP，然后你手机上有下一些图书馆的 APP 吗？然后你大概可以形容一下你用的这些图书馆的手机上的 APP 大概你的用户体验是什么样的？你在上面一般会查什么样的信息？

其实我对知网 APP 挺不满意的。我记得是这样，查了之后我选择在线阅读，如果下载出来的话，格式不支持在手机上阅读，所以需要下载到电脑上，所以说体验不是很好。而且在线阅读不能直接 copy，就体验不太好。我当时之所以用 APP 是因为我在火车上，拿电脑很不方便，而且有网，所以就用了手机的 APP，

但是后来还是觉得它很不好用，但是一直都在我手机里，因为我觉得在国外的时候直接用手机知网打开，可能查资料比用电脑的好用。因为电脑的限制国家地区，我需要翻墙翻过去，而且我不在国内的学校了，好多资源需要付费，我就在淘宝上买了一个账号是可以免费下载的，但是它经常性的就是说地区限制不能下载，反正就很烦，半天翻不过去，但是手机上比较好操作一点。

那你下载了 UCLGO 吗？你可以评价一下吗？

下了，我只会看课程表，好像别的就没有看过。

你现在可以打开看一下界面，然后回忆一下。

对，我还有一个 Moodle 的 App，还有一个 Positive，是 UCL 学生会推荐下的，好像是健康状况的。Moodle 上我一般会看课的查分什么的，一般我不会在上面查资料。UCLGO 的话和图书馆相关的，都没有用过，我都不知道...

对，其实它里面有 explore，也可以看到你借了多少本书，也可以直接去 explore 界面，其实和我们电脑版界面差不多的。

我觉得这个更好用一点，但是我之前可能没太注意。Campus map 的话是刚来的时候用的。

你对他的评价大概是什么样？

我觉得挺方便，但是 timetable 对于我们专业来说可能不太准，教室还有那个时间跟老师安排的不太一样，不知道为什么，信息可能更新的不是很及时。

你有通过手机上的浏览器登录过我们学校的图书馆系统吗？

我经常用 Google Chrome 登，直接查 UCL library，因为我不知道 UCLGO 里面有。

你一般用手机浏览器登录图书馆的时候会在上面查什么？

跟之前说的差不多，就是没有电脑的时候，或者上着课老师说了一个什么，我就会在手机上查一下，要不之后忘了。

你觉得通过浏览器登进去学校图书馆的系统使用起来怎么样？

跟电脑差不多，就是输入法上可能不太一样。下载的话也能下。但是我发现有的那种 book 的那种，可能跳转到网页了，但是也只能在线阅读，因为没有支持的相关阅读器。

你觉得我们学校图书馆提供的这些服务也好，还有系统也好，有什么是你特别满意的，有什么是你觉得还需要改进的，然后你有什么建议？

我觉得查东西就挺满意的。我觉得刚刚看的 UCLGO 都很全，又有 search 的界面，又有占座位的，各方面都有，我觉得这个挺满意的。需要改进的，我就觉得有的时候比如说我登了 UCL 自己的账号密码了，他给我跳到第二个网页，我还需要再去选学校，然后登录一个什么就很麻烦，我弄半天那个东西就挺浪费时间的，就是跳转链接性不是很好。

还有什么其他的？你可以站在一个国际学生的角度上面来想。

就是也能查到中国的文献吗？

你有用我们学校图书馆系统查过中国的文献吗？

没有过，反正就是如果查不到中国的文献，能有更好。

什么情况下你会去查一些中国的文献？

我觉得我每次写论文都会查，但是看我写的什么论文，有一些我在国内根本查不出来什么，可能是专业问题，国内很少研究这方面，比如说我上一次写园艺和博物馆科技的应用如何影响着老年痴呆患者的健康，在国内就查不到，网上也查不到。但是这个英国就可以查到，还有很多书。

那对于一些中国的文献，你在写论文的时候是会把他们作为 reference 放进去吗？

会，我会翻译过来再放。

最后两个问题了，刚开始的时候我有提到一个概念叫移动图书馆，还有一个概念是 smart library 就是智慧型的图书馆。你作为一个普通的图书馆用户，你对于这两个词是什么样的理解？

移动图书馆我觉得就有点像那种，任何一个图书馆都有自己的网站，就包括我现在学的也有移动美术馆，博物馆，在那个网站上你可以查出来相关的图书馆信息什么的，这个就相当于一个移动图书馆了。还有学校的这种，还有商户的，就是什么京东这种，买了之后就能看，也相当于移动图书馆。智慧图书馆，可能是图书馆东西比较广，然后面向了不同的人群，包括一些特殊群体，blind people，或者是涉及的面非常的细，这个就叫智慧图书馆吗，我也不太懂...

智慧本来是用来形容人的，那形容到图书馆上面，可能就是拥有了人的一些特性，比方说了解你的行为习惯，去给你推荐一些资源，类似于这样子的，但是每个人对智慧的理解不一样。你可以从你的角度来理解。

那智慧就很多了，比如说我们平时说话，回去了之后打开 Facebook 就开始给你推荐，还有微信也是这样的，还有微博好像都是这样子，晚上就能看到白天说过的那些东西。

好的，你觉得我们图书馆应该怎么样借助这些不同的设备，然后还有不同的科技来更好的提高他的服务？

国家图书馆不是前一阵和新浪合作了吗，就是说是要记录每一条公民发过的微博，然后记录到图书馆的档案当中存档，我觉得这就挺好的，相当于是它和科技相结合，图书馆也更加的面向公众，更加亲民了。而且他又给了每一个公众一个很好的机会，去成为的历史人物，而且也一定程度上对人们的行为进行了一定的约束，大家知道了之后，肯定不会在网上肆意的说话了，所以说我觉得这个还挺好的。还有它的服务的话，包括国内的一些图书馆，你想去过去占座位，公共图书馆办了卡也是要过去占座位，但是就

没有校内图书馆，你在上面预约一个 space，就可以直接去了，就很方便。我觉得公共图书馆应该建立一个相对而言这样的环境。

如果说我们学校图书馆它之后会做一个这种图书馆的 APP，你希望上面都有什么样的功能？然后你会在什么情况下去使用它？

我觉得现在有些图书馆，就像大英图书馆好像还办展览，所以我觉得不仅要有一些比如说针对自己图书馆文化的一些宣传，还有给大家一个搜索引擎，还有占座位的这种，可能再加一些其他的一些信息，比如说跨界合作的，还办一些展览，然后更加吸引公众去进行去里面去学习什么的。还有比如说就是微信公众号什么的，会有很多推文，我觉得包括大英图书馆有自己的网站，但也需要在这种社交平台上进行推广。

好，今天的采访结束。

English translated transcription

Interviewee 2---IOE: MA Museums and Galleries in Education---Nanjing

University of Art---Female

R: Can you explain your cognitive map?

P: I drew a few groups of pictures. The first group was draw when I first thought of the mobile library. It is the UCL library website that can be opened on the computer, where you can search keywords of the articles I need and it will give me results, including articles and books. I can then find books in the library. After that, it suddenly comes to my mind that we might use the CNKI App when we were in China, and it can be opened on mobile phone and you can get access to the free resources if log in with the university account. The second part on the picture is a mobile phone interface and I drew WeChat on it, where you can find the library information from the public account articles of different libraries if you search the library name directly. For example, the National Library. In their WeChat public account, there might be several options, where you can find the library information. If you cannot find the information you want, you can go to their official website. The third part is the Kindle e-book, it is the device that has the mobility and the paper-like screen. The Kindle online store sometimes has some discounts on books or books for free, where you can choose some cheap books you want to read from it. Of course, if there are some books designated by the teacher, you can search it on Amazon, and buy the price of the Kindle version, which will be cheaper. You can also look for these books on UCL explore and read on Kindle.

R: That means you usually use Kindle to read book?

P: Yes.

R: Ok, let's start the interview now which is divided into three parts; the first part is to use culture as an entry point. As an international student, I will ask you some questions compared to your previous experience in China and the experience here. In terms of the learning atmosphere and the learning environment, what is the difference between UK and China?

P: Learning atmosphere, I think...because my university in China was an art-based university, the academic atmosphere is not very strong, but the social practice atmosphere is good. In UCL, I feel the academic atmosphere is relatively strong, because you can get access into wider resources. The art-based university holds primarily specific books around arts and music, that are limited in certain fields and we don't have a lot of social or cultural books. Here in UK, the library resources are comprehensive and everyone is working very hard on the courses. When I went to the library in our university in China, there were less students there unless it was the exam weeks; but in UCL, especially the student center, basically it is occupied and has no seat, even there is a seat, it will be in a bad location. So, everyone is very hard working here, whether it is holidays or not and I feel that the academic atmosphere is more intense. In terms of the social practice opportunities, I feel that except for the tasks given by the teacher, there are less opportunities here; after all, the program is relatively short. However, when I was in China, we have practical opportunities each term, that are designed for our major and are included as one way of assessments. I was majored in cultural industry management at that time and we have practical activities, like...for example, run some cultural markets to sell museum's cultural and creative products, and you can build a

booth in the museum, basically to sale products and make profit. There were also activities for us to plan some stage dramas, and all aspects of drama, like lighting, will be learned. However, I feel the time for such practical experience is a little less. In addition to some visits to heritage sites, there is also an internship that is mainly based on museum education. So there is still a gap in this area.

R: In terms of learning habits, do you feel a change after you come to UK?

P: Actually, I was not the type of the hard worker or active student when I was in China, but here in UK, because I have the pressure of deadlines, I become more active than before. The most notable progress I made is my essay writing skills, I think. When I was in China, although I wrote long essays and I also pursued perfection, the way of writing at that time was mainly to read others' articles and integrate their ideas. In UK, I need to put forward some new viewpoints after reading articles and then write based on my own essay topic, which is more innovative. For example, last term I need to write a funding proposal, which basically need us to manage a cultural project by ourselves. We need to find some trust companies, or the kind of national companies that provide funding; therefore, innovation is needed in our projects to attract funding and I think that is very interesting. There are also coursework of building up websites or Apps when I was in China, which I also have here in UCL, like last term we had a course that requires us to build up a website by ourselves. However, I feel that the teacher's requirements for the students here are very strict and the score is given more strictly. You may feel that your homework is done well, but the teacher can still find possibilities of improvements.

R: alright, when you were in China, what places do you study and what information do you find for your study?

P: I can study anywhere when I was in China, like sitting outside to study, staying in a café when I was preparing for the IELTS speaking test. I also sometimes study in the library to read books or journals; or maybe study at home. But I think the different places to study means the different resources and environment I want. For example, the café maybe a bit noisy, but it is useful when I need to practice my English speaking and preparing for IELTS. However, I can't study in my dormitory, because I feel distracted by the TV dramas or chatting with my roommates. If I choose to study at the library, I probably need to read or write something effectively or if there are books that I searched online and our library has the hard copies, I will go to the library to borrow. I also sometimes go to the Nanjing Public Library, which has more comprehensive books, but it requires the users to book the study place as early as possible. For lunch time, I sometimes go to the commercial study offices where you need to pay some fee but it is a very quiet study space. There is one near my undergraduate university called champion something (forgot the name) and the price is a few Chinese Yuan for one hour, which is cheap, but it is extremely quiet and you can be very focused when you study at that place. There is no close time and it opens for 24 hours, so you can study there for the whole day as you like, which is really good. Now I am also going to the science library and the IOE library, and I have been to the student center twice, but after that I never go there because there are too many people. Or I sometimes work at home here in UK, when I might be inefficient, but sometimes I am too lazy to do my make up, then I will stay at home. However, I never study in cafes here, but I have a roommate who always study at café. I guess it's the discipline difference? His assessment is mainly the closed exams, but mine is to write essays.

R: Ok, before you come to UK, have you done any preparations?

P: No, because I went to the language course in KCL after I took the IELTS. Later I took the IELTS again and my score meet the requirements of the program I take now in UCL, so I decided to come to study at UCL. Actually, the major in KCL is cultural and innovative management, and they are the only university in UK that has this major. However, I feel that the one-year program in UK is too short to learn enough things and the content might be too broad, just like my major in undergraduate stage, so I wanted to change to a more specialized program. I thought at first that this museum & gallery education was a curation management major, but then I found that this is actually about education, so I decided to come at that time. That's why I didn't do any reading before this, but before each lecture, I will do some reading based on the materials given by the teacher.

R: So probably your department prepared the reading list for you, but you didn't have time to read because you changed university and major suddenly?

P: Yes.

R: Ok, when you were in China, what kind of information you usually find to meet your study needs?

P: I may search for information that is related to learning. For example, sometimes I feel that the learning atmosphere is not very good, or that I can't learn at my usual place, I will search online the study place I need. The 24-hour study room I mentioned was searched online at that time. Besides, I will search for some books to read, and in the meantime, not only reading books, but also searching some exhibitions online that fit my coursework needs. Then I will search on the Internet the proper exhibits and check when and where and go to that exhibition. If I study at home, I will search for some articles online and download if needed. Or sometimes, I might search for...like for example, we were writing a proposal about for an art agent. As an artist's agent, we need to write a proposal to discuss how to improve the selling point for his art works. I chose a teacher in our school and interviewed him to know his painting style and think how to improve his selling point. So that's also a way of getting information. Another way is, we planned an exhibition for our undergraduate thesis and my object is a senior college in our university. I planned a small scale in our college, and this requires not only reading books, but also planning and knowing my object from the preliminary interview and learning how this person complete art work gradually. In the exhibition content, there maybe some sketches of this person, including some white paintings, to understand the process of previous paintings that were not formed into the final paintings. And then overall, what kind of theme do you use to show the style of painting, and this whole process needs interviews as well. Also, I originally wanted to do a PhD and the teacher told me that there is a method called field study. I went to a auction house for a short-term internship, which was to study the current operation methods of these Chinese auction houses, and the way they make profit. Of course, an intern may not see any problems in it, but this is also a way of learning and finding information, and I still learned a lot.

R: You mentioned looking at articles, where did you usually find articles?

P: In China, I use CNKI and in UK, I usually search on Google Scholar and find the specific article in UCL Explore when I found the article title. I will copy the title and search, then download from our website.

R: Ok, compared to the way you search for learning-related information in China, how you do in UK?

P: I feel I mainly search for academic resources in UK, and these resources may include the content from Google Scholar, and can include...because I my major is museum, so I also read articles from the Museum Association and also from the magazines they send to me every month, which might be used later when I write essays. Besides, there are some websites recommended by the tutor from the tutor meeting at the start of the term. I also look at that websites to see how these museums are working in practice and compare their management modes.

R: When you were in China, what devices or technologies you use during your study? And how you use them in UK? Is there any change?

P: In China, I use iPad and Kindle. iPad is used to watch some tutorial videos at the time. But when I arrived in the UK, I didn't use the iPad very often. I used Kindle directly, which is very convenient. And many books can be purchased in the Kindle store, and I feel that some books cannot be found in China's Kindle store, so I have to buy paper books when I was in China; but I can find all the books I need in UK Kindle store which is very convenient. I use laptop in both China and UK, However, I don't take notes on laptop, rather I use pen and paper to take notes. In UCL, I use OneNote to take notes on laptop. Besides, in China, we use CNKI or Wanfang by the campus network. Here I use our library website wherever I want.

R: When you were in China, what's the library system looks like? Can you describe its interface or functions?

P: I feel it is more complicated than the system here. The website of our school library can only be accessed with the campus network. If you want to search for a book, you need to not only type in the book title, but also the interval of the year and it will tell you where the book is. We only have one library and it has four floors; so the library system will tell you which area in the library the book is and you can go to that area to find the book. However, the system is not used for searching journals, it's for the physical books. You can see what books are available in the library. Kind of similar with the library system in UCL, it tells you where

the book is; the difference is that in the UCL' library system, you only need to type into the book title without typing the date.

R: For our library system, there is a main page and a Explore search page, what tabs you usually use on the main page?

P: I don't usually use the main page, except the Explore search and booking study spaces. It can be booked two hours per day. The other parts I won't use them.

R: Alright, so how do you search in Explore?

P: First way of searching is that I copy the title from the article I found in Google Scholar and paste into the Explore; another way is to...(operating on the laptop and typed "museum education on visitors") like when I need to write an essay about the museum education on visitors. I will do like this.

R: So you use Boolean operators to help your search?

P: Yes, I will use this, but I don't know its name. I learned these operators when I was taking the language course here and the tutor said you can search more relevant things by using these operators.

R: After searching, there is a filter on the left, what filter you generally use?

P: I may click on the type of book at most, but I won't use the others; because I think except for books, all the articles are kind of similar that you can download directly, but for books that you feel are related to your search, you may need to borrow or buy. That's why it's different. Another thing I might look into is the date of the resources and consider if that is too old to use, or to see if it is a well-known piece of work or not. Of course, you can see the how many times the resource has been cited in Google Scholar, which I will have a look. Also, I will have a look on the author, on the academic institution he works.

R: Are you more inclined to the paper version of the resource or the electronic version?

P: I prefer the electronic version because I am lazy.

R: Ok, will you use advanced search?

P: No, I don't know how to use it...

R: There is also e-journals and database entry, do you use them?

P: No.

R: Well, compared with our school library system and the library system you used in China, including CNKI, can you evaluate them in terms of what you prefer and what you think need to be improved?

P: I prefer UCL library system more, because I feel it is more convenient where you can directly search for the topic and it will give you a lot of resources. In China's library system, you need to type in a relatively clear expression of what you want to look for. Another thing is that, there is no library space booking service in our undergraduate university, and you need to find a seat in the library by yourself or to apply for a long-term seat, which is quite different from here. Of course, I personally feel the long-term seat is more convenient because in UCL, we can only book two hours per day and sometimes when you come early in the morning and you only have that space for two hours, you will need to leave that seat before completely immerse to the learning atmosphere, which is not very convenient.

R: You've been using the CNKI for a long time when you were in China and it's kind of similar to our library system. Can you compare the CNKI with our library system?

P: I think there may be more things you can search on CNKI. But I think, some articles are very badly written, and there are good and bad resources on it, probably because that for some magazines they accept articles if you pay certain fees. But there are also some core articles that are written quite well. So, you need to find the good articles by yourself and looking at the abstract is not enough, you need to download and read it.

R: In terms of the structure of the website, there are many different sections and links on CNKI, but there is just a simple search interface on our Explore system. Which one do you prefer?

P: I think it is similar to me. My discipline is very specific, so for example, (operate on CNKI) if I click into this part, 'the library and cultural knowledge management' platform, the resources here are probably similar to what we can find if we type into keywords in Explore. I don't think there is much difference. If I need to say which I prefer, I may still prefer UCL library system. I think it is convenient and simple.

R: We are now starting the second part, as a searcher of information, I will ask some of your behavior and habits. What activities do you usually do during your learning process?

P: I feel that everything I do here is learning. I think that in addition to writing essays and search for some information and resources, there are other activities, like, on some heritage site visits, for example, there is a London metropolitan archive, which is an institution that puts some London archives. They has a website, where they provide a platform for Londoners to search for most of the content except for the kind of state secrets, and I think it is very effective and very convenient. In addition, now, I am doing an internship at St. Paul's Cathedral and there are a variety of activities, some about children's education, some are family education, and there are some cultural relics collection management activities, I will participate in these activities anyway. I will consider whether this practice is related to which part of my coursework, or to which point in the book I have read before. I will summarize and reflect on it when I write the report for the internship, which is also a kind of learning. Another activity is attending the lectures, I will look at the reading list the tutor gave before the class, but I may not finish reading it. All the readings are pdfs and I will highlight the important sentences on my laptop. Then when I prepare the essay writing for the assessment, first of all we need to have our own idea, this idea may be emerged in some visits or social experience or from some websites or magazines or we got during lectures, so I may make a list of all the ideas I got in my previous experience and ask the lecturer to give me some suggestions on which idea to use. After I confirmed the specific group of people, I will search for some resources to do the analysis of them. The resources may be the books recommended by the teacher or what I found in Google Scholar or UCL explore. If there are some resources that cannot be downloaded with the UCL accounts in Google Scholar, I may borrow accounts from my friends and use their university accounts to search and download. After I find all the resources I need, I will read all of them and summarize along with reading. After summarizing, I will start writing.

R: Ok, then, in these activities that you just said, how you use different devices to support your study?

P: I use laptop a lot, which is to search articles and write essays. When I confirmed my essay topic, I will use Kindle to read and find the sentences that is useful for my essay topic. And then sent these sentences to my laptop, and summarize on laptop. After organizing all the useful sentences, I will delete some and paraphrase some. I barely use iPad. Besides, I sometimes watch videos from YouTube on my laptop, which are related to my essay topic.

R: Do you usually bring your laptop and Kindle to university?

P: Yes, if there is no book to read on the Kindle, it will bring it. If there is a book to be read, it will be taken. The laptop will be brought to the school and I take notes on my laptop during class.

R: Ok, do you use mobile phone to learn?

P: Yes, I use my phone to...like check some articles from the WeChat public accounts or check on Twitter. For example, when I write an essay, I have to give some examples, so I will search on Twitter for what the cultural institution is doing or check their Instagram accounts to summarize and give examples.

R: Is there any apps about learning on your mobile phone?

P: I have a focus app a long time ago which requires you to focus on your learning and you cannot open your phone when you are studying. The others...I have a lot of dictionaries, and I also had TED, BBC NEWS, and IELTS, which are for language learning. There seems no app that is designed specifically for learning, right, I have an online course app and I am also using the 'Fluent reading' app to keep the habit of reading with other people. Besides, I have the office apps, like Word, PPT, etc., and I might use them when I am outside and I need to continue my work and improve efficiency. There are also CNKI app for mobile phones, as well as the Guardian, which was recommended by tutor, there are some news articles. Nothing else.

R: Do you usually spend a lot of time on the mobile phone to get knowledge?

P: I think I spend a lot of time on my laptop; the mobile phone is used more when I am lazy and I may not want to open the laptop. I will search information on mobile phone in the bed or when it is not convenient to use the laptop outside. I have procrastination sometimes and I may forget the thing that I need to submit on the required date, then I will use the mobile phone at this time if I am outside.

R: Ok. Will you use the desktop provided by our library?

P: Sometimes when I don't bring my laptop. However, once I opened other webpages on the desktop when I was in the IOE library, the librarian said I cannot open other pages (I guess she used the terminal desktop). And then I didn't use it very much.

R: That is, desktop is used when you don't have your own computer?

P: Yes, because for example, I only had a half-hour tutor session that day, then I printed out some materials, but I found that I need to add something, I checked it on that desktop and then wrote some notes on it.

R: Ok. Do you generally rely on our library system when you study?

P: I feel I rely on it to a large extent, especially when writing an essay. Maybe 60% or 70% of the resources are found on it, the rest may be found in Google Scholar. I will also look for some specific websites, such as, because if I write about the blind people, children or patients with Alzheimer's disease, I will go to the relevant websites and there may be some relevant cases. I also wrote about the 3D printings and there is a website where you can see what kind of 3D printing project has been done in a lot of museums and what kind of influence has produced, it is quite good.

R: Ok. There is also a problem about your habit. When you are learning, will you open our explore system in the background, or will only open our system when you want to search for something?

P: Only open it when I need to search something.

R: Ok, any difficulties did you encounter when using the explore system? Or is there a time that you can't find the resources you want?

P: Yes, I remembered when I was preparing for an interview and it is about planning and operating a cultural project, which is kind of cultural industry management. I searched on our library Explore, and I searched 'cultural project strategic planning and management', but the results are not very relevant. The only thing that is related is the project planning of a cultural institution, like the museum, which is quite useful, but the focus of that article is not about profit making or market development or to increase the potential visitors to the museum. It is about how to increase the meaning of the cultural project, so it is actually not very relevant.

R: What did you do after you found out that these articles were irrelevant?

P: I was anxious at that time, so I checked Jingdong, Taobao, Amazon, these websites that you can buy books directly. I searched cultural project planning and it came out with some books. I saw a book from a professor of Peking University called Liu Libo, which was about the planning and management of cultural projects. I bought it from Amazon and read it afterwards.

R: Why do you think that you can't find the resources you want in the Explore?

P: What is the reason...I think no one is doing research in this area?

R: Do you think it is related to the keyword you entered at that time?

P: The keyword I typed at the time was cultural project. I think it may be related. The expression in China probably is different from here, so I can find it in Chinese, but here in UK, I translated directly and the expression is different, so a lot of resources cannot be found.

R: Is there any other difficulties you encountered?

P: Nothing else. But there is something that is a bit annoying. I sometimes use Explore for a long time and it asks me to log in again and again and I need to enter the username and password a lot.

R: How long did it take you to adapt to the explore system after you came to UCL?

P: I think one day, very fast.

R: There are library trainings at the start of the term. Have you been to any of the training?

P: No. But I used a very quick time to adapt to this system.

R: Alright, the last part of the interview will ask some questions about your experience as a library user. You just drew on the cognitive map that you used the CNKI App before, can you tell me about your experience of using the mobile library app and what information do you search on that app?

P: In fact, I am not satisfied with the CNKI App. I remember that you can search articles on that app and you can choose to read online. However, if you download the article, the format does not support the mobile phone, so you need to download it to the laptop, that's why the user experience is not so good. I was using that app when I was on the train and it is very inconvenient to use the laptop, and there was no internet connection, so I used the app on

my mobile phone. Afterwards, I found it was difficult to use, but I kept that app on my phone because I feel that when I am abroad, it might be easy to check resources on CNKI by mobile phone. Because the laptop has the information about your location and the country you are in, so I need to break the internet wall, and I no longer have the university account after my graduation and a lot of resources need to pay. I bought an account on Taobao that can be used to download resources for free, but it is often said there is an area restriction and can't be downloaded on my laptop, it's annoying anyway; but it's better to operate on the phone.

R: Have you downloaded UCLGO? Can you evaluate it?

P: I have, but I only look at the timetable and haven't used other functions on it.

R: You can open it and recall your experience of using it...

P: Yes, I also have a Moodle app, and a Positive, which was recommended by the UCL Student Union and it seems to be related to the health problems. On Moodle, I usually look at the class modules to check the score, but I don't search for other information on it. Generally, I haven't used the library functions on the UCLGO and I even don't know there are such library functions.

R: Yes, in fact, there is an Explore on it, you can see how many books you borrowed, you can also go directly to the Explore interface. In fact, the interface of the Explore on the mobile phone is similar to that of the desktop one. (show in the app)

P: I think it looks good, but I may not pay too much attention before. The Campus map was used when I first arrived.

R: How do you evaluate it?

P: I think it's very convenient, but the timetable may not be very accurate for our major. The classroom and the course time are different from the actual arrangement. I don't know why, probably because the information may not be updated very timely.

R: Have you logged into our library system through a browser on your mobile phone?

P: I often use Google Chrome to check the UCL library directly, because I don't know there is the library service on UCLGO.

R: What information you usually find on the library system on mobile phone?

P: As I said before, when there is no laptop, and the teacher said something, I will check it on the phone in case I forget.

R: How do you think of the library system when you use it by the browser on mobile phone?

P: Similar to the one on the laptop, it's just the input method may not be the same. You can still download it, but I found that there are books that when you download, it will lead you to another webpage where you can only view it online because there is no related reader supported.

R: In terms of the library system and the services provided by our school library, what you prefer and what you think can be improved? Do you have any suggestions?

P: I am quite satisfied with the searching function. I just saw that the UCLGO has the full function of our library, and it has the search interface and the booking study space function, I think this is quite good. What need to be improved...I think sometimes, for example, I logged on to my UCL account, but when I search for a resource, it lead me to another page (the page in another database), where I need to select my institution and type into my username and password again, which is very troublesome. I used some time to familiarize with this process and it is quite time-consuming, such website jumping is not so good.

R: Alright, is there any other things that you think can be improved from an international student's viewpoint?

P: Like search for Chinese resources?

R: Have you ever used our library system to search for Chinese resources?

P: Never, but if there can be some, it will be better.

R: Under what condition will you search for Chinese resources?

P: Every time when I write an essay, I will check if I need any Chinese materials or not; but it depends on my topic. For some materials, I cannot find much resources related to certain topics, which probably because of the major or there are less research done in China. For example, I wrote the influence of gardening and technological application in museums on the health of patients with Alzheimer's disease, it can't be found on Chinese website. However, I can find a lot of resources in UK, including books.

R: For some Chinese literature, will you put them as a reference when you write an essay?

P: Yes, I will translate it and include it as reference.

R: The last two questions, I mentioned a concept called mobile library at the beginning, and there is another concept called smart library. As an ordinary library user, what is your understanding of these two terms?

P: I think the mobile library is a bit like that...Any institution has its own website, as what I am learning right now, we have mobile museum and mobile gallery, and on the library website you can search for any information that is related to that library, and I think this is equivalent to a mobile library. There is also university websites or ecommerce websites, like Jingdong, where you can buy books online and read them, which is also like mobile libraries. The smart library, probably the resources it has is more comprehensive, and focused on different groups of users, like some special groups, blind people, or the resource category is very detailed. Is that called smart library? I'm not quite sure what is the smart is....

R: Smart is generally used to describe people. When it is used to describe a library, it probably means that the library has the feature of human, like understand your behaviour, provide you with resources based on your search and give you recommendations, something like this. The understanding of the smart library is different. You can understand it from your perspective.

P: In that case, I think the smart can be reflected in a lot of ways, like when we discuss something in the day and the Facebook will give you some product recommendations at the end of the day. WeChat, Weibo are also doing the same.

R: Ok, how do you think our library should use different devices and technologies to better improve its services?

P: Didn't the National Library cooperate with Sina previously? They said that it is necessary to record the microblogs sent by each citizen, and keep them in the archives of the library. I think this is quite good, and it is kind of integrate technology with the library service, which makes the library close to the public and more accessible to people. Moreover, it gave each person a good opportunity to become a historical figure, and to some extent, it gives restrictions on people's behavior that they won't send irresponsible words on the internet. So I think this is quite good. The services also need to be improved, like when I was in China, there is no booking seats service in the library, even it is a public library, you need to go early to find seat; for the university library where you can book a study space and go directly to the library which is very convenient. I think public libraries should also build similar booking functions.

R: If our university will develop a mobile library app, what functions or services do you want to see on it? And when will you use it?

P: I think there are some libraries now, like the British Library, they have exhibitions from time to time. I think that the library app should have such disseminations of its culture and the library events. Besides, it should have a search engine and service of booking study space. Other information can also be added onto it, like cross-border cooperation or some exhibitions, to attract the public to go inside the library and learn something. Another thing is, there are some public accounts on WeChat and there are articles from it, including that the British Library has its own library, but they also advertise their library and events on social platforms.

R: Ok, today's interview is finished. Thank you.

Participant 3

Chinese transcription

Interviewee 3--- Bartlett: MSc project & enterprise management--- Tianjin University of Technology---Male

R: 现在开始解释你刚刚画的图。

P: 开始想到数字图书馆, 然后第一个肯定想到的是数据, 因为是我们查阅图书馆就是为了查阅数据, 然后数据可以分为文字、图形, 或者是那种录音媒体类的。这些数据的话肯定要呈现在一些设备上, 像 laptop, kindle 或者手机。然后既然传输数据, 我们肯定要联网, 因为我们要从网络上获取资源, 因为它只是一个工具, 我们可能要联网才能获得这些 data。所以有的时候还要考虑到我们是否能离线下载, 因为如果我们不可能一直在联网, 离线下载就会出现一些可能有一些版权的问题, 因为我们学校有些书是只能在图书馆里读, 不能外借的那种, 就因为可能版权问题。然后后来就想的是这些数据我如果我们想获取的话, 我们应该在去寻找一些数据, 但是有些时候就会出一些问题, 如果只是基于文章的题目或者是文献的关键词的话, 我们很难找到我们想要的东西, 因为它只是一个简短的 title, 而且像手机这些的移动工具, 有的时候是不适合去阅读的, 因为它屏幕太小, 或者是由于它屏幕太小, 有时候手机也会用来别的用途, 不能够专注于我们阅读。然后最后一个我想到关于纸质阅读和用电子设备阅读的感觉其实是不一样的。像 kindle, 尽管它是像那种纸质的感觉发展, 但是我们用它阅读的时候和翻书的感觉是不一样的, 我觉得这是一种那种环境问题, 就是说在图书馆看书和在家里看书的感觉是不一样的。

R: 好的。这边先收起来, 然后我们现在就开始 interview, 今天的 interview 分成三个部分, 第一个部分是以文化为切入点, 你作为一个国际学生你的一些体验和你的经历, 然后第二部分就是你作为一个信息搜索者你的一些行为习惯, 第三个方面就是你作为一个图书馆的用户你的用户体验。第一个部分就是从文化这个角度来说, 你之前在国内读的本科, 然后你觉得从学习的氛围和学习环境上来说, 中国和英国最大的差别都是在哪里?

P: 我觉得最大的差别可能就是在学习的自主性, 中国的话他就是老师要求读, 他们才会去搜集资料, 而且是仅仅限于老师教授某一范围的课题。然后比如英国学生, 他可能就是如果兴趣爱好好的话, 他就广泛地阅读这样子。我觉得还是这个也是跟我们国内的就是电子资源就比较少有关, 因为很多文献都是以中文为主的, 英文文献其实我们学校买的版权现在也很少。如果你要看那种刚刚发表的文章, 或者是那种发表在国际期刊最新的文章的话是很难找到的。

R: 电子资源比较少。然后可能更多的就是一些纸质的书, 然后直接去图书馆?

P: 对, 但纸质书有一种问题就是它的时效性。纸质书基本上都是出版了 5 到 10 年或者是刚出版的话, 也不会很快的进入到图书馆中。

R: 好的, 然后的话就刚刚说的学习的环境, 你觉得学习习惯来说, 从中国然后到英国, 你的学习习惯有哪些比较明显的改变吗?

P: 可能就是说更愿意去图书馆了, 因为可能英国这边的话环境就提供的环境、条件更好, 因为这边有许多的设备, 比如说学校可以租 laptop 也可以使用 science library 电脑等, 就可以不用像以前待在, 因为图书馆只有桌子, 所以如果需要电脑的话, 带电脑去图书馆很不方便。

R: 然后也就说在这边其实挺经常去图书馆的, 然后会经常用到学校的 desktop, 那么你来英国之前, 你为了学习做什么准备吗? 专门针对学习这方面, 当然生活上也有很多准备, 但是就是为了学习有做什么准备吗?

P: 具体的准备吗? 出来可能通过一些论坛去了解这边的学习压力或者是学习情况, 以及可能将要接触到的课题, 就是相当于类似于课的背景、课的内容。

R: 那就是像在论坛上面, 其实就是可能主要看别人的经验, 然后关于课程的这些资料你都是从哪里找的? 关于课程的, 比方说结构内容

P: 可能是学校官网, 还有学上一届的学长学姐就问他们一下哪些课比较难。就是重点, 比如说因为光看因为官网上是有一些特课程题目的 module title 的, 但是具体学院你凭这个是看不出来的, 就具体可能问一些学姐学长这门课大概讲的是什么东西。

R: 好, 那你觉得你来之前做的这些准备哪些是还对你来说挺有帮助的, 很有用的?

P: 可能就是学长学姐的建议, 对, 就是他们分享如何怎么可以如何学, 应该去找哪方面的资料。

R: 也就是说其实你还是偏向于找中国的在这边留过学的学长学姐, 那么你是通过什么途径去找他们的?

P: 之前会有录取群里面会有些学长学姐。

R: 好的, 你之前在中国的时候, 在中国本科学习阶段, 你一般就是会为了学习去找寻的信息都有哪些方面的?

P: 就是说获取途径还是?

R: 获取途径, 还有包括就是信息的类型?

P: 比如说复习的时候, 第一个是我们会跟老师要他上课课件, 或者去找往年试卷, 或者是问学长学姐去年他们考试的重点有哪些, 问他们要笔记, 以及同学之间分享一些上课的笔记, 就是查漏补缺这些。

R: 好, 也就是说其实在中国的时候, 其实经常和学习相关一些信息, 主要就是为了可能和考试相关的?

P: 对。

R: 那你在英国的话和学习相关的信息都会找哪些? 然后途径是什么?

P: 我觉得英国这边就是图书馆吧, 因为我觉得英国对于版权意识很高, 所以不像国内就一些论坛上可以随意分享资料, 基本上只能通过合法途径, 比如说从学校图书馆的账号来登录这些。

R: 好, 也就是说其实在这边, 但这边其实你搜索和学习相关也是其实就是和 coursework 和作业相关的一些资料。然后你会在图书馆系统上找?

P: 对, 但有的时候比如说有些有兴趣的东西, 也可以在图上在网上找。

R: 好。然后的话，就是说除了和专业相关的和考试相关的这些内容之外，你还会去学习一些其他的東西嗎，这个学习可能是比较广义上的？

P: 对，有的时候会去学习一些別的东西。因为很多时候不仅仅是我們专业上的东西，比如说有一些先进的科技，其实是跟我們专业相关的。但是他这边会有一个体系的介绍，或者会有一些视频，有一些比较感兴趣的東西，也可以从...

R: 就是像这样的你感兴趣的这些，你会从什么途径上去看呢？

P: 那可能是从，如果是一般科普类的，基本上谷歌就可以搜出来，除非那种特别学术性的，可能是从，比如说一些经典的，很久很老的就特别经典管理方法，或者这种书，可能是从我們学校图书馆去找。

R: 好，也就是说你其实搜索和学习相关的就是图书馆或者是 google 上面会找一些自己感兴趣的一些东西，好。然后的话对于我們图书馆的系统来说，你一般在上面找寻的信息的类型都有哪些？

P: 类型吗？是在我們学校图书馆？一般都是以那种 paper 为主，一般以那种文献为主。

R: 就文献为主，然后你是会比较偏向于电子的、在线的，还是会比较偏向于 hard copy 就是书？

P: 偏向于电子，因为电子可以很快的搜索到我需要的重点。

R: 然后就是搜的比較多的还是电子文献？

P: 电子为主。

R: 你一般搜索的话，是自己根据关键字去搜索，还是老师会给你们提供一些比方说 reading list？

P: 一般是我自己会先去搜索一些和 title 比较符合，和 title 和关键词比较符合的一些文献，然后再从这些文献里去查他们一些引用的文献。

R: 就看別人的 reference 里面都有什么，那你在中國的时候，你們学校的图书馆系统是什么样的？大概回忆一下。

P: 反正挺不好。

R: 可以回忆一下那个界面还有包括它的功能性都有什么吗？

P: 其实我們本科的时候，图书馆系统和这个类似都是提供的搜索功能，但是它只提供对于校内实体书的搜索。

R: 就是类似于就检索书目？

P: R 对，检索书目，并没有这种把有电子的一起整合起来了，因为国内一般都是用知网，电子的都直接用知网搜索，所以就不提供这种服务，基本上是买了知网数据库，然后你就可以去那个上面去搜，和这个其实是不一样的，就相当于我們学校把它全部整合起来了，

R: 那么上面的功能性，在中國用的图书馆那些功能都有什么，除了检索书目之外，它还有一些其他的功能吗？你还会在图书馆系统里面做別的事？

P: 可能就是关于借书还书以及续期，就是这些图书馆基本的。

R: 你觉得中國图书馆系统和英国图书馆系统相比较的话，你各自喜欢他们什么，然后各自不喜欢它什么？

P: 国内可以说知网这些吗？因为学校图书馆只是一个检索功能，所以只要满足他基本功能拿到我們想要书就可以了，所以这种我觉得满足基本功能就可以了。关于知网的话，我觉得知网有一个为关系图联系，就是你搜 relationship，他会有一个文献引用了其他哪些方面学科的文献，我觉得这个是一个比较好的可以帮我们了解这篇文献和其他文学之间的联系，以及它涉及到的一些主要学科。像英国这边就是没有这些功能，但是英国这边有个好处是它的搜索深度很深，可以帮你检索到文章里的，不仅仅是它的 abstract 里面的东西，其实文章主体的东西也可以搜索到。

R: 就是说他检索的范围可能会更宽一些。

P: 对

R: 你在中國的时候用图书馆系统都是在哪里用，因为它不是用来检索书目吗，那么你一般使用的情境都是什么？

P: 一般都是在图书馆的终端上，因为找完之后可以立马去拿，或者是立马就可以还的那种，一般在远程是不会用这种系统。

R: 好，也就是说在图书馆，要找书，然后这个时候你会用终端机，然后找到之后直接去书架上看。在英国的话，图书馆系统是什么样的情境下使用呢？

P: 我觉得这个两边都有吧。因为这边是可以远程预约的。所有可以在家里远程预约完了之后，过几天再去图书馆拿。然后像一些 thesis 就是一些论文，它是不外借的，但是可以是远程预约，他们可以转借。然后我觉得我們图书馆有个人性化的地方，就是你可以选择你的取书的地点，就是你可能在不同的地方，你可以 science library 也可以在 IOE 取书。

R: 你刚刚说到这个功能，你是从哪里去预约的？可以在上面操作一下。如果说你现在想要借一本书，然后在 IOE 或者不管在哪个图书馆，你一般会怎么操作？

P: 像如果是书的话他会告诉你在哪个图书馆，告诉你 location，比如说 science library 有一个，（操作中）这个是你可以直接去拿的，然后有一种就是 thesis 就毕业论文是存在档案馆的，可以借阅三天到五天，然后你可以把它，就相当于快递和取货他会告诉你可以选择地点，我看一下？应该有。因为以前写论文的时候有学过，（show phone screen）因为他会给你发邮件，我觉得这个就很好，因为有些是说有保密期限的，就是我們好像三年内不能外借，

R: 好像好没事不用找，那就是说其实在这边图书馆系统比较人性化的...

P: (show phone screen) 看这个, 比方说有些书它会在其他图书馆的, 或者是在其他位置的服务, 通过快递服务, 他会告诉你去哪个图书馆取。

R: 好的, 中英的对比现在就结束了。下一个部分就是关于你作为一个信息搜索者, 你的一些行为习惯, 刚刚有说到你在中国的时候, 可能经常搜索的和学习相关的信息, 比方说会去论坛去看一些别人的经验, 然后或者是搜索一些课件试卷笔记, 然后或者看别人的分享, 那么在英国这边, 你一般信息的来源, 除了图书馆的系统自己去搜的之外, 还有哪些信息来源?

P: 我觉得可能也相似, 除了老师 reading list 或者是 PPT 里的一些内容, 以及可能 google 上更宽泛的搜索。

R: 好。你觉得在你用图书馆系统这个过程当中, 你有发现一些比较难, 觉得有什么时候是搜不到你想要的东西的, 然后你也可以举一个例子。

P: 我觉得很多情况下, 如果没有具体的, 你不是想具体的搜某一篇文章的话, 就很难搜到你想要的东西。因为对于同一种东西不同的人有不同的表达, 因为你搜的时候是拿文字去搜, 可能你对他的描述是这样的, 但是可能别人写文章说对它描述不是这样的, 就可能搜不到你想要的东西。

R: 还是关键词的表述上面可能会有问题, 你觉得这个和文化相关吗?

P: 我觉得跟文化是相关的。因为在国内的时候可能就是, 里面提到最多的东西就是一个关键词, 就是你提到频率最高的就是关键词, 但是这边关键字可能就是根据文章主体, 他不一定提到这个字, 但是它可能一直都在描述这东西, 他可能就是把这个东西当做关键字。但是如果你搜的话就很难搜到这篇文章, 因为文章里可能就没有出现这样一个定义, 但他一直都在描述这个东西。

R: 好, 那就是你能够想到一个例子, 就是你有什么时候你有哪一次经历是搜什么东西然后没有搜到的?

P: 比如我们有篇论文讲的是 social network analysis 社会网络分析, 但是我们的重点是把它用在建筑行业的 relationship 上的, 但是在我们的系统上搜的好多都是在计算机方面, 或者是在神经网络方面, 就是很少, 因为本来与建筑相关就很少。然后你要搜的话就出现了很多无用的信息, 即使你可能加了限制, 加了 constraint, 但是还是会很少。后来我们会发现好多题目并不是这样写的, 可能有些题目就是说关系管理在建筑行业中, 但是可能文章的内容用类似的方法, 但如果你只把这个当做题目搜到的话, 就是搜不到这些。

R: 那就是你搜不到了之后, 你会采取什么样的措施?

P: 我觉得第一点看老师给的 reading list, 因为他们会提供一些比较有用的一些核心文章。然后第二就是通过核心文章的 refs 去找相关的, 这是我觉得是比较更有效率的。

R: 其实我觉得你还是比较偏向于这种很官方, 或者说靠谱的这种途径来获取你想要的信息?

P: 对, 因为有的时候我们会发现, 就在学东西的时候会发现有些文章别人引用了, 但是你在 scholar 上搜不到。

R: 那这种时候你会怎么办? 你是觉得这个?

P: 文章可能可能太老了, 或者是当时就是一种 unpublished 的那种版本, 他引用了一样, 可能在网上找不到的这种。就这个时候可能会去找相似的, 就是类似的, 因为同一方面的文章或者是用同一观点或者作者, 因为同一个作者基本上会在这个领域里面会写很多篇文章, 可能就会找这个作者的其他文章, 去看看他在别的文章里是否有类似的观点。

R: 好。(show library page) 你看我们图书馆的系统, 其实是有两个主页, 一个是 services, 还有一个就是 explore 的 interface。然后你一般用到的功能都有哪些? 你比方说在 service 这个页面, 你会有哪些功能?

P: 这个页面的话, 一般来看它的开放时间, 什么时候开不开放, 然后就是预定一下 study space, 可能大家会小组讨论要预订房间。

R: 那在 explore 的界面, 你一般会用到的 tabs 或者是功能都有哪些?

P: 一般都是肯定是搜索框先搜索, 如果搜索出来文献很多的话, 可能这边会用 filter。

R: filter 里面你都会用到哪些类型?

P: 一般就是说我会把, 我会分 book 和期刊。然后还有时间段, 因为有时候一些老老的文献就不太适用。这一般就这样。

R: 好, 这里还有一些比方说数据库的入口, 电子期刊的入口, 这些你经常用吗?

P: 一般像 store request, 会有一些特殊的需要你去 request 才能拿到的一些书。

R: 还有呢?

P: 然后就不太常用, 因为像这种 database 的话, 我们专业其实用 database 用得很少, 因为我们没有一些数据分析的东西, 我觉得这也是跟专业有关的, 我们一般不用 database

R: 好, 刚刚就说到这个是你用 laptop 上用到的一些习惯, 那你会使用其他的设备去用我们的图书馆系统吗? 比如说手机或者是平板, 或者是其他的任何的设备

P: 会用类似于我们像 UCLGO 之类的东西, 刚来的时候经常用, 就是看一下学校地图或者是学校的近期的活动, 或者是以及它有一些提醒, 就是开放时间。

R: 好, 你在上面登录过图书馆的几个功能吗?

P: 没有, 因为手机屏幕太小了就很难。

R: 然后你用平板学习吗? 你一般在上面都会做哪些和学习相关的事儿?

P: 我觉得 iPad 就是一个便捷性, 就是可能上课的时候记笔记, 或者是一般来记笔记或者是拍照, 因为平板比较大, 而且它比较便携性, 上课的时候可能直接 PPT 可能直接拍照, 或者是直接通过 Apple pencil 写下来。

R: 也就是说你会经常用到 iPad, 经常是在一个可能在上 lecture 的这种情境下去使用, 主要是用来做笔记拍照, 在课堂上面使用。你在 iPad 上面会登录图书馆的系统吗?

P: 很少, 对。

R: 那对于电脑而言, 电脑你一般它的功能是和学习相关的都会有哪些?

P: 比如说写论文以及搜索资料, 或者是, 我一般学习都 laptop, 因为就是说刚提到 iPad 我不用 iPad 登这个原因, 就是因为他虽然兼容性可能不太好, 因为有些比如 pdf 需要下载的在那 iPad 上就可能很难把它读取出来。然后比如说或者有一本书, 大概有几百页的话, 在 iPad 上就很难去找, 在电脑上就有很多检索功能。

R: 好, 也就是说你的 preference 就是电脑是为主的, 主要的学习会在上面实践, iPad 是因为它比较轻, 比较便携, 所以上课的时候会用, 那手机上面你有用一些和学习相关的功能吗?

P: 可能就是那种辞典、网易辞典这样子。

R: 然后还有什么别的吗?

P: 可能就没有了, 因为一般如果是看视频的话, 还是比如说学习视频, 比如像公开课之类的, 也是用 iPad 比较便携, 屏幕比较大,

R: 也就是说你还没有 iPad 看一些公开课, 公开课的话是一般会有哪些途径是 APP 还是?

P: 对, 一般像网易课堂之类的好, 网易公开课, 对。

R: 你可以形容一下用这三种设备的时候, 不同的一个情境就是 context 还有环境。然后还有你的习惯是比方说三个东西都会摆在这里, 还是什么样的?

P: 电脑的话一般就是在家或在图书馆。这个时候一般专注于电脑, 因为电脑终端我觉得是可以完全替代手机和 iPad 然后像这个时候一般不用其他设备, 然后在可能在 lecture 的时候, 因为没有电脑, 可能就是 iPad 跟手机结合, iPad 来做笔记, 手机可能作为词典辅助的查阅。如果就是在出去玩的时候, 或者是只有手机的时候, 可能会用手机来做一些词典, 来就是, 来查阅一些翻一些生词。

R: 好的, 然后我们现在就进入第三部分, 你作为一个图书馆的用户的体验, 你在之前的经历当中有用过移动图书馆 APP 吗?

P: 一般都是网易公开课或者是那种当时有那种国内不是有那种超星, 就是网课。

R: 也就是说你主要会用到这种公开课视频的这种 APP, 然后你觉得给你的体验是什么样的?

P: 我觉得是达到了的, 它的基本功能能达到, 但是使用体验的话, 不能说很好。

R: 为什么呢?

P: 我觉得第一个就是说, 比如像手机这些, 本来功能很多, 它就不仅仅是用于学习的, 用的时候会被其他东西打扰, 比如说你学习的时候可能会有微信或者其他网页的通知, 就会影响学习的延续。然后第二就是我觉得 app 是以学习为主的, 可以可能对于 APP 的使用体验, 他们有些就是不太注重, 就是用户体验, 或者说它 UI 设计并不是非常好, 只是专注于内容, 可能就满足基本的需求。

R: 然后你刚有说到你用过 UCLGO 对吧? 这个是 UCLGO 的界面, 你也用过, 但是你有用过图书馆的这几个, 比方说 pc, 然后 study space, 还有图书馆的 service, 这几个服务吗?

P: 也用过。

R: 你的体验是什么样子?

P: 比如说 PC availability, 比如说在复习很忙的时候, 可能先看一下图书馆有多少人。如果像这种很多的话, 我就可能回去了, 如果像这种像现在这种基本上没有人在用, 我可能就会去找一些空闲的地方去, 因为我们学校比较分散, 他不是只有一个图书馆。就在复习期间可能会从这个上面先查阅一下, 哪边人多哪边人少来决定我去哪去学习。

R: 也就是说其实查 PC 或者是 space availability 这个你还是会用, 尤其是在准备考试的期间, 那像图书馆的检索系统你会用吗? 还有查目前借阅的书, 你会用这个功能吗?

P: 不怎么用。

R: 那针对 APP 整体而言, 你的评价是什么?

P: 对, 我觉得就是满足了基本需求, 但是体验方面还是有些缺陷的。比如像这种 time table, 它不能即时更新的, 比如有的时候我在地铁里、路上想看一下这门课在哪的时候, 就因为地铁里没有网, 有的时候就可能刷不出来。还有我觉得像这种东西可能我们都一般不太常用, 像 TFL Information 和 weather, 因为像手机里好多 APP 其实已经集成了这些功能。像 TFL 在 google maps 的时候已经包含了这些信息, 然后 Moodle 我觉得也是挺鸡肋的信息。

R: 为什么?

P: 因为 Moodle 它点开之后是拿手机这样看的。但是比如说我们去里面提交论文, 手机就实现不了, 或者是像那种下载 PPT 或者下载 pdf, 或者是看那种录像的话就很难实现, 因为手机系统限制。

R: 你是觉得是因为它没有设计一个专门为了手机版本的, 可能更偏重于你手机适用性

P: 其实相当于把网页版的移植到里面一样,

R: 对好, 就是说整体而言就是它可能基本功能有, 但是不够用户友好这样的。

P: 我觉得这也是根据每个不同习惯吧, 如果你是每天都能在这个 APP 里查询 weather 的话, 其实和苹果自带的天气是一样的效果。还是看每个人的习惯, 我平常就不太用这个软件去看天气, 可能以前养成的习惯。UCLGO 是我相当于来英国之后才用的, 但是在国内的时候我每天都会用苹果自带的 APP 来看天气

R: 好, 你刚刚说到其实你挺经常用这个 PC availability, 那你一般会在来图书馆的路上, 还是在什么情境下用它?

P: 在准备要去图书馆的时候会用它。在去的过程中。

R: 还有就是关于你自己的习惯, 你其实挺经常去图书馆, 图书馆不是有 desktop。那么你在这种时候会带着你自己的电脑吗?

P: 我一般不会带电脑, 那我会带着 iPad, 对, 因为其实我们图书馆是有一个系统的, 就是说在家里其实也能登上我们的 UCL 那个系统, 所有文件都可以保存在我们的 desktop 上面。但我觉得这个系统就是说都还没用明白, 所以我一般都要存在 one drive, 就把它所有的全部连通起来, 存在云上。

R: 那你一般在用图书馆系统的时候, 你是会把它放在那里一直开着, 还是等到你想查的时候才会把它打开?

P: 查的时候才打开。

R: 你作为一个国际学生来说, 让你来评价我们图书馆 explore 系统, 你会怎么评价?

P: 我觉得还是挺清楚的, 各项功能在哪都能很好的找到。

R: 整体来说, 你对他评价还可以。

P: 而且它里面还有 advanced search, 就是会有一些关键字的搜索, 就是让它更有限制。

R: 就整体来说你的用户体验是好的。那么这些所有的功能里面, 你觉得你最满意的功能是什么? 最不满意的的功能是什么?

P: 我觉得最满意的就是他的搜索能力很强, 就是能搜索到一些内容上的东西。他说最不满意可能也是这个功能, 因为它会给我带来很多的就是不必要的信息, 可能我并不是想找这方面文章, 但他可能检索出来结果大概一两千的, 我不可能把一两千的全部浏览一遍。

R: 你觉得有什么方法可以提高不满意的部分, 就是你有什么建议吗?

P: 我觉得他虽然提供了这些高级搜索功能, 但是对于用户来说, 他自己可能也很难把它辨别出来自己想要搜索的内容是什么, 比如说刚才提到的 social network analysis, 可能我会用高级检索来搜索 social network 和 construction, 但是就像我刚才说的很多文章, 不会把 social network 放在题目里, 它可能就是说后面的研究方法用到 SNS 但他不会把这方法体现在题目里, 所以这个就很难去搜索到这篇文章。有的时候有用东西都是从类似于综述的文章里, 下面的 refs 里面再去深度挖掘, 这样出来。

R: 你觉得像之前知网上的那种关系图, 你对他评价挺高的, 对吧? 那你觉得如果说它可以提高的话, 有类似这样的关系图, 或者给你一个那种 concept map, 把它相关性的方向, 导图弄出来, 这样的话就是会比较好吗?

P: 对, 这样可以提高, 因为尤其是在我们写论文的时候, 当你自己没有思路, 通过 concept map 可以帮助你了解就整个框架, 你可以从中找出一些你的研究方向。

R: 好, 最后几个问题, 我们一开始提到了移动图书馆, 还有一个概念是智慧型图书馆, 就对于你来说, 你对这两个名词的理解是什么样的?

P: 移动图书馆我觉得可能是在移动端, 更注重手机或者 iPad 这种便携式的设备上的使用。然后智慧的话, 我觉得是不是跟 AI 相关这种的, 就可能比如说跟我的专业联系起来, 比如说我的专业是, 然后当我登上账户的时候, 它的搜索方向就会根据我的专业有不同的偏好选择

R: 就是说可能移动图书馆它更体现的是便携性, 但是智慧图书馆就是更偏重于个性化的, 针对于用户的。

P: 对, 或者是通过我的搜索习惯, 会根据我的习惯进行不同的调整, 就是并不是每个人搜出来东西都是一样的

R: 好, 中间我们有提到好多种设备, 或者是 APP, 或者是目前已经有一些和学习相关的一些不同的功能也好, 或者是服务也好, 你觉得类似于这样的科技, 在你个人的学习当中的角色是什么样的?

P: 我觉得是一种辅助性的, 会帮我提高学校学习效率, 但是并不是一种决定性的因素。因为比如说查文献的话, 如果没有这种智慧图书馆, 或者是移动图书馆, 去图书馆也能查到相应的资料, 但是可能花费时间会更长。我觉得也有好有坏, 比如说我在读一本书的时候, 我可能会发现别的灵感或者是没有想到的想法, 如果我只是根据我的想法去搜索, 然后给我展现出来我想要的内容的话, 可能我就不会有一些发散性的思维。

R: 好的。你觉得我们的图书馆应该怎么样利用科技, 或者说未来可能会出现科技来提高它整个的用户体验?

P: 可能一个最大的就是人工智能, 通过大数据, 根据你的搜索习惯或者你的专业, 然后会给你不同的偏好搜索设置, 这样的话你可以更好得到你想要的信息。还有可能是在交互上, UI 可能会设计的更好, 或者更人性化。

R: 好的。然后就结束了。

English transcription

Interviewee 3--- Bartlett: MSc project & enterprise management--- Tianjin University of Technology---Male

R: Now can you explain the cognitive map you drew?

P: At first, when I think about the term mobile library, the first thing I thought up with is the data, cause our aim of going to the library is to get the data. Data can be divided into text, graphics, or recordings, that kind of multimedia materials. the kind of recording media category. These data, will certainly be presented on some devices, like laptop, Kindle or mobile phone. Since the transmission of data will certainly need network, because it is just a tool, we must need network to get access to these data. So sometimes we have to consider whether the offline download is permitted under the situation when the network is not so good and at that time, there might be some copyright issues for some for the books that can only be accessed in the university and cannot be borrowed out of the campus. Then later I thought that when we want to get it these data, sometimes there will be some problems. For example, if we search only based on the title of the article or the keywords, it is difficult to find what we want, because it's just a short title. Besides, the mobile devices like mobile phone is not suitable to read, because the screen is too small. Or because the screen is too small, the phone will be used for some other purposes and make us cannot focus on the reading. The last thing I thought up with is that the feeling of reading paper books and reading by electronic devices is actually not the same. Like kindle, although it is developing towards the feeling of paper, but the way of turning papers cannot be found when we read on that. I think this is a kind of contextual problem that the reading in the library and reading at home is not the same.

R: Ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. In terms of the learning environment, or to say, the learning atmosphere, is there any difference between UK and China? How you experienced in these two countries?

P: I think the biggest difference is probably the learning autonomy. In China, we go and seek for information if the teacher requires us to do so and it is limited to a range of subject the teacher gives to us. However, in UK, if the student is interested in some topic, he will search and read broadly. I also think this is caused by the limited online resources in China and most of the materials are in Chinese. The quantity of the English resources is decided by how much your university library has purchased. If you want to see the articles that are just published, or the recent international journals, they are actually hard to find.

R: Ok, so there are less online resources, most of the reading is from the paper version books and you go directly to the library to read?

P: Yes, but there is an issue with the paper book, which is its timeliness. The hard books are mostly have been published for 5-10 years. The books that are just published need some time to enter the library.

R: OK, in terms of the way of study, is there any difference?

P: I would say that I am more willing to go to the library to study, because the library in UK has more comfortable learning environment and better facilities. Also, there are lots of services, for example, you can rent laptops from library, or you can use the desktop in Science Library, etc. This is not like the library when I was in China, where there are only desks, so you need to carry your laptop to the library to study, which is very inconvenient.

R: That is to say, you usually go to the library to study and often use the desktops. Alright, before you come to the UK, have you done any preparations? Specifically, for learning in UK.

P: Specific for learning? Probably get to know others' experience about the pressure of learning in UK or the course information from some online forums. Also, get to know the possible projects I may encounter or things like the course background or course content, etc.

R: Where did you find this information?

P: Some are from our university's official website, some are from the seniors who have been studied here. I will ask them which course is more difficult, or which part of the course content should pay more attention to. Because, as you can see, there are module titles on the department website, but it's hard to tell the course content or the level of difficulty only based on that. So from seniors' experience, you will know how the course is and what the course is about.

R: Ok, do you think the preparation you did before is helpful for your study? And which part of the preparation is helpful?

P: It is helpful, especially the advices from the seniors. They share me their experience of learning and how to search useful information for the course.

R: that is to say, you prefer to seek help from the senior Chinese students who have been studied here. So how did you find them?

P: There are WeChat groups where there have many seniors.

R: Well, when you were in China, in your undergraduate study stage, what information would you generally fo to seek for in regard to learning?

P: Do you mean the information acquisition path or?

R: Acquisition path and the type of information.

P: For example, when it was the exam time and I have to do the review, the first thing I would seek for is the slides of the lectures from the teacher, or to seek for the past papers of previous years. Another way is to ask the seniors to borrow their notes for the course or the important knowledge points. Also, sometimes we would share some lecture notes among classmates to see if there is any important note we missed in our own ones.

R: Well, that is to say, when in China, the learning information you find is mainly related to the exams?

P: Correct.

R: Alright, when you are in UK, what information you will find in regard to learning? And how you find it?

P: I think in UK, the main way to find such information would be the library. Because I think the copyright awareness is emphasized to a large extent in UK, so unlike some online forums in China, where you can share information freely. Here, you can only view and download information from legal ways, such as logging into the university library system to find resources.

R: So, the information you search for in regard to learning is mainly coursework-related materials and you will search on our library system?

P: Yes, but sometimes, for example, apart from coursework materials, if I am interested in some topics, I will search online. Sometimes I would like to learn something, not only related to my discipline, but, for example, there are a number of advanced technologies which are in fact related to my course, but are not covered in the lecture. There will be some complete and thorough introduction or some videos that I am interested in on Google, especially for the science topics.

R: So where will you find such information?

P: If it's just the science topics, I will search it on Google, unless for the topics which are very academic and professional, like for example, some books of classic management methods that have been used for a long time or books like that, probably, I may look for them from our school library.

R: ok, so what type of information you will search for on our library system?

P: Type? In our school library? Generally, journal articles, like literature or things like that. Generally, I will search some keywords in the library system and read the ones that have the titles in accordance to these keywords. After that, I will find the references in their articles and search for them.

R: Are you in favor of hard copies or digital versions of such resources?

P: I prefer digital resources, because I can search keywords that are important to me in the digital ones quickly.

R: Ok, what's the library system in China you used is like? Can you recall?

P: It's not very good actually. The library system in my undergraduate university is much like the one in UCL that provides search functions, but it's only for searching the physical books in the library.

R: Like bibliography retrieval system?

P: Yes, just like retrieval system to see the location of the physical books. It does not integrate all the electronic resources together, because in China we have CNKI, and if you want to search for any online resources, we go for CNKI. So, our library does not have its own online resources because they purchased the CNKI platform to let students use. It's not the same with UCL explore where all the resources have been integrated and you can for any type of resources.

R: Then, apart from retrieving books, is there any other functions on your university library system?

P: Probably the loan, return or renew books, like the basic functions.

R: What you prefer and dislike about the Chinese library system and the UK library system?

P: Can I talk about CNKI? Just because my university library only performs the retrieval features, so as long as it performs the basic function and I can get the books I want, I am satisfied with it. As for the CNKI, that's where I search for online resources. There is a good thing about it, that under every article or resource, there will be a relationship diagram, where you can see its citations and what fields this article is related with. I think that is a good way to help us understand the link between this article and other literature, and also the disciplines it can be applied to. However, there is no such diagram in the library system in UK. While the good thing about the UK library system is the level of search is deep enough to help you search not only in title and abstract, but even in the main body.

R: Ok, when you were in China, where did you usually use the library system? Can you think up the context of using it?

P: Usually on the terminal machine in the library, because I can immediately pick up the books after search or I can also immediately return books. Usually I wouldn't use the library system out of the library or in the remote location.

R: Ok, so what contexts you use our library system in UK?

P: I think I will do both. Here I can make appointment to borrow books in ahead of time and collect them in the library after few days. For example, some theses are not stored in our library and you cannot borrow them directly, but you can make request and appointment and they will deliver these theses to certain libraries for you. Also, there is a good service in our library, that you can choose which library you wish to collect books, and there are interlibrary loan services. You can collect books from, for example, Science library or IOE library.

R: Can you show me how you do this?

P: Of course. For example, if the result is a book, it will show you which library has this book, like you can see here, there is one hard copy in the Science Library (operating on the laptop) and this kind of resources is what you can go to the library to pick up directly. However, there is another type of resources, which is the previous theses of other students and are stored in the archives. You can borrow three to five days and you can make a request in the library system and they will send it to a certain library, just like express delivery service. Let me take a look...I should have, because I used that service when I was writing an essay...(Show his phone screen). As you can see here, the library will send you an email to tell you which library to pick up this thesis after you made a request. I think this is very good, because I feel that some theses might have the term of confidentiality, that we cannot borrow out of the library within three years (not sure).

R: Ok, the next part of the interview is about you as an information seeker, what's your habit. We just talked about some information you might search for study when you were in China, like you would go to the online forum to see some of the experience of others, or search for some coursework notes or past papers, or seek for the others' shared notes. So, after you come to UK, in terms of the information you seek for learning, apart from the resources you search on our library system, is there any other ways of seeking learning-related information?

P: I think the way I seek for such information is probably similar. Apart from the reading lists and the slides the tutor gives us, I use Google to do some more general search.

R: Alright, so when you are using our library system, is there any difficulties you found during using? And you can give an example.

P: I think in many cases, if there is no specific...if you are not searching for a specific article with that title, it is difficult to search what you really want. Different people have different expression of the same thing, and because you use the text to search, and you use this

expression according to your understanding, but the author did not use this expression, then you may not search what you want.

R: So you mean it's might be the keyword phrasing issue? Why do you think lead to this issue? Do you think it is related to culture?

P: I think it is related with the culture. When I was in China, for most of the articles I searched, the most mentioned word is the keyword and the key concept for the article. However, here, the article maybe is describing something in the whole passage, but it is not using the keyword as I know. It is still the same concept, but the keyword is not mentioned in the article. So sometimes it is hard to search for it although it has been describing that thing.

R: Ok, can you think up an example, when you wanted to search for something but failed and how you did afterwards?

P: For example, we have an essay topic, which is social network analysis with a focus on its relationship with the architecture field. However, most of the articles in our library system are in the field of computer science, or neural networks, and there is very little that is related to architecture...or to say probably there is less research on it. Therefore, if you want to search for this essay topic, there have been a lot of useless information, even though you may add restrictions, plus the constraint, but still very few results. Later on, we found that actually lots of the titles were not described as we thought, probably the title was like 'relationship management in the construction industry', but the article might use the similar approach. So, if you only put 'social network analysis in architecture' as title, you won't find the proper ones.

R: So what you did after you failed to search for it?

P: First thing I did is to see the reading list given by tutor, because they might provide some core reading articles. Then, from the core reading, I looked for the reference they cited, which I think is relatively more efficient.

R: Actually, I feel that you prefer the information sources that come from official ways?

P: Yes, because sometimes I find that, during my learning process, I find some articles were cited in others work, but you can't find it in Google Scholar...

R: Then what you will do if this happens? Why do you think this can happen?

P: The article could possibly be too old, or was a kind of unpublished version, and although the author cited, you still can't find it online. When I encounter this, I might go seek for similar articles, like with the same topic or the same author, because the author basically writes many articles in one area of research. So, I will find the other articles written by this same author and to see if he has the similar viewpoint in his other articles.

R: Right, (opened the library webpage), you can see that our library system has a homepage for all the services, and the Explore search interface. What services will you usually use on both of the pages?

P: On the homepage, I usually check the opening hours for the library and I use the bookable study space sometimes if we have group discussion. For the Explore, of course I will search keywords in the search box first and if there are too many results, I may use filter here (pointing).

R: what filter type you will use?

P: I will generally filter out articles and books. And I use date as well, cause sometimes some articles are too old to be applied in my writing. Basically, that's what I use.

R: Well, there is a database and e-journals entry, will you use these functions?

P: General I will use this one, like store request to get some resources that are not in our library. The others, like the database, I rarely use it, because in fact, like our discipline, there is less use on database and we don't have things that need to do data analysis as well. I think it is caused by our discipline that we rarely use database.

R: Ok, we just talked about the habits of using the library system on your laptop, do you use library system on other devices? For example, a mobile phone or tablet, or any other device

P: I use UCLGO on my phone, especially the time when I just came to UCL. I usually search the campus map or to look at some recent events or to see the notifications from it, like opening hours, etc.

R: Have you used the library related functions from UCLGO?

P: No, because the phone screen is too small and it is difficult to see.

R: Ok, do you use a tablet to learn?

P: Yes, I think the iPad has the feature of convenience. I use it to take notes during lectures or take photos of slides. Because the screen is relatively large, and also because of its portability, I will carry it to the lecture and take pictures of the slides, or take notes by using Apple pencil. However, I rarely use my iPad to log onto the library system.

R: Speaking of your laptop, what activities you will do on that in relate to your study?

P: For example, write papers or search resources. Generally, I use my laptop to study because just as I mentioned I don't use my iPad to log onto the library system because it doesn't have a good compatibility. If I download an article that is pdf, it will be hard to open and read on iPad. Also, for example, the book that has around hundreds of papers will be difficult to find certain pages on iPad, but the laptop has much more retrieval functions.

R: Ok, that is to say, you prefer to use your laptop and the main study tasks will be conducted on that. The iPad is lighter and more portable, so it will be used during class. Do you use your mobile phone to study?

P: It may be the use of dictionaries, like NetEast dictionary (a dictionary app from a Chinese company called NetEast). Am...probably that's it, because if for watching videos, for example, learning videos, such as open classes, I will use my iPad which has a bigger screen. There are apps on iPad for open classed, like NetEast Open Class App.

R: Can you describe the different context and the environment of using these three devices? And you can think of your habit of how you place them during learning.

P: The laptop is usually used at home or at the school library. At this time, I usually only focus on the laptop, because I think it is a complete replacement for mobile phones and iPads. So, I don't need other devices at this time. Then when I am at the lecture, because I won't bring my laptop, I might use iPad and mobile phone. iPad used to take notes, and the mobile phone may be used as a dictionary. If I am travelling or if I only have my mobile phone, I may use mobile phone to search in some dictionaries for the new words I don't know.

R: Ok, we are now in the third part. As a user of a library, have you used any mobile library app in your previous experience?

P: I've used the app like the NetEast Open Class or the kind of the...Chaoxing Library app at that time when I was in China which has the online courses in it. I think it has reached its basic function, but the user experience is not very good.

R: Why?

P: I think the first thing is that, like a mobile phone, it has a lot of functions and is not only used for learning. Sometimes you may be disturbed by other things. For example, you may receive messages from WeChat or some other notifications when you study, which will affect the continuation of the learning. Then the second is that, I think the app is based on learning. So, it may not focused on the user experience, or the UI design and it just focuses on the content and just meet the basic users' needs.

R: You just said that you used UCLGO. What features do you use on it?

P: Like, say pc availability, then study space, and several others.

R: What is your experience of using it?

P: For example, like that PC availability, when it is the exam week and they library is very busy, I may first look at how many people in the library. If there is a lot of people like this (showing on app), I may go back home. If there are not so many people around, I might go and seek for some free places. You know that our university doesn't have only one library, the libraries are dispersed around different locations, so I will check which library is less busy and then decide which one I will go during the exam time.

R: I see, will you use the Explore search on this app?

P: Not often.

R: What is your evaluation for the APP as a whole?

P: I think it meets the basic needs, but the user experience is still somewhat flawed. For example, like this time table, it can't be updated in real time. For example, when I am in the underground or on the move, I want to see where the class is, because there is no Internet in the underground, it cannot be updated and I might find the wrong place. Also, I think that things like this may be less useful, like the TFL Information and the weather, because a lot of apps in the mobile phones have embedded these features. Like TFL, this information was already included in google maps; and the weather, is already existed in iPhone. Another one is Moodle, I think it is also quite useless.

R: Why?

P: If you open Moodle, it is like this...(showing Moodle on UCLGO). It is the actually the website version and for example, if i want to submit a paper, it can't be done from mobile phone or if I want to download a PPT or a pdf, or watch that kind of videos is very difficult to achieve, because the mobile phone system is limited. So I think it has the basic functions, but it is not very user friendly. Besides, I think this is also based on users' different habits. If you have the habit of look up the weather in UCLGO every day, it is actually the same thing as you do it in your iPhone Weather app. Still, it depends on the habits of everyone, I usually do not use this software to see the weather, because I formed my habits when I was in China, that I will always use the iPhone Weather to check. UCLGO is the app that I only use after I come to UK.

R: There is question about your habits You just mentioned that you often go to the library to study. The library has desktops. So will you bring your own laptop at this time?

P: I don't usually bring my laptop, but I will bring an iPad, yes, because in fact, our library has a system, and you can actually connect to that system when you are at home. All files can be saved on the desktop, so you don't need your laptop. But I am still in the exploration process of using that system, so most of the time I use One Drive to save all my files and connected to the cloud. Then I can get access to these files either from the UCL desktop or my laptop.

R: Then when you are using the library system, will you put it there and keep it open, or will you open it when you want to check it?

P: Open only when checking.

R: As an international student, how will you evaluate our library explore system?

P: I think it's quite straight forward. Every function can easily be found. And there also has advanced search, where you can set rules to search some keyword and make it more restrictive.

R: So, your overall user experience is good. What features that you feel most satisfied with? What are the most dissatisfied ones?

P: I think the most satisfying thing is the search ability which is very strong, that is, it can search from the article content and main body. However, the most dissatisfied may also be this function, because it will bring out a lot of unnecessary information that maybe I am not looking for. It may retrieve around one or two thousand of articles, apparently, I cannot view all of them.

R: Do you think there is any way to improve the dissatisfaction, is there any advice?

P: I think although it provides these advanced search functions, but for the users, we may have difficulties to distinguish what we want to search for and what we really want. For example, just what I mentioned before, like the social network analysis, I may use the advanced search to search for articles that contain 'social network' and 'construction', but like many articles as I just mentioned, will not put 'social network' in the title. But actually, the research methods it used is SNS but this is not reflected in the title. Therefore, it is very difficult to search for this article. Sometimes useful things are obtained from the references, so it needs deep excavation to get them.

R: You mentioned the relationship map in the CNKI before that you like it very much. So probably our library system can be improved by adding that kind of map? Or like concept map, to show its correlation with other concepts, will it be better?

P: Yes, it can be improved by that method, especially when we write an essay, when you don't have any ideas, the concept map can help you understand the whole theoretical and you can find out some of your research directions.

R: Ok, the last few questions, we mentioned the mobile library at the beginning, and the other concept is smart library. What is your understanding of these two terms?

P: Mobile library, I think may be focus on the mobile platform, the use of mobile devices such as mobile phones or iPads. Then, for the smart library, I think it is related to AI. It might be related to my discipline, for example, when I log in, the search will be based on my discipline and it can remember my preferences.

R: That is to say, the mobile library should consider the portability, but the smart library is more personalized and targeted at users?

P: Yes, or through my search habits, I will make different adjustments according to my habits and not everyone finds the same thing.

R: Ok, we mentioned a lot of equipment, or APPs, or some different functions related to learning. What's the role of these kind of devices in your personal study?

P: I think it is a kind of auxiliary, it will help me improve the efficiency of my learning, but it is not a decisive factor. For example, when I search for some resources, if there is no such a smart library or a mobile library, I can still find the corresponding materials in the library, but it may take longer time. I think there are also good and bad. For example, when I was reading a book, I might find inspirations or thoughts that I haven't thought of. If I only search according to my original ideas and I can get the results, but I won't have some divergent thinking.

R: Ok. How do you think our library should use current technologies, or technologies that might emerge in the future to improve its overall user experience?

P: Perhaps the biggest one is to use artificial intelligence. Through big data, according to your search habits or your discipline, it will let you make settings on search preference and then give you information that fit you most. It can also work on the human computer interaction, and the UI may be better designed.

R: Ok. The interview is over. Thank you.

Participant 4

Chinese transcription

Interviewee 4---DIS: DH---Fudan University---Female

R: 你现在可以解释一下你画的 map 吗？

P: 好，我的 map 主要有三个想法和思维方式，也不能说思维方式，反正就三个部分。第一是我在想为什么我会用到 school library，是因为我要写 paper，所以我需要查资料，所以我才会用到学校的 library，我最主要还是用电脑，第二步是想了一下用电脑的三个常见的 scenario。第一是我在学校 library，因为可以很方便地查到书架上的书，以及大家都在学习，很有一种学习的氛围，很好，所以有的时候会来学校 library。但是因为在英国这边，宿舍离学校有点远，然后来了以后又不能做饭，得在外面吃，然后下半年的时候天有点黑的太早了，所以觉得也不安全，所以就养成了在宿舍学习的习惯。第二个 scenario 是 dormitory，我一般不会在自己就是那个 Ensuite 里面学，我会到我们的 study room 或者是公开的那种沙发，比较安静的地方学习，然后也是带着我的 laptop，一是比较舒服，然后第二不用很多的限制条件，也可以自己做饭就可以把握自己的学习的时间。然后 scenario three 是有的时候会在比如说作业没做完就要出去玩了，然后那个时候就会在火车上或者说会在旅店，然后晚上睡觉之前写作业，然后那个时候因为不在学校附近，然后网可能也不是很好，所以就特别需要非常稳定的那种互联网连接。而且其实你要写一个 paper，要看大量的文献要 focus 在上面的话，需要很专注，二是需要你电脑上有很多的软件，然后不停的切换，所以我就想如果学校 library 可以每个人有很多电脑，因为自己的一个电脑就会切不过来，然后一个主要写 word，然后一个在左边就是看各种 essay，然后第三个就是 browser，比如有些语法或者是什么乱七八糟的问题，可以搜 google，然后这样可以更方便一点，就不用自己一台电脑切来切去。对，然后我再想一下 mobile phone 的话会有什么样的需求？我觉得可能就你突然想要查一个东西，或者说突然图书馆通知你书到期了，就是有那种通知一样的，对，然后你就想今天就是最后一天了，然后我必须 renew 它，这个时候需要打开 APP 然后，或者说有的时候突然在地铁上不能在地铁上在火车上想到一个想法，然后我想写下来，我觉得可以开发一个软件是就可以非常 easy 的就是 map mapping，把自己的想法画出来在手机上，因为手机上也比较好画，对，然后和我觉得和论文相关的一些文献可以存在一个单独的一个 APP 里面这样。觉得可以更方便的去看。

R: 这个 APP 意思就是说你保存下来的就是和你的学习相关的一些东西。

P: 对，大概就是这样。

R: 好的。然后这个就放在这里，然后我们现在就开始正式的 Interview。然后这个 interview 分成三个部分，第一个部分我会问你以文化这个角度为切入点，问你一些作为一个国际的留学生，并且你以前有过在中国读书的体验，会问到你的一些经历，还有就是你的体验，然后第二个部分就是你作为一个信息搜寻者你的一些信息行为还有你的习惯。然后第三个部分就是你作为图书馆的用户你的用户体验。然后我们从第一部分开始说，你在国内也学习过，然后在英国也学习过，然后你能跟我讲一下，你觉得你的 learning experience 在中国和英国它们的相同和不同，然后还有你有哪些体验吗？

P: Learning experience 因为挺大这概念是...

R: 可能就是比方说主要就是你的学习,就是你的包括你上课,然后包括还有你找寻信息,然后还有学校给你提供的一些能够有助于你学习的一些 services,就这些方面你都可以说,你觉得主要是讲他们的不同和相同,或者说主要是讲哪些地方你觉得中国做的还不错,做得不太好,或者就是这样的一些比较。

P: 明白了。我觉得首先在上课上面有很大的不同。第一是在国内的时候就因为都是 base 在校园里,宿舍也在校园里,感觉学习全部的事情,但是在这边我就感觉好像学习只是一部分的事情,因为你要特地跑到一个别的地方,然后学习,然后像我们国内一节课会很长,可能上个两个小时全部都是老师在讲,然后没有休息这个样子,在这边的话就还可能是我们专业的关系,因为有 practical session,所以就分的还蛮清的,一开始是一个小时来着,然后是两个小时 practical,我觉得这样的节奏还蛮好,而且中间可以换教室,就是可以出去透个气。对,这个方面挺不一样的。然后还有考核方式,在国内的话我是中文系,所以我们一般最后有一个期末考试,或者说一个 essay 占百分之百的比重。但是在这边的话,像 java script 那个课,他就有三个 essay,然后会给你在不同的时间设一个小目标,这个课程过程中会有很多学习的感受,感觉自己在一个个地向自己的目标前进还挺好的。还有突然忘了,待会再说。

R: 没事,然后你来英国之前,你有没有为了在这边学习做什么准备?

P: 有,因为我怕自己英语不好,听不懂,然后我就一开始背了点单词,然后看了一些美剧或英剧,一是想自己培养点语感,二是可能在文化方面对这种西方文化了解一点。

R: 你觉得做的这些准备里面哪些还挺有用的,那些就不太有用?

P: 我觉得看美剧就挺没有用的,对,因为他那些都是在特定的 scenario 发生的那些对话,然后感觉在这边现实生活中还用的挺少。其实我觉得来这边最大的一个 struggle 是一开始对于很多很简单的名词,就是没有概念,比如说我去超市,我想买一个垃圾袋,这个垃圾袋,就不会用很很地道的英语说,对。然后有的时候比如说像买衣架,然后想买一个刮毛的那种衣服上的那种,对,然后你就想半天这个东西该怎么说。对。我觉得日常生活中很多名词可能还是比较缺乏,但是在这边慢慢学,然后通过自己看购物网站,然后慢慢听,慢慢学会。

R: 你以前在中国的时候,比方说你现在要完成你最后的论文,然后你去找这方面的和你学习相关的信息,你都会通过哪些方式去找?

P: 我肯定是首先去文科图书馆,然后图书馆呢,我的大概的流程是这样的,就是我有一个自己的 topic,或者说我的 keyword,然后我就 keyword 先带到图书馆的 database 里面查,然后查出这个是跟我跟我想做的东西很像的东西,然后我看他的 refs 就是有那些参考书。我会先倾向于借一些书,然后然后正好在图书馆里就把书拿来,然后大概翻一下,大概有个 idea,然后一般在书的基础上,把自己大致的想法就想好了,然后一些真正要开始动笔写,还是得查很多的文献,然后继续看文献,他们的 refs 然后就是把我觉得和我最相关,最有启发的文章的下面 refs 全部都查下来,下载下来,然后全部看完,然后大家看到觉得不想再看了,差不多字数什么的想法什么的应该够了,然后就开始写,然后边写的话边会看 reference book。因为感觉 book 在学术方面可能会更加有权威,对,更被人信服一点,所以就先看书,然后 refs 的话我也会挑。自己虽然很相关,但是它可能是一个报纸,或者说一个是非学术的一个文献的话,我觉得还是要甄别一下,就是得找那种博士论文,硕士论文,然后会议论文或者说期刊杂志。而且要找那些作者可能比较有名,或者说是好一点的那种学术机构的那种文章。

R: 你在英国的话会用一样的方法吗?

P: 其实我觉得在英国就刚开始用 UCL library 系统,我觉得有个很迷惑的地方,就是像我原来的时候,我们图书馆的搜索,其实就是为了搜索书的,馆藏的书籍检索,一般你要搜论文的话,就直接从学校的 library 的 website,然后 link 到知网或者万方或者说别的 database,直接在 database 里找,不会再像 UCL 的话它的 explore 里面什么都有,所以我一开始就在想这个东西到底是干什么的,而且有的时候搜的也不是很全,但它也有一些别的地方找不到的,就不知道这个东西夹在中间到底该怎么用它。然后这边主页上面有个 database 小小的入口,里面一下子全部出来了,不像国内它推荐最常用的数据库会放在最上面,这样直接可以点第一个进去。这边的话要根据 ABCD 字母来搜索,而且学科都混在一起。你得搜 art and humanity,或者说我想搜知网的话,困惑的是知网在英国这边也不叫 CNKI,我每次都搜 Chinese,就会出来叫什么 history and literature 什么的,让人很困惑的一个名字,而且知网里有很多东西都没有订阅,经常想下载的文章我们图书馆有没有 access,还得找国内的同学帮我下。但是万方和维普还可以,就是有点慢。

R: 好的,那么你在 UCL 除了在网上搜索,你也会去图书馆,就像你在中国做的那样,在图书馆的书架上面直接找书吗?

P: 会,我会找,像我写 xml report 的时候,会找老师给我们推荐的 textbook,我会把书一开始就借好,最后的时候要引用一下,就特意地引用一下,告诉老师我看了。

R: 好的,刚刚你也说到了,中国的图书馆系统里面,它把不同类型的分得很清楚,比方说你想找这个类型,你就会直接去到数据库里面去看?

P: 对。

R: 好的。你觉得像我们学校图书馆系统和中国的图书馆系统相比的话,我们学校图书馆系统你喜欢哪些方面?

P: 我有一个喜欢的点是它把 online availability 都写在了上面了。比如说你搜一个 article 它可能有(电子版),有的话上面就会写 full text available,点进去之后你就能通过 link 到 data base,里面可以直接

下载，这个还挺好的。还有就是 peer review，这种的话其实在国内我好像没有太了解这样的概念，来了之后也有跟图书馆的 librarian 聊过这个问题，他就说一般你可能找比较可靠的学术文献，可以看它有没有 peer review 的这样一个 label。

R: 所以说你一般会偏向于搜索 peer review ？

P: 对，我看到他我会眼前一亮，会想优先点开它？

R: 你会用旁边的 filter 里筛选 peer review 吗？

P: 那个倒没有，我一般有的时候想搜文章，结果他给我出很多书，然后书的话因为体量比较大，你就不可能快速的定位到里面某一个你想看的東西，所以我有时候会把 book 给叉掉，就是我会想看 article。

R: 也就是说一般你会用 filter 去过滤它的类型？

P: 对。

R: 好的，你觉得中国的系统里面，你比较喜欢的是哪些点？

P: 中国的系统的话，我想一下...

R: 其实除了刚刚我们也说到，中国的系统会把类型提前弄好，这样让你更方便去检索，除了这个方面，你觉得还有什么？

P: 我觉得中国的字可能我觉得比较大，这边的话，经常就是像我打开 ProQuest，然后它里面有一个 viewer 的框，或者说 online 的 text，字都很小，我觉得可能要调浏览器的大小，或者说把这个页面放大，当你也眼前看了很多东西以后，突然来个这么小的字真的很难受，但是国内的话它就是一般的摘要，中间很大，一般都是用 CAJ 浏览器直接看，字都很大，看着觉得很舒服。而且这边因为不同 database download 的界面不太不一样，有的时候可能是一个很小 PDF 下载图标，有的时候可能会有 download 的字样写出来，就是因为很多的 database 会让你不清楚每一个体系是怎么样的，你就点进去之后需要找在哪里 download 或者说因为有的时候图标会很混乱，它和 citation，reference 的图标都混在一起，国内的话下载就很清晰，进去是网页，上面是摘要，下面有下载 pdf，下载 caj 不同格式的，这就很清晰。

R: 好的。现在我会问你一些关于你的信息行为的一些问题。你一般会搜索哪些信息，和你学习相关的？

P: 学习相关的，首先可能是参考书，老师会给一些 reading list，我挑我感兴趣的，会用 UCL explore 看书在哪里，然后去借书，这个是第一个。第二是如果要搜 article 那种文献资料的话，可能也是 explore 先搜一下，因为老师有的时候会给 link，然后也很方便。如果是自己写论文的话，其实按照我以前在国内的那种想法，我会先进一个 data base，我可能会先进 ProQuest，或者说那个叫 engineer village 的就进去查。或者有的时候，比如说这个 topic，我知道和我这个专业有关系，比如说 xml，我就可能会到 ProQuest，但是如果是另外一个学科的论文，比如我这学期选的一门课，我不是很了解这个学科的 database 的话，就会用 UCL explore，搜那种比较模糊的、大的概念。比如说 cooking in education 这种，这样搜索的东西会比较多样化，我大概了解一下，大概围绕这个 topic 都有哪些东西，有了自己的 focus 以后，我可能再会选择去专门的 database 里面搜更细的东西。

R: 好的，那么除了你为了 essay 或者为了 coursework 准备的这些信息之外，还有哪些和你学习的相关信息是你去看？或者是你在 UCL 整个学习生活的这么长时间里面，你都会搜哪些信息？

P: 一开始可能对学校有一些了解，那个算吗？

R: 也算。

P: 就一开始想要更加了解学校，包括要准备 BRP，银行卡这些东西。学校有的时候会给你发 email 的 link，让你去 UCL 的网上查，但是我觉得思维可能不太一样，他们这种很多色块，然后一个图片，下面比如说 fee notification，让你点进去看。但是像国内的话，我觉得可能关于 fee 的就一个网页，里面有有关于 fee 的全部信息。但在英国这边，你要判断你需要看得信息，比如我是想看交费的 deadline，你就要看上面的字，点到相应的 link 里面去，有的时候你可能判断失误，就得四个 link 全部打开。

R: 就是你要点进去看每一个就很麻烦，但是国内的话可能会把它们全部放在一个网页上面，像是 summary 的感觉？

P: 对，这样你所有的信息都可以知道，反正就在这个页面里你从头到尾看就好，而且它分得很细，有的时候因为每个国家每个学校对英语的有些名词使用都不太一样，像这边会用 deposit 或者叫 receipt，有的时候我就不太清楚这些概念到底是什么意思。如果它旁边有一个小小的那种 hint，你可以点上去知道这个是什么意思就好。特别是交费的时候，它会出现一个负数的学费，你就不知道这个到底是交了还是没交。就是他们可能觉得习以为常的东西，但是在我学英语的这么多年，我觉得我可能没有接触过。

R: 对，可能很多时候他用名词上面不太了解，而且他也没有什么解释？

P: 对，还有一个我刚刚想说的，像我们现在会学 xml，或者说 JavaScript，然后网上那种菜鸟编程，W3School 那种 tutorial，平时可能也会看一些那样的。对，一开始是老师会给一些 tutorial 的 links，你会点进去发现很多别人的 standard 的那种网页，然后或者有的时候你可能自己想学 Java 什么的，然后你就看那种 online course 的那种网站，会有很多教程什么的。就也会一直订阅，虽然没有怎么学，这种也可能是学习的一部分。

R: 但是大部分我觉得你看的都是来自于老师，来自于课上的一些材料，然后再发散出去，对吧？

P: 对。

R: 好的，那在你的学习生活当中，你一般会用到哪些科技？哪些设备？

P: 首先电脑肯定是最主要的, 手机的话有的时候因为我觉得屏幕有点小, 看起来不会很方便。Kindle? 用的不是很多, 主要是用来看书, 而且很多东西是 pdf, 字的大小就是限定好的, 如果用那个小平板, 字会很小, 虽然可以调大, 但是要不停拖来拖去, 而且有 respond time, 让我觉得有点慢。

R: 那就是说你最经常用的还是你的 laptop?

P: 对。

R: 好的, 你去图书馆的话, 图书馆也有 desktop, 你是会两个都打开还是? 是怎么样用他们?

P: 这是一个很有意思问题, 就是我会图书馆这样的环境之下, 我会以这个 desktop 为主, 因为首先它屏幕大, 而且连接的是 UCL 的系统, 很多的东西像之前说过的 database 的问题, 有时候 offsite 在自己的宿舍的时候链接中国的数据库会连不上, 但是在学校它有稳定的连接, 所以一定会连上, 比较稳定, 比较方便比较大。因为有的东西可能自己在宿舍的时候会存在自己的电脑里, 如果要查那一部分的东西, 我会把电脑打开, 但是我会用 google drive 把他所有东西都放在云端, 而且自己的电脑就可以打开微信可以 chat, 然后收邮件, 作为一种调剂。或者说有一些信息可能也在邮件里, 会作为一个 reference。

R: 那就是说你在图书馆其实是会把两个东西都打开, 只是说你看的的信息是不一样的?

P: 对, 或者有的时候可能上面就是查好的文献, 放在摆在那里, 然后自己写的话还是用自己的电脑写, 因为如果用学校的 desktop 写了的话我还得每次过来图书馆再写, 或者说把它上传云端, 但是用自己电脑写就带到哪写都可以。

R: 好的, 那相当于你 laptop 主要就是用于学习, 你的手机其实就是用于平时的可能交流或是娱乐方面的?

P: 对的。

R: 你在我们的图书馆系统里面能每一次都找到你想要的信息吗?

P: 就经常找不到。

R: 你能想到一个你找不到的一个例子, 哪一个时刻你在找的是什么样的信息, 然后你是怎么找的, 为什么没有找到?

P: 好, 我前段时间写 future interface 那门课的 essay, 我当时的 idea 是想做一个那种厨艺手套, 它是一个穿戴式设备, 目的主要是 cooking education, 我之前从来没有了解过学术界对它的研究是怎么样的。一开始就在 ProQuest 里面搜, 但是这个领域基本上不是很学术, 感觉搜出来东西没有任何和我需要的相关的, 特别是其实我是想把它做成一个 wearable 穿戴式设备, 就这两个关键词放在一起, 真的没有什么相似的东西。ProQuest 我觉得可能它太限定了, 所以我就放到 explore 里面, 但是也没有想要的结果。我就又在 google scholar 里试了一下, 因为我觉得这个里面可能网上的信息会更多, 虽然学术性不是很强, 但是它至少给你一个入口。然后我就看到了一些书, 大概知道了这个行业的表达方式是什么样, 之后我又精细化的检索, 比如说 cooking lessons 这样的 keyword, 再放到 explore 里, 然后搜索出很多 book, 之后就在这个结果列表里看就是哪些标题和作者会比较符合我的需求。

R: 那就是说其实一开始没有搜索清楚, 是因为可能 keyword 没有写得很清楚, 其实还是可能和语言有关系?

P: 是的, 就是很多表达方式就不一样, 可能我通过中文直译过来, 但人家可能不这么讲。像这两天, 不是学习的例子, 因为风很大, 想买那种防风衣, 在中国就叫防风衣, 但是它这边有很多的名字叫 wind protector, wind proof, wind breaker, 就很多名字, 就让你的搜索很 confused, 不知道到底哪个是我需要的。

R: 好的, 除了这种情况下, 除了可能对这个概念的名词不知道怎么去表达, 除了语言上的以外, 还有一些搜不出来的原因, 有可能是什么?

P: 还有可能我觉得之前来 library 培训的时候, 他们这边会有 and 和 or 来辅助搜索, 有的时候想要限定一下, 但是限定的过猛或者说不知道为什么就搜不到了。

R: 就是说不知道怎么样正确的去使用这种检索的 technique, 对吧?

P: 对, 还是要不停的试。

R: 你刚刚说你是从来没有用过在手机上的图书馆系统吗?

P: 也算是用过。

R: 你当时是想用它来搜哪些信息?

P: 主要是想找书, 以及就是 renew book, 对。我想说一下, 就是国内大学的时候, 经常找书, 它没有一个很好的界面, 它有一个 APP 但是 APP 不好用, 经常网连不上。二是搜的东西跟电脑不一样, 不知道它系统是怎么设计的。所以经常就是你可能在书架前, 你知道书大概就在这个地方, 但是你想看具体的书目号, 手机上怎么都搜不出来就很难受, 必须得电脑截图再查, 就很不方便。这边的话我昨天晚上用了一下, 我觉得好像还可以, 一是它的系统跟电脑上的很像, 就是界面, 登陆的界面步骤都很像, 第二是他的手机的 response 还挺好的, 就是字体大小, 点击的链接都做得还不错。书架的信息也很清楚的显示, 因为它有蓝色的亮亮的颜色。

R: 就是说其实相比较国内的移动图书馆和英国的, 你还是更喜欢英国这边的, 觉得做的挺好的是吧?

P: 对的。

R: 好, 那你可以跟我举一些例子, 或者详细的说明一下, 你在用 laptop, 手机的时候, 和你学习相关的一些具体的场景或者 context, situation, 如何使用的? 可以举几个典型的典型的例子。

P: 比如我在宿舍的 study room, 带着电脑, 因为要用 UCL desktop 的 server, 所以自己的电脑登上 server, 同时也会打开本地的文件, 要在 browser 和任何本地的文件里不停的切换。

R: 你刚刚就是在 map 上面, 有提到在旅行途中用电脑对吧? 你都会在上面做哪些工作?

P: 我举个很具体的例子, 就是上学期要写 proposal, 就是 dissertation 的一个 form, 那个时候因为就是有一些零碎的想法, 我觉得虽然可以凭空说, 但是还是得查一些东西, 那个时候基本上从零开始, 就是在电脑上面, 在 explore 里面根据初步的想法搜相关的文献, 或者说类似的标题是怎么样的, 然后研究的领域是怎么样的。看好了以后 download 在本地, 然后打开要写的 form, 就会一边想一边写, 然后一边 reference 这样。回到旅店以后也会继续看那些东西, 或者搜更多的 reference, 再接着写。

R: 也就是说其实你在旅行途中, 虽然在火车上或者其他的地方, 你还是会用 laptop, 即使它可能比较大比较重?

P: 对。

R: 那是因为你觉得可能它屏幕比较大, 然后功能性更多是吗?

P: 对, 我觉得可能首先一个考虑就是屏幕比较大, 因为很多时候要看文献, 又要思考内容, 我会适应电脑的大屏模式, 手机的话, 设计和电脑还是有很大区别, 比如 navigation 会隐藏在里面, 每次用 filter 的时候你还需要多点击一个键, 但是电脑很直接也很方便。而且因为我喜欢带鼠标, 我觉得鼠标的话更直接, 也比较方便。

R: 好的, 还有刚刚提到, 在图书馆的时候, 你的习惯是把图书馆系统就打开放在那里, 还是可能搜完之后就把它关了, 过一段时间你觉得可能还想搜你才会把它打开?

P: 我会一直开着放在那里, 基本上打开的 browser 和 pdf 的都放在那里。想看的时候就可以调出来看。

R: 我们现在图书馆系统里面有哪些功能是你比较常用的?

P: 就是主界面进去的搜索框 explore, 然后还有 find database, 还有 my account, 因为需要 renew。

R: 你经常用 filter 吗?

P: 如果只是用 explore 的话, 基本上只是 filter 种类, 但是如果用 database, 我可能会用 filter, 我基本上就只用 ProQuest, 还有那个什么 village 数据库, 还有中国的那几个。

R: 那为什么你对 filter 的使用比较有限呢? 是你想看资源的广度, 还是你觉得也没有什么别的需求?

P: 可能不是特别了解是怎么用的吧, 不是很了解这个功能。一是没有试过, 然后也不知道是干嘛的。因为自己每次去试, 也得花时间, 可能就会找自己比较熟悉的。二是现在需求满足的也差不多, 也不需要开发新的功能。

R: 好的, 我们进入最后一个部分, 就是关于你作为一个图书馆的用户, 你的用户体验。刚刚提到了你之前在国内用过图书馆的 APP, 那么你对它的评价是怎么样的?

P: 就不是很好用。它可能因为也刚起步, 就一直在开发。它的功能还是很有限的, 主要就是借书还书这一块。以及搜索自己的 account, 里面有一些消息。基本上没有那种可以搜文献、下载文献, filter 这样的功能。

R: 好的。你作为一个国际学生, 怎么样评价我们学校的图书馆系统?

P: 我觉得挺繁杂的, 我一直很不喜欢这个界面设计, 每次你 log in, 就跳好几个界面, 先是一个小块, 然后第二个是要输密码, 然后第三还要...感觉好复杂, 不像有的可能就点一次 login, 上面的密码都记了, 你只要点一下就行了。第二个是东西是很多, 但是很杂, 一开始就很困惑, 也不知道 explore 是干什么用的。之后我有一次跟 librarian 聊的时候, 他说是因为像很多 UCL 的文献, 比如说 UCL 毕业的同学的论文, 只有在 explore 里面可以查到。对, 所以。怎么说呢, 其实它是一个 UCL database 的感觉, 就是一个整合的 database, 有很多别的、外面的 database 夹杂在一起, 可能每次搜索还是从多个平台一起搜索。如果搜索一个东西, 所有 database 的资料都能很全的显示出来可能会更好。

R: 好的, 之前我们提到了两个概念, 一个是 mobile library, 还有一个是 smart library, 你是怎么样去理解移动图书馆和一个智慧图书馆的?

P: 我觉得 mobile library, 因为是 mobile 可能移动性会更好。在适合不同的 scenario, 都可以比较稳定的满足一些基本的功能。但是 smart library 的话, 我感觉可能会更它能让你的搜索结果以及整个过程能更加优化。包括你搜一个关键词, 能跳出非常匹配的东西, 以及多个 database 之间, 又相互联系, 就是可以优化你的搜索结果, 让你整个学术的过程更加顺畅。可能它的移动性或者别的要求可能没有那么高。

R: 就是说可能移动图书馆更要突出它的移动性, 就是我在哪里都可以用, 但是对于智慧图书馆来说, 就是他的这种 responsiveness, 能够很快的回应你?

P: 对, 就是基于你的需求给你结果。像之前很多都是 keyword base。如果关键词不对, 就像我们之前说的, 我们理解的名词和真正使用的名词不一样, 就会查不出结果, 但是我觉得可能 smart 的话, 用一个语义网联系起来, 你只要搜索其中任何一个点的概念, 都会把相似的概念, 以及相关术语 terminology 都帮你检索。

R: 你觉得作为国际学生来说, 你对我们图书馆或者我们学校有什么期待, 希望他们以后可以给, 尤其是针对于国际学生可以提供怎么样的一些服务和帮助, 可以让我们的学习, 包括图书馆的用户体验能更好一些?

P: 我觉得如果有帮助语言的那种小插件就好了。比如说翻译, 页面翻译, 比如说你可以搜索不同国家的文献, 比如说你可能想做 UK 的也想搜中国的, 然后中国也有一些是用英语写的, 但也是可以搜的, 就不用每次打开知网那样的, 而且知网那种订阅我觉得真的应该买一个更全一点的文献库, 每次他只有点点文献。我刚刚有一个想说的点是? 在国内的时候, 有的时候, 比如说在实习的时候, 可能会要求你有一些比较专业的知识, 你会想用图书馆的 database 去查。但是这个时候我们国内的话就很难, 因为你不在校园的区域里面, 没有连上校园网就没有办法查, 要开代理。代理就很麻烦, 你只能用 IE, 然后 IE 有很多问题, 很多设置, 然后设置好了以后, 你想同时查外网和校园网就不行, 你就只能用 library 的网。但是在这边的话, 我觉得好像都可以用, 这个还蛮好的。还有 desktop, 就国内没有这样的操作, 刚来的时候有点不知所措, 现在觉得还蛮实用的。

R: 最后一个问题就是你觉得科技在你的学习生活中是一个什么样的作用?

P: 作用太大了。我觉得可以就是让我在很多自由的时间, 自由的地点, 可以完成同样的目标的东西。比如说我回国的话, 如果有 access 可以看这边的网的话还是很好, 改变了整个学习的方式。我觉得大学的时候就一直在用电脑, 雅思考试的时候就特别感受到, 因为高中期间都是用纸笔写, 你就能感觉到从电脑那种思维方式, 又要转换到笔试的那种感觉。电脑会让你很方便的查, 让你的思路更快地联系起来。一个问题想不通了, 你可以马上去查, 他也会给你很多 link, 脑子会很高速运转, 但是像没有电脑的时候会很专注, 就深入一个东西会想很久。

R: 你觉得比方说如果有移动图书馆, 或者有一些和学习相关的应用之后, 会对你的学习造成一定的分散性吗? 还是你觉得其实是更可以帮助你学习得更高效的一个工具?

P: 我觉得是为满足不同的就是场景或者需求而设计的。像 kindle 的话, 它可能就是移动, 书, 护眼, 然后这样的 concept。手机的话就是方便, 随时随地, 自由, 然后电脑的话, 我觉得可能就是稳定, 专注。所以在每个场景里会选择不一样的科技。

R: 好的。今天的访谈就结束了。

English translated transcription

Interviewee 4---DIS: DH---Fudan University---Female

R: Can you now explain the cognitive map you drew?

P: Well, my map mainly consists of three parts and ways of thinking, or it's not kind of the way of thinking, anyway, it has three parts. The first part is that I am thinking why I use the school library is because I have to write papers, and I need to search for information, so that's the time when I will use the school library. I mainly use the computer, so the second part is to look at the three common scenarios of using my computer. The first is the scenario of the school library, when it is very convenient to check the books on the bookshelf, and also everyone is learning, there is a good learning atmosphere, so sometimes I will come to the school library to study. But because in London, the dormitory is a bit far from the school, and I can't cook if I come to school, so I have to eat outside, and besides, it become dark very early during winter, so I feel that it is not safe, therefore I develop the habit of learning in the dormitory. Thus, the second scenario is my dormitory. I don't usually learn in my own flat, rather I will go to our study room or the open sofa area, where you can study in a quiet place, and then I will take my laptop. One thing is it is very comfortable, and the second is there isn't many restrictions, for example, you can cook whenever you want and you can make control of your own learning time. Then, the third scenario is the time when I travel to other places before finishing my coursework, then at that time I will be on the train or at the hotel, and I will work on the coursework before going to bed at night. At this time, because I am far away from the university, and the Internet is not very good, so I really need a very stable Internet connection. In fact, when you write an essay and need to read a lot of literature, you need to be very focused. There are a bunch of software on the laptop, and I need to switch among them, so I am thinking if we can have more desktops in the library, then one of them mainly writes in the Word, then one on the left is to see various articles, then the third is the browser, where you can search for grammar or something you don't know in Google. It can be more convenient, and you don't have to switch screens by yourself. The next thing I thought about is what is needed in a mobile phone library. I think maybe it's the time when you suddenly want to check something, or the library informs you about the book dues, that is, some kind of notifications to remind you it is the last day of your loan and you need to renew it. At this time, a mobile library app will be opened. Or sometimes, I suddenly have an idea on the underground, or can't say underground, like when I am on the train, I want to

write it down. I think it is a good idea to develop an app that can easily map your idea on the phone, because it is easy to map or draw on the phone. Also, I think it will be more convenient to save all the articles that are related to essay on a separate APP.

R: Do you mean this App will save all the things that are related to your study?

P: Yes, something like that.

R: Ok. Then let's start the Interview now. The interview is divided into three parts. In the first part, I will ask you some questions from the view of culture. As an international student, what's your experience of learning in China and UK. The second part is your information behavior and your habits as an information seeker. Then the third part is your user experience as a user of the library. So, the first question, you have studied in China as an undergraduate student, and now you are learning in UK. Can you explain how you experienced in these two countries in terms of learning?

P: Learning experience...This is a quite broad term, what do you mean by that?

R: Probably the learning activities you take, like attending lectures, your search for learning information or the services that the university provided for you that can help your study, you can explain in all these ways. You can think about the differences and similarities between China and UK, or maybe think about what China is doing well and not well.

P: I understand. I think first of all, there is a big difference in attending lectures. First, in China, students are based on campus and the dormitory is the campus, so I feel learning is all the things in life. However, in UK, I feel like learning is only part of the life, because you have to go to a different place to study. Second, when I was in China, the lecture length is longer than here and probably the two hours lecture is just the teacher talking all the time without rest. In UK, it may due to our discipline, because we have practical sessions, and in between we change to another classroom, so you have time to get out and breathe. Yes, this aspect is quite different. Then, there is the difference on the assessment method. In China, I was in the Chinese language department, and we generally have a final exam, or an essay accounted for 100%. But here in UK, like the java script course, we have three essays given to you at three different times as course goals. Therefore, there is a leaning feeling in the process of the course and I feel like I am heading towards my learning goal, which is pretty good. And...I suddenly forgot what I wanted to say, I will talk later.

R: Alright, so before you come to UK, have you done any preparations for the study here?

P: Yes, because I am worried that my English is not so good and cannot understand sometimes, so I started to learn some words and watched some American or English dramas. One thing is to cultivate my sense of the language. The second thing is to know more about the Western culture.

R: What do you think are useful and not that useful in these preparations?

P: I think it's useless to watch American TV shows, yes, because those conversations are happened in specific scenarios, and I feel it can be hardly used in real life. In fact, I think the biggest struggle here is the usage of some very basic or simple terms at the beginning. For example, if I go to the supermarket and want to buy a garbage bag, but I don't know how to describe it in a very authentic way. Say, sometimes, for example, like buying a hanger or the roller for cloths, I have to think for a long time how to speak it in the right way. I think we still lack the knowledge of some common terms in daily life, but we can learn slowly here, by for example, viewing some shopping websites or listening from others and learn gradually.

R: When you were in China, for example, when you were going to complete your essays, what information will you find and where will you search for it?

P: I definitely will go to the art and humanity library first and when I was in the library, the main process will be like this, first of all, I have a topic or a keyword and then I will use this keyword to search the catalogue in the library and find the resources that are similar to what I search for. The next thing I do is to look into the references in these resources and I prefer to borrow these books in the reference. I would borrow some book from the library and have a quick read in the library to have a general idea around the topic. At this time, I probably have the thinking based on these books, and when I start writing, I need to search a lot of the articles. I will read the articles and look for the reference in them as well to see the most relevant and most inspiring articles, which I will download them and read all of them until I feel it is enough for writing. Then I will start the writing process, along writing, I will look at the reference book, because I feel the books are more authoritative (she means reliable) in academic filed, yes, it is more convincing. So, I choose the books first, of course, I will also

look into other sources of materials. Although it is very relevant, but it may be a newspaper, or a non-academic document, I think it is necessary to check and distinguish. It's better to see the doctoral thesis, the master's thesis, the conference paper or the journal. And look for articles from the famous authors or academic institutions.

R: Will you use the same information search method in UK?

P: Actually, I feel very confused when I first use our UCL library system after I came to UK, because when I was in China, our library system is only for retrieving physical books, it's like a book catalogue. Generally, if you want to search for articles, there is a link to CNKI, Wanfang Data, or other databases on our library website and I will search directly in those databases. So, it's not like the UCL library explore system which have everything inside you can search for. At first, I was thinking what this system is and how to use it. Also, sometimes it is not very comprehensive that you cannot find certain resources, or sometimes it has the resources that cannot be searched in other places. Here, in our library system, there is small database entrance at the top and when you click into it, all the databases will be listed and it is not like what we see in the Chinese library system, where they put the frequently used databases at the top and it is more convenient for you. In explore, the databases are listed according to ABCD characters and all the disciplines are mixed together, you have to search for art & humanity. When I search for CNKI, it is confusing that the name of it is not CNKI, so I have to search for 'Chinese' every time, it will come up with history and literature or something, a very confused name. Besides, a lot of resources in CNKI are not subscribed by UCL and I usually have no access of the articles I want. I have to find a friend in China to help me download. But Wanfang and CQVIP are fine, it is just a bit slow.

R: Ok, apart from the online search in our explore system, will you search for physical books in the library as you did in China?

P: Yes, I will look for books in that way, just like when I was writing the XML report, the tutor recommended some textbooks for us. I found the books at first and when I wrote the report, I will quote the books he recommended to let him know that I read it.

R: Ok, you just said that in the Chinese library system, the category is divided clearly, if you want to search for a certain type of resources for example, you will go directly to that database?

P: Right.

R: Ok. What do you think about our school library system compared to the China's library system you used?

P: One of my favorite points is that it writes online availability on it. For example, if you search for an article, it may have (electronic version), if there is any, you will see a 'full text available'. After you click into it, it will link to the database, where the article can be downloaded directly. This is quite good. There is also a tag of peer review. In fact, I am not familiar about this concept in China. After I came here, I also talked to the librarian, he said that you may find a more reliable academic literature from peer review articles.

R: So you generally prefer to read the articles that are peer reviewed?

P: Yes, the peer review tag will make my eyes lighted up, so I want to give priority to it.

R: Would you click the 'peer review' in the filter?

P: I won't do that, generally when I want to search for articles, the results give me lots of books. Then, because of the large volume of books, you can't quickly locate certain things you want to see, so I sometimes I will exclude book, but tick the article type.

R: In other words, you generally use filter to filter its type?

P: Right.

R: Ok, what do you like about the Chinese library system?

P: In terms of the Chinese system, let me think about it...

R: We just mentioned that Chinese library system will sort out all the different types of resources and to make you easier to search. Apart from this, is there any other things you like?

P: I think Chinese characters may be bigger. Here in UK, every time when I open the ProQuest, there is a text written as viewer or online in a box, which is really small to see. I think I might need to adjust the browser size, or enlarge the page, but still, when you have read a lot of articles and suddenly change to such small characters, it really feels uncomfortable for your eyes. However, when I was in China, the page is generally with an abstract in the middle and the text is large enough to see. Generally, we will use the CAJ viewer to read the article, and

it keeps the characters in the same size, which is comfortable. In UK, because the interfaces of download for different databases are quite different from each other, it is unclear of how the different databases are working and the icons are messy sometimes. You need to find where to download the article and sometimes, the icon for citation and references are mixed together. In China, the download page is clearer, the webpage will have abstract at the top, the download for pdf and caj and other formats in the bottom.

R: Alright. Now I am going to ask you questions about your information behaviour. First of all, what information do you usually search for in regard to learning?

P: In regard to learning... First of all, I will search for reference books, according to the reading list given by the tutor. I will pick what I am interested in and use UCL explore to see where the books are and borrow them. This is the first type of the information. The second is that when I search for articles, like the literature and reviews, I will search in the explore system first and sometimes, I will use the link provided by the tutor. Actually, according to what I have been doing in China, if I am about to write an essay, I will go into a database first, like ProQuest, or the one called engineer village. If I know the topic and it is related to my discipline, for example XML, I may go to ProQuest to search. But if I am not familiar with the topic and I don't know the database for that topic, I will search on the explore system to search for the vague or broad concepts. For example, like the course 'cooking in education' as my elective course, I will use the explore to search for related resources, which have diverse results and I will have a look on what is discussed around this topic. After I have a focus, I might go to a certain database to search more specific articles.

R: Ok, is there any other study related information you will search apart from the one you searched for your coursework? Or what kind of information do you search for in the UCL's entire learning life?

P: I want to know more about the university at the beginning, including preparing for BRP, bank card, etc. Sometimes our uni will send you an email link to let you see the information on the website, but I think the logic behind the website may not be the same. They usually have a lot of color blocks, and there is a picture and below there is a 'fee notification' at the bottom where you need to click into to see. And you have to judge what detail you want to see. For example, if I want to see the deadline for paying the fee, I need to see clearly which link should I click into and sometimes I might click into a wrong page if I make the wrong judgement, all the four links need to be opened to see the results. However, in China, all the information for fee will be listed in all one page, which includes all the things about the fee that you need to know.

R: It is very troublesome for you to go in each one, but in China, it may put all of them on one page, like a summary?

P: Yes, so that you will know all the information related to that. Anyway, you can see it from beginning to end on this page. However, in UK, it has a detailed classification and sometimes the language use is quite different from one university to another. Like the use of the word 'deposit' or 'receipt', I am not clear of what's the difference between these concepts. If there is a small kind of hint next to it, and you can click on it to know what it means that will be good. Especially when paying fees, it will have a negative tuition fee and you don't know if this is paid or not. It's something that they might take for granted, but in my experience of learning English in these years, it haven't appeared to me.

R: Ok, so sometimes you are not familiar with the terms on the website and there is no explanation?

P: Yes, there is another thing I just wanted to say, now we are having the courses like XML or JavaScript, there are some programming websites on the Internet, like the tutorial of W3School, and I usually look at such websites as well. Yes, at first, the teacher will give us some tutorial links, and after click into the links, I will see others standard webpages. Sometimes I may want to learn Java or something else, then I will look at the websites with online courses and tutorials. I also subscribe such websites, although I didn't learn much, but it's still a way of learning.

R: I see, so most of the information come from your tutor and the course materials, and you will search based on that, right?

P: Yes.

R: Ok, so in your learning life, what technologies or devices will you usually use?

P: First of all, my laptop is definitely the most important one. As for the mobile phone, I think the screen is a bit small and it's not very convenient. Kindle...not much of usage, mainly to read books on it. And many things are pdf and the size of the text is limited, if you use that small board to see, although you can adjust the size, but you need to keep dragging and there is a response time, which makes me feel a bit slow.

R: That is to say the most frequently used device is your laptop?

P: Right.

R: Ok, if you go to the library, the library also has a desktop. Will you open both? How you use them under this context?

P: This is a very interesting question. I will use this desktop as the main device in this library environment, because it has a larger screen and is connected to the UCL system. Many things like I mentioned before, for example, the issue with the Chinese database, cannot be connected sometimes if I am off-campus when the internet is not so stable. However, our university has the stable internet connection, so it is more stable, more convenient and the screen is relatively large to see. Some of the files may be stored on my own laptop, so if I want to check that part of the things, I will open my laptop. In the meantime, I will use Google drive to put everything on the cloud. Besides, I will open up WeChat on my own laptop to chat with my friends sometimes as a kind of adjustment; or there may be some information in the email that will serve as a reference.

R: So it means you will use UCL desktop and your laptop at the same time, but you check different information on them?

P: Yes, or sometimes I will open up some reference articles on the desktop and write the essay on my own laptop. If I write on desktop, then I need to come to the library every time or upload it to the cloud. But by the laptop, I can write anywhere I want.

R: Ok, your laptop is the main device for learning, and how about your mobile phone? Is it for communication or entertainment?

P: Right.

R: Ok, can you find the information you want every time in our library system?

P: I can't find it very often.

R: Can you think of an example that you can't find which kind of information and then how did you do to find it, why you think you can't find it?

P: Ok, previously I was writing the essay for the course 'future interface' and my idea at the time was to make a kind of cooking glove, which is a wearable device. The aim for that is cooking education. I have never learned about how it has been studied in the academic field. Therefore, I searched in ProQuest from the beginning, but the articles in this field is not very academic leading, so I feel there is nothing related to what I want to find. Especially in fact, I wished to make it as a wearable device. Putting the keywords together, there really is nothing similar. I thought ProQuest might be too restrictive, so I put the keywords in the explore system, but there was no proper result. I tried it again in the Google Scholar, because I think there may be more information on the Internet, although it is not the academic source, at least it may give you an entrance. Then, I saw some books, and knew the expression of this industry in general. Afterwards, I refined the search, such as the keyword of 'cooking lessons', put it in the explore, and then a lot of results were found. I identified the titles and authors that match my needs in this list of results.

R: So, it is probably due to the keyword you used to search at first? Do you think it is related to language and culture?

P: Yes, there are a lot of expressions that are different. Maybe I translated them directly from Chinese, but it is not expressed in that way. Like these two days, a none-learning example from me, the wind is too strong, so I want to buy a kind of coat that is wind proof. In China, it is called 防风衣(windbreaker), but there are many terms describe it in UK, like wind protector, wind proof, wind breaker, etc, which makes the search very confused and I don't know which one is what I need.

R: Ok, apart from this situation when you don't know the proper expression, is there any other reasons that lead to the situation that you cannot found the thing you want in explore?

P: Another thing is that, probably because I attended the library training when I arrived in UCL and they taught me to use 'and' & 'or' to assist your search. Sometimes I want to use these techniques to limit my search, but it turned out the limit is somehow too much and for some reason I can't find anything.

- R: That is to say, you still need to know how to properly use these search techniques, right?
- P: Yes, I still have to try it again and again.
- R: Have you used our library system on your mobile phone? And how did you use it?
- P: Mainly to look for books and renew the loans. Right, I would like to say that when I was in China, the interface to find books is not designed good. It had an APP but the APP was not easy to use. The second thing is that the search results on that APP is not the same on the computer, and I don't know how the system is designed actually. So it is often the case that you may be in front of the bookshelf, you know that the book is probably in this place, but when you want to see the retrieval number for a specific book on your phone, it was very hard to find out. You have to take a picture of that retrieval number on your laptop and then find it in the library. Here, for our mobile library system, I tried last night, I feel it is fine. First of all, its system is very similar to the laptop version, like the interface, the login and steps are very similar; the second is that the response on mobile phone is quite good, like the font size, and the links you clicked are working pretty well. The information of the bookshelf is also clearly displayed because it has a bright blue color.
- R: That is to say, compared with the Chinese mobile library system and the UK one, you prefer the UK one, right?
- P: Right.
- R: Ok, then, can you give me some examples, or explain in detail, the context, environment or situation when you are using laptop, mobile phone, and other devices in related to your learning? A few typical examples can be given.
- P: For example, if I am in the study room of my dormitory, I will bring my laptop. If I need to use the UCL desktop server, I will connect the server on my laptop and in the meantime, open the local files, and switch between the i browser and any local files.
- R: You mentioned using laptop when you are travelling on your cognitive map, what kind of work do you do on it?
- P: Let me give you a very specific example. In the last term, I need to write a proposal for the dissertation. At that time, although I have several fragmented ideas in mind, I still thought I need to find some materials and write based on the evidence. I basically start my writing from scratch and search related articles based on my initial thoughts on laptop to see the related titles and research fields. After searching, I downloaded some articles on my local laptop, and open the dissertation form and read, write and cite in the meantime. In arriving the hotel, I will continue reading those things, or search for more references, and then write.
- R: In other words, when you are on the road, although you are on the train or other places, you will still use laptop, even if it may be bigger and heavier?
- P: Right. I think the first consideration is that the screen is relatively large, and because most of times I have to read and think about the content, so I prefer a bigger screen on the laptop. The design of the mobile phone is quite different from the design of the laptop. For example, the navigation bar will be hidden inside and every time when use the filter, you need to click one more button. The laptop is very straightforward and convenient. And I like to bring a mouse with me, I think the mouse is more direct and more convenient.
- R: Ok, as I just mentioned, when you are in the library, your habit is to open the library system and leave it there, or you only open it when you need to search for something?
- P: I will keep it open all the time, basically I will open the browser and put all the pdf there to read it whenever I need.
- R: What functions do you usually use in the library system?
- P: It is the explore search box and also 'find database', and my account, because I need renew loans.
- R: Do you often use filter?
- P: If you just use explore system, it's basically just the 'type' in the filter. But if I use database, I might use filter. The databases I basically use is ProQuest, and the...some village database (forgot name), and the several databases in China.
- R: So why are you using the filter in a limited way? Do you want to see the breadth of resources, or do you think you don't need to use filter in your search?
- P: Probably I am not quite familiar of it and don't know how to use it, I don't know much about this feature. First, I have not tried it, and I don't know what it is. I have to spend time to try, so I will find the one I am familiar with. Second, my demand of searching is satisfied already, and there is no need to learn new features.

R: Ok, let's start to the last part of the interview, which is about your user experience as a library user. You just mentioned the library app you used in China, so how do you evaluate that app?

P: It's not easy to use, probably it was just developed and has been developing. Its function was still very limited, mainly to borrow and return books, and search for personal accounts, some basic messages in there. There is basically no function like searching, downloading or filtering articles.

R: Ok. As an international student, how do you evaluate our library system?

P: I think it's very complicated. I don't like the design of the interface that every time when you log in, several pages will be open. The first page is a block and the second is where you need to enter the password, and the third one is ...anyway, I think it is so complicated. Unlike some other website where you only need to click login for one time and it remembers your password that you only need to click once. The second thing is that there are a lot of information and messy, that I was confused at first, and I didn't know what the explore is for. After I talked to the Librarian, he said that the dissertations and thesis of UCL graduates can be found in our explore system, yes, so, how to say, actually it is kind of a UCL database, which integrates all the resources and there are many other databases from other platforms mixed together. Every time when you search, it searches across all the platforms. If you search for a thing, it will be better to display all the resources from all databases.

R: Ok, we mentioned two concepts before, one is the mobile library and the other is the smart library. How do you understand them?

P: I think the mobile library has a better mobility because of the word 'mobile'. It adapts to different scenarios and can stably meet basic functions of the library system. However, with the smart library, I feel that it will make the search results and the whole search process optimized, including when you search for a keyword, it can come up with very relevant results and optimize the search results by connecting different databases, to make your academic learning effective and smoothly. Maybe there is not much requirement on mobility or other things.

R: That is to say, the mobile library should have mobility, which can be used anywhere I want. But for the smart library, it should put emphasis on the kind of responsiveness that can respond to your search quickly?

P: Yes, based on your needs give you results. Before, the search process is mainly based on keywords, so if the keywords are not proper, like we said before, if we express a concept in different ways, the results will be different. However, if it is smart library, I think it should be somehow connected by using a semantic web. You just need to search for any of the concept and it will assist your search by giving you similar concepts and associated terminology.

R: As an international student, what do you expect from our library or our university? Is there anything you hope they can give to, especially the international students, some services and help in terms of improving our learning and library user experience?

P: I think it would be nice to have a small plugin that helps with the language. For example, translation, page translation, like you can search for articles from different countries, or you are writing some topic based on UK or China, and the Chinese articles that are written in English are also searchable. You don't need to open CNKI every time to only search for Chinese resources in that; besides, I think our library really should purchase a more complete resources database of CNKI because it only has a little purchase now. What's point I wanted to say?... In China, sometimes, for example, during an internship, there may be some professional knowledge in that area that you want to search in the library database. However, it is hard to search in China, because you are not in the area that is covered by the campus network and you will need the network agent to do that, which is very troublesome. Besides, you can only use IE, which has a lot of problems and need to do some settings. After setting up, it is hard to search for other websites and you can only view the library website. While in UK, you can use all of them freely, which is quite good. There are also desktops in the library, and we don't have it when I was in China. When I first came here, I was a little overwhelmed, and now I feel all the facilities are quite practical.

R: The last question is, what do you think of the role of technology in your study?

P: I think it has a great effect on my study that let me accomplish the same goal in free time and free locations. For example, if I go back to China, I still have the access to see the websites here which is very good and changed my way of learning. I have been using laptop when I

was in undergraduate university, and I felt strongly the mental change from paper-based work to online work, especially when I was taking the paper-based IELTS test when I need to change my mind setting to a written test. In high school, we write with paper and pencil and then it changed to a computer work mode; you can feel the way of thinking was changed as well. The computer makes it easy to search for information and connect your ideas quickly. When you get stuck, you can search for it right away, and it will provide you with a lot of links to make your brain run at a high speed; but without a computer, you might be more focused, and will think for a long time and go deep into a topic.

R: If there is a mobile library app, or other learning-related apps, do you think it will be a distraction or it is a helpful tool that can improve your learning efficiency?

P: I think it is designed to meet different scenarios or needs. Like Kindle, the design concepts might be mobility, book, and eye protection. The concepts for mobile phone are convenient, anytime, anywhere, and free. As for the laptop, I think it may be stable and focused. So, in each scenario, you will choose a different technology.

R: Ok. Today's interview is over.

Participant 5

Chinese transcription

Interviewee 5--- DIS: DH--- Communication University of China ---Female

R: 你现在可以解释一下你刚刚画的图吗？

P: 好。我想要的移动图书馆界面，左边就是网页版的一个搜索界面，我感觉跟我们学校的差不多（Explore），就是可以输入关键词或者输入文章名什么的。下面就会有排列的一些东西，左边的黄色按钮是一些可以筛选的 filter，大概就是这样。最好的话就是都会有数字资源。就像我记得我当时搜索到 IOE 的一些书，好像很多都没有电子版，我感觉就不是特别方便。其实我现在在 UCL 不是很经常来图书馆的原因就是因为这个搜索只要登陆用户名就可以得到资源，但是在我本科的时候是必须校园网才可以，就是内网才行，所以那个时候我必须每天去图书馆，因为只有用内网才能得到免费资源，不过好像最近知网已经开放全部免费下载了，如果这样的话就还挺方便的。刚才你给我介绍武大的 APP 也算是启发了我关于手机端图书馆应该有一些功能，然后我画的界面大概是有四部分，最上面也是一些搜索，比如说你可以搜索一些资源，和 laptop 的不同可能是，因为你用手机的时候，可能不是在一个完全学习研究的状态，所以可能给的信息更粗略一点；另一个部分就是可以找到的座位，如果说可以预约座位或者什么的会不会好一点，还有获取这个座位上的信息，比如有没有电脑，有没有插座；或者说如果我要是中间离开了几分钟，我把东西都拿走了，如果说很智能了，这个位置会不会显示有人已经预约了或者什么的，这样就会比较方便。因为我本科的时候一般都会把一些书放在那里占座，但其实有的时候离开蛮久的，不是特别礼貌，如果它可以限定一个时间，多长时间之后回来这个位置还有效这样会比较好。另一个部分就是我的账户，可以看到自己浏览过的、阅读过的历史，还有借阅历史，还有我感兴趣的话题。这个地方我是希望它是一些新闻和文章，因为我用过一个 APP，它是叫 iResearch，大概是可以输入你喜欢的关键词，就像小红书一样，就是你可以输入你研究的领域的关键词，它会给你推荐在一些杂志上发表最新的研究成果。如果说有这样一个功能，在我不知道要查什么文献的时候，或者就算是一种日常知识的更新，我就可以点这个按钮去看有什么新的文献推荐。而且我当时用 APP 是可以选择你看哪些杂志的，比如说 IEEE，还有 nature 这种，我觉得选择的还比较细，这样的话也会比较好吧，就让 APP 不仅仅是在我已经知道一些关键词的情况下搜索功能，还可以每天作为一个有阅读功能的应用，我觉得这样会挺好的。大概是这样，然后其他的，这个是我最后想的，就是其他的需要知道的信息，比如说书架的位置，地图的位置，还有一些厕所、咖啡馆的信息，图书馆里面都有哪些设施，或者图书馆周围都有哪些这种，我觉得可能是用 map 的形式表示比较好，就是可以点这个点，有点像导航一样。

R: 好的，现在我们就开始正式的 interview，有三部分，第一个部分是以文化为切入点，你作为一个国际学生你的一些体验和你的经历，然后第二部分就是你作为一个信息搜索者你的一些行为习惯，第三个方面就是你作为一个图书馆的用户你的用户体验。第一个部分就是从文化这个角度来说，就是你在中英这两个环境当中，你觉得在教育上面，然后不同是什么？相同是什么？基于你的体验。

P: 我觉得不同是在于，主要是跟专业有关系，因为这边学的很多课是跟一些技术有关系的，所以一般都是一小时 lecture 和一些上机的 practical，但是我本科学的新闻学，它主要就是一些理论知识，实践都

是课后做的。所以我们所有课堂的活动比较多的都去听老师讲，除非就是老师给你布置好任务，让你们小组作业，这种课堂展示。所以我感觉英国的可能互动会比较多，然后尤其是在 practical 这部分，你可以更自由地问问题，但我觉得这个也是跟学科的性质不一样有关系。其他的...本科的话，因为就是宿舍离图书馆、主教学楼都很近，所以每天的生活场所也比较固定，下课可能就回去休息一下，吃好饭就去图书馆这样子，但是在这边的话因为生活范围更开阔，自己也是独立的一个房间，所以我主要的学习生活都是在我的寝室，因为我在宿舍的学习效率其实跟在外面没什么区别，如果我要学习的话，大概是这样。

R: 好的，你来英国之前你有没有做哪些准备，就是针对于来英国学习这个方面？

P: 没太做什么，因为我之前来上过 summer school，我大三还在俄罗斯交换过一年，所以算是还已经有经验，对，但是来这边感觉就是自己变得更宅了，其他的没什么。

R: 那种你觉得来这边之后就是课程或是用学校的各种服务，有没有让你觉得哪些地方有点难，或者说你花了一些比较长的时间去适应的？

P: 其实还好，我感觉图书馆资源特别好用，其实我觉得因为找电子版资源很方便，尤其是谷歌搜索，我觉得跟国内的搜索引擎比能得到的信息确实是相关度更高，而且更有权威性，不全是广告，虽然也会有广告，但是相对来说感觉还是好一点。

R: 针对于你的学习来讲，你经常会搜索哪些方面的信息，就整个你的学习生活来说，你一般会搜索哪些方面的信息？

P: 我想一想，其实我平时还是比较关心这种国际关系经济发展这种，所以我其实比较喜欢看这种新闻文章什么的，对，然后跟学习相关的可能会，因为我是学期修了一门课叫 future interfaces，是介绍一些未来交互的产品，所以可能会比较关注这种最新科技发展产品，但是我觉得我的阅读，算是一个缺点，不管是平台还是语言，都主要是在中文的上面，除非我有的时候会去 Facebook 或者是 INS 上面读一些东西。生活的话读的都是中文的多，但是学术一般要做研究，我都会看英文。

R: 你一般都是在什么上面去看这些信息？

P: 我现在还挺喜欢在 Facebook 上看的，就是有关那种 BBC 的各个频道这种。其他的就是微信看的比较多，还有新闻 APP 吧，另外感觉我还挺经常用微信上面的看一看的，我感觉朋友们有的看的那些推送还可以。

R: 好的，那么你在英国搜索的这些信息，包括你搜索信息的方式，和你之前在中国相比有什么变化吗？

P: 会有的，在这边会更多的依赖谷歌，就是搜索新东西的话，不管是用英语还是用汉语，感觉还是更权威一点。

R: 你在中国的时候，如果你要找信息，一般通过什么途径？

P: 百度或者是微信吧。

R: 好的。针对于图书馆系统来说，你在中国传媒大学用的图书馆系统是什么样的，你可以简单介绍一下吗？

P: 大三我出国了，但是大一到大三的时候，都是如果需要什么资源就去终端机检索系统搜索书的位置。在我大四的时候是有一个 APP 叫移动图书馆，好像是可以搜索北京所有高校的图书馆资源，我没有试过，因为那个时候已经要毕业了。但是那个时候是可以办一个卡，北京所有大学生可以去任何高校的图书馆，好像是这样，我没有办过，但是我有听同学们他们说。那个移动图书馆 APP 其实还挺好用的，因为不需要是图书馆内网都可以进入。搜索资源之后会给你发一定的页数或是整个资源，但是那个链接多少天之后就会失效。所以你就要在失效之前抓紧时间看。我用过几次，当时大四备考英语专八的时候，我在那个上面搜过还挺好的。电子资源还比较全，因为它其实是把各个高校的资源都做了整合让你进行搜索，你用中传的账号就可以进入整合过的所有资源。

R: 里面的资源有按照类别分还是别的方式？

P: 它是整个一搜索，你搜关键词进去，会给你推最相关的，和我们现在用的这个差不多的。其他的话可能我还会有时候听听什么喜马拉雅，那种有声阅读。

R: 好的，在 explore 里你一般在上面会搜索的信息就是和你的 coursework 和你的专业相关的，还是你也会在上面搜索别的信息？

P: 就是和课程相关的，好像别的我还没有搜索过。一般都是搜索专业的这些东西，比如说预习，课程，老师给的一些文献名什么的。其他的我感觉一般去谷歌搜索结果就挺全面的。

R: 你觉得英国的图书馆系统和你之前在中国图书馆系统相比的话，他们的不同是怎么样的？

P: 我觉得英国的其实还挺好用的，就是大多数资源...我觉得我们国家图书馆可能发展挺快的，现在学生觉得移动图书馆 APP 还算是比较好用，因为我那个时候就没有很深入的去用它。但是我确实觉得 explore 基本上能找到我想要的资源，对，尤其是 UCL 账号它可以是免费的，就可以还看很多的会议的一些文章什么的都可以看，我觉得还挺方便的。

R: 你觉得中国图书馆系统和英国图书馆系统相比较的话，你各自喜欢他们什么，然后各自不喜欢它什么？

P: 我觉得国内图书馆我比较喜欢环境，因为很安静，本科的时候我经常去图书馆学习。英国的图书馆大家可能讨论的比较多，所以我不太来。而且我觉得国内图书馆通风什么的还挺好，环境比较舒服，也是因为在国内其实宿舍里很多人，就没有沉浸式学习的环境，所以在国内比较依赖图书馆环境。但是在国

外我觉得图书馆它真的是起到了一个资源的作用，我觉得这点还是挺好的。包括，比如说这边你准备考试，可以搜以前的考试卷，我觉得这点还特别的方便，很多东西都数字化了，很多资源都是可以获得的，包括还有一些古籍什么的，因为我当时搜索，一不小心就进去了一个他 special collection，就可以看到很多跟历史文化有关东西，我觉得这些在国内的高校图书馆都还是比较比较缺少的。

R: 那就是你刚说到你之前有搜索过 exam paper，你是直接在 explore 里面搜的吗？

P: 不是，我在 explore 里面，当时我是试着搜了一下课程名，但我没搜到，然后我就从 UCL 主界面右上面搜 past paper，它专门有一个搜 paper 的地方。进去之后按照每个学院整合的，只要是老师更新了你进去之后就可以看到之前的数字化的卷子。因为我这周要考试，这个课程的老师就让我们去找当年的题，我就找到了 15 年的卷子，16 年、17 年、18 年他可能没有更新，我觉得这个很方便。我还记得当时考 IT 的时候，老师也给了我们过去的卷子，我觉得这还挺好用的。

R: 好的，第二部分就是关于你的搜索行为，针对你学习的一些需求，你一般会搜索的信息有哪些？就是在上课的过程中，你一般就是会搜索哪些方面的知识，或者搜索哪些方面的信息来完成这门课？

P: 比如说一开始老师有推荐那个 reading list，他尤其推荐了一个比较小的手册，就挺薄的、可以查的，我就有查资源。其他的话，因为那门课需要做 project，可能我就会直接谷歌搜索一些已经做好的 project，看看别人是怎么做的。还有就是搜索教程，因为我感觉 PPT 其实写的逻辑性不是特别强，我就会去一些 W3C 之类的网站去看教程。

R: 就是说其实你搜索学习信息相关的途径包括一个是图书馆的 explore，还有 google，还有一些专门性的一些网站，比方说 W3school 这些专门的这种类似于 tutorial 的这样的网站？

P: 但是我感觉好像一般要是去 explore 搜，主要就是搜一些文章，都是文本类的，其他的好像很少搜。而且我感觉可能是因为自己不是 native speaker，有的时候我觉得我对关键词的把握不好，找不到最确切的一些文献，就是真的能够帮到我的。

R: 就是说搜不到你想要的东西？

P: 对，有的时候会，然后我就会想是不是我这个关键词用得不对，然后我可能就会去谷歌搜这个词看看我说得是不是地道，然后会看里面的一些表达之后再搜。当时写那个 digital resources 那篇论文，上学期的时候，那个时候我给老师发邮件，我就问写这个文章有没有什么关键词可以推荐的，当时老师就告诉了我一些关键词，我感觉他跟我提供了关键词之后，搜索出来的资源确实是更相关了。

R: 好的，你可以想一个例子，或者是想一个之前的某一个情景，你当时没有搜到你想要的东西？

P: 就比如说这次要写毕业论文，我要写的是文化遗产在游戏中的应用，我就把这一长串就输进去 explore 了，出来的很多都是 educational game，感觉和我想写的差距其实是很大的，因为我想写的不是 educational game，也不单纯是 video game，而是跟 culture heritage 结合的，就比较难找到很确切的东西。但是我把这个题目在谷歌里搜索的时候，它会给我推荐一些关键词，我觉得那些推荐的就非常的确切。会把那个叫做 serious game 什么的，还有几篇文章确实是分析这种文化遗产与游戏结合的。在我在 explore 搜索的时候，我还以为是不是这个领域之前没有人做过，但是在谷歌搜索的时候，我就发现其实是有很多的别人的研究成果案例，虽然可能跟我的方向不是完全一样，但是大方向还是类似的。

R: 好的，除了某些资源搜不到可能是源于 keyword 没有找好，你觉得除了这个之外，还有什么原因？

P: 其实我有点想不到还有什么原因，但是包括我这次写 future interface 那个论文，我感觉我也是用谷歌搜索用的多，就他推荐给我的可能也不仅仅是最新的，有的是那种书籍什么的，但是确实和关键词相关。也说不不好，我还真的不太知道这个原因，但是我这次写论文用谷歌搜，就觉得确实能知道很多的信息。有的时候用 google scholar，比如说我知道的那个文章，我可能会再用文章名去 explore 里面搜，因为那样我能看到全文。

R: 好的，刚刚说到你用 explore 一般都是在你的电脑上用，对不对？你有用手机登录过我们的图书馆吗？

P: 我只在 UCL GO 里面进去过。

R: 你在里面搜的是哪些方面的信息？

P: 我之前我借过一次学校的电脑，但是我感觉不是特别的方便，因为必须要 24 小时之内还回来，我当时就是第二天还又赶着把电脑还回来了。我就想看看有没有还成功，就在 APP 里看了一下。App 进去之后好像我记得，不是在个人的 account 里面，它是一个类似于 public account，也不能下载软件什么的，反正不是特别方便。但是可以看你借的书什么的，可是一般情况下，如果是有电子版的，我也不太会去借纸质书。

R: 就是说纸质和电子版的，你可能更偏向于电子版的？

P: 对，因为我感觉电子版读起来还是比较方便的，而且也比较干净。

R: 那么对于移动图书馆而言，你一般找的信息可能是和图书馆的服务相关的，可能不会在图书馆上面搜具体的信息文章什么的？

P: 因为手机屏比较小，一般不太会用它来学习，会看娱乐或者是跟这种服务相关的，还有看比如说放假了，图书馆开放时间。

R: 在你的学习生活当中，都有哪些设备你会使用的到，一般都是在什么样的情境下面，你会使用到这些设备？

P: 设备就是电脑,我觉得主要就是电脑,然后就是手机。我没有用平板,因为我有两个电脑,有一个是 surface 可以做平板,但是一般其实我用一个电脑就够了,我觉得 UCL desktop 很好用,因为它可以链接自己账户,所以没必要一定要来学校。

R: 好的,然后的话,你刚刚有提到你喜欢在宿舍学习,那么除了宿舍之外,你还会在哪些地方学习?

P: 一般除了宿舍,我们学生公寓有一个 common room,它是那种 study room,很多人在那学习,学习氛围,尤其是最近还是很不错的,就是我跟同专业的几个朋友都住在那里,所以有问题也会一起讨论。如果不是在寝室,就会去 common room 大家聊一聊学习问题什么的。

R: 不管是在哪个地方学习,你都是比较偏向于喜欢用 laptop 的?

P: 对。而且我也很少打印,基本都是看数字化的,但我会用白纸就是写点笔记什么的。我几乎不会来学校的图书馆学习,这次来已经是是距离上次一个半月以后了,从 3 月 23 号最后一节课之后我就没来过。

R: 好的,你一般学习的时候,会把图书馆的 explore 打开在那里放着,还是只有想到要查东西的时候才会打开?

P: 我一般是在论文开始阶段就是会先用它,会先用它搜一些东西,然后谷歌也会同时搜索。有一个软件...有一个专门的 APP...

R: Mendeley? 是引用文献的软件吗?

P: 是那个吗?我有点忘了名字,有一个软件可以把所有你看过的文献帮你分类,叫 ZE 什么的,老师推荐过,我不太记得名字,但是我没有用那个软件,我一般写一篇文章,我会专门建一个 Google doc 把一些链接放上去,大概标注一下每个链接是干嘛的,再建一个本地的文件夹来管理。

R: 好的,针对于图书馆的 explore,你经常用哪些功能?

P: 我一般就用搜索,因为我不太会用 database,虽然之前图书馆员也教过,但是那次我可能没有太听明白吧,就觉得特别多,但是我不是很会用,而且一般 explore 已经能找到我想要的东西了。有的时候可能我会设置 filter 就是选择我更倾向于看什么东西。

R: 那 filter 里你会用到的细化类别有哪些呢?

P: 一般是类型和日期比较多。对,因为我感觉自己学的这些东西还是比较依赖于时间的,变化挺快的有些东西。类型的话,有的时候会想看看别人的论文写到什么层次,书籍的话有时候读不完那种,但是论文的话看起来会快一点。

R: 接下来就是第三部分,是关于图书馆的用户体验的,你刚刚也说了,你在中国的学校是有一个图书馆 APP 的?类似于你们学校购买了一个整合过的图书馆 APP 系统,那么里面你喜欢它的功能有哪些?你不喜欢它的功能有哪些?你觉得你在中国的时候用它用的多吗?

P: 我觉得那个 APP 主要是搜资源,但是没有提供其他的服务,比如学校图书馆开放时间什么的,就像我记得那个时候,比如学校图书馆清明节或者是端午节要放假,你就要提前去看它到底什么时候开。但是后来我记得好像每个学校都有一个公众号,我们学校好像叫数字中传,但是是我们马上毕业了才有的,包括宿舍交电费,包括看自己的账户、借阅书什么的,后来好像都有了,但是我大学前几年是没有的。那个我喜欢的部分就是资源,我觉得还挺全的,但是我没有怎么使用。不好的地方就是我记得是不能下载全文,它是给你发链接到邮箱,你需要打开邮箱去看那个资源,这个就不太方便。

R: 那么对于 UCL 的图书馆系统,如果让你作为一个国际学生来评价的话,你会怎样评价?

P: 英国的我觉得还可以,现在来说用的还是基本满意的,没有什么比较大的问题。

R: 那你对 UCLGO 有什么评价?

P: 其实 UCLGO 我觉得有点用不到,大多数时候,就像我之前说过的,你在宿舍的话就都可以用到,而且我需要来图书馆的机会不是太多,所以也不太会使用,除非是我来学校,可能会去 UCLGO 看看图书馆开门时间,但是其他信息就不太会看。

R: 也就是说其实上面提供的一些信息可能并不是你需要的?

P: 对,我都不太打开那个 APP,比如说它上面有一些 news 什么的,但是我的邮箱里会有一些 newsletter,包括我定了 UCL career 这些活动邮件,一般我会每天看邮箱,包括跟老师的沟通什么的,就不太会看 UCLGO 了。

R: 好的,作为一个国际学生,如果要提升国际学生对图书馆系统的满意度,你对我们的图书馆系统有什么建议吗?

P: 比如说有更多多语言的文献,因为我好像没有用 explore 试过搜中文的东西,但好像是能搜出来的。我记得我同学当时写敦煌的,因为有个论文是要写数字化和原版本的对比。他写的敦煌的东西好像搜出来的汉语资料蛮多的。另外我知道 google scholar 是可以搜到很多汉语文献的,所以可能我觉得我们图书馆系统也可以加强这个方面。还有就是,当然我觉得这样可能有点太不太现实,比如说因为我对汉语的关键词把握比较准,如果我搜汉语的关键词,它能够又出来英文文献,又出来汉语文献,就是基于这种关键词的推荐就好了。当然这个我觉得可能还是比较难实现的。

R: 好的,科技或者说这些科技的设备在你的学习生活中是一个什么样的角色?

P: 我觉得现在科技,尤其是进入硕士,我觉得科技设备在我的学习就是必不可少、非常重要的一部分。尤其是前两天写 php 代码的时候,特别害怕 UCL desktop 崩,因为要是崩了作业都在里面也没法教了,就感觉以前的时候本科学习非常依赖书本,非常依赖纸质化资源,还喜欢记笔记。但是现在包括上课,我感觉用手写笔记好像不仅速度慢,还显得就是有点蠢的感觉,好像现在随着科技进步,所有的事情都

搬到电脑和手机上了，感觉学习特别的依赖电脑，对手机的依赖度还好，手机主要就是一些生活服务和玩什么的。电脑真的就是学习必不可少的，基本就是学习工具，包括文献都在里面什么的。

R: 所以说其实对你来说，手机这个设备对于你来说可能交流和娱乐比较多，laptop 是以学习为主？

P: 对。

R: 好的，你是怎么理解我刚刚说到的移动图书馆，还有一个概念就是 smart library，智能图书馆，你是怎么理解这两个概念的？

P: 我觉得移动图书馆应该就是说针对移动端的设备，比如说我人不在图书馆，怎么说呢，因为我突然在想，如果我不在图书馆，我走在路上，但这个时候我也不会有一个查阅文献资料的需要，但是可能会不会未来已经把这种学术研究这种精神贯彻于生活中。

R: 比如说你可以想一想，比方说你以前出去玩的时候，或者你在火车上，或者你在大巴上？

P: 以前我觉得可能如果在火车大巴上会带本书，现在的话如果说有这种资源确实会更方便。但我觉得移动图书馆它应该更多的是倾向于一种文化传播和服务提供，比如说告诉你图书馆有什么新的活动，有什么新的展览，或者是这种服务时间，因为我感觉移动端它应该不是一个这种沉浸式学习的这种氛围，或者是比如说自己想到一个想法，可以用图书馆的 APP 记下来，而不是用备忘录这种，可以之后再去找。

R: 就是说你觉得移动图书馆里面还可以有一些功能，就类似于那种 note taker，随时随地记一些和学习相关的想法。

P: 对，这个我觉得还是可能的，但是如果说搜索了一个长文献，让我用移动图书馆读，我觉得不太可能，哪怕它做成那种像 kindle 一样的翻页界面，包括微信阅读，我其实都太经常使用，因为界面太小了，不适合阅读，微信阅读里面的听书，就是纯人工智能那种机器阅读，还不是像喜马拉雅这种别人都已经读好的这种，听起来不太自然。

R: 你觉得智慧图书馆和移动图书馆相比，就这两个有什么概念的差别，然后你觉得智慧图书馆应该是什么样的？

P: 我觉得智慧图书馆应该更强调的是那种功能的强大，包括搜索功能，包括比如说我们学人机交互，就是有那种语音助手，比如说几点提醒你该学习了这种，像小闹铃这种。

R: 就是那种类似于一个机器人一样的，就可以交流？

P: 对，而且是你定制的这种学习习惯，比如说每天图书馆 APP 提醒你，要学习了这种感觉。

R: 你觉得在未来你希望的一个图书馆系统是一个什么样的？

P: 图书馆系统，我觉得各个设备首先是各有侧重，同时相互配合。环境的话，我觉得肯定是要提供一个舒适，安静安全的学习环境，氛围要浓厚。同时，我还不太知道我们学校图书馆有没有举办一些比如说读书日这种活动？因为我这次就是在上海陆家嘴的时候，陆家嘴图书馆的读书会我觉得做的特别好。图书馆虽然很小，但好像是一个网红图书馆，尤其是周五周六举办的那种读书会活动，还会请很多名人来带领大家，有点像朗读者，虽然上次我没有参加，但我看了他们的宣传，好像是东方卫视的一个财经主持人带大家读书。另外那个图书馆设计的也很好，进去也不需要办卡，都很方便，还有插座，接水处，洗手间这些设施都挺好的。

R: 就是你觉得未来的图书馆最好是要那种可以让用户参与进来，有更多的这样的活动，让图书馆用户爱上读书，另外图书馆的环境要比较人性化，有一些好的设施什么的？

P: 但我不知道这个是不是高校图书馆所希望的，但我觉得应该也会吧。反正我好像没见过 UCL 图书馆办什么活动。因为我感觉本科图书馆还会有一些活动的，包括请一些研究者来做报告会什么的，反正还挺多活动。而且我觉得 UCL 是不是可以有更多的电脑，就是 desktop。

R: 好的，现在就结束了，这是所有的问题。

English translated transcription

Interviewee 5--- DIS: DH--- Communication University of China --Female

R: Can you explain the cognitive map you drew?

P: Ok. I drew the mobile library interface I want to have. On the left had side, it is the web version of the library system, it will have a search box that is similar to our university library (Explore system she means), where you can enter keywords or name of the articles. Below there are some categories, and one the left there are some yellow buttons of the filter. It will be better if all the resources have the digital versions. Just as I remember when I searched for some books in IOE, it seems that many of them don't have digital versions and I think it is not convenient. In fact, the reason why I am not coming to the library in UCL is because I can always get resources by logging in with UCL account; but in my undergraduate university, I have to use the campus network, that is, the intranet to use the library system. So, at that time I go to the library every day, and use the intranet to get free resources; but it seems that the CNKI recently opened all free downloads, and if it is the case, it will be quite

convenient. You just introduced me the library app of WHU, and it inspired me about the functions that should be included in the mobile library. Here I drew the mobile phone interface for library, and it has four parts. At the very top, there is also a search box, where you can search for some resources. However, the differences on mobile phone compared with the laptop version is that, because when you use your mobile phone, you may not be in a status of concentrating on your study, so the information given by mobile library might be a bit rough. Another part is the seat you can find, or it would be better to call it seat reservation. It will be better if the information about the seat can be obtained, such as is there a desktop or is there socket on that seat; or it can be smarter that if I leave the seat for several minutes with my stuff, is the information of the seat will show that this seat is booked or not. If it can be smart like this, it will be more convenient. Because when I was in the undergraduate, I usually put some books on the seat to take it, but in fact, it is not very polite if I leave for a while with my stuff there. If it can limit a period of time, like how long after your leaving the seat reservation will be invalid. The other part is my account, where you can see your browsing, reading and borrowing history and the topics that I am interested in. In here, I hope there can be some news and articles. I used an app before called 'iResearch', and you can enter the keywords you like, and it is working like the 'red book' (a Chinese app for sharing things), that it will recommend you with some updated publications and research based on the keywords or the fields you entered. If there will be such a function, and when I don't know what resources to look for, it will provide me with a kind of daily knowledge update, and I can click this button to see what recommendations of the new publications. Besides, that app I used before allows you choose what journals do you want to read, such as IEEE, and Nature; and I think the classification is quite detailed, which is good. Then, this is what I thought at the last few minutes, which is the information the library users need to know, such as the location of the bookshelves, the location of the library map, information about the toilets, cafes, and the facilities in the library or what is around the library. I think it may be better present this part of information in a map format, where you can click on different points on the map, like a navigation.

R: Ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. In terms of the learning environment, or to say, the learning atmosphere, is there any difference between China and UK? How you experienced in these two countries?

P: I think the difference is mainly due to the discipline differences, because many of the courses I have here in UK is related to technologies. Usually it is one-hour lecture and some practical afterwards; but my undergraduate major was News, it was mainly the theoretical learning and the practice is done after class. Therefore, the class time was mostly listening to the teacher, unless the teacher gave us a task, like group work or presentation. So, I feel that there are more interactions in class in the UK, especially in the practical part, where you can ask questions more freely; but I think this is also related to the nature of the subject. Other things... when I was in undergraduate, because the dormitory is very close to the library and the main teaching building, so your life places are relatively fixed. You may go back to dormitory to take a break after class or have a meal before go to the library. In London, because the range of life is relatively broader, and we have an independent room in the dormitory, so my main study place is in my flat room, because my study productivity in my room has no difference with studying outside.

R: Ok, did you prepare anything for your study in UK when you were in China?

P: I didn't do much things, because I went to summer school before coming and I had an exchange experience to Russia for a year when I was in year three. So, I have some experience of studying abroad. Yes, but I feel I become more home based after coming to UK, nothing else.

R: Is there anything difficult or took you a long time to adapt in terms of the courses or the services provided by our university?

P: Actually, I feel that the library resources are particularly easy to use and it is convenient to find electronic resources, especially on Google search. I think the information obtained on Google search is more relevant compared with the one we use in China, it is more reliable.

There will be some ads, but not all of them are ads and relatively speaking, it feels better to use.

R: For your study, what kind of information do you often search for, and what kind of information do you generally search for your entire learning life?

P: Let me think about it. In fact, I usually care about the international relationship and economic development, this kind of news. So, I actually like to read this kind of news and articles. And, related to my course, last term I took an elective course called 'future interfaces' which introduces some interaction products in the future; therefore, I also pay a lot attention such technological products. However, there is a shortcoming of my reading I think, which is, whether it is the platform or language, I mainly use the Chinese one; unless I sometimes go to Facebook or INS to read something. The reading in my daily life is primarily Chinese, but if it is the academic work and I need to do research, I will read English.

R: Where will you find this information?

P: I actually like to read information on Facebook because I subscribed several BBC channels on that. The other is the WeChat and the News apps, and there is a function on WeChat called 'See' where there are articles recommended by your friends, and I think that is really good.

R: Ok, then these are the information you search in UK, is there any changes compared to what you search in China?

P: There are some changes, I feel in UK, I rely more on Google here if you are searching for new things, whether you use English or Chinese, it is more reliable.

R: When you are in China, if you are looking for information, where will you go for?

P: Baidu or WeChat.

R: Ok. For the library system, what kind of library system did you use at the Communication University of China? Can you briefly introduce it?

P: I went abroad in year three, but when I was in year one to year three, if I want to find resources I will go to the terminal machine in the library to find the location of the books. When I was in the final year, there was an app called 'mobile library', and you can search for all the library resources across all the universities in Beijing. I have not used it because I graduated at that time. But at that time, you can apply for a library card that lets you go to any of the university in Beijing, it seems like this, but I didn't apply for that. I heard from my friends that the mobile library app is quite easy to use, because you can access without the campus network. It will send you a link with certain pages or the whole articles after your search, which will be expired after a few days. So, you have to read it as soon as possible; I used it a few times when I was preparing for Professional English eight level in my year four, it was a quite good experience. There are abundant e-resources which actually integrates the resources of all the universities across Beijing and I can use my university account to enter these integrated resources.

R: Are the resources inside classified by resource types or other ways?

P: It is a unified search box, you just need to enter the keyword and it will give you the relevant resources, which is just like the explore system. Another thing I use a lot is the Ximalaya FM app, where you can listen to books.

R: Ok, what information you usually search in the explore?

P: Mostly related to the course. It seems that I have not searched for anything else. I usually search for things related to my major, such as information to pre-review, the course content, or some article names given by the lecturer. The other information I prefer to go to Google to search, which has comprehensive results.

R: What do you think is the difference between the UK's library system and the Chinese library system?

P: I think the library system in our university is actually easy to use and the most of the resources...I can find what I want, especially with the UCL account, a lot of resources are free, including some conference papers, which is really convenient. I also think the library system development is quite fast in China, although I didn't use much but a lot of students consider the mobile library App is easy to use.

R: What do you prefer about the Chinese library system and the UK one and what do you dislike about them?

P: I prefer the environment in the Chinese libraries, because it is very quiet and that's why I usually go to the library to study when I was in undergraduate stage. In the library here, there

are lots of group discussions in the library, so I don't come very often. Besides, the ventilation is quite good in China's library, so it is comfortable to stay inside and also, because we share the dormitory room together, the environment in the dormitory is not proper for immerse learning. That's why I rely the library environment in China. However, in UK, the library acts like a resources function, which is quite good. Including that, for example, when you are preparing for the exam, you can search for the past papers, I think this is especially convenient. In addition, many things are digitized and are available, including some ancient books. There is a time when I unexpectedly clicked into the special collection, where you can see a lot of things related to history and culture, which is lacking in China's universities.

R: You just mentioned the past paper, where did you find them? In explore?

P: No, I tried to search for the course name in the explore, but I didn't find it. Then I searched for the past papers from the top right search box of the UCL website. It has a webpage for the part papers which are categorized by departments. You can see the digital past papers if the teacher has updated it. I will have an exam this week, and the teacher for this course asked us to find the past papers, and I found the exam paper for 2015, but didn't find the papers for 2016,17 and18, probably the teacher hasn't updated it. I feel this paper search is quite convenient. I still remember that when I took the course IT, the teacher gave us the past papers, which was quite good.

R: Ok, the second part is about your search behavior. What information you will search for your general learning?

P: For example, at the beginning of the course, the teacher recommended a reading list, especially there is a manual book, which is thin and very easy to refer and check resources. The other things...I have a course which require us to do a project, and I searched on Google the projects worked by others and see what others are doing. Besides, I will search for some tutorials, because I feel that the logic of PPT is not particularly strong, I will go to W3C or some other websites to see the tutorial.

R: That is to say, the way you search for learning information includes library explore, Google, and some specialized websites, such as W3school which has the tutorials?

P: Yes, but I feel like if I search in explore, I will mainly search for articles, text-based resources and I won't search for other things except for that. Besides, sometimes probably because that I am not a native speaker, if I don't know how to express the keywords, I can't find the most relevant documents that I want.

R: is that mean you cannot find the thing you want sometimes?

P: Yes, sometimes, then I will think if my keyword is not right and I may go to Google to search for the proper word and search after browsing some authentic expressions. Before I wrote the paper for the course 'digital resources' last term, I sent an email to the teacher to ask if there was any keyword to recommend for writing that paper. At that time, the teacher told me some keywords, and I feel the results became more relevant after I used the keywords he provided to me.

R: Ok, can you think of an example or a condition when you didn't find what you want in explore?

P: For example, I need to write the thesis this time, and the theme is the application of cultural heritage in the game. I entered this long keyword into the explore, but many of the results were educational games, which were far away from what I want. The thing I want to search is not merely educational games, nor video games, but should be combined with culture heritage, so it is difficult to find something very specific. However, when I searched this keyword in Google, it recommended me with some keywords and I think they are very accurate, for example, it recommended this kind of game as 'serious game', and there were several articles that analyze this kind of game related with cultural heritage. That's why when I searched in explore, I thought there was no previous research in this field, but actually after the search in Google, I found that there are many previous cases on it, although it may not be completely in line with my topic, in general they are similar to what I want to do.

R: Ok, that means it is probably because the keyword phrasing is not right, except for that, is there any other reasons that you think lead to the failure of searching for the right resources?

P: Actually, I don't know the reasons. Actually, including this time when I was writing the essay for 'future interfaces', I use Google more than explore, and it recommended me not only the latest, but also different types of information, like books or something and indeed they are relevant to the keyword. It's hard to tell the reasons, but if I use Google, I can find

more information. Sometimes I use google scholar to search for the article and once I get it, I will search that article title in explore to see the full text.

R: Ok, have you used your mobile phone to log in to our library? What information do you search on that?

P: I only used UCL GO to log into the library system. I borrowed a laptop from our library once, but I feel it is not so convenient, because I had to return within 24 hours. I rushed to return the laptop the next day and I wanted to see if I have returned successfully, that's when I used the app to check my loan information. For the laptop I borrowed, I remembered it was not a personal account, rather it was some kind of public account, and you cannot download any software on the laptop. Anyway, it was not convenient. You can see what you borrowed, but under most circumstances, if there is an electronic version, I will not borrow paper books. Because I feel it is more convenient to read digital formats, and it is also relatively clean.

R: So, for mobile libraries, the information you usually look for may be related to the services of the library, but not the resources or articles in the digital library?

P: Yes, because the mobile phone screen is relatively small, and generally I won't use it to study. I use it for entertainment or to see the services-related information, and to see, for example, library opening hours in holidays.

R: In your study, what devices you will use usually and under what context?

P: The device I use is mainly my laptop, then my mobile phone. I don't have a tablet, because I have two laptops, one is a surface which can be used as a tablet, but in general one laptop is enough. I think UCL desktop is very easy to use because it can link to your own account from anywhere, so it is not necessary to come to university.

R: Ok, then, you just mentioned that you like to study in the dormitory, where else do you study?

P: Generally, apart from the dormitory, there is a common room in our apartment. It is the kind of study room and many people study there and learning atmosphere is quite good, especially recently when it is the exam week. I live with a few friends, so we usually discuss together if there is any problem with the coursework. If I'm not in my flat, I will go to this common room to discuss learning problems.

R: No matter where you study, are you more inclined to use laptop?

P: Right. And I rarely print, basically I look at the digital versions, and I will use white paper to write some notes. I almost never come to the library and today is already one and a half months after the last time I come to the library. I have not been here since the last lecture on the March 23.

R: ok, when you study, will you open the explore and leave it in the background or you will open it when you want to search for something?

P: I usually use it at the beginning of writing an essay, and I will use it to search for something, and Google will be used at the same time. There is a software... there is a specific app... I forgot the name, but there is a software that can sort all the documents you have read, called ZE or something, which was recommended by the teacher, but I don't use it. In general, when I write an essay, I will create a Google doc to put some links on it and mark what each link is about, and then build a local folder to manage all the things I read.

R: Ok, what features do you often use on the library explore system?

P: I usually use the search box and I generally don't use the database. Although the librarian taught us before, I may not understand it at that time and not sure how to use it properly. Generally, the Explore search is able to find what I want. Sometimes I might set the filter to choose what I prefer to see.

R: What categories do you usually use in filter?

P: Generally, I set types and dates. Yes, because I feel the academic work much depend on time, and it changes very fast. As for the types, I generally prefer articles. I want to see what research other people are writing in their articles, cause it's hard to finish reading a book, but it is faster to read articles.

R: The third part is about the user experience of the library. You just said that your university in China has a library app that was purchased and integrated resources, what features do you like about it? What features do you dislike about it?

P: I think the function of that App is mainly to search resources and there is no other services, such as the opening hours of the library; for example, as I remembered if it was the Dragon Boat Festival or the Ching Ming Festival, then you need to check the opening hours in ahead

of time. Later on, at that time, lots of universities created the WeChat public account, like our university is called as 'digital CUC', but it was published at the time when I was graduating. There are services like paying the dormitory electricity bills, viewing personal account, borrowing books, etc. The part that I like is the resources, which I think is quite comprehensive, but I didn't use much because I was about to graduate. A bad thing about it is that you cannot download the full text on it, and the resources are sent by links to your email. You have to open your email to access the resources, which is not convenient.

R: As an international student, how do you evaluate our library system?

P: I think it is okay. Now I am basically satisfied with it. There is no big problem about it.

R: So what do you think of UCLGO?

P: Actually, I feel it is a bit useless. Most of the time, as I said before, I don't usually go to the library, so I won't use it unless I come to university when I probably will check the opening hours of the library on UCLGO. But I won't see other information on it. I don't even open the app. For example, there are some news on it, but I also subscribed some newsletters on my email, including the UCL career emails or some events. Generally, I look at the email every day, and I can see it from email including communicating with the teacher. That's why I don't use UCLGO a lot.

R: Ok, as an international student, do you have any suggestions for our library system?

P: For example, there can be more multi-language documents. I feel that I haven't tried to search Chinese resources in explore, but it seems we can do that. I remember that my classmate wrote essay on Dunhuang at the time, and a comparison between digital and original versions was what he needs to see. There are a lot of Chinese resources when he searched Dunhuang in explore. In addition, I know that google scholar can search a lot of Chinese literature, so I think our library system can also improve this aspect. Another thing that can be improved, of course, this might be unrealistic, but I am thinking because I have a good grasp of Chinese, so if I search keywords in Chinese, it can recommend both English and Chinese resources will be brilliant. This is a kind of recommendation based on keywords, of course, this may be difficult to achieve.

R: Alright, what's the role of technology or the devices in your study?

P: I think that technology, especially after I started the master course, is such an indispensable and very important part of my study. Especially when I wrote the php code two days ago, I was so worried that the UCL desktop might be down because all of my coursework is saved on that. When I was in undergraduate stage, I relied much on the textbooks, and paper resources and I prefer to take notes on paper at that time. However, now, including on the lecture, I feel that it is slow and sometime a bit stupid to take handwritten notes. It seems that with the advancement of technology, everything has moved to computers and mobile phones and the learning depends on computers. The dependence on mobile phone is fine, cause it is mainly for entertainment and life information; but the computer is essential tool for learning and all the things are stored on that.

R: I mentioned the concept of mobile library, and there is another term called smart library. How do you understand these two terms?

P: I think the mobile library should be targeted at mobile devices. For example, if I am not in the library, how to explain... Because I suddenly realize that if I am not in the library and I am on the road, but this time I don't have a need to search articles. However, it is possible that in the future the academic research will be carried out through life...I used to think that if I am on a train or bus, I might bring a physical book, so with the online resources, it indeed become more convenient. Anyway, I think mobile library should be more inclined to a kind of culture dissemination and providing services, for example, to update you with the recent library events, or the new exhibitions, or the service time, because I think it should not be targeted for an immersive learning atmosphere. Or the mobile library app can be used to take some notes or memos if you suddenly have an idea about learning, rather than using other notetaker apps, and you can search later.

R: So you prefer to see some functions, like notetaker in the mobile library, to take down some thoughts related to your study anytime, anywhere?

P: Yes, I think this is possible to achieve, but if I searched for a long article, it is unlikely for me to read in the mobile library, even that it can be made into a page-like interface like Kindle or WeChat Reading. I actually use them very often, but the interface is too small and not suitable for reading. The WeChat reading is mainly to listen the books, which is the machine

reading supported by artificial intelligence and sounds a bit wired. It is not like the Ximalaya FM, which is the reading by real person, and sounds natural.

R: Then what do you think the smart library should look like?

P: I think that the smart library should emphasize on powerful functions, including searching, human-computer interaction, and voice assistants, for example, to remind you that it's time to learn, kind of study alarm. Besides, it is designed based on your learning habits and the library will notify you that it's the time in a day that you should start learning.

R: What kind of library system do you want in the future?

P: The library system...First of all, I think there should be different focused on different devices and they can operate together in some way. As for the environment of the library, I think it is necessary to provide a comfortable, quiet and safe learning environment with a strong learning atmosphere. At the same time, I don't know much about whether our school library holds some activities such as reading days? Because in Shanghai Lujiuzui library, they have very good reading groups. Although the library is small, it seems to be a well-known library, especially the reading club held on every Friday and Saturday. Many celebrities are invited to lead everyone to read; it is just like the 'Reader' TV program (a Chinese program that promote reading). I didn't participate the reading club last time, but I saw their posters, and a financial host of Oriental TV lead everyone there to read. In addition, the library is also very well designed. You don't need reader card to enter and everything is convenient. The facilities in the library, such as the sockets, water fountains, and toilets are quite good.

R: So, you think in the future, the library should let more users to participate in such events, and promote reading activities, right?

P: But I don't know if this is what the university library hopes, but I think it should be. Anyway, I never heard of any events from UCL library; but in my undergraduate library, there are many, including asking some researchers to do report or something like that. Right, and I think UCL library can have more desktops.

R: Ok, the interview is over now. Thanks a lot!

Participant 6

Chinese transcription

Interviewee 6--- MSc Digital Anthropology --- Communication University of China---Female

还是我画第一个 CUC 的超星图书馆，是在大四的时候，有一天进图书馆的时候，看到他的大屏幕上推荐超星图书馆，然后我就去下载 APP。因为当时在苹果上面是一个 APP，但是我当下载下来以后，它就是完全不 work。我猜可能是因为传媒大学可能第一次引入这个软件，可能还在整合和维修当中，所以就是在里面登录不了自己的账号，也查不了书，什么都做不了。但是当时我看到他的时候，我觉得是一个很神奇的东西，我其实到现在来讲都不是很清楚它到底是一个什么样的东西，但是当时他在大屏幕上推荐，给我的感觉好像是一个很方便的平台，所以我就下载了那个东西。第二个是我们 CUC 的搜索，你想在图书馆比如说你要检索一本书的话，上楼你就能看见有一排电脑在那里，电脑上面就只有一个 IE 浏览器，你点开 IE 浏览器你就可以检索图书馆的图书。检索的时候它非常的慢，就是你检索一本图书可能要大概将等到将近十秒到 20 秒之间，其实你要站在那里等很久找一本书，可能没有十秒，但内心感觉非常久，所以就很慢。但我来了 UCL 这边以后，就是你会发现你在任何一个...当然在 CUC 应该也是可以在自己的电脑上检索图书，但一般我都会去图书馆，因为如果在自己的电脑上就更慢。来这边 UCL 就会相对很快，它有自己的 explore 的搜索引擎，就很快。这里我写的关于 UCL 的，比如说你网上搜索一篇文献，explore 不仅仅是搜索图书馆的内容，它还会搜一些文章，很多 article，我今年开始就出现一个情况是我点第一本书，第一条检索的内容我点开，我是找不到它的资源的。一般不是会有 View online 或者是实体书在哪个图书馆的信息，但是我遇到的情况是第一本下面显示空就是没有信息，然后从我要重新搜索一遍，或者说我先看下一个，再翻过来看它才会重新出现，我觉得可能是一个小 bug。还有就是，比如说在我们的图书馆，我之前在 Science library 想借一本书，但他已经借出去了，你就要 request，等一段时间它会给你发邮件，然后你就去拿这本书，这本书就会被放在图书馆一楼的一个大书架上，一堆书都在放在那个地方，就很多乱七八糟的书，你要自己去找。我大概那天找那本书

找了可能有半个小时，非常难，因为它的分类非常不清晰，当时那个人也没有跟我说大概在哪个区域或者是他们是怎么样排序的。我自己在那里找了很久，它上面是会写日期，我忘记是可能是借出的日期，借书日期有不同，但是即使是那个日期，也不是按顺序排的，所以非常乱，怎么都找不到。

你当时问图书管理员帮你了吗？

没有，因为他就是一副很不想帮忙的样子，你懂吗？因为那个书架其实是离这个人（help desk）还蛮远的，他其实是看不到你有问题。一般你可能在其他地方你找不到什么东西，他可能看到，就会过来说我帮你一下什么的，但是他没有看到的话，我一般会有点不好意思去找，我问他图书的时候他也是不想答我的那种感觉，所以我就自己找好了。而且最主要的是那个时候我对那本书其实也没有很急需了，其实找不到我也无所谓，但是越找不到你就更想找，然后就是一直找，其实找到了之后翻了翻发现也就那样了。我们现在就开始采访，分成三个部分，第一个部分会让你从文化的角度来介绍一下，大概介绍一下你在中国的时候的学习情况，还有在这边的学习情况，大概就对比一下学习情况。第二个方面是你作为一个信息搜索者你的一些信息行为后第三个方面就是你作为一个图书馆的用户，你的用户体验。第一个问题就是你可以大概对比一下你的本科学习和硕士学习学习的从氛围上来说，学习氛围，还有学习环境来说，有什么样的不同吗？

图书馆这个角度吗？

你可以说图书馆也可以说大的学习的角度。

你知道以前在我们大一二三的时候有一个新闻评论人叫曹林，他评论我们学校就是传媒大学的风气是功利浮躁不读书。当时大家都非常生气，就觉得其实不是这样的，当然我也觉得作为母校肯定不能这样说，但是确实我在这个学校里边受到了一个影响，也可能是我自己的问题，但是我在大二的时候就变得比较浮躁，因为我其实是我是来自河北省，大学之前学习对我来说是件非常重要的事情，如果我一天不学习，我就觉得难受。但是到了大二的时候，我参加了一些新闻部还有一些其他的活动，人生目标开始有了转变，就觉得学习并不是唯一的事情，所以就变得对于学习这件事情，就是对于整个学习氛围，我会觉得我身边认识的人，大家在自己学习，不会倾向于互相讨论，我们互帮互助这种情况比较少，而且据我的经验来讲，比如大家一般互帮互助的都没什么好结果，是这样的一个情况。但是我一般学习，我非常喜欢在图书馆学习。包括现在也是，但是并不是所有人都是这样的，我有一个朋友就是他觉得他在图书馆就是读书的，但是不是学习的。我是在图书馆上自习，我就是只要在图书馆，我不会去自习室，我大学四年就只去过个位数次数的自习室。但基本上我可能去图书馆平均每周末去很多次，觉得图书馆是一个可以让我学习的地方。在 UCL 其实也是，但这边我可能更倾向于在我们学校这么多的图书馆里面选择一个，因为当时传媒大学只有一个图书馆，但是这边的图书馆就是有 18 个，当时我就觉得好神奇，我就想说每个图书馆我都要打卡一下。但是还没有全部去过，因为有一些不在这附近，但就是会有一种很酷的感觉。不同的话，我觉得我在这边的学习的话，这一年让我可能重新找到了自我的就是那种学习的氛围，我不能说现在我有多么的热爱学习，每天都要泡图书馆那种，但是现在是一个我要求自己回归正常的时间。加上这边学制短，你不会建立一个特别紧密的关系网，每天我就相对处在一种还是比较孤独的状态，每天做的事情就是不停地学习，因为也有很多需要学需要读的东西。我自己是一个非常不喜欢在宿舍里面学习的人，所以我就一定要去图书馆，哪怕是不同地方的图书馆。今年 student center 出现了以后，我觉得那里的座位很好。其实包括在传媒大学的时候也会非常喜欢某一层楼的一个座位。因为每个地方的座椅不一样，座椅的高低会非常影响我读书的情绪，所以我现在基本上都待在 student center，因为那里的座椅是可以调整到特别低和特别高，我是在最低和最高的状态都是最舒服的状态，但是并不是所有的图书馆都可以满足这个状态。

好，就上课的情况而言，你觉得你在中国的时候和在英国的时候有什么差别吗？

其实是差别非常大，但是首先要跟你说是我本科是学叫信息与计算科学，其实本质上是应用数学下面的一个专业，所以我们整个本科的时候都是在学习数学理论，就是单数。但是我现在学的是人类学，就是人类学和数学是两种截然不同的学科。其实我本质上觉得是没有太大的可比性的，因为我们当时上课的时候，老师是从来都不用 PPT 的，我们除了上马克思或者这种政治课或者大课公共课的时候会用 PPT 以外，剩下的时间全部都老师拿着粉笔在黑板上就这样写公式方程式这种不停的推导演算，因为数学就是，尤其是纯数学理论，它就是涉及到这样的一个过程。但是人类学完全不同的一个学科，其实我这一年经历非常痛苦的一个过程，因为我其实英文并不是很好，这个课程就是以 seminar 为主的，上课之前的话可能就是老师给你一个话题，还有一些 essential reading，你需要把这个话题读懂，你有了背景知识之后，每周的上课可能老师都不一样，但是 core course 是由不同的老师来带领我们讨论不同的话题，因为 digital anthropology 本身它还没有一个特别固定的知识体系和概念，还在讨论是非的一个阶段。所以对某些定义，在某些事情上面还没有完整的架构。每节课就是老师给话题，让每个人发表一下自己的观点，最后也没有得出什么结论。这就是我们的 core course，所以你需要你非常强的语言能力，上课你要敢于发表自己的意见，但是所有的人所有的观点都是可以接受可以被讨论的。但数学就是完全不同，因为其实本质上是完全不同的学科。

对，但是其实整体来说，你在本科的时候主要就是老师上课的时候教的这些东西，只要你把它吃透了，就 OK；但是像在这边的话，可能你额外要做很多的 reading，有自己的观点，并且上课还要表达出自己的观点？

我觉得你总结的，怎么讲，因为我有接触到一些，比如说学广电的，或者说学新媒体专业的，他们的教学模式跟我们完全不同。我本科我修了一个双学位，广播电视编导的双学位，有一系列课程会很和英国有一点点相似，有点相似的地方是他会给你很多的 reading 和让去读，另外我有一个朋友他读的是新媒体专业，他们就是每周有超级多的 reading，但我不知道他们上课的模式是怎么样，但是老师也会倾向于你有自己的观点，倾向于你上课可以和我进行反驳。但是我觉得我的感受不真实的原因最大是因为学科的不同，因为数学它没办法让你有自己的观点，数学就是一个是与非的概念，所以说有多大不同，我觉得如果能得出你刚刚说的那种结论的话，也最多可能是因为本身我们可能在小学初中高中阶段就是形成了这样的习惯，形成了上课听讲的习惯，所以就不喜欢去发表自己的意见，即使上课老师会非常 encourage 你去发表你的言论，可能你也不是很愿意去发表。就包括在这边我们上的一个课叫 design anthropology，这个课是跟 MVC 一起上的，就是 material visual culture，是另外一个人类学的一个专业，我们是一起上的，然后这个专业有非常多的中国学生，这门课里面有很多的中国人。这个课的就非常希望我们发表自己的意见，但是常常就会陷入一种很尴尬的局面，就没有人讲话。就是并不喜欢去说。你觉得从本科形成的一些学习习惯，然后现在到这边来学习习惯有发生什么变化吗？比方说你为了学习一般都会做些什么活动？然在这边来为了学习做的那些活动有发生什么变化吗？

以前为了学习，我不知道这个相不相关，我突然想到的一个事情，这跟我自己的个人经历有关，我大学的时候去台湾交换过一次，那个时候我知道了慕课，就是网上的学习课程。我的台湾一些朋友，会倾向于通过这个来了解知识，初期的那种储备知识，比如说你来这个学校之前，比如有些美国有些 MICRO MASTER 会在慕课的这种网站上面。你读了这个课程，你就是相当于是一个预备课程，你可以通过这个课程再去申请他们的学校，相当于一种认证了你有知识储备。包括我现在的专业也有一些前期的预备课程，或者不能叫预备课程，它其实就是为了让你了解 digital anthropology 到底在干什么，或者说 anthropology 在干什么，然后我们有一个这边有一个老师叫 Daniel Miller，她在一个网站上开设了课程，我自己是在前期还没有来这边的时候，就已经上了这个课，我们来了之后老师也说你们可以为了加深理解去听一下网上的这个课程。但是传媒大学本身还是更多的倾向于实体教学，线上教学很少，但是我想讲的就是在我大四大三的时候，传媒大学也开了一些公选课，叫网上视频的那种教学课程，但是没什么卵用，首先他的操作系统非常的不友好，如果你要下载这个视频也很难。并且它也不是固定时间发布课程，整个就是一个非常混乱的一个初期的还没有准备好的那种状态。

这个公开课是在什么平台上面吗？

我们不叫公共课，是我们的公选课，你可以选修的课程。但是那个系统就很难用，整个网络系统使用感很差，那个平台就是由清华哪个研究团队帮忙构建的，非常差，然后网络也常常就 down 机了。系统本身就很差。但我不知道是不是一定要校园网才能登陆，因为当时我没有选那个课，我只知道那个系统很差。

你刚刚说到你来之前看预备课，是在什么上面看的？

就是一个网站叫 learnX 还是什么，我可以回去给你找一下。我当时是怎么找到的呢，大概也是用过 UCL 或者 Digital anthropology 的官网上面找到的。

那就是你来英国之前，除了你看了这些课之外，你还做过什么准备吗？

我来这边先读了语言课，因为我的英文就是很差，我们这个专业，其实我看不懂，它的学位是 MSc，但是要求雅思 7.5，就很烦，那个时候就考不到 7.5，就来读了语言班。我当时也去找了一些师哥师姐去问，但我觉得我还蛮聪明，因为我们这个专业今年是第十年，在我们之前每一年大概一开始只招七八个人，八九个人，然后后来变成十几个人。现在我们这一届是 17 个人，反正其实就是人非常少，每一年可能也就只有一两个讲中文的，不能说是完全是中国大陆的，可能有一些都是台湾人你很难找到，所以我当时在网上我拿到专业 offer 的时候，我在搜索的时候，之前的师哥师姐我是完全是找不到，在国内的网站是完全找不到的。但我觉得我还蛮聪明的，我就从 Facebook 上面搜索封闭小组，然后加到了一个台湾人和一个杭州的女生，两个人都回复了我，我直接强行去跟人家聊，他们就告诉我一些关于他们学到了什么，还有课业是一个什么样状态。因为其实我们那个专业的网站其实还蛮烂的，就是可能 4、5 年前发布的信息，所以其实跟我们现在学的东西非常不一样。我当时看网站以为是很偏重 social media，我那个时候觉得他是一个还蛮实践的东西，来到这边以后我才发现它是一个非常理论的，而且课业量很大，reading 很多，也有一些实践，但是非常 anthropology 的东西，就是跟网站上的介绍差了很多。

也就是说你觉得你来之前学院提供给你的一些关于课程的信息，并不是很充足对吧？

对，相对学院给你的准备，你只能自己去找，实际上它没有给我任何的前期准备。讲到这里，我记得当时还拿到了华威的 offer，那时候我 take 了他们的 offer，但是我没有付钱，当我都已经来 UCL 它们还在不断的给我发邮件，里面就有一个邮件是关于前期准备的，他给了我一个类似于 reading list 的文件，说你可以看这个。但是 UCL 我们院没有给我们发，应该没有，我不能确定，但是我印象中好像是没有。当时我有跟师哥师姐去要 reading list，但当时因为是全英文，然后我就没有看。

好的，你来到英国这边之后，在你的学习生活当中，一般都会找哪些方面的信息？以学习为目的。

维基百科吧，因为有很多词汇对于我来说其实是非常不懂，包括翻译软件，google 是一个我使用率非常高的一个东西。包括可能会有一些写作类的东西，就是一些网站，因为我的写作很差，写 essay 的时候我可能用一些词汇网站，比如说牛津字典，曼彻斯特有一个关于 reference 的这种教你怎么写作的网站。Phrase book 吗？

我知道那个网站，但我没有用过，但就是类似这种，还有就是 library explore，其实我真的最主要的都是在 library 上面找，因为每个课上我们都会有一个 list，如果有一些补充的 video 需要读的话，老师会在下面一个 video 附一个名字或者是一个链接，但可能会是一个 YouTube 上面的，然后我们直接看。还有什么...我刚才在想，因为我们有一个 practical project，我做的课题是一个 walking，就是 walking 和 anthropology 之间的关系，walking 这件事怎样影响了人的生活，大概是这样的一个主题。当时老师给了一个 list，整个的 project 主题是 body in London，就是要和身体相关，人们在 walking 当中，身体上如何变化，或者是怎么影响情绪这种。我当时是找到了一个 group，walking group 走路完成他们会去 pub，其实很多这样的组织都有这种传统，在这个过程当中，很多人就给我推荐了很多新闻，比如说伦敦人的中年焦虑，他会有一些 news，还有一些书。我当时认识了一个记者，它就推荐给我了一本他觉得有用的书，我就把它记下来，回去也有看了一下。他们读的书涉猎的比较广泛，就会有不同的关于 walking 这方面不那么学术的资料，但其实能帮助你了解一些他们关心的事情。所以这也是一种，就是从和他们的交流中获得一些信息。再有的话，书店算吗？比如说最近我们在写 literature review，我想找找关于 love anthropology 的东西，所以就书店里面看了半小时，光看书的题目，就觉得哪个有趣有意思，就在 anthropology 那一栏里面，看哪一个有好像有类似的会打开看一下。刚刚一开始就画这个图的时候，你不是有提到你们学校图书馆的检索系统，其实它相当于就是一个检索书目的系统，对吧？

对，是对实体书的一个检索。

那个时候如果你要找网上的资源的话，你会去？

CNKI 知网，我们学校买了知网的系统。

你一般用图书馆检索系统，就是在图书馆的终端机上？

我有通过我的手机去搜过，但是也是很慢。那个时候就觉得，好像是一种仪式感，我比较希望可以直接去图书馆去搜，因为我马上搜完，找到了这本书，我就可以去借。但有的时候也会因为我当时学的是数学专业，其实不是很需要去接触很多文献，相对来讲我可能搜索的都是一些闲书，所以我可能就是到了那个地方搜索有没有感兴趣的，然后就去拿来看。不会像现在这种要搜索人类学一些相关文献，数学对于本科来讲，当时我们的阶段是一个还蛮固定的框架，就是这些东西在课堂上教的你会了就是会了，再找其它的书讲的都是是一样的。

好，你大概可以回忆一下，当时检索系统的界面是什么样的吗？可以打开看一下。

（操作中）而且你知道吗，有一段时间在图书馆上面，会有一些乱码，就像这个一样。有一段时间如果你用手机来检索的话，它有好好多乱码，包括所有的书都是乱码，所以你必须得去终端上面去找。它会有一些公告信息，但它的界面其实以前不是这样的，以前全是蓝色界面，我来搜个书啊，数学分析吧，比如，系统要登录呀。IP 不在范围内访问，好吧，如果你在 CUC 的网里面就可以搜了。它大概是这种颜色，进去以后是一个很丑的界面，右上角有一个小人，然后这儿有个问号，就是在检索，搜索框这里你输入东西搜索，下面就有一堆 list，到了最下面可能就是下一页，最下面会有清华帮助构建什么的。它也有高级检索，就是在你检索之前有这个选择。你刚一登录的时候不是这样，刚一登陆下面没有 list，可能搜索就是在中间，有一些比如高级检索、模糊检索什么的，有一些分栏。对于知网那些数据库它会放在数字资源那一栏，你点进去看就好。但是这个网站在图书馆的终端里面是没有的，图书馆的终端就是让你检索的。但是平常的使用的话，从自己的 laptop 上面或者学校的电脑里面，打中国传媒大学图书馆进来就是这个界面。

好的，中国的图书馆系统和 UCL 的系统相比，你可以大概评价一下他们吗？

我觉得 UCL 的系统可能就比较方便，他们两个虽然最大的不同可能就是这边就是全英的，国内都是中文的。然后优缺点...UCL 搜索比较快。你还有什么提示吗？其实我真的，我现在想不到...

你大概你刚刚有之前提到的就是 UI 可能中国的做的不是很好，你觉得英国这边的界面怎么样？

还可以，感觉蛮成熟的，比如知网的界面，其实也就没有很难看，我觉得传媒大学的只是因为还没有那么完善。

你也可以从结构来说，组织资源的方式是不一样的，一个是直接帮你列出来的，可能这个就是它上面有一些入口，但它最主要的就是检索框，你也可以通过入口进入各个数据库，但它不会把它放在主页上。

就这两种方式而言的话，你也可以评价一下？

理论上讲，对我来说其实没有太大差别，首先我要我声明一点，我在国内的时候并没有非常频繁地运用这种 database 的搜索系统，因为我当时学的科目来讲没有一个让我必须去不停的去接触知网的需求，我也是在我读双学位的时候我才接触到了知网，之前都不知道知网的存在，这其实还挺尴尬的。也是当在我写毕业论文的时候，我才会长时间去接触知网，因为我们以前也不需要写论文，相当于只学习打基础的东西，并不是非常需要知网的。这个东西，然后我自己来讲，我其实真的是只了解知网和我们学校的 library。其他的数据库我都不了解，甚至我都不知道他们使用在哪里的。但是在 UCL，好的一点是我在这边读了语言班，我们有一个专门的 library 的教学课程，有一个计算机入门课程，他会教你怎么运用 explore 这个系统来搜索你想要的文献。所以我在这边就立马上手了。后来也因为需要长期使用这个东西，使用频率就非常高。可能对于其他人来讲，知网是大家都知道的，是很必要的东西，但是对于我来说，我大二的时候大概知道这个东西，大一的时候完全不知道知网是什么。甚至还被人嘲笑说你怎么不知道知网，但是我那个时候完全不需要去找文献。可能就是我不了解国内，所以无法做对比。但

是我觉得英国图书馆系统的好处就是因为它有不同的 database，就是每一个学科可能都有很多 database，我们这个学科可能大概常用的有那么七八个，你搜到文献的时候...对了，我刚刚想到，我们这个学科有时候也需要找一些 journalist，就是自己手动翻，因为它不能检索。Anyway，就是不太好比较。

你在国内为了这个课程，你需要用到的资料类型是什么？

一般就是教材。讲真我不会找其他资料。我是在做毕业设计的时候，因为我当时做的那个课题就是需要你知不知道现在这个东西得到了怎样的运用，你要了解一下背景知识才能写 literature review。当时我的导师跟我说，你不仅要在知网上面搜，同时你要去国际上搜那些英文的文献。因为我们有墙，所以当时他给我推荐让我用 BING，是可以搜国际版的一些文献。所以就是通过知网和 Bing 两个资源库的结合，然后找到了一些文献。平时上课教材就已经很难理解了，可能我们有的时候实在是不能理解，不知道他在说什么的时候，可能会去会去图书馆找另外一本书，但讲的是同样的内容，可能不同人表达的方式不同难易程度就不一样。

你们会有什么练习册之类的吗？

有题册。其实传媒大学的数学不是一个很好的专业，不是一个非常 popular 的专业，所以我们要求的练习册很少。因为我没有考过研，可能考研会多一点。但是真正课程的话，像我们当时学数学分析的时候，我们的教材有一个配套的练习册，就是和书的界面是一模一样，就是薄一点，大概有三四个科目都是这样，自己的书就有配套的练习册。包括每个章节会有一些题。

那个时候会去借学长学姐的笔记之类的吗？

我不会借，因为经验来讲，我其实借了也不会看。因为我倾向于直接在这个书里面理解，因为其实这个书就已经足够你去理解这个东西了，如果说老师出的题不会的话，你可以问老师，你也可以看答案，一般我是不会去借笔记的。

我们现在开始第二部分，就是你在这边英国的话，一般你的学习活动都有哪些？

读书，library，做田野调查。就是我刚说的那个 walking project，就是一个田野调查。我们现在正在写毕业论文，也有田野调查，我也正在找人找参与者。Reading，essay，还有一些 project。我们有一门课叫 design anthropology，我们会跟一些客户对接，但其实基本上做的还是田野调查。但是是跟一些公司合作，他们给一些提出一些想要的课题，然后我们就根据他们的需求，然后就去做一些课题，比如我们之前做的 what makes good atmosphere between customer and staff.就是这种东西。还有就是课上的 seminar，然后我们有一个考试。

你整个学习的过程当中，这么多学习活动里面，你一般学习的地点都有哪些，在这些情景下你都会做什么，都会搜集什么样的信息？

reading 基本上就是在 library，student center，这其实也是我在今年大部分时间都在做的事情。我有一段时间，一开始还很蛮喜欢在家里边 reading 的。可能时间就是长了以后，比较忙的时候，没有什么时间收拾，就不想在家里面，term one 我有三个 essay，整个假期我就是从天黑写到天亮，所以我时间就整个人压力都非常大，那段时间有一点精神崩溃，然后我那时候也不出去，每天就在家里面。我就觉得这样不行，效率也很差很低，从那以后基本上都是在 library。上课的话基本就是在 anthropology 那个楼。讲到田野调查的话，其实就是一个迷你的调查，规模小，时间很短，我们有两个 project，第一个是自己做的，我当时我去找了我们的学院我能想到的每个 tutor，我都去跟他们聊了一遍，他们会给我提一些意见，其中我的 main tutor 给我推荐了 walking group，因为人类学它倾向于你要去找一个 group 的人，不能找单个的人去调查，我就找了 group，加入了他们，不停地和他们 walking，每一次都有一些新的信息，每天晚上回来之后，我会趁着记忆力还新鲜的时候把它都记录下来，最后整理这些信息，把它做成一个网站。另外一个 design anthropology 这个课的话，我们是小组活动，我们在 science library 四楼，有 discussion room，我们就讨论之后分成不同部分让每个人做一部分，最后我就总结，然后做 power point，然后 present 就这样。还有 exam。

你在学习生活当中会用到的设备都有哪些？

Laptop, iPad, kindle, air Pod 耳机。

你大概可以讲一下，你用这些不同的设备都是在一个什么样的情境下，然后一般在上面都会做哪些学习活动？

laptop 用最久最多的，上课记笔记，做作业，查单词，找文献，写 essay, 上网加入 group，然后联系 participant。当然联系别人可能就会用 iPhone 多一点。iPad 其实最主要的是用来画图。我们有一个要做 presentation 和一个网站，中间会用到它设计网页什么的。我语言班的时候其实用比较用 iPad 多一点，因为那个时候喜欢用笔记笔记，就不停的用 Apple pencil 记笔记，这样。后来因为我觉得手写没有打字快，所以用 laptop 去比记笔记的多一点。手机的话联系人，查文献资料，查上课时间地点，然后收邮件。

你刚提到你在 iPad 上面会画图吗？你一般用什么软件去画图，你还能记得吗？

PS。就是偶尔。还有用 one note。kindle 上面主要是读书，但我后期就不太喜欢用 kindle 了，因为如果你是用 pdf 的话，你是不能谈调整大小的，它字其实是看起来很难受的。Laptop 基本上每天出门都会带，上课也拿来记笔记。手机上面收邮件的话是用 Outlook 和 Gmail。查时间的话，有一个 Moodle 软件，但其实使用频率不高，我大多数的时候会问同学，用微信或者是 WhatsApp 会用问同学这种。

你有在手机上面查过学习相关的资料什么？

google 上面可以用 explore，偶尔会用一下，偶尔也会用它来读书，就是读 pdf，试过几次，但都不多，可能就是非常紧急的时候会用一下。手机也会看视频。反正 laptop 是最多的。

你不是经常喜欢去图书馆学习，一般会有我们学校图书馆的 desktop 吗？

不会。

也就是说差不多都带着自己的电脑，并且就光在电脑上面学习，然后图书馆的话可能更多的就是给你提供学习空间？

对。我的那个 desktop 上面就只有一个文档，我也没有怎么用，因为对我来说会有一个限制，我在读 reading 的时候我也用 laptop 是因为它可以让我快速的查单词。你知道 MacBook 上面它是如果是 pdf 的话，你点这个单词就可以出来意思的，所以非常方便也很简单，并且很权威，它那个词典是牛津词典的翻译。所以 desktop 你还要自己手动输入查单词，所以就很少用 desktop。而且它其实是没有中文的系统的，你得自己去装，我又是一个很懒的人。所以我就不要再去自己配置，因为我的 laptop 已经非常友好了，而且非常懂得我需要什么样的东西，我已经把所有该装的东西都已经装到了电脑上面，我没有必要花时间再去组装一个 desktop。

好。另外关于你用图书馆系统的一个习惯问题，你一般再用图书馆的系统的时候，是会一直把它打开放在那里，还是有需要才打开？

只有想要查东西的时候才打开。但比如说我查到这个资料，查到这些书目，但是我现在来不及看，我就不会关掉它，我就会一直留着它，所以搜索出来的界面我会打开，我的 google 就是一个个很多窗口。

好的，我们学校图书馆是分两个页面的，一个是主页这边有很多图书馆的服务，还有一个就是 explore 检索系统，你在服务页面上面一般会用到什么样的功能？

就是 explore，我会看图书馆的开放时间，但是你查一次你就知道了，所以其实可能使用就是个位数。所以最长时间你还是用 explore，而且我不会单独去把 explore 打开。我只要在我的谷歌搜索框里打一个 U，它就会出来 UCL library，然后我按回车，就会出来 library 的界面，然后我再拉到 explore 搜索框直接就可以搜索了。就是两次点击就可以了。偶尔也会在里面找一下 database，book room 的话，我做过两次。

Explore 的界面呢？

上面的我都不会用，也不用高级检索，但我会用 filter。一般就是看 article，book 或者是时间。关键词可能，反正这些就是常用的。

你在用 explore 这个系统的时候，有遇到过什么样的困难吗？或者有没有哪些时刻是你想找某个东西找不到的时候？

就是这个刚刚我说的，搜索出来第一个结果不出来。就是不管搜什么，第一个结果都是这样的。就是今年反正一开始的时候是没有这种情况的，至少第一学期是肯定没有的，从第二学期开始有的，而且还很频繁。就是第一个不出来，但你只要点一下第二个，然后再点回第一个就出来了。你重新刷新一下，或者你重新搜索一下就会出来，就很奇怪。

除了这个 bug 之外，还有没有什么时候是你找不到想要的资源的时候？

有吧，也有很多，其实你搜的多了，你也会发现很多资源，我们这个网站其实是搜不到的，有些书的 PDF 是没有的，我可能会去 google 学术上面再去搜索一下，偶尔也能搜得到，但有的时候就可能搜不到。

你觉得这个原因是因为那些书就太老了，可能我们学校没有收入吗？

说不好，可能是...我也有想过这个问题，但我没有一个什么结论。因为其实我搜不到的书就没有一个特点，有一些书确实是年代其实也不算久远，因为我找的有一些书，就是 200 几年的书，也没有收入，我也不知道是因为什么，其实感觉对我们学科来讲还蛮重要的。还有一些书是在有一个网站叫 E 什么 (Dawsonera)...就是我们有一本核心书叫 digital anthropology，这本书如果你在检索系统上搜的话，搜出来的这个东西，它是不能直接下载 PDF 的。但是有一个网站你可以下载，但是它是有一天的阅读期限的，读完三天他就会帮你自动删除，所以你可以 download 但是你要用特定的软件去读。但是我从来都没有让他 work 过，那个时候我还想着要图书馆的馆员帮我操作一下，但我也没有去。那本书在谷歌里搜索也是不能下载 pdf 的。但幸好我有买这本书的，我买了中文版和英文版。就是会出现这种情况。我可以帮你看下那个网站叫什么，叫 Dawsonera...其实我之前也有搜过 article，就是遇到过 UCL 搜不到，或者是搜到了没有链接，或者有链接但是 UCL 没有买版权下载不了。也有这种情况出现，但其实蛮少的。

这样情况的话，怎么办？

就去谷歌学术呀。谷歌的话一半一半吧，碰运气，也有多数的情况是搜不到的，对。但就是采取各种可能的办法，我偶尔比如这个也搜不到，我还会去搜一些比如说 Senate house 有一个 Royal Anthropology Institution，他们有几个 anthropology 的 database，你可以去里面搜，但这个就真的是偶尔能碰得到。我最近在做 literature review，有一本书非常新，叫 love ink，ta 其实还没有出版。因为他的理论是我还蛮想要用的一个理论，我就想说我需要这本书。那个作者之前也来我们学校来宣传，后来在 UCL 我就搜不到，我就在 British library 就搜到了，还可以 request，但我还没有拿到那本书，我当时是因为一点事情就还没有拿，但是可以去 request 的，可以在那里读的。

还有一个问题就是你在 explore 上面也会倾向于用数字资源，还是倾向于用实体书？

我整个这一年其实是有一些变化的，我一开始的时候是非常倾向于用实体书的，但后来你如果用实体书，就会面临一个 bug，不会的单词你就必须得手动的去找。如果是 pdf 的话，好一点的资源，就是可以在我的电脑上面就直接按一下那个单词的翻译就可以出来，所以后来就是会倾向于用数字的资源。但是我其实本质上我大多数时间我会把文章打印出来，然后这种对照的去看，就是既在电脑上打开电子版，又看着纸质版的。

也就是说其实你更倾向于纸质版，只是因为电子版的很方便你去查阅单词？

对，但是最近最新的想法，是因为觉得实在是太浪费纸了，所以我都会倾向于不打印了。因为我不喜欢用电子的原因，是因为我觉得看起来非常费眼就不舒服，如果你想做个什么笔记，可能也没有那么方便，不会像手写的感觉那么好。而且我觉得环保对我来说是一件大事，所以我就倾向于不打出来这些书。

好的，第三部分就是刚开始你有提到你之前用过超星的 APP，但可能是刚刚开始阶段，所以什么都用不了，除了这个之外，你还有用过什么图书馆 APP 吗？

你有什么例子吗？其实我一下子还想不到。

你们本科学校的图书馆有专门的 APP 吗？

没有。

那你有用 UCLGO 吗？

有的。不过首先 UCLGO 我现在用的不是很频繁，但是就是学校的每个软件我都很喜欢，我就下载下来，就这样。UCLGO 上面我可能用的比较多的是...（看 UCLGO）其实这个界面我没有很喜欢，感觉是一种 low low 的界面。它其实很扁平化，其实不能说他很不好。我可能会用 news feed，这里有一些 JOB SHOP，这个我用的还挺多的，因为涉及到自己找工作的原因。其他的用得比较少，甚至都没有登陆，timetable 没看过，一般都是在网页上的 Moodle 上面去看。

那 UCLGO 里的 Moodle 你有用吗？

没有，很少。其他关于图书馆的几个功能也没有用过，真的没有用过。Moodle 的 app 我有，一般就是下载一些重要的信息。可能就是前几天我会在这个上面查成绩，然后我之前有用它下载一些 reading，我们有一些课的 reading 会直接放在这个科目里面，你可以下载的，我会直接在上面看。但是你说这个软件用的多频繁，也没有。我最常用的就是 laptop，直接在网站里面搜索 Moodle。

那你怎么评价 UCLGO 呢？

可以用但是不怎么用。功能很多，看起来很实用，我只能说，因为我真的没有用过。

你有通过手机的浏览器登录过 explore 吗？

有，这个还蛮...没有蛮经常，但我有过。就是搜谋一本书，有时候在听 lecture 的时候，身边没有 laptop，或者电脑没电了，我就拿手机看一下，当时的想法就是我需要这本书接下来要去图书馆借。或者是我就在图书馆里面，但是电脑在书包里，但我不想把包拿出来，我就会用手机来搜。我觉得其实通过浏览器的那个 explore 还蛮好用的，就是我好像没有遇到过太多的 bug。我觉得也很快，也和电脑版的逻辑相似，你就不会遇到找不到不适应的情况。

你大概评价一下我们学校 explore 的系统，会怎么评价？

我觉得比 CUC 的好，我觉得还蛮好用的，我自己用 explore 是非常频繁的。找不到书的情况当然也有，但是我觉得大多数时候可以找到，高于 50% 的情况下都能找得到，所以其实还是一个对我来说很很友好，因为搜索也很快。就是偶尔的 down，偶尔的问小问题，你要我给他打个分的话，我可能十分打八分。

那就是你有什么建议吗？

先把这个问题解决一下，就是 bug 修复一下。如果可以的话，我觉得这可能是我自己语言的问题，就是一开始的时候我其实不懂怎么看，不知道该怎么找书，那个时候很迷茫，因为虽然说了这个书在哪个 library，但是每个 library 标的也不一样，不是每个书号都很清楚，有些时候很难找到。我之前在那个叫法律学院后边的学院，巴特莱学院，在那个地方找，它检索系统上面写的我就不知道是啥，我在那边找了很久，后来我就去找 reception，然后他们帮我找到的书。那你觉得是和图书馆的 instruction 相关吗？但是我觉得图书馆的 instruction 做的也还可以了。

那你觉得这和文化有关系吗？

一开始肯定会有，我觉得巴特莱那个肯定是和文化是有关的。可能是逻辑上，那串数字的含义。我在 library 找半天也没有找到，这可能跟 library 的设计也有关。因为每个图书馆设计的检索系统都有很大差异，让我觉得有些很难找。

然后我们刚开始提到移动图书馆，其实还有一个比它更大的一个词，就是智慧图书馆，你作为一个普通用户来说，你对这两个词有什么样的理解？

首先我完全没有听说过这两个词，没有任何认识在这之前。单纯分析这两个词的话，我觉得移动图书馆和智慧图书馆就是有交集有不同。Smart library 感觉像 smart phone 那样。Mobile library 就是 mobile 为主，但是 mobile 的东西在 smart 之前就出现了...感觉对我来说 mobile 概念更大一点...

我大概先解释一下这两个词，一般移动图书馆基于移动设备设计的图书馆系统，但是智慧图书馆，讲的是更大的，就是如何让图书馆更智能，因为 smart 其实是形容人的，拿它来形容图书馆的系统，就希望可能图书馆有人的逻辑在，你觉得他们俩他们这两个词对于图书馆的设计应该有什么样的差别？

当真这我可以跳过这个问题吗，因为我真的不知道该怎么回答你这个问题。

好，下一个问题就是你觉得图书馆应该怎么样利用一些设备，让他的服务够更加的友好？

Ummm.....

我可以给你一些提示，但是我不想影响你的思路。。。

我完全没有思路可以大概给一些提示....

因为现在我们有很多设备，有很多科技，可能很多人希望图书馆系统是一个很个性化的地方。比方说图书馆知道我的喜好，然后他会定期给我推荐，就是变成一个人助手一样的一个东西，或者有些同学可能希望图书馆不要再拘泥于实体，可以变成用 VR 和它结合，可以我在家就完全感受到图书馆的氛围，有些同学可能会这样想。有些同学可能觉得图书馆可以和社交结合起来，我可以看到别的同学或同专业的同学或不同专业的同学，他们喜欢什么样的书，可以看到别人对这本书的评论可以对书打分，就是有不一样的想法，你都可以思考。

讲到这个，其实在你说之前，其实我大脑里面有在想一个 AI 和 VR 的事情，但其实我没有说，因为我不知道该怎么表达这个事情，因为 VR 这个东西是一个很热门的 topic，可能所有事情都想要跟他有点关系，就我自己来讲 library 对我来说，是一个让我安静的地方。所以我不希望他变得完全 visual，我希望她永远都有一个 physical 的地方，它对我来说不仅仅是查东西，借书，而更多的是一个自习的地方，学习的地方，然后读书的地方，安静的地方，所以我更希望图书馆保持这个状态会让我觉得更加舒适，没有人打扰我，每个人都可能是遵守这样的秩序。而且比如说我的打字会声音很大，会发出噪声，我也希望图书馆里的人不要这样，我也希望我自己可以尽量减少这样。我对整个 library 的概念来讲不只是一个 search 的东西，当然 database 在我做 literature review 的时候我需要去用，但这只是我现在这个阶段做为学生这个阶段必须的任务，所以我一定会去利用 explore 这个东西，然后去查这些资料。但当我们走向社会了，对我的工作来讲，我可能并不需要查那么多的资料，那个时候我的需求和现在就更不一样，但是有一个不变的需求，就是我需要在这个安静的地方做一些 reading。我觉得线上的这些东西我还蛮喜欢的，就是 explore 这个引擎我都很喜欢，包括他跟 database 结合，可以让我了解到非常新的这些知识系统，我都很自然的接受了这些东西。但是我觉得我不能接受完全 virtual 的，就是没有 physical，我觉得需要有实体的存在。对我自己来讲可能就是这些了。

最后一个问题，你觉得图书馆有没有必要或者说如果他设计一个图书馆的 APP 专门用在手机上或者其他移动设备上面，你对他有什么期望吗？或者你觉得如果有这么一个东西，你会在什么情境下去使用？

我觉得需要有书目推荐，如果让我单纯想 mobile library 的这个东西的话，我目前为止对它的诉求就是能找到我需要的书，可能如果在这个界面上面能让我非常简洁的快捷的方便的来搜索我想要的书，对我来说可能就是最大的需求。书目推荐如果能做到让我能够迅速的找到和我想要的 topic 相关的书的话，也是一个需求。我希望的主要功能是推荐和检索。我其实对于这种软件没有什么群组的欲望和需求，但是我觉得，小红书你知道嘛，它可以做一些类似像这样的功能，可能有一些其他人的推荐，对这本书的 reflection，或者说觉得某一本书怎么样，然后我可能通过这些简单的言论，能够快速了解这本书在讲什么，会看一下别人的介绍和评价什么的。

好的。谢谢。

English translated transcription

Interviewee 6--- MSc Digital Anthropology --- Communication University of China (CUC)---Female

R: First of all, can you explain the picture you just drew?

P: First, I drew the CUC Chaoxing Digital Library. When I was in the senior year, I entered the library one day and saw this library app launch notification on the library screen, then I went to download the app. But it was not working at all. I guess it may be because our university introduced this software for the first time, and it's still in the test stage. I can't log into my account and can't search for books, nothing can be done. But when I saw the launch of it, I thought it was a very magical thing. I didn't really know what it should be like, but from its advertisement, I feel that seems like a very convenient platform, so I downloaded it. The second one I drew is our CUC library search. If we want to retrieve a book in the library, we went to the library and there was a row of terminal machines. On that, we can retrieve the library's books in the IE browser. It was very slow when searching, that is, you may have to wait for nearly ten seconds to 20 seconds to retrieve a book. In fact, you have to stand there and wait for a long time to find a book. Of course, in CUC, you can also search for books on your own computer, but generally I would go to the library because it's slower to operate the system on our own computer.

But after I came to UCL, I can search quickly on the Explore system. Here I wrote problem with the Explore. For example, when you search, it finds not only the books in the library,

there are articles and other resources. This year, there is a problem with using the system, when I clicked into the first result, I can't find the link page to it.

Generally, there is 'view online' or the location information of the physical books, but the situation I encountered is that the first result in the list has no information. But if I search again or I look at the other results in the list, the information appeared when I go back. I think it might be a bug.

Besides, in our library, I used to borrow a book in the Science library, but it's unavailable and I requested. It sent me an email when the book arrived in the library and I went to the library to pick up. All the books in request were put in a large shelf on the ground floor of the library. A bunch of books were placed in that place, very messy. You have to find it by yourself. I probably spent half or one hour that day to find the book, which was very difficult, because its classification was very unclear. At that time, the staff did not tell me which area I should look for or how they were sorted. They wrote a date on the book, which might be the date of the loan, but I feel the date was not in order, so it was very messy. Can't find it.

R: Did you ask the librarian to help you?

P: No, because he was putting a very unwilling face to help, do you understand? Because the bookshelf was far from the help desk, he can't see you if have problems. Generally, if I can't find something or encounter problems, and as long as they see it, they might help you. I just feel a little embarrassed to ask for help if he can't see my problem. And most of all, at that time, I didn't really need that book. In fact, it doesn't matter if I can't find it.

R: Ok, now let's start the interview. The first part will ask questions based on culture and your experience as an international student. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment, is there any difference between these two countries?

P: Do you mean in library?

R: You can say about the library or the broad learning environment.

P: You know that there was a commentator called Cao Lin when we were in the undergraduate. He commented that our university is 'utilitarian, blundering and not reading' (功利浮躁不读书). At that time, everyone was very angry. However, the undergraduate did have a strong influence on myself or it might be my own problem that I became impatient on learning when I was in my second year. When I was in high school in Hebei Province, learning was very important to me. If I didn't study for a day, I felt uncomfortable. That's true. But in the university, I participated in some groups and other events and I felt that my life goals began to change. I felt that learning is not the only thing. The people around me were studying on their own, and would not tend to discuss with each other. In general, when I study, I prefer to study in the library; now it's still the case, that I go to library to study. But not everyone likes it. Like one of my friends, he just thinks the library is the place to read books, not work. For me, I prefer to work and study in the library and that's the only place. I rarely go to study rooms. In my undergraduate in four year, I have only been to study room several times. But for the library, I went there many times a week and I feel that the library is a place where I can learn.

In UCL, I also study in the library, but I am inclined to choose one of the many libraries in our school. There was only one library at the CUC, but there were 18 libraries here, which is amazing. I haven't been to each of them, but I just feel cool. In terms of the difference, I feel that this one year studying here makes me find the learning atmosphere. I can't say how much I love learning now. But now I return to normal. Besides, it's only one-year program, which is very short. It's not easy to build up close relationships with others. I am relatively in a state of being lonely, so I keep learning, because there are also many things that need to be learned. I am a person who really don't like to study in the dormitory, so I have to go to the library. After the student center opened this year, I think the seats there are very comfortable. In fact, when I was in CUC, I would also like to study in a certain seat on a certain floor. The seat does have an influence on my mood of learning and reading. So now I basically stay in student center, because the seat can be adjusted to extremely low and extremely high, which were the two comfortable position for me, but not all libraries can satisfy this situation.

R: In terms of the course, what's the difference between China and UK?

P: In fact, there is a big difference, but the first thing to tell you is that my undergraduate course is called 'information and computational science', which is a major in the field of applied mathematics. We have been studying mathematics theory throughout the

undergraduate course. But what I am studying now is anthropology. Anthropology and mathematics are two distinct disciplines. In fact, I think from nature, there is nothing to compare.

For the lecture in undergraduate, our teachers never use PPT and they write everything on blackboard by chalk and wrote the formula equation. This is because the nature of mathematics, which is pure calculating and a process involving such activities. But anthropology is a completely different subject. In fact, I experienced a very painful process this year, because I am actually not very good at English. This course is mainly based on seminars. Before the class, the teacher may give you a topic. There are also some essential readings for us to have background knowledge. The core course is led by different teachers to discuss different topics, because digital anthropology does not have a particularly fixed body of knowledge and concepts, and it is still at the stage of discussing rights and wrongs. For some definitions, there is no unified explanation on them. On each lesson, a teacher gives us a topic, letting everyone express opinions, but there's no conclusions. So it requires very good language skills. You have to dare to express your opinions in class, but all the opinions can be accepted and discussed. But mathematics is completely different from its nature.

R: So overall, when you were in the undergraduate course, the course content is mainly taught by teacher and you need to thoroughly understand what he taught; but here, you may have to do a lot of reading to have your own point of view, and express yourself in class?

P: I think what you summed up...how to say...actually I have friends who studies the major of radio and television communication, or new media studies, and their teaching mode is completely different from ours. I also had a second bachelor degree in radio and television communication, and the course structure is similar to that in UCL, where they give us a lot of reading. The other friend of mine who learned new media studies, they also need to do a lot of reading each week and their teacher encourage them to express themselves and have discussions in class. Anyway, I think the reason why my feelings are different is because the discipline is different.

Mathematics studies has no way to let you have your own point of view. It's a concept of right and wrong. I think what you summed can be explained that maybe because from our primary school, middle school and high school, we've been training in the certain way and we formed this kind of habit that we listen to the teacher during class and tend not to express our opinions. Even the teacher may encourage us, we still feel uncomfortable to do so. Just like a course I had in UCL, named design anthropology and this class is held with MVC students, which is material visual culture, another anthropology profession. This is a large course, and there are a lot Chinese students in this class. The lecturer is very eager to hear our voice, but often it falls into a very embarrassing situation, where no one speaks. I think it's just our habits, we don't like to express in class.

R: Ok, do you think your learning habits have changed from China to the UK?

P: I used to learn...I suddenly thought of a thing that was related to my own personal experience. I went to Taiwan to exchange when I was in undergraduate. At that time, I knew the existence of MOOC, that is, online learning course. Some of my friends in Taiwan tend to use this to understand the pre-knowledge, for example, before you go to the university, there are some of the micro master course for US universities on that platform. Once you complete the course, you are equivalent to have a preparatory basis for the course and can apply for their university. My current major also has some preparatory courses, which is actually to let you know what digital anthropology is doing, or what anthropology is doing. We have a teacher here called Daniel Miller. She opened a course on a website. I took this class before came here. After we came, the teacher also suggested us to listen to that online course for the sake of deepening our understanding. However, CUC is more inclined to face-to-face education, and there is very little online teaching. But what I want to say is that when I was a junior student, CUC also opened some public elective online courses called 'online video teaching'. However, it's not very useful. First of all, the operating system is very unfriendly, if you want to download a video, it was very difficult. And it's not a fixed-time release course. Anyway, it's just very confusing and was in the initial unprepared state.

R: What platform was this 'online video teaching' on?

P: They are called elective courses, that you can choose to take according to your interest. But that system was very difficult to use, the entire network system was very poor, and that platform was helped by Tsinghua research team. The network was often down. But I don't

know if I have to use the campus network to log in, because I didn't choose that class at the time, I only know that the system was very poor.

R: You just said that before you came to UK, you watched the online course of digital anthropology, where did you watch it?

P: Is a website called learnX or something, I can go back and find it for you. How did I find it at the time...probably also found on the official website of UCL or Digital Anthropology.

R: Ok, have you prepared anything for the study in UK when you were in China?

P: I came here to have the language course first, because my English is very poor. In fact, I don't understand that this major, which has the degree of MSc, but requires the IELTS 7.5. At that time, I didn't get this score, so I came to the language course. As for the preparation, actually I feel I'm smart. I went to ask some senior students, but this major has been opening for ten years and each year, there were only seven or eight students in total. This year we have 17, but still there were less people to find, not to say that in between them, there probably only one or two students who speaks Chinese. And not all of them come from the mainland China. There may be some people in Taiwan who are hard to find. So, when I got the offer, I searched online in all the ways I can think up, but I can't find anyone who took this major before. Therefore, I searched the closed groups from Facebook and added a Taiwanese and a Hangzhou girl who took this course before. Both of them replied to me. I forced myself to talk to them and they told me about what they learned, and what kind course and coursework for this major. Because in fact, our department website is quite useless, and the information on it may be released 4 or 5 years ago, so it is very different from what we are learning now. I was looking at the website at that time and thought the major is related to social media and should be a very practical course. When I came here, I found it to be a very theoretical course, and I had a lot of readings, and only some practice, but focused completely on anthropology. This is far from the introduction on the website.

R: Do you think that before you came, UCL or your department has provided you with enough information for learning?

P: Compared to the preparation given by UCL or our major, we can only find by ourselves. In fact, it did not give me any preliminary preparation. Speaking of this, I remember that I also got Warwick's offer. At that time, I took their offer, but I didn't pay. When I came to UCL, they were still sending me emails. There was a mail which was about pre-preparation and there was a reading list, saying that you can read these before the course. I'm not sure if UCL ever send us such thing, but I don't seem to have it. At that time, I asked about the reading list from the senior students and they gave it to me, but at that time it's all in English, so I didn't read it.

R: What kind of information do you generally search in undergraduate study to meet your learning needs? Then, how you find it?

P: Wikipedia, because there are a lot of words that I don't understand; also translation software, Google is an essential tool for me and has a very high usage rate. Besides, there are some writing course and websites, because my writing is very poor, I may use some vocabulary websites when writing the essay, such as Oxford Dictionary and Manchester has a reference book website about how to write.

R: Do you mean Manchester Phrase book?

P: I know that website, but I have not used it, but what I said is similar to that. I also use our library Explore; in fact, I find most information in the library system. For each course, we have a list of everything we need to read and see. If there is any supplementary video that we need to watch, there is a name or a link on it, which may be a YouTube one or we can look directly. What else... I just thought, because we have a practical project, the topic I am working on is about walking, the relationship between walking and anthropology, including how walking affects people's lives. At that time, the teacher gave us a list. The whole project theme is 'body in London', which is related to the body and how people change during the walk, and how they affect the emotions. I found a walking group at the time. The walking group walked and they went to the pub after walking each time. In fact, many such organizations have this tradition. In the process, many people have recommended a lot of information and news to me, such as the topic of 'anxiety of middle-aged people in London'. They also showed me some news, and some books. I met a reporter at the time and he recommended me a book that he found useful. I wrote it down and went back to see it. The books they read cover a wide range of topics, and there is different information about

walking in this area, but it can actually help you understand some of the things they care about. So this is also a kind of information I obtained, which is from the communication with them. Anymore, is the bookstore count? For example, we are writing a literature review recently. I want to find something about love anthropology, so I went to the bookstore and watched the shelf of anthropology for half an hour. I just read the book titles and see which one is interesting and relevant. If there is a book that seems to have something similar, I will open and look at it.

R: When you drew this picture, you mentioned the retrieval system of your school library. In fact, it is equivalent to a system for searching physical books, right?

P: Yes, it is.

R: At that time, if you want to search for resources on the Internet, where do you go?

P: CNKI. Our university purchased their database.

R: You generally use the library retrieval system on the terminal machines in the library?

P: I have searched through my mobile phone, but it was also very slow. At that time, I felt that it was a sense of ritual. I hope that I can go directly to the library to search, because after search I can find the book immediately and then borrow it. But sometimes, because I was studying mathematics, I didn't really need to search for related literature. Relatively speaking, I might search for some books that is not related to study, so I might just go there and search for books that are of my own interest. Not like what I do here, that I often search for relevant literature on anthropology. Mathematics for undergraduates at that time, was a fairly fixed framework. As long as you understand what's been taught on class, you know everything you need. The other books are talking about the same thing.

R: Ok, can you recall what the interface of library system in your undergraduate was like?

P: (In operation) And do you know, there was a time whenever I open the library system, there were some messy code, just like this (pointing). For a while, if you use your mobile phone to search, messy code appears and you have to go to the terminal machine to find it. On the homepage, it has some announcement, but the interface I used was not like this. It used to be a blue interface. And you see, if I want to search for a book, the system requires you to log in first and it identifies that your IP is not on campus. We need to search in the campus network area. After entering it, it is a very ugly interface. There is a child character in the upper right corner. Then there is a question mark here. In the middle is the search box, and you search for keywords. Below is the result list. There's also an advanced search function. There are some things like a fuzzy search, and some categories for the databases, like CNKI, which is placed in the column of digital resources, you can go in and see it. However, the search interface is a bit different on the terminal machine.

R: Compare the library system of your undergraduate and the UCL Explore, what do you prefer about them and what do you think that can be improved?

P: I think Explore system may be more convenient. Although the biggest difference between the two of them is the language difference, the advantages and disadvantages... Explore is faster. Do you have any tips? In fact, I can't think of...Both UI is fine, I feel the Explore interface looks very professional, but the interface of CNKI is also fine. I think the CUC one is just not so perfect.

R: From the way of organizing the resources or from the structure, one is to sort them into different databases and gives you the entry; the other is an unified search box that help you search from different databases, which one do you prefer?

P: In theory, it doesn't really make much difference to me. First of all, I want to make a statement, I didn't use the database search system very frequently when I was in China, because our subject didn't have this need at the time. I knew CNKI when I was having the second undergraduate degree and when I was writing the dissertation, which is actually quite embarrassing. For me, I only know about CNKI and our school library. I don't know about other databases, and I don't even know where they can be used. But in UCL, the good thing is that I had the language course here. We have a special library course, which is a computer introductory course, which teach us how to use the Explore system to search for the documents. So I learned it right away. Later, because of the course need, I to use this system a lot. Maybe for other people in China, CNKI is something that everyone knows and very necessary, but for me, I probably know this thing when I was in the second year. Maybe I don't know about how is was in China's library system, so I can't compare. But I think the advantage of the British library system is that because it has different databases and every

discipline may have a lot of databases like seven or eight. When you search for the literature... yes, I just thought that our subject sometimes needs to find some journalist, and we need to search it manually because it can't be retrieved. Anyway, I feel difficult to compare.

R: What type of information do you need for the course in China?

P: Generally, textbooks. I do not need to find other information to be honest. When I was doing my graduation project, I need to know how this thing was used, so I need to know the background to write a literature review. At that time, my tutor told me that you should not only search on CNKI, but also search for some international databases to find English articles. Because of the internet wall, he recommended me to use BING, which can be used to search some international articles. Therefore, I used the combination of these two sources. Usually, the textbooks are already hard to understand. Maybe we can't understand sometimes, and we might go to the library to find another book, with the same content. Different people may express in different ways.

R: Do you have any exercise books or similar thing?

P: We have. In fact, the mathematics major in CUC is not a very good program, nor a very popular one. So we have very few exercise books. For the students who attended the postgraduate entrance exam, there may be more. But for the undergraduate course, there were less. We were studying mathematics analysis course at the time, and the textbook had a matching exercise book, which has exactly the same cover of the book. It was a little thinner. It's the same cases for the other courses.

R: At that time, do you seek help from senior students?

P: I don't borrow their note, because from my experience, I won't have time to read. I tend to understand directly from the book, because in fact, this book is enough for you to understand this thing. If the teacher's question is very hard, you can ask the teacher, or you can also see the answer if there is any. Generally, I don't seek help from them.

R: Ok, for the second part I will ask you about the behavior of information search. What activities do you usually do in the process of learning?

P: Reading, going to the library, doing field work. That is the walking project I just said, is a field work. We are currently writing a thesis and there is a field survey. I am also looking for participants. Reading, writing essays, and doing some projects. We have a class called design anthropology, where we need to communicate with some clients, but in fact, basically it's still field research. That is working with some companies, and they give some topics and we respond to them according to their needs, such as a topic we did before, 'what makes the good atmosphere between customer and staff', this kind of thing. There are also some seminars in class, and we have an exam.

R: Where do you generally study?

P: Reading is basically in the library or student center, which is actually what I have been doing most of this year. There was a time when I like to read at home; but after a while, when I was busy, there was no time to clean up, then I don't want to be at home. I have three essays in term one. I wrote from dawn to dawn during the whole holiday, I was very stressful. I feel a little depressed and mental breakdown during that time, and I didn't go out at that time. Then I realize I can't be like that because my work efficiency is very poor and very low. After that, I basically study in the library. Having class is basically in the building of anthropology. When it comes to field work, it is actually a mini survey with a small scale and short time. We have two projects. The first one is done by ourselves. At that time, I went to find each tutor in our department, and I went to talk to them. They gave me some advice, my main tutor recommended me the walking group topic, because anthropology it tends to observe a group of people. I found a group, joined them, and kept walking with them. Every time I have some new information, I take down notes after come back. At the end, organize these notes and make a website to present this project. In another class of design anthropology, the project is group-based. We have a discussion room on the fourth floor of the science library. After discussion, we divide the work into different parts and let everyone do a part. Finally, I will summarize, then do the slides, and present it. There is also exam.

R: Ok. Can you tell me what digital devices you use in your learning?

P: Laptop, iPad, kindle, air Pod.

R: Can you talk about how you use these different devices in different contexts, and then what kind of learning activities do you do on them?

P: The most used one is laptop, I take notes, do homework, check words, find literature, write essay, join the group online, and then contact the participant on it. Of course, I also use mobile phone to contact others. The iPad is mainly used for drawing. We have a website to do presentation and we need to design web pages. When I was in language course, I used iPad more, because I liked to take notes with Apple pencil. Later, because I felt that the handwriting is not as quick as typing on laptop, so I changed to take notes on laptop. Mobile phone is used to contact others, check information, check the time and place for the class, and receive the email.

R: Did you just mention that you draw pictures on the iPad? What software do you usually use?

P: PS. It is occasional. Also use one note. The kindle is mainly for reading, but I don't like to use Kindle in the later stage, because if you use pdf, you can't resize the text. It seems to be very uncomfortable for eyes. I basically take laptop every day, and takes notes in class. Outlook and Gmail are used to receive email on phone. There is a Moodle on phone to check the timetable, but in fact it is not used frequently. Most of the time I will ask the classmates and use WeChat or WhatsApp.

R: Have you searched for any learning related resources on mobile phone?

P: I used Explore on Google for mobile, just occasionally. Sometimes I used it to read, in pdf version, just a few times in a very urgent time. The phone is also used to watch videos. Anyway, laptop is the most important device for learning.

R: Will you use the desktop in the library?

P: No. Library for me is a study space. There is only one document on my desktop, and I don't use it very often, because there is a limitation. I use laptop to do reading because it allows me to quickly check words. You know that if it is a pdf on the MacBook, you can click on the word to get the meaning, so it is very convenient and very simple. Its dictionary is the Oxford Dictionary, which is reliable as well. As for desktop, you have to manually enter the word to search, so I rarely use desktop. And it is actually a system without Chinese, you have to install it yourself if you want to type Chinese. I am a very lazy person. So I don't want to configure it myself, because my laptop is very friendly, and I know very well what I need. I have installed all the things I need on the computer, I don't have to take the time to configure it on desktop.

R: Ok. There is a question about your habit, when you study, do you open the Explore and put it there or you only open it when you want to search for something?

P: Only open when I want to search. However, if I searched these documents but I don't have time to read, I won't close them, I would keep them in the tabs. And my Google browser always has a lot of tabs.

R: Ok, our school library is divided into two pages. One is that there are many library services on the homepage, and the other is the Explore retrieval system. What kind of functions do you usually use on the service page?

P: I just use Explore. I look at the opening hours of the library sometimes, but you know it once you check it, so I only open it one or two times. Explore is the one I use most. I just type a U in my Google search box, it will come out of the UCL library, then I press Enter, it will come out of the library interface, and then I scroll down directly to the Explore search box to search. It's just two clicks. Occasionally I find the database inside. I used booking room twice.

R: How about the Explore? How do you use it?

P: I won't use these above tabs, nor do I use the advanced search, but I use filter. Generally, I look at the articles and books in the type. I also limit the date of resources. Also, keywords.

R: When you use the Explore system, what difficulties have you encountered? Or is there any time when you want to find something but can't find?

P: It's just what I said before, the bug with the system. The first result of the search does not come out. No matter what you search for, the first result is like this. It is not the case at the beginning of this year anyway, at least the first term the system is definitely fine; from the second term, this bug became very frequent. The first one can't come out, but you click on the second one and then go back to the first one, it would appear. It's weird.

R: In addition to this bug, is there any time when you can't find the resources you want?

P: Yes, there are many, in fact, when you search a lot, you will find a lot of resources actually cannot found on Explore, like some books' pdf. I may go to Google Scholar to search. Occasionally I can find it there, but sometimes I still can't find it.

R: Is it because of it's too old? Or why do you think that can happen?

P: Not sure, maybe... I have thought about this, but I have no conclusion. Because in fact, there are no features in the books that I can't find. Some books are actually recent ones, like in 2000 or so, but still cannot be found. I don't know. In fact, we have a core book which is very important to our discipline. There is a website called E something (Dawsonera)...that is, we have a core book called digital anthropology. If you search on the Explore, you can't download the PDF directly. But there is a website where you can download, but it has a three-day reading period. After three days, it will automatically delete it for you. You need to read it with a specific software. But I never download it. At that time, I was thinking about asking the librarian to help me, but I didn't. Fortunately, I bought this book. I bought the Chinese version and the English version. This is the case. This is the website, it's called Dawsonera... In fact, there's also time when I can't find articles in UCL Explore search, or found no links, or have links but UCL did not buy the copyright and cannot download. But it is actually quite rare situations.

R: What do you do if you can't find?

P: Just go to Google Scholar try your luck, and most of the cases it's still cannot be found, right. But I will try all the possible methods. If I still cannot find occasionally, I will also search for some... for example, Senate house has a Royal Anthropology Institution, they have several anthropology databases, you can go inside to search, but this is rarely the case. I have been doing a literature review recently, and there is a new book called 'love ink', which has not yet been published. The theory from it is a theory that I really want to use for my thesis. The author also came to our school to promote it. Later I couldn't find it on Explore, but I found it in the British library. I can request it and read it in the BL. I haven't got the book yet. But we can go and request.

R: Another problem is that do you prefer digital or physical books on Explore?

P: I actually had some changes throughout the year. I was very inclined to use physical books at the beginning, but then I found if I use a physical book, for the words I don't know, I have to manually type and search it. If it is a pdf, a I can directly click on the word to see the translation of that word on my computer, so I tend to use digital resources. But in fact, I print out articles most of the time, and see both the electronic version on computer and the paper version to compare.

R: In other words, you prefer to use the paper version, but because the electronic version is very convenient for you to check the words, so now you prefer the digital?

P: Yes, but the latest idea is I feel that it is a waste of paper to print. The reason I don't like digital versions is that I think it is very uncomfortable for eyes. If you want to make a note, it may not be very convenient, not as good as handwriting. But I think environmental protection is a big deal for me, so I will tend not to print these documents.

R: Ok, you mentioned the library app you used before in the beginning, but the user experience was not so good because the app was just launched. Except for that, is there any other library apps you used before?

P: Do you have any examples? In fact, I can't remember.

R: Do you have a special app of your university library?

P: No.

R: Then do you use UCLGO?

P: Yes, but I rarely use it. However, I like every software of our university and I downloaded all of them. What I use on UCLGO... (see UCLGO) In fact, I do not like this interface, I feel that it is a bad-designed interface. It is actually very flat. I can't say it's very bad. I use the news feed. There are some job shops here. I use quite a lot of this because it involves my job search. Others...I rarely use, not even log into it and haven't seen timetable on it. I usually see timetable on the Moodle on laptop.

R: Have you used Moodle in UCLGO?

P: No. Other features about the library have not been used either. I have a Moodle app, which is usually used to download some important information. A few days ago I used it to check the score. Before I used it to download some reading. We have some courses that you can download the reading article directly from Moodle. But I don't use this software very often. The most frequently used device is laptop, and I search for Moodle directly in the website.

R: So how do you evaluate UCLGO?

P: Can be used but not very useful. It has a lot of functions and it looks very practical. I can only say this because I don't have too much experience on it.

R: Have you logged in to Explore through your phone's browser?

P: Yes, this is quite...not very often, but I have. Just to search for a book, sometimes when I listen to lecture, there is no laptop around, or my laptop is out of power, I use mobile phone to look at the book I want to borrow. The idea was that I need this book and I am going to the library after the lecture. Or when I am in the library, but the laptop is in my bag, and I don't want to take out, I will use the phone to search. I think the Explore I used on the mobile browser is quite easy to use, and I don't seem to have encountered any bugs. I think it's also very fast, and it's similar to the logic of the website interface. You won't encounter a situation where you can't find it.

R: Ok. How do you evaluate our Explore system from the perspective of an international student?

P: I think it is better than CUC system. I think it is quite easy to use. I use Explore very frequently. Of course, there are cases where I can't find a book, but in rare conditions. It can be found in more than 50% of the cases, so it is actually very friendly to me and the search is also very fast. There is some occasional bugs. If you want me to rate it, I may rate it with eight out of ten.

R: Ok, do you have any suggestions for our library system?

P: First solve this problem, bug fix. If possible, this may be a problem of my own language skill. I didn't know how to search and use the Explore to find resources at the beginning. It was very confused at that time, because although there is information about which library the book is, the libraries are using different codes and sometimes it is difficult to find. I used to search a book in Bartlett, and I don't understand the book code they are using and I spent a long time searching for that book. Then I went to seek help from the reception, and they helped me find the book.

R: Do you think it is related to the library's instruction?

P: I think the library's instruction is ok.

R: Do you think this has something to do with culture?

P: In the beginning, it's definitely related to culture. I think the Bartlett one is definitely related to culture or the logic, I don't know the meaning of retrieval schema. I think it may be also related to the design of the library. Because the design of the library search systems is very different, which makes me feel difficult to find.

R: We just mentioned the mobile library at the beginning, usually it means the library system that can be used on mobile devices; there is another concept, called smart library, how do you understand these two concepts?

P: First of all, I have never heard of these two words, and I don't know anything about them. Simply analyzing these two words, I think there is a difference between the mobile and the smart. Smart library seems to do something with smart phone. Mobile library is designed for mobile, which probably appeared before the concept of smart... Can I skip this question, I really don't know how to answer it.

R: We just mentioned a lot of devices, and you actually like to use the iPad as a very important learning device. If you think of these devices, how can the library make use of these devices to improve its services and its systems?

P: Ummm.....I have no idea at all. Can you give some tips...?

R: I don't want to influence you, but I can provide you with some inspirations. Now we have a lot of equipment and a lot of technologies, some people hope that the library system can be personalized. For example, the library knows their preferences, and can recommend resources regularly, like a personal assistant. Or some students may want the library use some technology, such as VR to feel the atmosphere of the library at home. Some students may think that the library can have some social features to see what other users are borrowing in the similar disciplines or there can be comments and ratings for the resources. There are different ideas, you can think about it from your experience.

P: Speaking of this, in fact, before you said, I have thought about AI and VR in my brain, but I didn't say it because I don't know how to express this thing. VR is a hot topic. Maybe every field wants to have something to do with VR. As far as I am concerned, the library is a quiet place for me to study. So I don't want it to become completely visualized. I hope there is a physical library space there all the time. It is not only for me to check things, borrow books, but also a quiet place for self-study. I also hope the library can keep this comfortable state, where no one bothers me. And for example, my typing sometimes is very loud and make

noise. I hope that people in the library don't do this. I also hope that I can get rid of this bad habit. Of course, I use the library system to search for things when I do literature review, but this is the task I need to do at this stage as a student. However, when we go to the society and start working, I may not need to check so much information. At that time, my needs are different from now, but there is a constant demand for me, that is, I need to have such a quiet place to do some reading. I think I like these things online, such as Explore search system, including how it combined with other databases, which allows me to understand these new knowledge systems. I naturally accept these things. But I feel that I can't accept a completely virtual library system, where there is no physical space. This may be the case for me.

R: Last question, do you think the library has a need to design a library app? Do you have any expectations?

P: I think there must be some book recommendation. If you ask me is there anything to expect for the mobile library, so far, I wish I can find the book I need on it. If the interface can be very simple, straightforward and convenient that can let me search for the book I want quickly is probably the biggest demand for me. Book recommendation is also an expectation if it can recommend me the books related to the topic I want. The main function I want is to recommend and retrieve. I don't really have any desire or wish on the social feature of it; but I think...do you know the Red Book app? The mobile library can learn from it and design some functions like others' recommendations or reflections on this book. Then I can quickly understand what the book is talking about through these comments, and look at what others think about it before reading.

R: Ok. Thank you. The interview is finished.

Participant 7

Chinese transcription

Interviewee 7--- UCLIC: Human-Computer Interaction ---Wuhan University--- Female

R: 开始，然后你现在可以解释一下你刚刚画的图吗？

P: 首先是它可能用到什么样的技术,以及他的界面。首先就是 VUI, 我们讲的 voice user interface, 您可以通过声音去获取你想要的信息。其次就是 BCI, 就是 Brian computer interaction, 也就是我们讲的脑机接口, 是一个比声音、比打字、比所有方式都更快, 而且更能表现出你想要什么东西的一种信息搜索的方式。seamless 是我想象中的一种信息输出的方式, 就是你怎么样接收到信息, 就是从那种 seamless 的界面, 它可以是你生活中的任何一个部分, 并不像是电脑这样子一个单独的 interface, 他可以是融入你生活中的一部分, 比如说它是一个浮在空中的, 就有点像立体全息投影的那种感觉的界面。然后这两种是我列的已经存在的移动图书馆的方式, 比如说 mobile 和 wearable devices, 以及 portable 和 client。我觉得这边是我可能想要知道的, 下面是已经存在的, 按照对它期望的优先值, 我是从高到低进行了排序。另外就是我设想的 scenario, 以我的学生身份来说, 首先我觉得 academic research 是很重要的一部分, 另一部分就是 for others, 就是娱乐以及阅读的那种需要, 我把这两种分类了。下面这个 story board 是关于这种技术是怎么样使用的图解, 首先是可以 Have an idea, 这个就是在 BCI 这个步骤之前, 你开始想要对一个主题感兴趣, 这个 idea 产生的时候, 然后通过 BCI 你把你的指令发送给图书馆系统, 说你想要什么东西, 这是一个 search 的过程; 然后一个就是用不同的 interface 去呈现它。最后是关于我想要的用户体验, 首先是用户可以很方便地搜索信息, 因为我觉得这是你在真正打字出来和你在脑子里想到搜索信息的关键词是不一样的, 你会自己再打出来的时候自己做一部分的筛选, 这样子很可能把你最想知道的信息的一部分可能性给删除掉。所以我觉得 BCI 是一个更直接的方法, 就是说你在脑子里想什么就去搜什么, 这是一个我觉得你要简单的方便的去搜到你想要的东西。其次是考虑到人机工程学, 大部分时候阅读文献, 不管是拿 iPad 或者实体的这种文献, 你都是需要低头阅读, 我觉得其实长期这样低着头, 阅读体验是很差的。即使是 portable laptop, 最差的阅读体验是在于你的键盘, 手的位置和你头的位置是无法让你在最舒适的状态保持长期阅读的, 我想要未来的智能化的图书馆是我不仅搜索到我想要的东西, 甚至是当我把它作为一种阅读的工具的时候, 它能给我提供一种很好的体验。比如我讲讲的这种 seamless, 它可以在你的面前, 让我的脊椎处于很舒服的状态阅读,

就是符合人机工程学的的一个设计。第三个是我在这里补充的一点就是物联网，其实目前在阅读中用到的主要还是视觉，其实有五感嘛，我认为视觉和听觉是可以被结合起来的，有声书现在也在不断的发展，加上一些播客，fm 电台都是可以输出信息的方式，所以我觉得这个不仅是一种听觉上的尝试，也可以是一种比如说对视障人士的一种新体验的提供。然后，这个我忘记标了，这个部分是第四点，也就是用户可以在任何地点和任何时间进入这个系统。

R: 好的，这个图主要是描述了你未来的一个智慧图书馆或者是移动图书馆的一个期待。

P: 对，然后物联网其实有一点点没有讲清楚，我想说的就是你的手机，PC，所有设备连接网络之后，物联网的功能是可以有别的形式进行信息的输出，比如说用你的 speaker 或者一些别的形式，所以我这里提到了物联网。

R: 好的。我们现在就开始正式的 Interview。然后这个 interview 分成三个部分，第一个部分我会问你以文化这个角度为切入点，问你一些作为一个国际的留学生，并且你以前有过在中国读书的体验，会问到你的一些经历，还有就是你的体验，然后第二个部分就是你作为一个信息搜寻者你的一些信息行为还有你的习惯。然后第三个部分就是你作为图书馆的用户你的用户体验。然后我们从第一部分开始说，你在国内也学习过，然后在英国也学习过，然后你能跟我讲一下，你觉得你的 learning experience 在中国和英国最大的区别是什么？

P: 在中国靠意念学，你学到的东西主要是靠老师在上课在讲的一些很概念性的东西，需要你去自己去理解，可能需要的信息没有在这边需要多，比如在这边你写一篇 paper 就是会或者你去写一篇 essay 你可能要看 20 到 30 篇那种别人写的论文或者是里面的 reference，作为激发你的材料，或者是作为你的论据去支撑。在国内的话我觉得对论文的这种要求不是很严格，甚至在武大的时候我觉得从来就没有人教过你用 APA 或者是用什么其他的，对格式都不会有限制，就更不会要求你会去要写多少 reference 进去，所以我觉得这是一个写论文上的区别。因为写论文有区别，所以对信息的搜索就会有区别。

R: 好的，那你来英国之前有做什么关于学习的准备吗？

P: 完全没有，因为之前也有去美国交换半年，在那边感觉大概知道是个什么模式了，就比较有恃无恐。

R: 好的，你一般针对学习会搜索哪些信息？

P: 首先肯定是直接跟学习相关的一些 reference。这个搜索是仅限于图书馆搜索，还是说的就是整个的？

R: 整个你的学习。

P: 这样子，我觉得我会先分一下在什么平台上搜索信息。首先我先会看老师给的一些东西，如果看不懂的话，我会先搜中文，如果中文的文献我有点看不懂的话，我会经常做一件别人不想做的一件事，就是去社交媒体上搜这种东西。对，因为我本科的专业是和 social media 相关的，我本科的时候就会观察别人在 social media 上面会做什么活动，我就发现很多人会把 social media 当做一个知识传播的平台。你知道微博那种地方一条 post 字很少，它不可能写很多文字，就会用非常简单和直观的方式表达出来，所以我有时候会去搜微博。另外微博里面会有一些长文章，或者一些短的 140 字的那种东西我都会去看，还有就是，我在本科的时候我会去微信上看传播学领域的公众号，因为微信可以模糊搜索，你在整个微信里搜的时候会有那种文章，就是学者在微信公众号上去为了推广这个领域或者是向别人宣传我们这个行业，就是这也是我搜信息的一个途径。另外就是知乎，比如说我上学期学统计学的时候就真的觉得很难理解，有些东西就是会让你觉得怀疑自己的智商有问题的时候，我就会去知乎看一下，里面会有别人用很好笑的讲法去把一个你当时觉得有点卡住的问题给你解释的很清楚。就是 social media，问答类的网站，我也会去看 Quora 和知乎，就是先英文再中文，差不多是这个顺序，就是对于那种概念性的东西，我会是这样去搜。另一个方面是对于那种学术性的东西，基本就是图书馆了。

R: 你觉得目前搜索的这些和学习相关的信息，和你之前在中国的读本科的时候搜的信息类型一样吗？有什么差别吗？

P: 在国内说实话可能是因为时间有点久，我是真的忘记了我在搜些什么东西。而且我觉得好像可能传播学的性质比较特殊，因为我们研究的是社交媒体，本来就是新兴的一个学科，没有特别多的 reference，而且社交媒体跟我们讲的 mass media，就是所谓的大众媒体还有一些不一样，你可以借鉴一些传播学的理论，但是那种东西是你从教材上面翻到的，这些教材其实是老师已经提供给你，你不太需要去搜索，你只是机械地翻书。

R: 好的。就是说那个时候你用手机去搜索信息吗？

P: 说实话，那个时候我们更多做的是观察，比起说做那种 literature review，我们更多的就是去观察归纳总结，可能需要搜索文献的机会比现在要少。这个也不一定说是我习惯改变，我觉得跟专业有挺大的关系的。比如说 HCI 它是需要心理学，也有 CS 的东西，你能搜索到的东西很多，各个方面能给你支持的东西也很多。但是像社交媒体这个方面的研究，因为它国情也不一样，可能有一些研究得很超前的美国的论文，在中国根本就没有办法把那一套理论搬过去用，所以其实我觉得学科影响很大。

R: 好的，你可以形容一下英国和和在中国的时候你在武大用的图书馆系统分别是什么样的？

P: 我觉得好像给我感觉武大的图书馆，因为可以连所有的那种数据库，学校花挺多钱买的，我觉得还行，基本上是我搜什么都能搜到。但是 UCL 就不是，很多东西搜不到，你得先去 google scholar，找到 explore 里面没有的东西，然后你再把文章名字放在 explore 里面搜，因为 google scholar 有的文章你又没有权限，但是你直接在 explore 里搜这个东西又在搜不到。我经常遇到这种情况，比如我最近的毕

业论文就是这样子，所以需要两个网站来回切换搜索。但是我在中国的图书馆系统因为收录的东西很多，一般都能搜得到。

R: 除了搜索这方面，还有哪些不一样？比方说界面或者是功能上面。

P: UI 国内设计的真的丑，我们讲界面设计的时候会说，大家普遍会觉得美观即实用，在国内的网站会让你没有想用的愿望，UCL 的界面虽然也有点土土的，但是基本上结构是很清晰的。但我现在已经不记得武大界面长什么样...

R: 其实武大界面是分类特别的多，进去之后也有一个搜索框，上面还有很多文献类型的分类。

P: 我好像有点印象，反正确实美观上不如 UCL。

R: 你觉得用起来的体验就是你的搜索习惯和搜索系统相互吻合吗？

P: 我要吐槽一下 google scholar，就是 google 最大的一个毛病，如果不设置的话，你在点击新页面的时候，它不会弹出新的 tab，它就是在本页面上更新了一个页面。如果你不小心点击了关闭，整个 scholar 就被关闭了，之前你搜索的那页就没有了。我真的超讨厌这个，我觉得是挺影响我用户体验的一件事情。这个是所有 google 的网页都会这样。

R: 你觉得我们学校图书馆的系统这方面怎么样呢？

P: UCL 这个是好一些，跟国内的我的使用习惯是比较吻合的。

R: 你对于国内的系统有更喜欢的方面吗？

P: 误操作的话我的成本更低，因为我把我原生的习惯带到英国不习惯之后，我误操作的成本很高。哦，我还想到一个我的使用习惯，在国内我经常是去图书馆找书，看纸质版的图书，基本上没有看电子资源的习惯，国内的图书馆系统对我而言更多的是一个检索书号的系统，检索到之后我直接去图书馆找书看。

R: 好的，那对于英国的图书馆系统，你都喜欢哪些方面，不喜欢哪些方面？

P: 其实我挺想吐槽一点就是，每次你都非要点击 explore 才能进来搜东西，就是你需要点击两次，操作和不操作就可以搜索肯定是有差别的。一个是挺浪费时间，而且我每次就是点这个地方（library services 页面上的搜索框）经常点不出来，也可能是我得网太坏了。另外我也没有特别的好恶，我只是觉得能用，而且不会过于繁琐。我其实每次看到 explore 这个界面上红色的提醒，就是动不动就维修的这种提醒，我其实心里是很慌的，我总觉得他在提醒我说你有什么问题，而且太明显了，跟整个网页的基调配色不一样，你就知道他在强调这件事，但是其实这件事对用户来说可能没有那么大的影响。别的就还好。

R: 那你站在文化的角度来看，因为你有过两个国家的学习体验，你觉得图书馆系统对于你的学习体验有什么样的影响？

P: 我能看一眼武大的图书馆吗？

R: 可以。（show the library system of WHU）

P: 在图书馆这个主页上你就可以直接搜嘛，就很方便，不像 ucl 的图书馆主页进来还非要往下拉，拉到 explore 图标这里，有时候直接在这个搜索框还可能搜不出来。这样子讲的话我还是更喜欢武大的这个图书馆的系统，但是之前我用这个系统主要还是在图书馆门口的终端机上，那个上面是直接开着这个界面的。我会直接在那个上面搜书。在宿舍基本就不用，因为我知道哪里可以找到书，一般就是文理学院的图书馆，我知道一定可以找到我想要的书，所以会直接去图书馆用。

R: 那你本科一般学习的话你就会去到图书馆？

P: 对，差不多是这样子，在图书馆里面会把纸质版的书拿到桌子上面，然后学习。

R: 好的，现在我们就开始第二部分，关于信息行为的部分。你觉得现在学校或者是图书馆给你提供的这些检索的平台，可以满足你所有对于学习信息的要求吗？

P: 我觉得不太行。因为很多东西，比如说 HCI 会研究一些心理学上的 model，关于人的行为和设计与人行为类似的机器人的行为，那种 model 应该是去看原文件才能知道这个 model 里面每一个部分在讲什么东西。但是事实上你能搜索到的文献基本上都是别人用这些 model 做了什么事情，在这个基础上这些 model 是已经被那个人消化拿来使用的东西，而并不是一个原本的东西。所以说如果我想看那种原件去了解这些 model 或者是它是怎么作用的，我真的搜不到，我尝试过，这是我上次写论文的时候很真实的遇到了这个问题。

R: 你搜的时候是就光搜了我们学校图书馆还是也搜了 google scholar？

P: 都搜不到。因为那个 model 大概是上个世纪 60 年代提出来的心理学的 model，那个时候可能有影印版，但是并不会 digital version，所以很难去检索，网上基本都是别的老师是怎么在讲这个课，但是老师只给你那个框架，并不会具体给你讲这个 model 里面各个部分分别是什么。我其实并不觉得我们应该从老师那里获得材料，只是说可能还是资源收录的不够全。

R: 你平时用我们学校 explore 你一般就是怎么用它，你会搜索哪些类型的文献？你可以讲讲你的使用它的一些习惯。

P: 两种方式。我如果有一个很明确的目标，就是那种精准搜索，我会直接把那个词打在搜索框，在这里搜索比如这个 model，如果我发现结果里有很多不太相关的，我会打开 advanced search 去进行限定，限定好 filed。就是左边也有一个 filter，里面有什么类型，我一般会找 article，比较短，还会限定一些领域（topic），我会搜索和 CS 和 psychology 相关的，别的领域我都不看。我最近在研究的那个东西在医学上也有研究，但是和我所研究的意思不一样，所以在领域那里我会直接把医学叉掉，是很医学上也在说他，但是是另一个意思，所以说我就会直接把医学的查掉。然后还会限制年代。另一种就是 HCI

会有一个比较专门的 digital library, 叫 ACM, 我会在 find database 这里进去, (操作) ACM 就在列表的前面嘛, 我就会直接进去这个数据库搜索。因为别的地方点 ACM 进去, 不管怎么样都不能免费下载, 所以必须从学校的账号进去。

R: 好的, 你觉得你在图书馆系统上面可以经常找得到你想要的东西吗?

P: 大部分时候可以的。

R: 你可以回忆一个时候, 你找不到想要的资源的时候吗?

P: 会有这样的经历, 就像我刚刚讲到的, 但我我忘记搜什么东西了, 就是我在 explore 里面搜不到, 然后我去 google scholar 搜索同样的词, 里面会有更多的结果, 然后我把那个文献标题复制回来, 发现其实学校的图书馆是有这本书的。我觉得可能是算法不一样吧, 它出现的结果的确是有点区别的。

R: 好的。一般除了电脑之外, 你还会用到哪些设备在你的学习中?

P: iPad 然后手机, 手机就是看 social media 相关的。

R: 那么这三个设备在你的学习生活中使用的 context 是怎样的?

P: 一般是用信息检索和我整合所有 reference 的时候, 我会比较喜欢用电脑, 因为打字和复制粘贴东西比较多就比较方便; iPad 主要是有笔你可以就当做纸质版去画, 基本是用作阅读, 上课去记笔记什么之类的; 手机就是你在比较闲的时候, 用这种碎片化时间, 突然想到这个事情我还没有解决, 我就会看看相关的东西的那种时候会用手机。

R: 手机是一般你会在比方说在你移动的过程当中用?

P: 这里的地铁没有网络就不会, 但是国内时候会在那种上学放学的路上就没事, 我就会刷一刷的手机。基本上还是在跟学习相关的地点使用吧。

R: 那么在英国你一般会在哪里学习呢?

P: 一般在宿舍学, 但是要写论文的时候, 有 due 的时候就会去图书馆, 那个时候我会用图书馆的 desktop, 并且我不会带自己的电脑, 因为我的电脑是 Pro, 就很重, 所以我为了不带电脑, 就常用 google drive, 所有的文档全是在 drive 里, 要读的文献全部都在 iPad 里, 所以说我出门就只带着 iPad。

R: 好的。那么你对于这三种科技, 你会有 preference 吗?

P: 就是根据不同的需求去做不同的 task。都是有有利有弊, 比如说电脑好打字, 但是不容易阅读, 我刚刚提到的人机工程学就是觉得电脑就是一个很不符合常理的东西。你的手要长期保持这个姿势, 但是这样子阅读时间长了身体就会不舒服。iPad 的话是方便阅读, 虽然阅读时间长了还是会不舒服, 但是它又很便携。所有东西都是这样, 根据你不同的需求去用它。

R: 好的, 那么你在手机上一搜索的信息都有哪些?

P: 我手机上一般就是很概念性的那种, 比如说我刚搜的 OCC model, 我就会直接用这种概念的名字去广泛的直接在手机的网页里搜, 一般就是百度、google 这些浏览器。还有就是搜索 social media。

R: OK, 最后一部分就是关于图书馆用户体验的, 就是你之前有用过移动图书馆的 APP 吗?

P: (摇头) 可以界定一下移动图书馆是什么吗?

R: 你知道武大有一个移动图书馆的 APP 吗?

P: 完全不知道。

R: 你以前有过在手机的浏览器上登陆数字图书馆吗?

P: 没有过, 因为我觉得不好读。而且就是 iPhone 不好保存文献, 要么直接是一个 pdf 导微信里面看。因为存在手机上的东西你也不会记得什么时候去删掉它。

R: 好的, 那在你的学习习惯里面, 用图书馆系统的时候, 你会一直开着放在那里, 还是只有在想要搜某篇文章的时候才会打开图书馆系统?

P: 我一般是会想搜的时候再打开。

R: 好的。如果让你评价我们学校的图书馆系统, 你会怎么评价? 可以从它的资源它的界面, 包括它的功能性上来评价。

P: 首先我觉得先说不好的点吧, 比如说 library service 这个主页, 打开之后的第一眼根本找不到你最需要的 Explore 的这个搜索系统, 这是一个很差的用户体验。你非要往下滑一下, 虽然我知道这不算是什么事情, 但是这个设计就很重要, 因为不够凸显它的最重要的功能。图书馆当然是要搜资源, 没有人需要知道图书馆是用来干嘛的和有几个图书馆, 这个重点就不对, 就是产品经理就不会这么做。其次就是我觉得进去之后界面倒是挺方便, 挺简单的, 该有的东西都有的, 但是就怎么说呢? 比如说我搜一个东西出来的结果里面会有一些意味不明标记, 比如什么 peer review 的...

R: 就是你不理解?

P: 我知道大概是跟我背景的人读过, 也知道它可以作为我选文献的一个标准。但是你放在这里我并不是很了解它的目的。说实话我觉得我自己心里是很清楚我想要什么东西, 并不会因为觉得别人读了, 就去决定自己要不要读。

R: Peer review 其实就是这个文章在投稿之后, 会经过同行或是做类似领域研究的学者读过之后, 他们会提出一些建议, 基于他们的建议文章再做修改, 修改之后才会发表, 一般有 peer review 的话说明这个文章更权威、质量更高, 所以有一些同学可能会选择这些比较高质量的文献...

P: 但是问题是图书馆没有引导, 所以我的理解跟真正的意思根本是不一样的。

R: 所以你觉得是不是图书馆还需要对他们的界面还有系统进行一些很详细的介绍?

P: 我觉得不需要详细介绍, 其实就跟现在互联网趋势一样, 你需要在用户第一次进行行为的时候对他有良好的引导, 这个行为一旦形成, 它对之后的影响是从第一次就开始延续的。我在第一次接触到他的时候就是一个完全空白的状态, 他的假想是我完全理解他要做什么, 但是事实上我并不知道。

R: 那么你觉得也许这里可以加个可以点开的类似 tips?

P: 我觉得就是点开这个行为本身就是成本高, 其次如果 hover 在这个上面是无法避免打到别的东西的, 完全可以在第一次就把所有的引导全部做好。比如说你新下一个 APP 会有导览, 这个时候就可以一步一步的引导用户了解每个地方是做什么的。我就觉得这就是网页设计经验不够, 根本不知道重点, 或者说有些东西会造成一些 miss leading, 所以你今天跟我讲之后, 我会觉得我可能会看这种文章多一点, 但是有多少个人是跟我一样, 觉得这个东西根本就不重要。而且在中国我们是没有 peer review 这个概念的, 所以这可能和文化也是有相关性的。然后就是, 我觉得登出的时间太快了, 基本上是我看一个文献, 我习惯看完之后再去做下一个事情, 这个时候它就说你登出了, 还要重新再登录, 一天可能登个十次吧。登出的时间我觉得有一点过短。另外就是它可以做一些个性化设置, 比如说用户希望多久之后登出, 或者说我离开这台电脑的时候是否自动给你登出。虽然你自动保存了密码, 但是还是很麻烦。还有一点是, 你看这个搜索框下面这里, 就是我之前提到的, 'personalized results', 我会选择 CS 领域和另一个领域, 好像是 engineering, 就是你点击过一次之后它会记住你的选择, 下一次搜索的时候, 你个性化设置的结果就会变成紫色, 平常的话是灰色的嘛, 如果选择之后会有颜色的差别, 这个功能我还觉得还蛮好的, 搜索起来更方便。

R: 好的, 那么图书馆服务这个网页里, 你一般经常用的都有哪些?

P: 一般就是文献搜索和 find database, 甚至是 helps, store request 这些我从来没有用过。图书馆的服务页面里面我有订座位, 就是 book for study space。还会再来图书馆之前会用 UCL GO 去查哪一个图书馆有空位。

R: UCLGO 上面和图书馆相关的这几个功能, 你觉得好用吗?

P: 说实话, 首先我觉得上面的信息有点不太准。有一次我定了一个 science library 的 study room, 然后跟我的组员来了之后发现 science library 不开门, 但是那个位置是可以定的, 相当于这个系统并没有考虑到图书馆不开门的情况。就很机械, 它只是把两个系统放在了一起, 但没有考虑实际的情况。还有一个问题, 这个 APP 里有看 PC availability 的, 会告诉你有几个电脑还有空位, 但是不会告诉你哪些电脑是坏的。比如 IOE 图书馆大概有 600 多个电脑, 早上我过去从 APP 里看到还有 20 左右个位子, 我心想应该还挺充足的, 但是一走进去每一台电脑全是坏的。

R: 好的。那 UCLGO 里面有一个 explore 的搜索, 你有用过吗?

P: 从来没有用, 在你点之前我都不知道是干嘛的。

R: OK, 那么你对用手机进入图书馆系统检索有需求吗?

P: 没有, 就是我的使用习惯是我喜欢大屏幕, 看长的东西, 并且喜欢做笔记, 这些都是移动端不太好实现的功能, 所以说其实目前 UCLGO 上面有的图书馆的功能我已经挺满足的了, 里面的功能挺全的, 只是我个人的习惯是不喜欢用手机看文献的。

R: 好的, 你对我们学校的图书馆的服务还有包括 UCLGO 满意程度是什么样的?

P: 我觉得能满足我的需求, 这就是满分。

R: 好的。那么你作为一个国际学生, 你觉得图书馆系统, 还需要提高哪些方面?

P: 导览的部分, 别的我觉得都还好, 使用习惯上也没有什么特别不顺手的地方, 我觉得它应该在我第一次用的时候告诉我哪些地方是什么意思, 就是导览很重要。

R: 好的, 我们刚刚提到了两个概念, 一个是 mobile library, 另一个是 smart library, 你是怎么理解他们的?

P: Mobile library 我觉得体现在图书馆本身的那种便携性, 就是说不需要去实体的图书馆, 它是 virtual 的那种, 也就是我刚刚讲的, 觉得可以在任何时间地点去接触到它的。其实我对 smart library 有点迷茫, 我不知道它究竟是指什么, 是指个性化, 还是说只是...因为我自己有点迷茫, 我刚刚就很想问这个问题

R: 其实很多学者对它的定义是不一样的, 2008 年的时候有一个学者在 review 了很多文献之后提出了一个综合的对 smart library 的定义, 他就说这样的图书馆应该是对每个用户的需求做出回应, 在短时间内基于用户的请求把图书馆的资源提供给他。但是其实每一个人对智慧图书馆的期许都是不一样的, 所以对它定义的着重点也不太一样。你可以站在你的学科的角度上, 你对于你觉得一个智慧图书馆应该是什么样的?

P: 听起来挺难做的, 我觉得首先是能满足大多数人需求的, 因为其实真正的要做到针对每一个人的个性化是不可能的。只能基于大多数人的需求去做一个很 generalized 的东西, 去把一个最大众的需求作为那种 default 的那种选项。这是我的理解。另外就是针对它自身的形态上, 我觉得应该不仅仅局限于这种实体的设备, 因为我觉得实体设备就是局限, 不管是纸, 还是电子屏幕, 这种东西都是在局限你的行为, 一个真正智能或者说是能满足你所有需求的东西, 不应该是在形态上束缚你的东西。这是我的想法。

R: 但是类似你是想说, 比方说 VR 就这种没有具体的形态?

P: 不局限于它是什么样的 interface 呈现, 我想强调的是它满足什么样的体验。比如所有人都觉得这样看书真的好累, 但是你明显不可能给每个人面前弄一个那种可以升降的屏幕, 因为每个人的身高其实也不一

样，你要弄一个固定高度的屏幕也是不现实的，所以说它应该是去满足这种需求而存在的一个 interface，而不是因为这个 interface 已经存在了，需要人去适应它。

R: 好的。还有一个问题就是你觉得科技或者是目前现在这些电子产品或以后的电子产品，应该在你的学习当中是一个什么样的角色？

P: 我觉得始终科技都是作为工具去帮助人进步，这也是人际交互一直在做的事情，就是用科技让你的生活觉得更方便更简单，人跟机器的交互永远都是机器在为人服务，所以说它应该是作为一个助手，它可以 library 的形态，也可以本身就是一种帮助你学习的工具。

R: 你觉得图书馆可以怎么样用这些科技来提高它的整个用户体验？

P: 首先是图书馆形态的呈现，跟我刚刚讲的有关，就是说应该是一个符合人体工程学去让人在阅读的时候感到舒服，因为图书馆的本质还是要提供知识和这种相关的东西，所以我觉得你要在你要在满足你最本质的事情上去做到最好。其次是我刚刚提到的算法，即使你更模糊的去搜索，你也能更快速地获得你想要的信息。最后就是它提供的服务应该是基于每个人个性化的。

R: 好的，今天的访谈结束了，谢谢！

English translated transcription

Interviewee 7--- UCLIC: Human-Computer Interaction ---Wuhan University--- Female

R: Ok, now start, can you explain what you drew?

P: First thing is what kind of technology the mobile library and its interface. The first is VUI, what we call as the Voice User Interface, which you can use the sound to get the information you want. The second is BCI, which is Brain Computer Interaction and it is a brain-computer interface, which is an information search method that is faster than any methods that use sound, typing or other methods and can present what you truly want. Seamless is a way of outputting information I imagined, that is, how you receive information, and the seamless interface can be any part of your life, not like the interface of computer alone. For example, it can be floated in the air, just like the three-dimensional holographic projection.

These two parts here are the existed ways of mobile library, for example, the mobile and wearable devices, as well as portable and client. Here is what I might want to know and below are what is already existed and I sorted it from high to low according to the priority value I expected. The other are the scenarios I envisioned. As a student, I think academic research is a very important part. The other part is for other users, who may have entertainment or casual reading needs. I classified these two. The following story board is an illustration of how the technology can be used. The first thing is to have an idea. This is before the BCI step, where you started to be interested in a topic; and when the idea is generated, through BCI, you send your instructions to the library system and say what you want, which is a search process; then present it with different interfaces.

Finally, it is the user experience I want to have, the first is that users can easily search for information, because I think there are differences between the keyword you typed to search and what you really think in your mind. You might judge from what you get in the result list and delete the ones that you think are not relevant, which may leave out the useful things. So, I think BCI is a more direct way, that is, to search what you want in your mind in a simple and convenient way. Secondly, considering ergonomics, most of the time when you read books, whether it is on the iPad or the paper books, you need to lower your head and I think the reading experience is very poor. Even with a portable laptop, the worst reading experience is from your keyboard, which makes your hand and head in a position that is not comfortable for long-time reading. What I want from the future intelligent library is not only search information that I want, but also a reading tool that can give me a great reading experience. For example, the seamless interface that I mentioned, it will be displayed in front of you and can make your spine in a very comfortable status, which obeys that ergonomic design.

The third thing that I add here is the Internet of Things (IOT). In fact, the main sense used in reading is still vision; there are five senses and I think that vision and hearing can be combined. The audio book is also constantly developing, plus some podcasts, FM radio are also ways to

output information; so I think this is not only an auditory attempt, but also a kind of new experience for the visually impaired people. Then, I forgot to write this...this part is the fourth point, that is, the user can enter the system anywhere and at any time.

R: Ok, this picture is mainly about your expectation of a smart library or mobile library in the future?

P: Yes, there is one thing that I haven't made clear about the Internet of Things. What I want to express is that when all your devices, your mobile phone, PC, and all devices are connected to the network, the Internet of Things will support the information output in other forms, for example, by your speaker or some other forms, so that's why I mentioned the Internet of Things here.

R: Ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment, or to say, the learning atmosphere, is there any difference between these two countries? How you experienced in these two countries?

P: In China, I learn by my faith(意念). The things we learn at class from teachers are mainly conceptual knowledge and we need to understand it by ourselves after class. But the information we need is not as much as we need here; for example, when you write a paper or an essay, you may have to look at 20 to 30 papers written by others or references inside their papers, to use as materials to inspire you, or use as support for your argument. In China, I feel that this requirement for essays are not very strict. Even at WHU, I feel that no one has ever taught you how to use APA or other reference styles, and there is no restriction on the format or how many references you need, so I think this is a difference in writing essays. Because there is a difference in writing, there is a difference in the searching for information.

R: Ok, have you done any preparation in regard to learning before you come to the UK?

P: No preparation at all, because I have exchanged to the United States for half a year before, and I know what kind of teaching and learning way in US or other foreign countries, so I was not worried at all.

R: Ok, what information do you usually search for to meet your learning needs?

P: First of all, it must be some references directly related to learning. Is this search limited to our library search, or do you mean all the ways of search?

R: The whole way of search.

P: Ok, I will first consider which platform I am going to use to search information. First of all, I will read some materials given by the teacher and if I don't understand, I will search Chinese literature first. If I still don't understand the Chinese literature, I will often do something that others won't do, which is to search on social media. Yes, because my undergraduate major is related to social media, when I was at undergraduate, I would observe what other people would do on social media platforms. I found that many people would use it as a platform for knowledge dissemination. You know that there are less words on a Weibo post, it is impossible to write a lot of text in one post, so all the things will be expressed in a very simple and straightforward way. That's why I sometimes search Weibo for knowledge. In addition, there will be some long articles in Weibo, or some short 140 words posts, and I will search and read all of them. Besides, when I was undergraduate, I go to WeChat to see the public accounts that are in the research field of communication, because on WeChat, we can do fuzzy search, that can let you search through the entire WeChat. There will be articles, that are, written by scholars on the WeChat public account to promote this field or to publicize our industry to others, and this is also a way for me to search for information. Another way to get information for me is from Zhihu, for example, when I was studying statistics in last term, I really felt that it was difficult to understand. Some things would make you doubt about your IQ. So I went to Zhihu and see what others feel about it; there are people who used a very funny way to explain the problem that stuck you at the time. So basically, I will search on social media, the knowledge sharing websites, or...I will also go to Quora and Zhihu, and I will read first English materials and then Chinese, this kind of reading order will be used for understanding the conceptual knowledge. The other aspect is that for academic things, I basically search on the library system.

R: Do you think your search behaviour changed after you come to UK? What type of information you usually search when you were in China? Is there any difference?

P: It's been a while after I come here, so I really forgot what information I usually search for study. Besides, I think it seems that the nature of communication discipline may be special, because we are studying social media, which is a new area of research and there is less literature in this field. And social media is quite different from the mass media. You can learn from some communication theories, which are mostly from the textbooks provided to you by the teacher; so you don't need to search, you just mechanically read the textbook.

R: Ok. At that time, did you use your mobile phone to search for information?

P: To be honest, at that time, rather than writing literature review, we do more observations and summarize afterwards. There may be fewer opportunities to search the literature than what I do now. This does not necessarily mean that my search habit changed, I feel that it is related to the discipline. For example, HCI is a thing that requires knowledge from psychology and CS (computer science) and there are a lot of research and articles around these areas; but for social media, because of the development levels of different countries, although there are research papers from US, it's hard to be applied in China. So I think the discipline influence is very strong

R: Ok, can you describe what kind of library systems you used in WHU and UCL and their differences?

P: I feel that the WHU library is okay, because they spend a lot of money to purchase different databases, which are linked on the library website, and basically, I can search for anything. But UCL is not like that, many things cannot be found, you have to go to Google Scholar, find something that cannot be found in the Explore, and then you put the article name in the Explore search to download that specific article, because Google Scholar has articles that are not permitted to download. I often encounter this kind of situation. For example, I am writing my dissertation recently and I have to switch between Explore and Google Scholar. However, the library system in China contains a lot of things and you can generally search what you want.

R: In addition to searching resources, is there any other differences? For example, in terms of the interface or the function?

P: UI design of the library website in China is really ugly. When we talk about interface design, we will say that beauty is pragmatic. The interface of the Chinese library website won't give you the desire to use; but although the UI design is bad, the website structure is very clear. But I don't remember what the WHU library interface looks like...

R: In fact, the WHU library interface is classified. There is a search box with different categories of resources in different types and databases...

P: Ah, I have a little bit impression of that, but the UI design is not good as the UCL one.

R: What's your experience of using the library system in UK?

P: I want to say something that I really dislike about Google Scholar, which is the biggest problem of it. If you don't change your setting, when you click on an article, it will not open up a new tab and it will be loaded on the original page. So, if you accidentally clicked Close, the entire Google Scholar is closed, and the page you searched before is gone. I really hate this, I think it do affect my user experience and it is the problem for all the Google webpages.

R: What do you think about the system of our university library?

P: UCL library system is better than Google, and it is quite similar to what I do in China.

R: Is there anything you prefer about the Chinese library system?

P: The cost for mis-operation is lower when I was in China, and when I bring my search habit to UK, the cost becomes higher. Oh, I also think up a habit of mine, when I was in China, I often go to the physical library to find books, and read paper-based books, and basically do not read electronic resources. The library system in China is a system for retrieving book numbers for me. After my search, I went directly to the library to look for books.

R: Ok, for the UCL library system, what do you prefer and what do you dislike?

P: Actually, there is one thing that really makes me annoyed. Every time when you want to search Explore, you have to click twice from the library website and sometimes if I search something here (the search box on the library website), there is no reaction, probably my network is not so good? Anyway, there definitely a difference of searching directly and clicking twice to search. In addition to this, I don't have any special likes or dislikes. I just feel

it can be used, and it's easy to use. Right, another thing is, every time when I see the red reminder (notifications) on the interface of Explore, which appear very often, I actually feel very panicked. I always feel that it is reminding me that there is something happened to my account. You know it is so obvious, the color of it is quite different from the whole website, so you know that it is emphasizing this matter, but in fact this matter may not have such a big impact on users.

R: Ok, from the cultural viewpoint, you have the learning experience of two countries, so what impact do you think the library system has on your learning experience?

P: Can I take a look at the WHU library system?

R: Sure! (show the library system of WHU)

P: You see, you can search directly on the homepage of the library, which is very convenient, unlike the library homepage of UCL, you have to pull it down to the Explore icon here. Sometimes it doesn't work with this search box on the homepage. So from this perspective, I prefer the WHU library system; but I used this system mainly on the terminal machine on the ground floor of the library, which has the interface of this library website and I search books directly from that. Basically, I don't need to use it in the dormitory, because I know where to find books. It is usually in the library of the Arts and Sciences campus. I know that I definitely can find the book I want, so I will go directly to the library.

R: So when you were in China, you generally go to the library to study?

P: Yes, almost. In the library, I will put the paper books on the table and then study.

R: Ok, now let's start the second part, which is about information behavior. Do you think the information provided by our university or library and all these platforms can meet your requirement of searching for study-related information?

P: I think it can't. Because a lot of things, for example, some psychological models in HCI studies, which are about the design of human behavior and the behavior of robots that are similar to human; that kind of models should be looked into the original research to know what each part is talking about. However, the articles you actually can find are how the others used these models to study certain problems and for these articles, the models are actually learned and borrowed by other people and they may change it according to their research needs, which is not the original thing. So if I want to see the original to understand the model or how it works, I can't find it, I have tried but I just can't find. This is a real problem I encountered when I wrote a paper last time.

R: Did you just search on our Explore or you searched in Google Scholar?

P: I searched them all but I can't find it. Because the model is probably a model of psychology proposed in the 1960s, there may be a photocopy version at that time, but there is no digital version, so it is difficult to search. On the internet, basically the resources are other teachers' courses, in which the framework is given, but they don't go in detail of what are included in that model and what each part is. It's not to say that we should get the materials from the teacher, but just means that the resource available is not enough.

R: How do you usually use our Explore? What types of documents do you search for? You can talk about some of your habits of using it.

P: Two ways. If I have a very clear goal, like kind of precise search, I will directly put that word in the search box, and search here, like this model (typing model name in Explore). If I find that there are a lot of irrelevant results, I will open advanced search to define field and limit my search. As for the filter on the left, I will generally look for articles in type, because they are shorter. Besides, I will also limit the topics to CS and psychology and I don't look at other fields. The thing I have been studying recently has also been studied in medical science, but it is different from what I am studying, so I will unpick the medical science here. Besides, I will also limit the date of resources. Another way of searching is, in HCI we have a more specialized digital library called ACM. I will go in from the 'find database' here, (operating) and ACM is in front of the list. I will go directly to this database and search. Because if go from other websites, you cannot download freely in ACM, so I must go in from UCL account.

R: Ok, can you always find what you want from our library system?

P: Most of the time.

R: Can you recall a time when you can't find the resources you want?

P: I have similar experience, just like I said, but I forgot what keyword I searched at that time, but I just can't find it in Explore, then I went to Google Scholar and searched same keyword, there were more results there. And I found a proper article from there and copy and paste

the title into Explore, then I found that UCL actually has that article. So I guess it's probably the difference of the algorithm that makes the results different.

R: Ok. In addition to the laptop, is there any other devices do you use in your study?

P: iPad and then mobile phone, the mobile phone is used to see social media related information.

R: Under what context do you use them in your study?

P: Generally, when I retrieval information and integrate all the references, I would prefer to use laptop because it is more convenient to type, copy and paste things. The iPad is mainly for reading, and because of the Apple Pencil, you can use it to draw and make notes as a paper-like devices during the lectures. The mobile phone is mainly used when it is casual time, and I use it in my pieced fragmented time, or I suddenly think of a thing that I have not solved yet, I will use mobile phone to check the relevant information.

R: So, do you usually use your mobile phone when you are on the move?

P: There is no internet in the underground here, so I don't use it in commuting; but in China, we have networks in tubes, so I will use mobile phone during the way to university or back home. Here in UK, basically, it is used in places related to learning.

R: So where do you usually study in the UK?

P: I usually study in the dormitory, but when I need to write essays and have dues, I will go to the library. At that time, I will use the library desktop, and I will not bring my own computer, because my computer is Apple Pro. It is very heavy, so I use google drive a lot to save all my files. All the articles or books that need to be read are saved on iPad, so I will only bring my iPad when I am out.

R: Ok. Do you have a preference among these three devices?

P: It is to do different tasks according to different needs. All of them have advantages and disadvantages. For example, computers are good for typing, but they are not suitable to read. Computer is a very unreasonable thing according to the ergonomics I just mentioned because your hand should maintain this position for a long time, which will be uncomfortable for your body if you read for a long time. The iPad is easy to read, although it will be uncomfortable to read for a long time, but it is very portable. Everything is like this, it's just use them according to your different needs.

R: Ok, what information you generally search on your mobile phone?

P: Generally, I will search the conceptual knowledge on my mobile phone. For example, the OCC model as I mentioned, I just search by using these conceptual names in the browser of mobile phone and search broadly on the internet. Generally, it is Baidu and Google browser I will use to search. Besides, I will also search on social media platforms.

R: OK, the last part is about your library user experience, is there any mobile library app that you used before?

P: (shaking head) what a mobile library is...

R: Do you know that WHU has a mobile library app?

P: I don't know at all.

R: Have you ever logged into the digital library from your mobile browser?

P: No, because I don't think it is easy to read. And besides, iPhone is not good to save documents. You generally need to use WeChat to transfer the documents to read. Also, you may forget to delete the documents you saved on your phone.

R: Ok, then in your study habits, when you use the library system, will you keep it open, or will you only open the library system when you want to search for an article?

P: I usually open it when I want to search.

R: Ok. If ask you to evaluate our library system, what would you say? You can evaluate it from its resources, interface or its functions.

P: First of all, I want to talk about the bad things about it. For example, the library service homepage, after opening, you can't find the Explore search system that you need most at first sight, which is a very bad user experience. You have to scroll down, although I know this is not a big problem, but the design is very important because it is not enough to highlight its most important features. Of course, the main function of library is to search for resources. No one needs to know what the library is for and how many libraries there (pointing the introduction paragraph on the homepage of library). The highlight of library is not right, and the product manager will not do this. The second is that I think the interface of Explore is

very convenient when you go into it, it's very simple, and has everything there. But how to say? There will be some unclear marks in the results, such as peer review...

R: You don't understand it?

P: I know that it was probably read by people who have the same background as me, and I know that it can be used as a standard for my selection of documents. But I don't quite understand the necessity and the reason of labelling it here. To be honest, I feel that I know very well what I want in my heart, and I don't decide whether I read it or not because others have read it.

R: Peer review means that after the article is submitted, it will be read by peers or scholars who have done research in similar fields and they will make some suggestions. Based on their suggestions, the author will revise and submit again. Peer review shows that this article is reliable and of higher quality, so some students may choose these relatively high-quality documents...

P: But the problem is that the library hasn't guide us on this, so my understanding is not the same as the real meaning.

R: So do you think the library needs to have a very detailed introduction to their interface and system?

P: I don't think there is a need of detailed introduction, actually it can do like what the Internet trend is doing, that give users a good guide when he or she use this product for the first time. Once this behavior is formed, it will influence the further use in the future. its impact on the future is from the first time. When I first came into this system, it was a completely blank status. It just believes that I understand each and every icons and functions, but in fact I didn't know.

R: So you think there maybe can add tips that can be opened next to it?

P: I think that the act of clicking has cost on your behaviour; besides, if use hovering can also influence the reading of other things in the background. It is entirely possible to do all the guidance for the first time. For example, when you download a new app, there will be guidance for you to lead the user step by step and tell them the functions of each part on the app. I think it is due to the lack of experience of designing website and there is no highlights; or some wrong design may miss leading users. After you explained to me what is peer review, I will see this kind of articles more; but how many users are similar to me that think it is not important at all. Besides, in China we don't have the concept of peer review, so this may be related to culture. Then, I think that the time of logging out is too fast. Basically, I usually read the whole document before doing anything other things. At this time, it says that i have been logged out, and I have to log in again. Maybe I need to log in ten times per day. In addition, I think it can do some personalization, such as how long the user wants to keep logging in, or whether I will be automatically logged out when I leave the computer. Although the computer automatically saves your password, it is still very troublesome. Another point is, look at this search box below, which is what I mentioned before, the 'personalized results', I will choose the CS field and another field, like engineering; after you click it once, it will remember your choice. The next time when you search, the result of your personalized setting will turn purple color, the normal results are in grey. I feel this function is pretty good, and is more convenient for information search.

R: Ok, what do you usually use in Explore and the library service page?

P: Generally, I use search for resources and find database in Explore. I have never used helps or even store request. In the service page, I used booking space before, and before coming to the library, I will use UCLGO to check the seat availability in every library.

R: There are several services related to library on UCLGO? Do you think it is easy to use?

P: To be honest, first of all, I think the information in it is not accurate sometimes. Once I booked a study room in the Science Library and then I came with my team members and we found that the library didn't open, but you can still book the space. It's like the system doesn't consider the situation that the library is closed, which is very mechanical, it just puts the two systems together, but doesn't consider the actual situation. There is also another problem, this app has the PC availability which tells you that how many PCs are still available, but it won't tell you the status of the PC. For example, the IOE library has about 600 computers. In the morning, I used the app to see and there were still about 20 PCs available in the app. I thought it should be quite adequate, but when I went there, all of the PCs available were down and cannot be used.

R: Ok. There is Explore search system in UCLGO. Have you used it?

P: Never used. I don't know what it does before you tell me.

R: OK, then do you use your mobile phone to access the library system?

P: No, my habit is that I like big screens, and look at long things, and like to take notes. These are functions that are hard to achieve on mobile platform. So in fact, I am quite satisfied with the library services in UCLGO and the function inside is quite comprehensive, but my personal habit is that I don't like to use the mobile phone to read articles.

R: Ok, do you satisfy with our library system and UCLGO?

P: I feel that it can meet my needs and I think it is perfect.

R: Ok. So what do you think of the library system as an international student?

P: The part of the instruction can be improved. The other parts are fine. There is nothing particularly uncomfortable with my usage habits. I just think it should tell me what each part means when I first use it, the instruction is very important.

R: Ok, we just mentioned two concepts, one is the mobile library and the other is the smart library. How do you understand them?

P: Mobile library I think should be focused on the portability of the library system, that you don't need to go to the physical library, and it is the kind of virtual thing, that is, like I just said, I feel you can get in touch with it at any time and place. In fact, I am a little confused about the smart library. I don't know what it means. Personalization, or just... because I am a little confused, I was thinking to ask this question...

R: In fact, scholars have different definitions of it. In 2008, a researcher proposed a comprehensive definition of the smart library after reviewing a lot of literature. He said that such a library should be able to respond to users' needs and provide them with the library's resources based on the user's request in a short time. But in fact, everyone's expectations for smart libraries are different, so the focus of definitions is not the same. As a normal library user, can you understand it from your perspective?

P: It sounds very difficult to achieve. I think the first thing is to satisfy the needs of most of the users, because it is impossible to truly personalize and meet everyone's needs. You can only do a very generalized thing based on the needs of most people, and use the most popular one as the default option. This is my understanding. In addition, for its own form, I think it should not be limited to such physical devices, because I think they have limitations, whether it is paper or electronic screen, this kind of thing limits your behavior. A truly smart thing or that can meet all your needs should not be something that binds you in form. This is my idea.

R: Do you mean for example, VR that has no specific form?

P: It's not limited to what kind of interface or form it is, what I want to emphasize is what kind of experience it should satisfy. For example, a lot of people think the reading in this way of lowering your head is very tired, but apparently it is impossible for the library to give everyone a screen that can be height adjustable and everyone's height is different, it is not realistic to make a fixed height screen. So it should be an interface that can meet most people's needs, but not ask users to adapt to the interface that already exist.

R: Ok. Another question is, what's the role of the technology or current electronic products or future electronic products in your learning?

P: I feel that technology should always be a tool to help people improve their life. This is what HCI has been doing, which is to use technology to make your life better, convenient and simple. Machine should serve people and should be an assistant, it can be in the form of a library, or it can be a tool to help you learn.

R: How do you think libraries can use these technologies to improve their overall user experience?

P: The first is the presentation of the library system and services, just as I said, it should be according to ergonomics to make people feel comfortable when reading, because the essence of the library is to provide knowledge and related things, so I think it should do its best in satisfying the most essential things. Another thing is the algorithm I just mentioned, even if you search ambiguously, you can still get the information you want quickly. Finally, the service it provides should be personalized and based on user's needs.

R: Ok, today's interview is over, thank you!

Participant 8

Chinese transcription

Interviewee 8--- Digital Anthropology ---Fudan University---Female

R: 好的，然后你现在可以解释一下你的图吗？

P: 可以，你说要画关键词 mobile library，所以我就像画 mind mapping 一样，先把最核心的概念画在中间。我思考的有大概有四个方向，一个是我在本科期间在学校里面怎么样使用 library 的习惯。然后第二个是我在 UCL 读研的时候怎样使用 library，以及 mobile library 使用的可能。第三个部分是我使用 mobile library 的一些场景，就是 settings。第四个就是我觉得在未来它还可以怎样被开发和使用。在本科期间严格来说其实没有 mobile library 的使用，最方便的可以连接到学校图书馆系统的移动端就是我的电脑。而且那个时候我们学校图书馆也没有很多线上的资源，一般就是去查书在某个书架某个地方，就是书籍的检索号，这个时候就会使用图书馆的系统，相当于一个检索工具。但是在 UCL 使用图书馆系统还是和本科差不多，也是以我的电脑为主，只不过它的线上资源会比较多一点。我一般如果有在线阅读的版本的话，我一般会选在线，因为我觉得这样比较方便。但是其实我也知道手机客户端有一个专门的平台就是 UCLGO，这上面好像有一些资源或者是入口，但是我自己没有怎么用过。下一个部分就是使用 mobile library 的场景，两个是比较传统的，一个是我的宿舍，另一个就是图书馆本身这个地方。但是我觉得如果你用手机端就可以连到 library 的话，那么比如说你在交通工具上面可以做一些 reading，我觉得会非常的省时省力。比如说我从宿舍到 UCL 的话，地铁上可能要花二十几分钟，还没有信号，就没什么事情做，这个时候做一些 reading，我觉得可以加强我的学习能力。最后第四个部分就是我觉得如果 mobile library 这个功能在未来可以被非常完整的开发成，比如说开发成可以装到你的智慧手机里的一个 APP 的话，就是除了可以让大家来使用手机来查到资源，也会包括一些在线的浏览资源的机会，还有一个我觉得很有发展的可能性，就是手机有很多的社交软件，社交的功能很多，我就想能不能把 mobile library 也做一个社交属性，可以在上面和大家分享阅读的心得，我觉得这个非常的厉害。还要补充一点，如果使用 mobile library 阅读的话，有一个我比较担心的点是做为一个留学生，英语不是我的母语，但如果我在查英语的在线资源的话，我可能对阅读的条件会要求比较高。举个例子来说，比如说我读 reading 的时候，我看打印出来的文本，或者是在电脑这种比较大的屏幕上面看 pdf，我可能会比较容易沉下心来。可是如果我在一个小小的手机屏幕上观看的话，我就不一定能那么专注或者是阅读效率足够高，但我又一想，如果是我在读一个中文的文献的话，我可能就不会有这方面的困扰。

R: 好的，然后我们现在就开始正式的 interview，分成三个部分，第一个部分就是我会问你关于以文化为切入点的一些问题，就是你作为一个国际学生来说你的体验；第二个部分是你作为一个信息搜索者，你的一些行为习惯；第三部分就是你作为一个图书馆的用户你的体验。第一部分和文化相关的，就是因为你本科是在中国的复旦大学，然后你现在硕士是在 UCL，从一个广义上的一个学习的氛围，或者从学习环境上来说，你觉得这两个国家就是在文化上面的区别是什么？

P: 就大学生活的体验就是学习的体验来说，很明显，因为这两个也不是同一个阶段，因为我在国内读的是本科，这里读的是研究生，也是不能完全排除各种变量。但是总的来说我觉得在上课方面有个很大的区别是国内是比较多的 lecture 形式，它会是老师在讲台上跟你讲各种知识，然后你去学就好，是一个比较单方面传授知识的过程。但是英国的上课是你提前要做很多的准备工作，老师可能会在课前就给你提一些问题，你要提前思考，上课的时候会有这种沟通交流，讨论是双向的，你可以老师也会有一个 lecture 的部分，可能有一些最基本的知识点会给你提到，但是很多时间是用在根据你课前的思考，和同学进行讨论和互动，然后表达自己观点的过程，我觉得这是最大的一个大的区别。

R: 也就是说其实在中国的时候可能更多的是一个老师单向输出的过程，但是在这边可能就是需要自己独立学习的时候比较多，对吧？

P: 对的。

R: 那么你来英国之前，就是针对学习而言，你有做什么准备吗？

P: 我觉得我作了一个心理上的准备和语言上的准备，就是因为我出国读的是文科，其实对语言的要求，包括对文化语境，文化背景要求，和出国读理工科是不太一样的。所以我就在毕业之后到出国之前两三个月的暑假做了一些准备工作，一个是，具体这么说，上网看我这个专业它有什么推荐的书目，然后我就找了几本来看一下。

R: 这个推荐的书目的列表是你从哪里找到的？

P: 有一个的 department website，然后在里面点了几次你就会发现一个学院给你的推荐书，就是 reading list。我想说一个是可以锻炼一下英语阅读的速度，还有一个就是了解一下他都在研究什么东西。我刚说了心理准备，就是我想说来这里之后，至少一开始肯定是学习可能会跟不上，然后就让自己平常心，不要在那边争先恐后的，一开始有点跟不上是很正常的，然后对自己说后面会慢慢进步，不要好胜心太强。

R: 好的，那你觉得你做的这些准备有用吗？

P: 其实还是有点用的，因为我选的 reading list 里面的书，比如说有一本是讲一个人做的民族志是在拉斯维加斯的赌场研究，那些 gambling machine 是如何设计，如何让人那么容易成瘾。还探讨了赌博成瘾这件事情，到底是赌博的人意志不坚定，还是说那些机器特意被设计成了某种特点，可以让人更上瘾。我觉得首先那篇文章也没有那么艰深、难读，我也读得下去，读了之后还会让我的英语阅读水平，包括潜移默化的写作水平都有比较积极的帮助。还有一个就是让我看到人类学的研究方法，就是民族志是怎样被运用在一个实际的研究中，它呈现了比较完整的过程，会让我对这个学科有更直接的了解。

R: 好的，刚刚就聊到了，针对你在英国的学习来说，你一般都会找寻哪些方面的信息来满足你的学习目的？

P: 其实我也没有怎么自己进行探索，平台的话无非就是 Moodle，还有 reading list 那个专门的网站。无非就是我选了什么课或者是我们的核心课，老师会提前把一些阅读的要求和指南放在 Moodle 上面，有的时候如果 UCL 的线上图书馆有资源的话，就可以直接去搜索，或者是在 reading list 里面，你可以直接点链接，会把你连到线上图书馆的资源。包括 UCL 的图书馆，因为它连接了很多文献资源数据库，你用 UCL 的用户名和密码登陆之后就可以免费获得资源，还挺好的。有时候如果 UCL 的图书馆没有资源，老师会把找好的 pdf 的版本放在 Moodle 里面。这些就是我获得信息的来源了。

R: 好的，相比于你在英国，在中国的时候你会搜索哪些和学习相关的信息，然后怎么搜索？

P: 其实和这里没有相差太大，中国的话很多课都是开学初的时候，老师会给你一个 reading list。这里就有一个很巨大的差异，中国的书比英文书便宜好多，如果老师说了一些什么必读书目，或者是老师开学的时候暗示你说考试都会从这本书里出题，我就会直接在亚马逊上下单买这本书可能跟我自己习惯也有点关系，我觉得图书馆里的书被大家都摸过，就是有点脏，比如说我如果在躺在床上看书就是有点不卫生，所以我就会买一个新的，反正也没有太贵。

R: 也就是说在中国的时候和学习相关的信息主要来自于老师上课的时候说的这些书目？

P: 还有一方面因为我大学本科也是学的文科，如果有课程论文的话，就是会根据它的主题或者是它牵涉的人物或者是作品自己去搜寻一些文献，这些就不是老师提供的。

R: 那么这些文献你一般是从哪里找呢？

P: 知网，但不是学校的数据库，因为学校的好像不是很好。我觉得。

R: 好的。你在用 explore 这个系统的时候，有发现有什么比较不好用的地方吗？相对于你在中国的时候用图书馆系统的习惯。

P: 我有觉得不是很好用的地方，但是我还没有跟中国的对比。比如说我搜寻完整的一篇论文的名字，有的时候会反而搜不到。比如说谷歌搜索做得就很超智能，比如说我搜索一个国家德国，当我输入之后，它会给我一些英文的资源，也会很智能的给我一些中文的资源。也就是说它把中文的德国和英文的 Germany 两个词关联起来了。可是我觉得 UCL 的 explore 系统应该是没有做到这么智能，以至于我觉得有时候你输入一些，比如说标点符号，它数据库里面可能是收入了全角，但是我搜的时候输入了半角，可能就搜不出来。但如果你在 Google Scholar 上搜，就可以搜得到。

R: 一般就遇到这种时候，你会怎么做？

P: 有两种方法，一个是登录 google scholar，还有一个是把有可能出问题的地方删掉，我就可以缩小一下我的搜索项，一般来说就能出来我想要的结果。等一下我觉得它还还有个缺点，有时候我搜了一个文章文献，然后下面会有 view online，就是说明有在线资源，这个时候我就会很开心，因为我是一个喜欢在线资源，在电脑上看的人，可是当我点进去的时候，它就没有。就是点了 view online 那个 tab 之后会出现一个新的页面，但是在那个页面里往下拉是没有可以 view online 的地方的。就不知道为什么。

R: 你在中国用的图书馆系统是什么样的？除了你刚刚说的，它主要起到一个检索书目的作用，还有用其他的功能？

P: 我不知道这样能不能说？我说一下。有一个学校的图书馆系统我真的不怎么用，就是如果我真的要查一本图书馆里的实体书，就查一下他在哪里，就这样而已。之前有一个同学给我推荐了另一个数据库的系统，叫做什么图书馆联盟，上面就有很多实体书和电子书的资源，我觉得那个东西比较好用。其实那个是几个高校一起办的一个联盟，就相当于它有几个高校的资源都有的那种，比学校自己的好用多了。

R: 好的，也就是说其实中国的图书馆系统最重要的其实它的功能还是以检索书目为主，你还是会去图书馆去借书？

P: 我理解好像是这样。

R: 好的。那么中国的图书馆系统和英国的 explore，这两个对比，你各自喜欢什么，不喜欢什么？

P: 中国的我真的没什么喜欢的地方。就英国的 explore 的话，我说个优点，如果你要搜一本书，比如说老师让你读一本书，或者是你写论文的时候，你想要找那本书，但是你根本就没时间读完一整本书，这个时候你搜索书名，它会给你跳出来一些 book review。我觉得这个真的超好，就是各个资源的分类分的比较清楚，而且比较全，比如说它有书的本身，然后又有 book review,也有期刊论文什么的，就是它的一个很重要的优点。还有一个优点就是它的 online resources 比较多，因为比起纸质书我更新电子版的。

R: OK，那你不喜欢他的点是什么？

P: 就刚刚说的检索不到我想要的资源有时候。

R: 好的, 现在我们开始第二部分, 第二部分就是关于你检索的一些行为。针对你的学习来说, 你可能会经常搜索的资源, 一方面是从图书馆系统里面去找, 另一方面可能从 Moodle 里看, 除了这两个方面, 你还会用到什么样的平台吗?

P: 当然包括纸质书, Google Scholar, YouTube 可以说嘛? 我会在上面找视频讲义, 比如说有一个有上学期有一周的它的 reading, 我根本就看不懂, 我就去了 YouTube, 我发现外国人也看不懂, 但是那个上面会有那种讲解视频, 可能十几分钟跟你讲解一下这个人的这篇文章到底在讲什么东西, 我心里就了解了。

R: 你还挺喜欢那种有讲解的视频形式的?

P: 对, 我需要, 因为我的水平没有过关。

R: 好的, 我总结一下你一般会找学习信息的平台有图书馆系统, google scholar, Moodle, YouTube。

P: 那图书馆系统比如说会链接到别的数据库, 比如说 JSTOR, 那种算在图书馆系统里面, 还是算在别的系统里呢?

R: 这种算图书馆系统的, 我等下也会问到。在图书馆系统当中, 我们图书馆是有一个 explore 界面, 还有一个是服务界面, 你一般在服务界面会用到的功能, 或者一般会点击的一些地方都有哪些?

P: 我只会在 library services 里面直接划到 explore, 然后在这个搜索框搜内容。

R: 好的, 那么 explore 这个界面, 你一般会用到的功能是什么?

P: 我一般就直接在这个搜索框搜东西了, 不会用上面的这些 tab。Filter 的话我会用, 就是看情况吧, 如果它的结果已经是就是比较有针对性的了, 我能找到我想要的, 我就不需要点 filter。如果是我找不到想到的情况下, 首先我会查年份, 就是可能比较新一点的会更好。然后比如说会查这个文献属于哪一类型, 还有就是有没有 online resources。

R: 你在检索的时候, 刚你提到了一个数据库, 是和你们学科相关的数据库吗?

P: 好像它上面什么科目都有, 那个就是我在 explore 里搜索资源的时候, 在线资源的话会给你一个链接, 然后你点击链接就可以进入那个数据库。像外国的知网一样, 在线资源如果有的话, 就会给你一个链接。没有专门去搜数据库。

R: 好的。除了 laptop, 你还有其他设备来学习吗? 你会用学校的 desktop 吗?

P: 一般就是我的电脑, 如果我没带电脑, 但是又很需要搞一个什么...我印象中我可能 98% 的情况都是用 laptop, 但是有一次我记得我在等同学吃饭, 但是我又没有带笔记本电脑, 我就去图书馆找了一下我要这周要读的 reading, 然后把它打印出来, 这就是我记得的唯一一次用学校 desktop 的时候。

R: 好的, 那么你的手机一般的功能是什么?

P: 两个字概括是娱乐, 娱乐产生出来就是各种, 比如说社交软件, 有的时候有事情的话也可以联系一下别人, 比如说打打电话发短信什么的, 就是交流和娱乐为主。

R: 那你有用过手机来学习的体验, 就这个学习可能是广义上的?

P: 有, 不过那些都是在中国的事了, 比如说下一个背单词软件背单词, 然后网易公开课我以前曾经看过视频课, 还有就是和同学利用社交软件交流学习问题。

R: 也就是说可能这些在手机上面学习的体验更多的是在中国的时候, 然后你在这边其实很少用手机来学习了。可以这样理解吗?

P: 是的。我要补充一点, 我记得有上学期有门课, 是有叫 lecture cast, 上课的全程它都有录音录像, 对, 把 PPT 什么的录像录进去。然后我可能有一两次课没去上, 我就看了那个 lecture cast 是在手机上看的, 有个专门的 APP。

R: 你觉得体验怎么样?

P: 觉得挺好的。

R: 相当于是你们老师跟你们说让你去下载的 APP?

P: 链接也是在 Moodle 上, 就叫 echo360 给你看。

R: 好的。在图书馆的系统上面, 你一般会搜索的信息都是什么?

P: 文献。其实我说实话, 我也不知道还有别的什么信息可以搜。有吗?

R: 我可以给你举个例子, 就有些同学可能会在上面搜之前的 paper, 但是这和学科是有关的。

P: 是这样啊, 还可以检索试卷吗, 我昨天刚考完试, 我们往年 paper 是老师传在 Moodle 上, 就是说老师就手把手的给你资源。

R: 那么你搜索的文献是在什么情境下搜索的?

P: 如果我是使用 explore 的话, 更多是, 正如刚刚所说, 我们那些老师手把手的把资源投给了我们, 我们就不怎么需要自己去找, 就算你在 reading list 网站上面找, 链接也是已经给你那一本书或者那篇文章, 你根本就不用再去搜了。但如果是 essay 的话, 你可能需要查一下, 因为老师没有提供资源。

R: 好的, 我们刚才第一部分你有提到过, 你可能有些经历是在图书馆上面找不到你想要的资源, 你可以想一个具体的例子, 就比方说你在找什么方面哪个资源的时候失败了, 然后并没有找到?

P: 其实可能更多的情况是我更想要一个在线的资源, view online, 但它没有, 或者是没有在线资源的情况下, 我可以退一步, 我来图书馆借书, 结果书也被借出去了。这时我就只能到, 比如说 google scholar 上找一下, 就是这样子。

R: 好的，现在开始第三个部分，就是你作为一个图书馆用户的用户体验，你之前有用过任何类型的图书馆的 APP 吗？

P: 没有。这方面的 APP 没有。

R: UCLGO 你有看过吗？

P: 有，但是我只在上边看过 study space。

R: 针对 UCLGO 目前的图书馆的功能，你可以简单评价一下吗？

P: 我用过 place finder, Moodle 我也用过。PC 没有看过，也没有在上边检索过图书馆资源。如果你从一个很高的标准来说，它肯定称不上是一个很完美的或者是很 2019 年的系统，maybe 它是 2015 年左右的一个很时尚的 APP。举个例子来说，按照 2019 的标准，我点击 Moodle 的话，它应该有一个专门的界面，但是目前它只是做了一个入口而已，还是显示的电脑的版本。但是我觉着他已经很我己很满意了，因为有一些功能非常的人性化，比如 study space，它甚至还有 TFL，我真的觉得加入这个东西的人真的是很天才。还有 campus map,真的很有想法。哦，这里有来 library services 啊，我从来都不知道。

R: 其实你没有特别完整的使用过这个系统，但是就是从整体而言，它已经可以满足一些比较基本的需求了？

P: 对，我真的觉得已经很好了。

R: 刚刚我们有提到学习的地方，你一般会去图书馆学习吗？你在图书馆学习的时候是怎么使用不同的设备呢？

P: 我有经常去图书馆学习，但我会用我自己的 laptop，我只是利用他的空间，但是你不会打开它的 desktop。

R: 好的，那么你在图书馆学习的时候，你刚说到你会去书架上找书借书，那你会在图书馆里面漫步一样的去发现书，这样的会吗？

P: 不会。而且我看书的时候偏向于用 digital version。

R: 那你在宿舍里面是怎样学习的？一般有些公寓有 common room 你会去那里学习吗？

P: 就是在宿舍使用我的 laptop。我们的 common room 很吵，因为有很多本科外国人小孩他们在那边玩，讲话很大声，所以我想说那就算了，还不如来学校，即便是在在宿舍学习，还是会自己一个人，这种安静的空间会比较喜欢。

R: 从一个国际学生的角度出发，你会怎么样评价我们学校的图书馆系统，还有图书馆的这些服务？

P: 作为一个在中国上本科的学生，由于我使用过中国的图书馆平台，所以我就会对这些图书馆平台的要求就不会那么高。我来了英国之后就会觉得，因为我也没有抱什么很高的期待，我就会觉得这样已经很好。比如说举个例子，library 还有 study space，它告诉你具体有哪些地方可以去，还可以告诉你有多少空位，这就是超人性化，很满意，要求很低。

R: 好的。刚刚提到，你一般会用图书馆系统的方式，就是直接在里面检索？

P: 我要补充。就是我现在才发现这里（图书馆服务的网页）也可以看 study space，但是我一般都是在 UCLGO 上看。我一般在网页版的图书馆网站上都直接滑到下面检索。

R: 好的，你会有什么建议吗？你会希望图书馆这个系统做什么样的改进吗？

P: 也许检索方面，就是刚刚说的算法什么的可以改进一下。可以让它更智能。还有有些人可能会觉得检索有可能会找不到想要的东西，就会觉得这个系统不好，但是就我而言，我觉得用惯了这个系统之后，你会了解到他有什么的特点，你可以根据他的特点改变你的使用方式，就可以避免很多不好的问题。

R: 好的。刚刚我就一开始我有说到移动图书馆和智慧图书馆这两个概念，对于你来说，你会怎么理解这两个概念？

P: 我觉得移动图书就是 mobile 和 smart 这两个词给人的感觉就是 mobile 它比较具体的，就可以可能具体到手机或者 iPad 之类的移动端，就是他很明确地指向了你使用图书馆服务的设备。但是智慧图书馆就给人一种更加抽象更加概念化的感觉，就是你听到这个词，你心里会联想到各种各样的高科技，然后机器可以通过各种各样的算法或者是科技来适应人的个性化多样化的需求，就是给人第一印象就是有差别。但是当你真的要让我去想，你觉得 smart library 是怎么样的时候，我又会觉得它的可能性太多，太概念化，以至于我无法给出一个很清晰的 1234，列出我的想法。

R: 你觉得就是说你对移动图书馆或者是更广阔的智慧图书馆，你有什么期待吗？

P: 我现在想到一个很好的期待，就是最近不是有个很火热的概念叫做物联网，我觉得能不能，结合我自己的使用习惯，就是经常用 laptop，我就想如果我可以 mobile library 上面进行一些检索，然后比如说把检索和它的各种功能性结合到一起。比如说我检索到了一个资源，我可以用怎样的方式，把不同的设备连接在一起，然后推送到我的电脑里，会很方便。其实就是结合不同的设备，不同的科技，然后整合你检索过的信息，再把它推送到你最常用的设备里面。

R: 你觉得这些设备或者是科技，它对于你的学习而言，它应该起到一个什么样的作用？

P: 首先我因为学文科的话，学习最大的投资其实就是读和写，所以我觉得是给我读和写进行操作的一个平台，这是最基本的。其次的话，因为这其实是电脑的本地使用，他连上网之后给我找资源，然后包括查找资料什么的，提供了几乎所有的可能性，因为我真的比较喜欢在线看东西。然后你刚问题是什么？

R: 你觉得这些科技，刚刚你说过本地联网，就是这些东西应该在你的学习生活当中是一个什么样的角色？

P: 我想还有没有别的?差不多没了,就是可能有人会觉得浪漫想象,把它当成什么 siri 或者是 Alexa 之类的,我就没有这么像,更多的还是一个工具性的一个存在。

R: 好的,你觉得我们的图书馆可以怎么样借助科技来让它变得更好?

P: 首先就是它可以优化一下它的算法,不过这我也不奢求,因为反正总能找得到你想要的东西,但是优化一下会更好。然后关于 map 上面画了一个对于未来的畅想,就是你可以在上面跟你的学习伙伴互动,我觉得这其实在现在的科技下应该也可以做到。就是可能更多的加入一些类似于社交,但是是以学习为目的的社交功能。不过对于图书馆而言最重要的还是检索。

R: 好的。今天的 interview 就结束了。

English translated transcription

Interviewee 8--- Digital Anthropology ---Fudan University---Female

R: Ok, can you explain your picture now?

P: Yes, the keyword you asked me to draw is mobile library, so I drew the map in the method of mind mapping, and I drew the core concept in the middle of the map. My thinking has four parts, the first one is my habits of how I used the library in my undergraduate university when I was in China. The second part is how I use library system during my master course in UCL and the possibilities of using the mobile library. The third part is some of the scenarios and contexts of using the mobile library, which is the settings. The fourth is how I feel it can be developed and used in the future. Strictly speaking, I never used mobile library during my undergraduate stage. The most convenient way to connect to the university library system is from my computer. Besides, at that time, our school library did not have a lot of online resources. Generally, it was used to check the location and bookshelf of physical books, which is a retrieval search tool for library collections. The use of the UCL library is similar to the library system of my undergraduate university, which I used them mainly on my laptop; but the UCL one has more online resources. If there is view online option, I will choose the online resources, because I think it is more convenient. I also know that there is UCLGO app that is designed for mobile platform, and there is resources and library access, but I haven't used it a lot. The next part is the scenarios of using the mobile library. There are two traditional scenarios, one is in my dormitory and the other is in the library. But I think if the mobile phone can connect to the library system, then for example, you can do some reading on the transportation vehicles, which will save a lot of time and effort. If I move from my dormitory to UCL, it may take twenty minutes on the underground and there is no network signal, so I don't have anything to do. If I can do reading by using this time, I can improve my learning ability. The last part of the map is the future development of mobile library, if it can be developed into an app on your mobile phone, you can search resources on it, and also there can be access into these resources which can be viewed online. Another possibility that can be developed is that, there are a lot of social media software on the mobile platform, and the phone has the feature of social with other people. So, I am thinking whether there can be some social features of mobile library, where people can share their reading experience with everyone, and if so, it can be brilliant. Another thing to add is, if use mobile library to read, I have a concern that as an international student, English is not my first language, so when I search English online resources, I might have higher requirement on reading. For example, when I read, I will be more focused and immersed if I read papers that are printed out or read pdfs on bigger screen like laptop. However, if I read on small screen like the mobile phone, I can't be focused like that or I might have lower efficiency of reading. And I feel if I read Chinese resources, I won't have such concern.

R: Ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment, or to say, the learning atmosphere, is

there any difference between these two countries? How you experienced in these two countries?

P: As far as the learning experience, the difference is quite obvious. Besides, I am taking different levels of courses, undergraduate and master, so there are various variables. But in general, I think there is a big difference in the form of class. In China, most of the courses are lecture-based where the teacher will teach you everything and you only need to learn, so it is a kind of one-way information receiving process. While in UK, before class, you have to do a lot of preparations in advance and the teacher may raise some questions for you to think. During the lecture, there are lots of communications, and the discussion is a two-way communication. There's still a lecture from teacher, where some basic knowledge points will be listed out for you, but a lot of time is used on thinking before class and interacting with your classmates based on your pre-class thinking, and then express your opinion. I think this is the biggest difference.

R: In other words, in China, it may be more of a teacher's one-way output process, but there may be more time to learn independently in UK, right?

P: Right.

R: Have you done anything before you came to the UK, in terms of learning?

P: I had mental preparation and language preparation. My major is in the art and humanity discipline, which has a high requirement on language, cultural context, and cultural background, which is different from learning a science major. Therefore, before going abroad after my graduation, during that summer of two or three months, I did some preparation. First is to search online the recommended books for my major and I found a few books to read.

R: Where did you find the list of recommended books?

P: There is a department website, and after several clicks, you will find a recommended book list from department, which is the reading list. I was thinking that I can practice my reading speed on English materials on one hand, on the other hand, I can get to know what this major are studying. I just said mental preparation, which is, I thought that after come to UK, at first, I probably cannot keep up with the course and my study, so I tell myself that I should have a good attitude and don't rush, I tell myself it's normal being unable to keep up at first and I just need to make progress gradually and don't be too ambitious.

R: Ok, then do you think the preparations you made are useful?

P: Actually, it's useful, I chose the book from the reading list. For example, there is a book which is about how ethnography used in the research in casinos in Las Vegas. It writes about how are the gambling machines are designed and how they make people addicted to it. Also, it discussed the gambling addiction, whether it is because that the gambling people have weak will or it is because the machines are deliberately designed with a certain feature, which can make people addictive. I think first of all, that article is not so difficult to read and I can understand it. After reading, it has a positive effect on my English reading skill and writing skills. Besides, it gives me illustration of how the research method of anthropology are used in a practical study, and it presents a relatively complete research process, which gives me a direct understanding of this subject.

R: Ok, for your study in the UK, what kind of information do you usually look for to meet your learning goals?

P: Actually, I didn't explore much. The platforms I use are mainly Moodle, and the specific website for reading lists. Basically, after I choose the courses, or for our core courses, the teacher will upload the readings, requirements or instructions on Moodle in advance. Sometimes, if our UCL digital library has resources, I will go directly to the Explore and search. If the reading materials are listed in the reading list, there will be links where you can click into directly and it will link you to the resources. Besides, the UCL library system links a lot of databases and you can get free resources by using UCL account, which is quite good. Sometimes if the UCL library has no resource, the teacher will put the pdf articles for us on Moodle. These are information sources I usually seek for.

R: Ok, compared to how you search in UK, what information do you usually search when you were in China and how to search?

P: Actually, there is no big difference. In China, at the start of the course, the teacher will give you the reading list; and there is a big difference that the Chinese books are much cheaper than English books. If there is any core reading books, or the teacher tell us the exam will be

based on certain book, I will directly search it on Amazon and but that book online. Probably it is also related to my own habit that I feel the books in the library have been touched by everyone, so it is a bit dirty. For example, if I read the book in bed, it is not clean to hold it, so I will buy a new one, and it is not too expensive anyway.

R: In other words, the information related to learning in China mainly comes from the books that the teacher tells you?

P: Yes, and in addition, I was learning art and humanity at that time, so if there is coursework papers I need to write, I will search for some resources by myself according to the topic or the targeted people or some related works, which are not provided by the teacher.

R: So where do you usually find these resources?

P: CNKI, but not our university library website, because the uni's one works not well. I think.

R: Ok. When you are using the explore system, is there anything you found not easy to use? Compared to the habit of using the library system when you were in China.

P: There is something that is not easy to use, but I haven't compared with China's library system yet. For example, if I search with the title of an article, sometimes there is no result shown. However, the Google search is very smart, for example, if I search for a country like Germany, after I type in this keyword, it will give me some English resources, and also some Chinese resources based on my system language, which is very intelligent. In other words, it links the word 'German' in Chinese and in English in their system. As for the UCL's explore system, it is not as smart as Google is, that I sometimes feel that if I typed in half-width, although the system may have the resource, it recorded as full-width, in terms of the punctuation method, then I won't get the result. But if you search it on Google Scholar, you can find it.

R: Generally, when you encounter this situation, what will you do?

P: There are two ways, one is to search in Google Scholar, the other is to revise the keyword where the problem might exist and I can narrow down my search terms, and in general, I can then get the results I want. Wait a second, I think there is also another shortcoming of Explore. Sometimes I searched for an article and there will be a 'view online' under it. It means that it has the online resources and I will be very happy because I am the person who prefer online resource and read on my computer. But when I click into it, there is no online resource. Like when you click into 'view online', it will lead you to a new page; but on that new page, when you pull down, there is no place to view online. I don't know why.

R: What the library system in China is like? In addition to what you just said that it mainly serves as a search tool for physical books, is there any other functions?

P: I don't know if I can say this? Ok, I will just say. Actually, I don't usually use the library system of our university, if I really need to find a book in the library, I will just use it to see where it is in the library, that's all. I had a classmate who recommended me another database system, called the Library Alliance. There are a lot of physical books and e-book resources and I think that system is better. In fact, that is kind of a cooperation among several universities and it has the resources from these universities, which is much better than the library system of our university.

R: Ok. Compared the Chinese library system and our UCL Explore system, what do you like and what do you dislike?

P: There is nothing I like about the Chinese library system really. As far as the UCL Explore, if I want to search for a book, like when the teacher asks to read a book, or when I write a paper, I want to find the book, but I don't have time to finish reading the whole book. After you search for the title of the book, it will give you some book reviews. I think this is super good, because the classification of each resource is clear and comprehensive, for example, it has the book itself, then there are book reviews, and also journal articles or other things, which is a very important advantage for me. Another advantage is that it has a lot of online resources, because compared to paper books, I personally prefer the electronic books.

R: OK, then is there anything you dislike about the Explore?

P: Like I just said, sometimes I can't get the resources I want.

R: Ok, now we start the second part of the interview, which is about your information seeking behaviour. For your study, you just said that for your study, you sometimes search in our library system and sometimes you find in Moodle. In addition to these two sources, is there any other information source you will search for?

P: Of course, I will read paper books, search on Google Scholar...can I say YouTube? I will find some tutorial videos on it. For example, there was a reading from a course in last term, which I can't understand. So I went to search on YouTube and I found that other foreigners can't understand it either, but there were some tutorials that illustrate the topic in maybe ten minutes or so to explain to you what this person's article is talking about. After watching the video, I gradually understand it.

R: Do you like this kind of video form that explain to you the topic?

P: Yes, I need it because my level is not high enough to understand.

R: Ok, let me sum up the platform you usually look for study-related information, which are the library system, Google Scholar, Moodle, and YouTube?

P: The databases, for example, that are linked with the library system, such as JSTOR, is that counted in the library system or other information source?

R: It is included in the library system and I will ask questions about it later on. So, for our library system, there is a homepage, which has services on it; and also, the Explore search system. On the homepage, which parts do you usually use?

P: I will only go directly to the Explore part on the library services and then search for content in this search box.

R: Ok, then on the Explore interface, what features do you generally use?

P: I usually just search for things directly in this search box, and I won't use the tabs above. Filter, I will use it, just depends on the situation, if the result is already targeted, and I can find what I want, I won't use the filter. If I can't find what I want, first I will check the year of the resource and the recent ones will be better. And then, I probably will check which type of this resource belongs to, and whether there are online versions.

R: When you search, you just mentioned a database, is that database related to your discipline?

P: I think it seems that database has resources in other disciplines as well. I found that database when I was searching resources in Explore and for online resources, it will give you a link. After clicking, it will lead you to that database. Just like a foreign CNKI, which give you a link to certain database if there are online ones. I didn't search for that database specifically.

R: Ok. In addition to laptop, do you use other devices to learn? Will you use the desktop in our library?

P: In general, I will use my laptop. If I don't bring my laptop, but I need to do something... Like as I remember, in 98% of time I will use my laptop, but there is one time when I was waiting for my classmate for meal, but I didn't bring my laptop, so I went to the library to find the reading I was going to read in that week, and then printed it out. This was the only time as I remembered that I used the library desktop.

R: Ok, what is the general functions of your phone?

P: One word to summarize is entertainment, and entertainment includes various things, for example, the social media platforms. Sometimes contact other people, like texting and making calls, so basically, communication and entertainment.

R: Do you have learning experience on your phone? Like from a general understanding of learning?

P: Yes, but most of this experience is from the time when I was in China, like I sometimes download apps to learn English, memorize English words; I also used NetEast open class to watch some video courses; or sometimes I communicate the learning problems with my classmates on phone.

R: So, do you mean your learning experience on phone comes mostly from the time in China and now you rarely use your phone to learn?

P: Yes. And there is one thing I need to add, last term, there is a course, where an app called lecture cast or something, where it records the recordings and videos of the lectures, including the PPTs. I missed one or two lectures at that time, so I used that app on my mobile phone. And my experience of using that app is very good.

R: You know that app from your teacher?

P: Yes, the teacher put that link on Moodle and it's called...echo360, let me show you.

R: Ok. What information you usually search on our library system?

P: Articles, books and recourse. To be honest, I don't know if I can search other things on it? Is there anything?

R: I can give you an example. Like some students may search for the past papers on it, which may be related to the feature of some certain disciplines....

P: I see, it can be used to search for past papers...Actually I just had an exam yesterday, but our past papers were already uploaded on Moodle by our teacher. I have to say that our teacher really gave us everything we need directly.

R: Ok, can you recall some contexts of how you search in Explore?

P: If I use Explore, in most of the time, like I just said, the teacher already gives us the resources we need to look into, so we don't need to find by ourselves. Even for reading lists, the links of the books or articles have been given to you and there is no need to search anymore. However, for writing essays, we might need to search a bit, because the teacher doesn't give us the links.

R: Ok, we mentioned the first part that you had experience when you can't find the resources you want on the library system. Can you think of a specific example of when you can't find what certain resource and how you did afterwards?

P: Actually, the most of the situations is that I want the online resources, like with the 'view online' option, but there isn't this option. Or if there really don't have any online resources, I can take a step back to go to the library to borrow the paper books; but all of the copies are borrowed by others. At this time, I can only go to, for example, Google Scholar to find it, that's it.

R: Ok, now the third part is about user experience of being a library user. Have you used any library apps before?

P: No. I have never used any specifically library apps.

R: Have you used UCLGO?

P: Yes, but I only use it to see the available study space.

R: In terms of the UCLGO functions, can you briefly evaluate the app from your experience?

P: I have used 'place finder' and Moodle. I haven't used the PC availability and I never search for library resources on that. If evaluate from a high-level of requirement, it can't be called as a perfect system in 2019, maybe it's an adorable app if you view it from a 2015 app design perspective. For example, if you view it in the 2019 app design standard, if I click on Moodle, it should have a specific interface for mobile platform, but for now it just has an entry to the website version Moodle. But I am already satisfied with it, because there are some very convenient functions, such as study space availability, it even has TFL, I really think that the person who designed this thing is really a genius. There is also a campus map, which is really very interesting. Oh, here is the library services, I never knew.

R: We just mentioned the places you usually study at. Do you usually go to the library to study? How do you use different devices when you study in the library?

P: I often go to the library to study, but I will use my own laptop, I just use its space, but I will not open its desktop.

R: Ok, then when you are studying in the library, you just said that you will go to the bookshelf to find books and borrow books?

P: Yes, but that's just for the books that the teacher requires us to read and if there is no digital version, I will borrow paper books. I still prefer to use the digital version.

R: How do you learn in your dormitory?

P: I generally use my laptop in the dormitory and I will only study in my own room. We have a common room for students to study, but our common room is very noisy, because there are many undergraduate foreign students playing there, and they speak loudly, so in that case, I would feel that alright, never mind, I can just go to the library to study. Even when I am studying at dormitory, I will just study alone. I like the quiet space when I study.

R: From the perspective of international student, how do you evaluate our library system and the library's services?

P: As a student who have studied in university in China, because I have used the Chinese library platform, so I don't have high requirements for library platforms. When I came to the UK, I felt that because I didn't have high expectations, I feel that it is very good. For example, you can check the available study space, which tells you exactly where you can go, and tell you how many vacancies are there, which is super user-friendly and I am very satisfied, and I don't have too many requirements.

R: Ok. We just mentioned that when you use the library system, you generally search directly?

P: Yes. And I want to add one thing! I just found that here (the library service page) we can also see the available study space, but I usually look it on UCLGO. I even haven't noticed it before and I generally will just scroll down to the Explore part and search directly in the box.

R: Ok, do you have any advice for our library system? Is there anything you think that our library system can improve?

P: Maybe the search part, like I said, if the algorithm can be improved to make it smarter. Some people may think that the Explore is not good if they can't find what they want one or two times; but as for me, I feel that if you get used to the system, you will know its features and you can change your search and use habits according to its characteristics, and can avoid many problems.

R: Ok. I just mentioned the two concepts, mobile library and smart library at the beginning. How do you understand these two concepts?

P: I think from the meaning of these two words, mobile and smart, I feel that mobile is more specific and concrete that can be limited to the mobile devices like phone or iPad. It clearly points out to you the devices for using the library system and services. However, the smart library gives people an abstract and conceptual feeling, that is, when you hear this word, you will think of various high-tech in your heart, and you feel that the machine can use a variety of algorithms or technologies to adapt to the diverse and personalized needs. So, the first impression of these two terms are different. But if you really ask me to give definitions for these terms, or to ask me how you feel a smart library will be, I think there is too many possibilities, and it's too conceptual to give clear thoughts of 1234 points on it.

R: Do you have any expectations for a mobile library or a smart library?

P: I just came up with a very good expectation. Recently, there is a very popular concept, which is the Internet of Things. I am thinking whether the library can learn about my preference and habits, which is I usually use my laptop to study; and I am thinking if the library system can connect different devices together and if I search something on mobile library, I can then have the resources on my laptop. So, it's like combining different devices and technologies to integrate the information you searched regardless of which platform you used, but it will send you the information to the device that you usually use.

R: What role do you think these devices or technologies in your study life?

P: First of all, because I am learning art and humanity discipline, so most of my learning are reading and writing. So I think these devices provide me the platforms of reading and writing, which is the basic thing for my study. Secondly, without internet, my laptop can be used locally; with internet, I can search all the resources on it, including finding materials and it provides me with almost all possibilities, because I really prefer to read things online. Let me think, is there any other things to add...Basically that's all, some people may have romantic imaginations, like to use it in the way of Siri or Alexa, but I don't see it in that way. For me, I just treat it as a tool.

R: Ok, how do you think our library can be improved with technology?

P: The first is that it can improve its algorithm, but I don't expect that too much, because anyway, you can find something there. It will be better if it can be improved. Besides, like what I drew on the map about the future development, that you can interact with your learning partners on it, and I think this can be achieved by using the current technologies. It is possible to add more social features similar to social media platform, but for learning purposes. However, the most important thing for the library is still the search.

R: Ok. Today's interview is over.

Participant 9

Chinese transcription

Interviewee 9--- Linguistics (Phonology)---Fudan University---Female

现在请开始你对这幅图的解释。

虽然我没有太多使用 mobile library 的经验,事实上我在 UCL 包括在本科我就不怎么去图书馆,我比较喜欢从线上直接看电子版的東西。但是说到图书馆,我还是对它有一点期望,我也很希望有这样一个 mobile library 的上线。首先想到的其实是 offline services,就是线下的给能给我们一些比较便利的服务,作为一个不怎么在图书馆借书,只是在图书馆看书,我觉得如果图书馆能借给我们一些,比如说雨伞放在那里,因为英国这天气你也知道的,一些帆布袋,一些徽章,这样的话我们会对学校 and 图书馆更有亲切的感觉;也可以借我们这些东西可以直接卖给我们这些东西,或者在那边放一个就是慈善捐款箱之类的,现在 UCL 的图书馆有些确实是这样做的,然后 offline services 还有一些东西我们后面再讲。我想到就 mobile library 肯定要有的一些电子设备去支持它的运行,我想到的是手机、PAD 和自己的个人电脑,但是我希望他们这些这三类 devices 可以有相似的操作界面,因为比如说手机上我们有安卓和苹果系统,这两个他们的操作界面非常不同,这会导致使用安卓的用户用多了之后就换不到苹果了,然后反之亦然。至少在手机和 PAD 上面,因为这两个是移动端,能拿在手里走来走去的那种,至少要把这两个的操作界面弄得像一点,不然我可能会不适应,不知道某一个服务应该从哪里点进去。我在旁边写了一个 VIP,说明我觉得这个非常重要。然后对于 devices 我就分出来了一只叫 account,就是自己的账户,有一点没写,登录的时候记住密码,这个应该没什么问题,一般的都有这个功能,然后我希望这个账户能给我一些提示或者警告,说你现在还没还书,你赶紧去还书。还有推荐给我一些我这个课可能其他同学比较多看的书,和这个课相关的一些 reading material,所以我这边写了 borrow and return,其实这个 borrow 指的是我希望 library 可以告诉我我的同学在借的书,这边可能没有写清楚,然后我就又跳回了 offline services。有的时候我们可能不能去图书馆现场取书,这个时候我希望能图书馆能把书快递给我,这个...我觉得不太可能,反正我希望能通过快递来收到我想要的书,当然有的时候图书馆太远了,我过不去,比如说我在六区,我过来实在太麻烦了,也可以通过快递来还书。然后我想到的是,library guide,就是说我们有的时候要去图书馆自己取这本书,但是我不知道在哪里取,就我这种路痴对于书架我其实不大看得懂,我希望这个 library 能告诉我,哪里能找到我要的书,比如说我一进去给我一个地图,就是图书馆内的地图,但是我在手机上也能看到,包括我该去哪个图书馆取这本书,应该借书的时候他肯定都会告诉我们的。然后哪个图书馆离我近一点,比如说 UCL 好多个图书馆,现在在 A 和 B 两个图书馆都有我要的这本书,但是哪个离我近一点,我就去哪个去取。最后我想到的一点是 booking study rooms,因为图书馆它并不只是一个借书还书的地方,还有很多同学在那边学习,虽然好像 UCL 自己也有这个服务了,或者很多大学都有线上预定位子或者保留位子服务,但是如果能把它做到 mobile library 里面,可能也会方便同学们的一些使用,就是这样。

好的,然后我们现在就开始正式的访谈,分成三个部分,第一个部分是以文化为切入点,主要就是希望了解一些你之前在中国的学习经历,用经历和现在在英国来做一下对比。第二个部分就是你作为一个信息搜索者,会问一些你的行为习惯,然后第三部分就是你作为一个图书馆的用户,你的图书馆用户体验。第一个问题就是基于学习环境或者说学习氛围来说,你觉得你之前在中国的学习和在 UCL 这边的学习有什么样的不同?你可以大概对比一下学习氛围,学习环境。

这是两个不大相同东西。我先说学习环境,就是在中国,因为我是复旦的。我在复旦读的是中文系,中文系下面的汉语言专业还不是语言学,我们班级人非常的少,非常少,大概 20 个人不到,上课的时候相当于同学们坐在前三排,老师站在讲台上,或者老师坐在第一排的桌子上,学习氛围其实是挺浓厚的,就是你上课也不敢开小差,因为老师认识每一个人,他会不停的提问题,这跟那些像我朋友读的是文学,他们大课上的感觉完全不一样。我们私下里同学也都会各种交流自己的学习心得之类的,然后包括就答疑解惑,一起写作业,讨论问题之类的。就学习氛围我觉得还是挺好的。但是在读书这方面其实复旦并不是很强调,也就是说老师上课的时候不会要求你有什么 reading 回去一定要看,虽然可以提一嘴,但是同学回去看的并不多,然后老师下节课过来也不会对你读没读有什么反馈。另外,作业或者考评这方面,虽然大家写作业写的都很认真,老师讲课也很认真,但是我们并不会在考评的时候收到一些 detailed feedback 就是说你作业交上去了,就是交上去了,然后你拿了个 A 就是 A 老师不会说你这里写的好,你写的不好,这种事情他不会讲,然后对于作业或者我们希望得到的一些额外的老师的指点或者帮助,你就没法从 assessment feedback 中获得,就只好直接去发邮件问老师,老师有时候还不一定回,我们系已经算好了,其他系我觉得他们回的还要慢,学习氛围总体来说是蛮好的,但是有一些这方面的缺憾。学习环境,我先说整体的学习,再说图书馆的学习环境好吧,整体的环境我一般是在宿舍里学习。为什么呢?我比较懒,我不喜欢往外跑,包括在伦敦,我也是比较喜欢窝在自己的宿舍里面,然后吃饭叫外卖之类的。在国内宿舍里面我的同学他们都非常安静,不会打扰我,所以我觉得我插个耳机,就放一些轻音乐,自己写写作业,看看书也挺好的。有的时候我会去自习室,自习室期末的时候人会非常的多,所以我期末时候基本就不去自习室了。平时去自习室可以就有一张特别大的桌子,一般是长条的桌子,然后地方大一点,你学习起来也会比较舒服。有的时候还会去课上学习,就是进一间自己听不懂的课的教室,比如说大学物理或者群论,坐在这样的教室里面学你自己的东西,你会觉得这个环境非常特别。然后我想一想,然后图书馆我就去过没几次,因为我们学校图书馆,我觉得灯光也不好,人又多,去那边干嘛,有很多人还在那里睡觉,我觉得就不是一个能提起我学习兴趣的地方,所以我去的很少,我基本上都是什么 7 月份,大家都差不多放假回去了,然后我去图书馆坐一下,感受一下复旦还有图书馆,可以让我来坐坐,学习环境大概就是这样子。英国的话,我觉得氛围确实是很不错的,其实比我在复旦的还好,复旦也就是个世界二流大学,虽然由于语言的原因,其实我英语讲得不是很好,

我读还可以，但是我口语非常的糟糕。我跟其他的同学在探讨学习问题的时候会遇到一些困难，但是他们大多数还是比较热心帮助的，也会跟他们进行一些非常有建设性的讨论，包括在 tutorial 上面，有些老师他会把上课都上成 tutorial，让你们不停的讨论，然后这个时候我就会感觉非常的紧张，但是紧张之余又觉得我跟一群外国同学有这么好的讨论氛围，我觉得也挺高兴的。刚刚说到中国的老师不大会给 feedback，在 UCL 的话，学姐也知道，我们的作业都是由老师逐字逐句地评价的，还会有一个总评。这个就非常好，包括 reading material 的要求，老师也会讲的很清楚，你们回去必须得读，你不读的话，我们 tutorial 你就看不懂，真的是，你如果回去不读的话，你就等于没上。这几点是比中国做得要好的。我觉得我如果英文再好一点的话，我体验还会好 20 个百分点大概。然后学习环境的话，这边的包括 library 和 study room 都觉得还是很不错的，但是我们自己的 Chandler House，就是 LASS，语言学自己的 library 它非常小，然后有的时候你进去没位子没，你只能出来。而且桌子特别矮，凳子很高，学习的时候，你比如电脑打开是这样，就要低头一个俯角去看，但是对颈椎是不好的。对，所以我前面还经常去图书馆，后面我体会到这个不大舒服之后我就不怎么去了。主图我也没怎么来过，我就来过一次感受一次氛围，然后就没有来过。宿舍的话，我有一个很大的支架，我把电脑置在这里，然后这样子学习，这样子的话对于对于身体健康比较好。其实我一直是在 Chandler House 我们自己建筑里面学习，所以我不知道这外面其实是怎么样的，Chandler House 是一个非常破非常小的地方，我觉得是很多年前建的，无论是开放的 common room 或者开放的 study area，还是教室，采光什么都不是很好，要么特别小，要么就非常昏暗，是这边的光照强度的 1/2，所以不是个特别适合学习的地方。

好的，你来英国之前有没有为了这边的学习做什么准备？

来这边之前，其实没有。很少。好像真的没有。

你觉得你来之前你们 UCL 院给你提供的一些，比方说关于课程的这种信息充分吗？

很不充分。我毕业的时候就跟我以前的一些老师聊天，我说我要去 UCL 读 phonology 了，然后老师说你可要好好学了，生成音系学是很难的，我都学不来，老师说他都学不来，然后我就想完了，我过去不是要挂科了。那时候我就看看 UCL 的一些选课课表，我当时完全不理解，也不了解他给我们的选课的信息，然后他也没有给我们任何可以看的书，所以我 9 月份来的时候还是很忐忑的，然后我就去问我们的班导师，大概在 9 月 25 号，那个时候好像是开了一个研究生入学大会之类的。我是 specialization in phonology 的，我有专门的班导，我就去问他能不能给我推荐一点东西读，然后老师说可以，这些书你拿去读，直到这个时候我才知道我要学的是啥。

也就是说你没有来之前，你们院没有给你们发 reading list？

没有。只有院的主页上面一些 course 的名称，没有详细的介绍。

你觉得对于国际学生来说，应该提前给一些什么样的帮助，或者是信息能让你们更好的适应？

其实我现在想一想，信息应该是有的，但是我们没有足够的了解，我不知道怎么去 get access to it。我希望他能给我们发一封邮件说这里有你的必修课的信息，然后这里有选修课的一些信息，你可以从这些选修课里面选几门这种之类的。

好的。你本科到硕士这个专业是怎么变化了呢？

怎么讲，我本科学的是汉语言，我就基本没怎么学文学，文学的课基本都是水过去。然后本科我的绩点非常高，我也觉得我掌握的一是汉语言，二是普通语言学，普通语言学就是整个世界语言的一些发展性质之类的，我觉得我还是有一定的掌握的。这边的话就汉语言当然是不会研究的，它的立足点是普通语言学，general linguistics，其实也算是一个在理论上打高了一个层面，从归纳事实，拔高到去解释这些东西，为什么是这样子。我们以前只知道语言有这样的分类，它有这样的层级结构，然后我们现在想知道为什么他有这样的层级结构，包括我们怎么证明这样的层结构，是理论上上升到了这样一个程度。但是那个基础我是有的，我只需要一些理论上的指引，我要有什么样的思考方法去对待这件事情。

关于本科的学习，你一般都会搜索什么样的信息来满足你的学习需要？然后都是通过什么样的途径去找的？

一个比较大的途径是知网，因为我们汉语言方面，知网上的资源还是非常丰富的。不像计算机，像我男朋友学的计算机，他们看的全部都是国际上的一些会议期刊的东西，知网对他们来说没有什么用，但是知网对我们来说是很有用的。像汉语言的核心期刊，中国语文，东方语言学，当代语言学，这全部都是在知网上面有非常完整的期刊的 list。这些这些核心期刊的话都是在知网上，所以还是蛮有用的。第二个是问老师要的一些材料，老师有的时候会在...对，我们会有一个 e-learning 的一个平台，跟 Moodle 差不多，但是它功能差一点，每个课有一个自己的一个 module，然后你点进去之后，你可以在上面找到老师发的课件，可以在上面交作业，可以在上面跟同学或者老师讨论，但是一是界面设计的不是很好，而且有的时候会卡，因为好像是外包给其他的什么公司去做的，它基于的教务系统不是那么稳定。包括里面的排版都是老师自己排的，比如说他发第一周的东西发在根文件夹里，第二周他如果脑子一抽，发在了一个另外的文件夹里，你就找不到了。就不像 MOODLE 这么系统化。第三是老师更新或者同学发讨论稿上去，其实发的不是很及时。这是不及时的问题，就是可能我们都已经期快期末，老师第三周的课件还没发上去，这时候你就只能自己发邮件去问他，这个功能性就大打折扣了。

但是你也在这个平台上面去找一些老师发的资料？

没错，老师发的资料，然后有的老师比较负责的，他就把课上提到的 reading material 全部都发上来，你就可以自己去查找这些东西。我刚忘记说数据库我们刚刚说的用的是知网是吧？然后我就基本没用过

外面的数据库。我大三学会了用谷歌学术，然后我就开始翻墙在谷歌上面找东西，但是当时也没有这个账号，有的东西下不了，在线看的话有的时候会有某页的缺失之类的，所以还是挺头大的。幸好我们当时并没有太多需要查外国文献的东西，大部分都是可以在知网上面 cover 掉。

好的，你来英国之后，然后这种信息的来源有发生什么变化吗？

肯定，一是 UCL 自己的 library explore，那个系统还是挺强大的。我现在写的大概十几篇论文，大基本上 90% 的信息来源是 UCL 的图书馆，5% 的信息来源是我图书馆借的书，就是实体书。还有 5% 是比如说我从中国带过来的书，或者我以前老师给我的一些资料，比如说翻成英文之后还是可以用的，当然要引用，还有 google 上面谷歌学术上面的一些开源的文章。

你刚刚说还有从中国带的这些是实体的还是？

有实体的，有电子的，对。实体的基本上用不到其实。还是电子的比较多。

好的，你觉得从中国来到英国之后，你的学习习惯有什么变化吗？

没什么变化，我都喜欢在宿舍独立学习，我基本上就是自己看书，看不懂问老师。比如说我这个论文，对它的结构有什么问题，我会问老师能不能帮我看然后约个时间聊聊天。基本上就是这样的一个学习节奏。我不大会去跟同学讨论，我也没有什么同学可以跟他们讨论。因为我的同学都是大部分都是外国同学，而且我们这个专业只有两个人，就是 specialization 只有两个人，另一个是个美国小姐姐，她是要读博士的，我不好意思去打扰她。

好的。除了学习是一个人这样之外，你还有什么觉得学习习惯上面发生变化的？比方说可能对学习投入的时间，或者是学习的模式，这种有没有什么变化？

学习投入的时间确实有点变化。我最近其实也有在用番茄钟，是可以记录专注学习的时间，就可以记你今天学了多久。我 1 月份每天平均学习六个小时，我不知道这个算高还是算低，然后专注时间就相当于是一分钟不看手机，我完全沉浸在学习是这样子的，专注时间是这样定义的。然后 2 月份少一点，因为 2 月份放假了我就回家，5 月份比较少，5 月份放假回家了，然后 3 月份 4 月份基本上是每天在四个半小时就这个我们可以把它定义为 flow。沉浸在自己的心流之中，很日本禅意的，对，也不完全是连续的，但是你完全不受打扰，你一心只知道学习这种状态，每天能持续四个小时半。我不知道这个跟我本科时候有没有什么区别，我觉得我本科时候也是可以在自习室坐一天，一天写 7000 字，写完一篇论文的这种人。但是在这边所有的事情我都要自己处理，包括做饭我总会自己做吧，你省点钱总要自己做吧。然后几点钟睡觉你得自己安排好吧，包括一些生活用品得去置办，这些事情会把你原来要学习的时间给占用掉。对，所以在这边我觉得学习的时间已经饱和了，每天五个小时是我最多的学习时间了，如果我不是有 DDL 的话，有 DDL 的话，每天我可以学八个小时。

你在本科的时候那种学习是一直持续，还是可能到考试的时候会特别多？

考试的时候，对，也就是到考试或者有 DDL 的时候，才会就非常投入地去学习。平时的话那种小作业，一个小时就解决掉了。

学习强度来说是不是英国会高一点？

对，学习强度这边要高一点，专注性差不多。在那边我也可以就完全不看手机学习。然后学习时间的话，平均上这边多一点。

你觉得比方说你依赖的一些学习资源来说一些有没有一个区分？

完全没区别，我全部都是 90% 的资源都是线上的资源，然后在中国是用的知网，然后在这边就是 explore。

那就是你在中国的时候刚说到，就除了知网之外，你们学校有图书馆的系统吗？

我是从我们学校的图书馆系统上的知网。

你可以大概回忆一下你们学校的图书馆系统是什么样的？

它是数据库搜索，然后有一个常用数据库，中国知网、万方数据、智库、独秀，还有一些外国的我就没用过。一般我是在常用数据库这边直接点知网，因为万方和知网资源差不多，我大一的时候还用过万方，大二的时候就不用了，直接都去知网，反正都差不多。

本身你们学校图书馆系统搜索图书馆里面的实体书的对吗？

他能搜，但是我也没有怎么用，我不是没有怎么用，我是完全没用过，你相信吗？我四年没有，我做为一个中文学学生，四年没有在图书馆借过一本书，但是我可以跟你讲，我室友他们都一擦一擦的往回报。虽然他们也不一定看，我是觉得没有必要，我的东西真的可以在线上全部解决的。当然我平时也会去买一些书，因为我觉得借的书真的时间太短了，我不能随时拿出来看，也不能在上面划。这个很令人扎心，所以我会去我们学校专门的学术书店，去买一些语言学方面的实体书，这占据那 10% 或者 5%，我可以随时拿出来翻阅，很方便。我真的一本书没借过，但是确实我们是在图书馆系统上面搜索某些书，然后预定就跟 UCL 图书馆差不多。

好的，你大概可以回忆一下你们学校图书馆界面上面，除了这边有一些搜索，还有一些常用的数据库之外，还有一些其他的信息吗？

(在手机上操作)大概看一下上面都有什么信息，这个是手机端，就属于 PC 端和手机端完全两个不同的东西，我以前没有上过手机端，我可以给你截几个图发过去可以。

你觉得因为你在经常用知网，也是搜索线上的，你觉得知网和 explore 对比的话，你觉得他们有什么样的差别？然后你喜欢他们什么？不喜欢他们什么？

我觉得知网总会收一些特别奇葩的文章，就是里面的文章层次良莠不齐，但是我们图书馆收的文章就还是比较权威的，而且大部分都经过 peer review 蛮好的。然后知网的话，你一页上面可能只能下两篇文章，但这边的话一页上面你可以把前八篇都下载，然后都对你很有用。

你一般学习的时候都会用到哪些设备？

我一般一个电脑，一个 iPad，电脑在这边，然后 iPad 在这边，iPad 上面有我的一些比如写论文的 outline，然后然后 iPad 可以代替手机的功能，万一有什么紧急信息要回，可以从这里回。电脑上面就是我要看的文章和我在写的论文。我把分屏，文章放这边，论文放这边。就是学习习惯的问题，就基本上是这样子，不会变。

也就是说你的电脑是主要的，然后 iPad 作为一个辅助？

没错，手机基本不用。手机就是不会学习。

iPad 上面会下载哪些和学习相关的一些 APP？

没有吧，iPad 上面我用的都是文件在 iCloud drive 里面，就是我每一门课点进去之后，下载一些东西可以放在上面。但我会用 iPad 做笔记，我是 1 月份买的 iPad，就开始拿 Apple pencil 做笔记，然后我会直接在打开的老师的课件上做笔记，这很方便，然后你也可以开一个新的记事本在上面记。

你在上课的时候这些设备你会带吗？

电脑不带太沉了，然后带 iPad，带个手机，iPad 会在上课的时候用于做笔记。

有一个习惯性的问题，一般你用 explore 的时候会一直把它在背景开着吗，还是想到查东西的时候才打开？

放在放在桌面上，但是比如说在浏览器上面，你会专门给他开一个窗口，那个窗口是永远不会关的。我永远不会关的窗口有两个，一个是有道词典，一个还有就是 explore。

下一个问题就是我们学校图书馆是有两个页面，一个是主页面，上面有一些服务什么的，这边是 explore，你一般在服务页面会用哪些？

不怎么用，就只有 explore。

Explore 里面你会怎么搜索呢？

就是在搜索框检索一个 keyword，就直接出来结果页面，高级检索我不大用，因为好像就进学校的时候他们教过，但是我就不怎么用，我觉得没什么必要，就这个已经可以满足我所有需求。上面的这几个 database，e-journals 和 store request 不大用，如果我要 request，我会直接去那本书的页面上 request。

Filter 你会用吗？

会，一般会用 date，近十年的，然后像这边的 dissertation，review，book chapter 这三个也会选一下。

像你们专业有一些特定的 database，或者 journal 你们老师需要你们去看的吗？

有。但是我们老师没要求过，但是我知道应该有这么一些 database。我以前也搜过，但是我发现在这边都能搜到，所以不会特定的去数据库。

你在用 explore 有没有遇到过一些困难，或者是什么时候你想搜什么东西，但搜不到？

很少，有什么东西搜不到...有的时候没有 full text available，就是我只能 view online，这就...我比较把它们全部下载下来。还是资源上面可能有些问题。

你在之前的经历当中有用过移动图书馆的 APP 吗？

没有。

你有下载我们学校的 UCLGO APP 吗？

有。但是我不怎么用，我觉得他没什么用。

大概可以看一下界面。然后你当时是一个什么情境下，你下载了，然后你都用过什么？

就用过 timetable，而且学期开学的时候用，其他时候都没有用。我知道有 library service，但我从来没有用过。

有什么原因吗？

有可能不大喜欢去探索电子方面的新事物，就是这样，觉得比较浪费时间，对，我觉得没这必要，如果真的有问题，我会直接去问其他同学怎么搞，然后我再到这个上面进行一些操作，我不会自己去探索。

你作为一个国际学生来评价一下 explore 的系统，你怎么评价？

这个系统界面设计的非常美丽，真的非常美观，我特别喜欢。这比知网的界面好看一百倍，包括配色，真的国内设计学学真的。一些图标设计的就是挺好的，比如说我看这个 book，我就知道是书或者是输的章节，还有 peer review 的标志，标志做得很好，包括点进去，比如说这是一篇是一篇 journal，会给你一些 details，也蛮有帮助的。进入数据库之后，因为你要下载，进数据库之后，你其实是可以继续在数据库里进行搜索的，但是这种操作做的不多，因为我不确定我这个数据库好不好。对了，这个 JSTR 数据库还挺不错的，我有时候会通过这个数据库，它会有一些推荐文章，然后点进去看看别的文章。而且比如说这篇文章所在的 journal 我会看它所有的文章，就是这篇蛮有意思的，那我也可以去看一下其他的。

就是通过 explore 进入数据库，但我不会主动进数据库去看。

你觉得你有没有什么建议给我们图书馆，觉得它还可以怎么样提高一下？

高级检索，让我看一下，这个其实蛮好的。我觉得也不用有什么提升，毕竟只是我没用过，用过的人应该都觉得他挺好的。没啥建议，我觉得现在已经挺不错的了，主要是好多我没用过。

你来 UCL 之后，花了多长时间去适应这个系统？

两三天吧，还挺快的。

你希望有一些其他的 instruction 或者是 tutorial 可以让你们更快捷地去搜索资源吗？

它给过。我现在还有他们发的 PPT 的讲义，有用但是当一个人习惯了某种 pattern 的时候，它不会去改变。所以我知道这个可以满足 90% 的需求，我干嘛要去看 instruction 呢。我觉得没有这个必要。或许当我现在写毕业论文，当我毕业论文受到了一些瓶颈，我实在是没有东西可以看的，我会去用的。完全是困难在逼迫着你去做某件事情。

最后的两个问题，我们刚开始提到了 mobile library，然后你想到这个词，你有什么样的期待？就是你希望的 mobile library 是一个什么样的？

我希望的 mobile library，一个就即使是老人，因为我们系有挺多老年人来读研究生，他们真的很令人敬佩，学习也非常认真，经常跟老师互动。我希望这些稍微有那么一点点，脱离时代，不大会用这些电子产品，进了某个地方要稍微蒙逼一阵子的那些人，他们也能在十分钟内顺畅地学会使用这个 service。还有，线下和线上对接应该是非常顺畅的，千万不要出现，我到了那里就发现这里找不到那本书，就是说信息要准确，信息更新要及时，这个已经基本要求了，然后刚刚说的老年人也能用，这是个比较高级的要求！

其实除了移动图书馆还有一个词叫做 smart library，中文就是智慧型的图书馆，这可能是一个更大的一个概念。你作为一个普通图书馆用户，当你听到智慧型的图书馆这么一个词之后，你有什么想法吗？

Mobile library 应该是 smart library 的一个子集。因为 mobile 会比 smart 更偏重于线上，对吧？然后 smart 对于线下服务还有一些要求。图书馆里面的空气可不可以用什么软件监测一下？不要什么 pm2.5 那么高，或者二氧化碳程度那么高，真的让人不愿意进去学习。就像很多博物馆在做的一样，他们会有水蒸气的监测，二氧化碳浓度的检测。然后线下的第二点要求，就是我们会有那个屏幕，你点进去可以在这边还书什么的，但是我自己用起来，我是稍微学了一下才会的，讲道理我现在也不怎么会。对，因为我不怎么去借书，还书就还过两三次，每次还书我都在那里搞个两三分钟，就是那种自动还书的系统不能做得再简单一点，直接一点。所有的借还指引的系统都做得再鲜明简洁一些，不要一味的去用性冷淡的配色，因为这会让人很容易忽视某些信息。还有座位上面能不能做一个，“这里有人，我离开五分钟就回来，”然后离开五分钟，如果我不回来，关掉，就可以有人坐在那里了，我不知道现在有没有图书馆这样干过，但是如果会有更好，对吧？

好结束了，谢谢！

English translated transcription

Interviewee 9--- Linguistics (Phonology)---Fudan University---Female

R: Please start your explanation of this cognitive map now.

P: Although I don't have much experience in using the mobile library, actually I rarely go to the library in UCL or in my undergraduate university and I prefer to read electronic resources online directly, but speaking of library, I still have expectation for it and I am also looking forward to the publish of the mobile library. The first thing that comes to my mind are offline services, which are some convenient services that can be provided for us offline. As a user that rarely borrow books from library, and only read books in library, I am thinking if the library can lend us something, like the umbrella, as you know the weather in the UK, like some canvas bags, badges, so we can have a closer relationship with our university and library. Besides, these things can either lend to us or sell to us, or there can be a donation box at the library reception, which have been doing by some libraries of UCL. The other things about the offline services, I will talk about later.

When I think of the mobile library, there must be some electronic devices to support its operation. I think of mobile phones, pads and my own personal computer, but I hope that these three types of devices can have similar operating interfaces, because mobile phones, for example, there are Android and ios systems, and the two of them have very different user interfaces, which will cause users who use Android cannot easily change to an ios system, and vice versa. At least on the mobile phone and iPad, because these two have mobility that you can take them with you on your hand, so at least make these two interfaces similar to

each other, otherwise it may be hard for me to adapt, and don't know which part shall I click into for a certain service.

I wrote a VIP next to it, indicating that I think this is very important. For the devices, I picked out the 'my account', and there is one thing I didn't write here, that I wish when I log in, it can remember my password, which can be achieved easily and in general, most of the websites have this function. Then, I wish this account is able to give me some notifications or warnings, like to remind me it's time to return books. Besides, it can recommend me some books that my classmates read a lot or some reading materials related to my course, so that's why I wrote 'borrow and return' here. In fact, this borrow means that I hope the library can tell me what my classmates are borrowing, I didn't make it clear. Then I bounce back to the 'offline service'. Sometimes we may not be able to go to the library to pick up books. At this time, I hope that the library can deliver the books to me. This is... I think it is unlikely. Anyway, I hope to receive the books I want by delivery, like I live in zone six and it is very inconvenient for me to come to the library to pick up books, so I wish if library can send the books to me, it will be great! Of course, sometimes the library is too far away. I can't get through. For example, I am in the Sixth District.

Then I think of the library guide, that is to say, when we go to the library to find books sometimes, but I don't know where to find it. As a person who are not good at recognizing roads, I can't understand the arrangement of bookshelves. So, I hope the library can tell me exactly how I can find the book I want. For example, when I go in to the library and it can give me a map inside the library to lead me to exactly that bookshelf, that I can read it on my mobile phone. In addition, there can be information about which library shall I go to find the book, because there are so many libraries in UCL and for example, the book I want can be found in both A and B library, and it can tell me which library is nearer to me, then I can go to that one to pick.

The last thing I thought of was the 'booking study rooms', because the library is not just a place to borrow books, there are many students studying there, although it seems that UCL has this service, as well as many other universities that they have online reservations of study rooms. But I am thinking if this service can be included in the mobile library, it will be convenient for students to use, that's it.

R: Ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment, or to say, the learning atmosphere, is there any difference between these two countries? How you experienced in these two countries?

P: The learning environment and atmosphere are two different things. First of all, let me talk about the learning atmosphere, when I was in China, because I majored in Chinese language and literature studies in Fudan and we have a very small class that there were only around 20 students. When we have class, all the students sit in the first three rows in the classroom with the teacher at the front. The atmosphere of learning was actually very strong and it's unlikely to be distracted during class, because the teacher knew every each of us and he asks questions along with the lecture. This is very different from the large class that some of my friends went to. It is that you don't dare to open the gap when you are in class. Because the teacher knows everyone, he will keep asking questions. Outside the class, we also exchange our own learning experience, including discussing and figuring out some questions, writing homework, discussing problems and things like that. I think the learning atmosphere is quite good. However, in the aspect of reading, Fudan does not stress on that. The teacher does not have strict requirement on reading, although he or she might mention the useful reading materials, we don't usually look at it and there isn't any feedbacks or assessments on whether you read or not. In terms of coursework or assessment, although everyone treats homework very seriously, we do not receive detailed feedback from teacher. You may receive an A from teacher, but you actually don't know why you get the A. Th teacher does not explain to you. If we want to get any assessment feedback, we have to send an email directly to the teacher. The teacher sometimes doesn't necessarily reply to us. The overall learning atmosphere is fine, but there were some shortcomings in this field.

In terms of the learning environment, I will first talk about the overall learning environment, and then the library's environment. I usually study in the dormitory. Why? I am lazy and I don't like to go out, including in London, I also prefer to stay in my own dormitory and even for eating meals, I will order take away. When I was in China, my roommates were very quiet and they never bother me, so I usually study with headphone on and listen to some light music, write my own homework or read books, which was also a very good feeling. Sometimes I might go to the study room, but it might be too many people there during the exam week, so I don't go to the study room when term ends. In normal time, the study room is comfortable and it has long tables and enough space. Or the other time, I might study in a classroom that is having lectures, the lectures that I can't understand at all, for example, physics study or community theories, etc. I might study on this kind of lectures, which makes me feel different and fresh.

Then...I rarely go to the library, because I feel that library has too many students, the lights is not so good for reading, so why should I go? Besides, some students take snaps in there, but for me, I want a place that can arose my interest of study, so I rarely go there. The one or two times that I went to the library was in the summer break, like in July or so, when most of the students were having break and there were less people on campus. I might go to our library, to feel that our university has that library and I can go and read there, just to have an experience. Basically, that's the learning environment when I was in China.

In terms of UCL, I feel that the learning atmosphere is indeed very good. In fact, it is better than Fudan. Fudan is a world second-rate university. Although due to language reasons that my English is not very good, I can read but my speaking is very bad, I have encountered some difficulties when discussing problems with other students, but most of them are friendly and helpful and we sometimes have very inspiring discussions. Especially with tutorials, some teachers will make the lecture into tutorial form to make us discuss the topic all the time. At this time, I will feel very nervous, but except for the nervous, I am quite happy that we have such a good discussion atmosphere with other students. I just said that when I was in China, the teacher won't give us any detailed feedback on the coursework; however, in UCL, as you know, all of our coursework is marked and commented by our teacher word by word and we also have an overall evaluation, which is super good. Teacher also gives you very clear requirements for the reading materials, and you will know what readings are core that if you don't read, you might don't understand the tutorial. These things are better than China. I feel that if my English could be better, my experience would be 20% better. Then as for the learning environment, here the library and study rooms are good; but our department building, Chandler House, which is the LASS building for linguistic students, is very small, and sometimes there are too many people and there is no space for study, you have to go out.

Moreover, the table is very short and the stool is very high. When you are studying, if you open the computer like this, you need to look down at a depression angle, but it is not good for your spine. So I used to go to the library last term, after I feel this uncomfortable status, I rarely go. I only wen to the main library once, just come to experience the atmosphere and then I have never been there. In my dormitory here, I have a big bracket, where I put my computer there to make myself look computer in a head-up situation, which is good for my health. In fact, I am always staying in Chandler House, so I don't really know what the other buildings or libraries are like. Chandler House is a very small and very old place. I think it was built many many years ago, whether it is the open common room or study area or classroom, the lighting is not very good, either the room is very small, or the light is very dim, like 1/2 of the light intensity than here, so it is not a suitable place to study.

R: Ok, have you prepared anything for the study in UK when you were in China?

P: Before come to here, actually no. Very few.

R: Do you think the information that provided by our university or your department is enough for your study?

P: Very inadequate. When I graduated from China, I chatted with some of my former teachers. I said that I am going to UCL to study phonology. Then the teacher said that you have to study hard. It is very difficult to understand phonology. 'I can't learn', the teacher said. He said he can't learn, then I was thinking omg, I can't pass the course. At that time, I took a look at some of UCL's class schedules. I didn't understand it at all, including the course information they gave us. They didn't give us any reading materials either. So, when I came in September, I was actually very panicked. So, I went to ask our class tutor, probably on September 25th,

at the time when it was the graduate admissions conference. I am specialization in phonology and I have a special tutor in this area. I then asked him if he can recommend me something to read, until then I started to know what I am going to learn in UK.

R: In other words, before you came, you did not receive any reading list from your department?

P: No. There are only some course names on the homepage of the program and there is no detailed introduction.

R: As an international student, what kind of help or information do you think our university or the department should give to you to prepare your study?

P: In fact, I think there may be some useful information, but we don't know there is and don't know how to get access to it. I hope the department can send us an email before, including the core course information and the elective course information, and to give you guide on how to choose courses.

R: Ok. Do you feel your learning way changed because of the major change from undergraduate to master?

P: How to say...My undergraduate degree was Chinese language and literature, but in didn't put much effort in the literature part. I have a very high score in undergraduate, but I feel I was good at Chinese language and the general linguistics, which is the development and characteristics of the world's language. In UCL, for this major, of course, we won't learn Chinese language, the basics for this major is the general linguistics. Before, we only know that language has such classification and hierarchical structure; but in this master course, we want to know why it has such structure and how we prove it. I have the basics of it, but I only need some theoretical guidance. I need to learn the thinking method to deal with this matter.

R: What kind of information do you generally search in undergraduate study to meet your learning needs? Then, how you find it?

P: A main way of finding information is CNKI, because for the Chinese language studies, the resources on CNKI are abundant. Unlike computer science study, because my boyfriend was learning computer, and they need to look at international journals or conference papers, so the CNKI is worthless for them. But for us, it's useful and has lots of core journals, like Chinese, Oriental Linguistics, and Contemporary Linguistics (中国语文, 东方语言学, 当代语言学), all of which have the whole journal lists in CNKI. So, I feel the CNKI platform is very useful.

The second source is to ask the teacher for some materials. The teacher sometimes... yes, we have a platform called e-learning, similar to Moodle, but it was a bit less functional. Each course has its own module. After you click into, you can find the slides of the course that were uploaded by the lecturer and you can also submit coursework on it, to discuss coursework issues with classmates and the lecturer. But the interface design was not very good, and sometimes it went down because the system was outsourced to other companies, and the educational system it was based on is not so stable. In terms of the structure of the content, it was depending on different teachers; they might upload some materials in the root folder, but next week, he might upload the resources in another folder, which was very hard to find. It is not as systematic as MOODLE. The third source is sending emails to teachers to ask questions. Sometimes, when the teacher sends things on the e-learning platform or our classmates discuss something on it, in fact, it was not very timely. Like when it's already the end of term, but the slides for the third week haven't been uploaded, at this time, you can only send emails to teacher to ask about it. So that's why the function of the e-learning platform is not so good.

R: So you would generally find information on that platform?

P: That's right, I look for the resources uploaded by the teacher. Some responsible teachers would upload all the reading materials mentioned in the class onto that platform. I just said the database of CNKI, right? Except for that, I basically haven't use other databases. When I was in my third year, I learned to use Google Scholar I started to break the internet wall and find things on Google; but I didn't have the university account at the time, so some things couldn't be downloaded. If I read them online, some pages might be missing, so it was quite annoyed. Fortunately, we didn't have much needs to read the foreign resources, so most of the resources I can find on CNKI.

R: Ok, after you came to the UK, is the information source changed?

P: Certainly, one source of information is UCL's own library Explore, that system is quite powerful. The most information for the ten or twenty essays I have written was found on

Explore. 5% of the information sources are physical books borrowed from library. Another 5% are from the books I brought from China, or some documents my previous teacher gave to me. After translating them, I can still use it and quote it. I also sometimes use the open access articles on Google Scholar.

R: You just said that the documents from your previous teacher, are these physical or digital?

P: Some are physical, some are electronic, and right, basically, the physical ones are rarely used, mostly I use the electronic ones.

R: Ok, do you think that after you came to the UK from China, your study habits changed?

P: No big change, I still like to study independently in the dormitory. Basically, I just read books myself and ask teacher if there is anything I don't understand. For example, if I have any questions on the structure or something of the essay, I will send email to teacher and ask if I can have a meeting with the teacher. I rarely discuss with my classmates; besides, I don't have classmates who I can discuss with. Because most of my classmates are foreigners, and there are only two people in my specialization, and the other is an American girl, who is going to have PhD afterwards, so I feel bad to bother her.

R: Ok. Apart from the place and the alone-study mode, is there any other changes on your habits in terms of the time you put into study?

P: The time I spend on learning does change a little bit. I recently used a Pomodoro clock app on my mobile phone, which can record your concentration time and you can see how long you have studied today. The average study time in January was around six hours per day. I don't know if this can be counted as long or short. The concentration or focusing time means the time that you do not look at the mobile phone and completely engage in learning. This concentration time in February was a bit short, because I went home during the holiday in February. It's same in May. March and April basically I spend four and a half hours a day on study. We actually can define it as flow when you are immersed in your own flow of heart, it is very Zen-like, right, not completely continuous, but you are completely undisturbed during this time. I don't know if there is any difference on the time I input to study when I was in China and after I come to UCL. But I feel that when I was undergraduate, I was able to sit in the study room for one day, and write 7,000 words a day for paper. However, in UK, I have to deal with all the things including cooking, which I will always do it myself. Then, you have to arrange all life things yourself, including some daily necessities. These are all the things that may take up the time of study. Yes, so I feel that the time of study here is saturated. Five hours a day is my limit, if I don't have deadlines; if I have deadlines, I can learn eight hours a day.

R: When you were in the undergraduate, did you keep learning every day or probably the study time is more when it was exam?

P: When it was the exam time or have deadlines, I spend more time on study and I am very much focused at that time. For the homework during the term, I would just spend one hour or so to study. The intensity of learning is higher in UK, but the concentration level is similar. I spend more time on learning in UCL.

R: Do you think there is a difference between the learning resources you rely on during study?

P: There is no difference at all. 90% of my resources are online resources, and I use CNKI in China, and I use Explore here.

R: Do you use the library system of your own university when you were in China?

P: I know CNKI from our university's library system.

R: What the library system in your undergraduate was like?

P: It has a database search, and there are some commonly used databases, including the CNKI, Wanfang Data, MBALIB, Duxiu, etc. and some foreign databases, which I have never used. Generally, I just go directly to the CNKI from the commonly used database list, because CNKI and Wanfang Data have similar resources. I used both when I was in my first year, but then I just search in CNKI.

R: But your library system can also search for library collections, right?

P: Yes, it can, but I have never used it. Never used, can you believe it? As a student who studies Chinese language and literature, I haven't borrowed any books from the library. But I know that my roommates always borrow physical books, although they don't necessarily look at it, so I don't think it's necessary. All of the resources I need can be viewed on line. Of course, I usually go to buy some books, because I feel that the books from the library only have several days for us to borrow, and I can't read it anytime and anywhere I want, or make

notes on it, which is quite annoying. I usually go to the specialized academic bookstore of our university to buy some physical books on linguistics, which occupies my 10% or 5% resources for study. I can read them at any time, which is very convenient. I really didn't borrow any book, but it is true that we can search for physical books on the library system and then borrow it, just like the UCL library.

R: Ok, is there other services or information provided on your library system in China? Can you remember?

P: (Operating on the phone) Let's see how it looks like...This is the mobile version, you can see that the website version is totally different from the mobile one, which has a simple interface. On the library website, apart from the search function, it listed out different categories of resources that the library purchased. There also some news and events in the library. I have not used it on the mobile phone before, I can send you several pictures later on.

R: Compare the CNKI and the UCL Explore, what do you prefer about them and what do you think that can be improved?

P: I think that CNKI sometimes has some wried and low-quality articles, in other words, the article quality does not follow a certain level. However, most of the articles in our UCL Explore system have high-level in terms of academic research and some of them are peer reviewed, which is quite good. Besides, on CNKI, you probably can only find two articles on one result page that are useful for you, but here, you may find all the eight resources you find are useful.

R: What equipment do you usually use when you study?

P: I usually have a laptop, an iPad, and my laptop on the left and iPad on the right. I will open up, for example, the essay outline on my iPad and it can replace the function of my mobile phone, in case there is any urgent messages I need to reply, I can do it on iPad. On my laptop, there will be the articles I am going to read and the essay I need to write. I will use these two screens, to open the articles on one side and essay on the other side. This depends on my study habit, but basically, I am using these devices like that and will not change. Besides, I don't use my phone during study.

R: Are there any apps related to learning on your iPad?

P: Actually, I don't have very study-specific apps. All of documents I use on iPad are stored in the iCloud drive. After I enter each class on Moodle, I can download some document and store them on iCloud drive. But I use Apple pencil to make notes on iPad. I either take notes on the slides from teacher or open a notepad to write, which is very convenient.

R: What devices you bring when you go to lectures?

P: I won't bring the laptop cause it's too heavy. I will just take my phone and iPad and iPad will be used for taking notes during class.

R: There is a problem about your habit of using Explore. When you study, do you open up Explore and put it there during your study or you only open it when you want to search for something?

P: I put the Explore on my desktop, and in the browser, I also open a page for it, which will never be closed. There are two pages that I never close, which are the Explore system and the Youdao Dictionary.

R: The next question is, you can see that our library has two webpages, one is the main service page, the other is the Explore. What do you usually look at on the service page?

P: I rarely use this page, only Explore.

R: How do you search in Explore?

P: Just enter a keyword in the search box, and it will directly come out with the results page. I rarely use the advanced search. Although they taught us how to use it when we first came, but I just rarely use it and I don't think there is a necessity of using it. The simple search already satisfies my needs. I don't use the above database, e-journals or store request either. If I want to request, I will go directly to that book page to request.

R: Do you use filter?

P: Yes, it generally uses date, to select resources in the recent ten years, and then probably choose these three, dissertation, review, book chapter here.

R: Are there any specific databases or journals in your discipline that your teacher might recommend to you?

P: Yes, there are. But our teacher didn't require for the use of it, but I know that there are some certain databases. I have searched in other databases before, but I found that I can actually find everything here on Explore, so I won't go to any database specifically.

R: Have you encountered any difficulties with the Explore system, or is there a time when you want to search for something, but you can't find it?

P: Rarely, things I can't find... Sometimes there is no full text available, that is, I can only view it online. But I want to download all the resources. So, there may be some problems with the resources.

R: Have you used a mobile library app in your previous experience?

P: No.

R: Do you have UCLGO on your phone?

P: Yes. But I don't use it very much, I think it is useless. I have used timetable when the term started, but I haven't used it at other times. I know there are library services on it, but I have never used it.

R: Is there any reasons?

P: It don't like to explore new things in electronics. That's it. I feel that it is a waste of time. Yes, I don't think it's necessary. If I do have a problem, I will go directly ask other students how to do it. After that, I then operate on it according to their explanation. I will not explore it myself.

R: As an international student, how do you evaluate our Explore system?

P: The design of this system interface is very beautiful, really, I like it very much. It's much better than the interface of CNKI, no matter it is the color or other things. I think the website designers in China do need to learn how to design interface. You can see that on Explore, there are some icons which I really like, for example, for different type of resources, like articles, reviews, books, it has different icons to represent. There are also detail pages, which are really helpful. If you want to download something, you might be guided into another database, where you can also search; but I don't usually search in other databases, because I am not sure whether the database is good or not.

By the way, this JSTOR database is pretty good. I sometimes can see some article recommendations when I go into this database to download certain article and I always go and check the recommendation articles. Besides, for the journal of the article I find, I also would like to check and read the other articles in that journal, which is quite interesting. However, I won't go to certain database directly to search. What I generally do is to search in Explore and encounter database from it.

R: Do you have any suggestions for our library to help improve its system or service?

P: Advanced search, let me have a look...this is actually pretty good. I don't think any improvement is needed. After all, I have never used it, but people who have used it should think that it is quite good. I don't have any suggestions, I think it is quite good now, mainly because I have never used most of the functions...

R: How long did it take you to adapt to this system after you came to UCL?

P: Two or three days, pretty fast.

R: Do you want to have some other instructions or tutorials that will allow you to search for resources more quickly?

P: The library has given us tutorials before and I still have the PPTs from them, but people won't change their habit when they get used to a certain pattern. So, I know that my current habit can meet 90% of my demand, why should I go to see the instruction? I don't think it is necessary. Maybe when I write my thesis, like what I am doing now, I might have some problems that I can't find what I want, then I will check the tutorial given by the library, because it is forcing you to do this thing.

R: The last two questions, we just mentioned the mobile library at the beginning, when you think of this word, what kind of expectations do you have? What kind of the mobile library do you want?

P: I hope that the mobile library, even if it is the elderly, who are a little bit, behind the age, and are not familiar of using electronic devices, can also learn to use this service within ten minutes without too many troubles. Because we have a lot of older people in our department to come and study as a master student, who are really admirable, they learn seriously, and often interact with the teacher. Also, the information accuracy of offline and online service should be good. I hope here wouldn't have the situation when I see online that there is a

book available, but when I go the library, I can't find it. That is to say, the information should be accurate and the information should be updated in time. This is a basic requirement. As for designing it into the form that the elderly can also use, this is a relatively advanced requirement.

R: In fact, in addition to the concept of mobile library, there is also a term called smart library, which may be a bigger concept. As a general library user, do you have any thoughts when you hear smart library?

P: The mobile library should be a subset of the smart library. Because mobile will be more focused online than smart, right? Then smart has some requirements for offline services. For example, can there be any monitors to control the air in the library? If the pm2.5 or the carbon dioxide in there is high, I feel reluctant to go in and learn there. Just like what many museums are doing, they are monitoring the humidity and carbon dioxide, which I think can be used in library as well.

Then the second thing for a smart library is that when we return and borrow books, there are auto-machines there and you need to operate on that screen by yourself. I learned for a while and to be honest, I am still confusing now. Yes, because I don't usually borrow books, and only had three or two experience of returning books. Each time when I return the book, I spend two or three minutes there at the machine. So, what I want to express is that can the design of such machine be more concise and straightforward? Don't blindly use the cool color scheme, because it would make users easily ignore some information.

The last thing is can there be any labels on the seat, like "someone booked, I will come back after five minutes," and then after five minutes, if I don't come back, the booking can be cancelled and others can sit there. I don't know if there is any library that is doing this now, but if it can be done, it will be better, right?

R: Sure. Then interview is over, thank you!

Participant 10

Chinese transcription

Interviewee 10--- SSEES: MA Comparative business economics --- Central China Normal University ---Female

OK 好, 现在可以解释一下你刚刚画的图。

我是按照一个情境下, 比如说从家里出发去学校图书馆, 然后结束了一天的学习之后回家的一个流程。去图书馆之前, 我会先用移动设备来看一下, 图书馆里面有没有空余的位置, 或者是有时候要用电脑有没有空余的 pc。我希望的是如果有一天 APP 里面可以引进一些路线规划, 比如说通过你现在的位置, 给你一个建议可以去哪个图书馆, 或者是这个图书馆电脑比较多, 或者空余的学习位置比较多; 特别是在期末的时候, 我觉得对人的一个分流还挺有作用的。或者 APP 在你查看的时候, 会自动提示你一下, 你是不是现在有书的 due, 或者你借了哪些书, 可以提示你一下, 就可以顺便带过去图书馆。在图书馆的时候, 我觉得 APP 可以帮忙搜索一些便利设备, 比如说你想喝水, 或者是有时候你遇到一些紧急问题需要急救, 或者有时候写论文的时候需要一些书或者一些网络资源都可以直接在 APP 上面找到, 比如说如果你在找那些实体书, 你可以通过 APP 找到是在哪一个书架上, 还有如何过去, 这也是一个地图作用, 跟有些博物馆 APP 一样有些导览, 比如说你要看哪幅画, 你可以怎么过去, 我觉得未来也可以发展一下。还有是你在用的时候, 我觉得它也可以有一个 feedback 的一个通道, 比如说你这个地方特别吵, 或者有人在吃东西, 就很影响你的一个使用的时候, 你可以给一个 feedback 或者你在用电脑的时候电脑崩了, 然后你也可以直接提交一下, 就更快一点, 让他们 IT service 来帮一下你。最后是你离开图书馆的时候, 我在想是不是能够发展一下, 就是可以预定明天的位置, 虽然我说这好像不太现实, 但可能就是帮你留一段时间的位置, 如果你不在的时候再把这个位置你预定给取消也可以。还有一个是可以通过一些个性化定制, 比如说你今天搜索了这么多文献, 看了那些书, 它可以为你提供你在这个领域里面, 自动生成一些, 比如说相关的但是你还没有看的书的推荐。最后是还可以提供一些对 APP 搜索的一个准确性的

feedback, 比如说 space availability, 它显示里面有很多, 但是你去的时候并没有发现有很多位置, 就是信息不准确, 那用户就可以在 APP 上进行反馈, 如果有这种板块会很好。

现在就开始正式的访谈, 今天的访谈分成三个部分, 第一个部分是以文化为切入点, 会结合你中英两国的学习体验问你一些问题。第二部分是作为一个信息搜索者, 会问一些关于你行为习惯的问题, 然后最后一部分是你作为图书馆的用户, 你的用户体验。第一个问题, 就是基于你在中国和英国的学习体验, 你可以简单的聊一下, 你觉得这两个国家的学习氛围或者是学习的习惯有什么不同?

首先我觉得课程设置上就会有很大不同, 比如说我学的是经济相关的, 在国内我们学的全都是理论的, 比如说一个星期十节课全部是上那种理论课, 但是在的话, 它会有一些理论和一个上机的一个结合, 比如说我们上有一些关于数量方面的东西, 会使用一些那些统计软件。在国内的话老师只会课上教你这些, 但是不会有那种正式的课来教你, 真的让你上机体验一下, 或者给你一些题目让你去操作。这里的话它是配套, 比如说你上了一节 lecture, 它会配一节 tutorial, 来帮你回顾一下你这些 lecture 上讲的什么, 还有那些操作系统的一些命令, 也会给你一些题目让你去操作, 让你对统计软件有更大的更深入的一些理解, 在未来的论文写作还有研究方面都会有很大的帮助, 我觉得这是最大的一点差别。第二点就是考试方面不太一样, 国内的话我反正本科就全部是笔试, 在这儿的话会有考试和论文相结合, 我觉得这一方面能够降低在期末周的一个复习。有时候因为如果笔试多的话, 你复习的多的话效率也不是很高, 论文和考试一起结合的话, 也是一种分流, 有一段时间你可以集中忙论文, 然后会有一段时间来给你准备考试, 就会比较均衡一点我觉得。还有一点是, 大家的大家的学习热情, 我感觉在这儿一直从学习开始到学习结尾都是一种比较均衡的一种学习, 就是你开始的时候老师在开学的时候就会告诉你, 这门课要怎么考量, 对, 比如说这门课是 100%的考试或者 50%考试 50%论文, 你会对这门课提前有一个规划, 也就知道整个学期你可以怎么安排。但是在国内老师只会告诉你说我们这门课就是考试, 也不会跟你讲考什么, 但是你一个学期上完以后老师划了重点, 然后你再集中复习, 我觉得这也是很不一样的地方。

好的, 那么你来英国读硕士之前, 有没有为了这边的学习做什么准备?

我有在来之前就看一些相关的一些文献。因为之前在国内没有这种长时间看英文的一个经历, 来之前会让自己稍微适应一下, 看英文不要那么抵触。我就在学校的 library services 里面我们会有一些国外的数据库, 会有一个接轨, 有时候也在百度上搜一些。其实也不一定是要看文献, 就是多看一些英文的东西, 让自己适应一下纯英文的环境。

但这些都类似于都是你自己主动去搜索的, 就不是通过老师?

对的。

那你们学院又给你准备 reading list 吗?

有, 我有看, 因为基本上给的都是教材, 还有一些比较比较学术的教材, 然后我只是先在国内把中文版给看了。

你觉得你来之前提前做的这些准备对你来之后的学习帮助大吗?

有一点帮助, 因为我们现在学的和本科学得有一定的重复, 其实是对本科的基础上面做一点深入, 提前就有一种复习过了的感觉, 或者有一些专业术语, 你提前知道比如说英文到底是什么意思, 但是如果你直接让你看, 你可能想不到这个它的中文, 可以让你更快速地进入学习状态。

那就是你在你在中国的时候, 你在本科的阶段就是你为了学习一般会搜索哪些方面的信息?

论文, 就是文献就是相关的那种期刊杂志社。然后还有一些练习题, 就是我们考试的时候我们每门课老师都会有那种推荐的教材, 但是有一些教材它是不带练习题的, 但是考试的时候可能会有相关的就是也会搜这些, 比如这门课有哪些的比较比较典型的例题, 或者一些答案什么的, 对那种。还有然后会有搜索一些数据, 因为我们经济基本上是基于数据, 处理数据, 然后一些数据能告诉你一些什么东西, 然后你分析, 所以我们对于我们来讲, 数据也是蛮重要的一个信息来源。就会通过我们学校图书馆不论本科研究生, 都有数据库的链接。

就是刚刚提到的这几个信息, 你一般会通过什么途径?

最多的还是通过知网, 就是学校图书馆, 然后学校图书馆上的一些链接, 去各个数据库, 比如知网数据库或者什么国泰安数据库。练习题的话就是淘宝或者百度。其实那些练习题跟初高中时候蛮像的, 就是一个教材的配套练习。对于一些经济数据的话, 有些数据库里面比如说国泰安数据库什么的, 一般的话图书馆上都有那些直接链接可以进去。所以总的还是通过学校图书馆界面, 再导向不同的数据库。

你经常用百度吗?

挺经常的。

你在国内的时候在百度上面一般会搜什么样的信息呢?

有些时候比如说我们刚学了一个概念, 我可能不太懂这个, 会去百度知道上都会有一些介绍, 就让你深入理解, 或者有时候老师给了一个题目让你做 presentation, 就可以在信息一开始搜集时候, 对于整个 topic 的一个理解, 就是先通过知乎和百度先有一个初步了解, 具体的如果要有一些比较学术的支持的话, 再找论文, 我一般都是这么一个顺序下来。

好的, 那就是当你来了英国之后, 然后再这边为了学习或搜索的信息都有哪些?

谷歌。跟国内在百度上搜的差不多, 概念类的东西, 或者因为 google 的学术做得比百度要好, 我觉得然后有时候也可以在 google 上面找一些文献, 因为有些文献学校图书馆找不到, 但是 google 上面就可

以直接搜到，也挺挺奇妙的。还有也会看维基百科，还有我们那边比较用的是 Investopedia，它其实跟百度百科很像，更专业一点，focus on investment and finance。这个就是当时我自己搜到的，有时候，比如说我搜索一些比较专业的金融术语，这个网站的解释就会在结果列表里弹出来比较前面，就知道了有这个网站。

也就是说你在英国这边一般就是会搜一些概念或者是文献，然后一般搜索的途径就是谷歌像这种比较专业性的网站你也会去搜。那么我们学校图书馆上的话，你一般会搜什么东西呢？

搜书，就是那些教材和文献，就一般这样。然后还有数据库，一般就这三样，教材文献和数据库。

你觉得从中国来到英国学习，你的学习的习惯有没有发生改变？

在中国的话作业考试都是期末的时候赶一赶，然后英国的话平时的任务还蛮重的，就是 presentation 还蛮多的，就不像国内，国内基本上大家都是就一个学期之前都是放羊，最后一两个星期就突击学习，在英国有一种细水长流的这种感觉。还有就是，在中国我喜欢去自习室，学校里面会有自习室，或者有时候在寝室，然后在这里的话，我比较喜欢去图书馆，或者是宿舍里面会有那种 study space，也会去这样的地方。都差不多。

你在中国的话，你们学校的图书馆系统大概是什么样？可以从图书馆的界面，图书馆的信息构成，然后搜索方式简单的介绍一下。

(open and look)我觉得本科的图书馆，第一个有一个很大的问题，就是一开始的默认界面，这个界面没什么用。但是如果你真的要找那些文献的话，你不能一打开就能找到搜索文献的框。但是 UCL 的就一样，打开就可以搜索。而且这边这个入口（信息发现）我都不知道是干嘛的，基本上大家都不会用这个。书目检索是搜校内的实体书的，在线资源是搜电子资源的，一般用这两个比较多。我觉得就不太科学的是它默认的是这里，并不是大家最常使用的地方。然后 UCL 的界面就比较干净简洁，这个有点复杂，用户体验不太好。我们学习图书馆下面还有一些图书馆一些活动，图书馆还会有哪些对一些什么讲座书展，这种活动方面通知很多，但是 UCL 的图书馆就没有，更多的是一个 Explore 检索。本科图书馆我觉得跟一些那些企业的 homepage 比较像，会给你介绍图书馆里面有什么东西有什么活动，以图书馆的一些服务为主；但是 UCL 是以图书馆的资源信息搜索为主。

好，对比本科图书馆系统和 UCL 的图书馆系统，你分别喜欢他们什么？分别不喜欢他们什么？

UCL 这个我就喜欢它比较简单直接，上手比较快；本科的话是有时候你在搜索信息的时候，可能不会去特别关注图书馆有哪些活动，但是有时候你登录图书馆时候看到，比如说刚刚看到一个什么歌剧魅影的活动，你可能刚好对这个有兴趣，就可以参加，这方面来说挺好的。最大的其实还是 UI 的区别。

好的，第二部分我会问你关于信息搜索的行为。你在学习的过程当中，然后都会有哪些学习活动？你可以想一些场景，或者想一些情境。

我们有做 presentation 的，但是有不同种类的。比如说老师会给你一篇文献让你去读，然后给大家同学在 tutorial 上讲。我们一般经济学类的文献一般都是通过先介绍理论，然后给你具体的数据，看这个数据做出来的结果跟这个理论是不是 match 的，基本上是这么一个思路下来，所以这类的 presentation 其实是学一个方法，就是一种研究的方法。然后还有一种 presentation，就是老师给你数据，然后让你自己去挖掘数据，不告诉你任何的背景，你可以从这些数据里面得出什么。这个的话就会比前面用任务更多一点，因为你还要再找很多的文献，找很多的这种理论来支持你的这么一个发现。然后还有一种学习任务是因为我们这种我们专业就比较要求专业证书，对考证的这种学习也蛮多的，虽然学校没有硬性规定，但是大家的这种学习热情还是蛮高涨的。就是大家可以组队一起学什么的。学校有些资源也可以帮忙，我觉得有些这种考证方面的书可以去图书馆借。或者有时候因为兴趣，有些兴趣类的书，比如说我对说对公司金融比较感兴趣，会去借这方面的书来更深入一下学习。还有就是写 essay。

对于这些活动，有没有对于地点的倾向？

我会在准备 presentation 的时候会来图书馆，因为学校的那个 pc 就比较好，会带很多的免费统计软件，可以直接在学校里面用。这个是一点，其他好像也没有什么特别的地点，主要是因为一些免费的软件我回来图书馆学习。

那么对于 presentation 小组作业的话，你们会来图书馆讨论吗？

一般都是线上，因为很难约到，大家都住在不同的地方，有些离学校还有点远，所以线上讨论，自己负责一块内容这样。

你在学习生活当中是如何使用不同的电子设备来辅助你的学习的？

因为来英国以后打印比较贵，所以我比较喜欢用 iPad 上面一些软件记笔记，比如说 notability 那种记笔记，然后还有用它看文献。而且这些笔记其实都可以共享，你可以传到 google drive 上面，这样有时候用电脑的时候，也可以看到自己曾经在上面做过的笔记，就比较便携。手机的话，有时候可以帮忙录音。对。录音或者拍一些老师的板书，因为有时候老师会写板书。其他我觉得还有电脑，就是看一些课件。因为我们本科的时候，我们老师还挺不喜欢大家拿着电脑去上课的，就会觉得你好像没有在好好听课，但是在英国这边大家都是用电脑看课件，然后直接在电脑上面记笔记。写论文的时候也是用电脑，在前期的一些文献搜索会用 iPad，文献搜索和文献阅读，还有思维导图会用 iPad。

你有说学习的地点不一样，然后你可以简单介绍一下，你在这些不同的地点是怎么使用这些电子设备的？

如果我在学校图书馆的话，我会长时间的用电脑，是用自己的电脑还是学校的，两个都会用；但是如果去那些自习室的话，我不带电脑，就是带书。因为带了电脑的话，我觉得会分心。iPad 的话，类似于侧

重于看东西或者刷题的时候会带。有些时候那些练习题就是用在 iPad 上面用 pdf 可以直接看，刷题，就已经无纸化了。

好的，这些所有的设备，在你的学习中，你有偏好吗？

Pad 用得最多，然后自己的电脑，学校的 PC 第三，手机最好。

你也有用手机去录音，或者是有时候拍一些 PPT，还有没有一些其他的学习活动，你是在手机上完成？

我有下载知乎，百度百科，还有网盘，邮箱，因为老师会发一些通知，其实 UCLGO，字典，还有写论坛，和专业相关的，这个论坛是国内的论坛。

但是就是说你们这个专业其实中国的形势和国外的，这些你都要关注，对吧？

就有些时候你比如说一个很新的，你以前没有接触过的东西，你用英文看的话会有点吃力，就是说你不太懂，有时候真的遇到这些，我英文看不懂，我会先去看一遍中文，把中文理顺了，然后才看英文的。

好的，然后的话就是对于我们图书馆系统而言，它是有一个服务页面，可以说是图书馆的主页，然后还有一个就是 explore 系统。你在服务页面，你一般会用到的信息都有哪些？

就只有 explore，其他很少用。

那在 explore 里面一般会用到的功能键都有哪些？

高级检索，还有 find database 这两个。这个数据库就是可以分类的，你可以找你想要哪一种，我一般会看 economic 这种。因为写不同的 essay 是需要不用的数据库的，所以就直接在里面搜就好了。

好的，后你会用高级检索来限定，那一般搜到一个东西之后，出来的结果页面左侧有一个 filter，你会用那个吗？

会的，一般就是看 online resources，type 里面看 articles，一般不看图书馆，因为一般我看 online 文章比较多，很少会看实体的。还有就是 date 也会选，有时候会限定一下时间，太老的文献就不看了。

还有你使用他的一个习惯是什么样的？你会在里面搜索的信息类别是，比方说你会搜索一些很概念性的东西还是？

一般就搜 Keyword。好像图书馆可以预定座位对吧？这个也点过，我看过别人定过。

一般在你学习的时候，比方说今天有学习任务了，你会花大概多长的时间，就是在我们这图书馆系统，或者是你依赖我们图书馆系统吗？

还挺依赖的，因为真的能搜到很多文献。除了我们学校的图书馆系统，Google Scholar 也会去看，还有比方说一些比较专业化的 data base 这也会，但是基本上来讲就是学校图书馆都会有 link 直接过去了。

倾向于先在图书馆系统搜，如果没有找到我想要的，会在谷歌里面搜。

那你在用 explore 的时候，有没有遇到过什么困难，或者是有没有找到你想要的东西的时候？

有，因为我比如说搜一个 keyword，他会给我好多结果，就一下子弹出来，我感觉不是很相关，只要是带这个关键字的就全跳出来，我觉得这个可能不是很好。

你可以举一个例子吗？

因为这学期我们课是关于产权的，然后老师让我们给了一些关于 essay topic 的建议，其中有一个好像是讲婚姻里面的财产权，我想搜这方面的东西我就搜不到，然后我就换了一个题，不太找得到相关的文献就只能放弃。但有的时候就是我真的很需要一个文献，在我们图书馆里面搜不到，我就去谷歌学术上面搜，就是可以直接下载的。

好的。你觉得为什么会造成搜不到的情况呢？

我感觉我这一年下来搜不到文献，基本上都是一些很老的文献，还有一些公开文献，也不用收费的那种。或者是有一些时候有一些版权题。

好的。了这种搜不到的情况，你在用我们图书馆系统还有没有一些困难？

困难好像没有，基本上遇到大困难就是搜不到文献或者是跳出来不太相关的，要花很长时间来找你想要的文献。

第三部分就是关于图书馆用户体验的，你在中国的时候用过移动图书馆吗？

没有。

那关于 UCLGO，一般你会在上面看什么信息？

用的比较多的是 PC, study space, timetable 还有 Moodle。其他就没有了。

你在什么情景下会用？

Timetable 的话就是一天开始要去学校之前，会看今天去学校要上哪些课，在哪些地方。然后 PC 和 study space 就是出门前会看今天去哪个图书馆，看哪个图书馆比较空。Moodle 的话一般是在学校里，电脑不在边上或者不方便看电脑的时候就可以用手机。有时候就在 Moodle 里面看 PPT，然后会有老师会有一些通知。

好的。如果让你作为一个国际学生，或者作为一个中国学生来评价我们学校的图书馆系统的话，你会怎么样评价？你可以从 explore 来评价，也可以从它的服务来评价。

我觉得 explore 比较好的一点是它分得很细，就不会像我们本科的图书馆界面里面什么东西都有，会让人觉得有点猝不及防，然后但是 UCL 图书馆就会分得很细，想要哪一个服务会更直接一点，我觉得用户体验比较好。还有就是界面设计的会比较简洁，是我比较喜欢的那种。另外，就是 explore 检索系统，我觉得有些时候过滤我觉得可以放在高级检索里面，因为我一般不会怎么用过滤，都是直接在高级检索里限定。对，还有这个，我不知道是因为我的缘故还是怎么样，他翻下一页有时候会很困难，比如说你

翻下一页的时候，你得往下拖继续，但是我本科的话直接其实刷新了一个页面，它是自动更新的页面，这个的话它有时候就必须得一直滑到最下面才可以到下一页，而且还需要点击一下才可以到下一页，对这种页面的切换做的不好。

然后的话你有没有从手机上用浏览器登录我们学校的图书馆？

没有过。

那 UCLGO 里面的 Explore 呢？就是（操作）这里你可以直接进入 explore，界面和电脑版的几乎一样。

没有用过...

那让你现在评价 UCLGO 的话你会怎么评价？

我觉得界面不是很美观，我觉得，它该有的好像似乎都有，但是感觉差不多，就可能比网页上面更便携一点，或者是它是通过这样的一个列表下来，会比网页的更好理解。

你现在知道 UCLGO 里面可以直接登录 EXPLORE 了，你会直接用手机登陆吗？

会的。

你觉得 explore 里面哪些功能是特别对你来说特别有帮助的？然后你觉得哪些是可以不用的？

我觉得高级检索就很有用，它有一个 store request，感觉没什么用。也没有用过这个。这个是干嘛的？

比方说你想要的那本书，可能在其它的地方，就可以通过这个来得到。

我用过一次，但是它跟我讲说你现在预定要过几天才能来，我就没有再用了。感觉它的时效性不是很好。好的。你就是从一个国际学生的角度出发，你觉得我们学校图书馆系统还可以在哪些方面提高一下，来满足国际学生的一些需求？

我们图书馆系统里面好像只有英文的文献感觉。里面有中文，我之前遇到过，但是看不了。它链接链不过去。我遇到过一次，就链接过去还得自己在知网上找。

你在这边的话你也会用知网吗？你是怎么用的？

VPN，电脑里边翻回我以前本科学校的图书馆系统，因为我还有同学在本校留下来读研的，就借他们的账号，翻墙去看。所以说如果我们图书馆可以增强一下中文文献，或者不只是中文，像比如说俄文文献，不同语种文献，会更好。

我们刚刚开始的时候提到了移动图书馆，一般是在移动客户端上面使用的图书馆，然后还有一个比它更大的一个概念，叫做智慧图书馆，smart library，你是怎么样理解这两个概念的？

Smart library 指的是？

其实学者对它没有一个统一的定义，就是你可以从你的角度来出发，你觉得一个智慧的图书馆应该要怎么样？

我觉得它会有个性化定制，通过什么大数据分析，有一些用户偏好，比如说你可能在图书馆里面会经常搜某一类型的书，然后它就会知道你可能对这个方面比较偏好，每天会有一些，就像知乎一样的推送，我觉得这个是可以加进去的一点。然后能不能作为一个交流平台，可以自带一些论坛，就是可以往沟通上面，社区社交性的一些元素，让一些用户可以在这个系统里面来讨论，或者是对某一个书的评分这种，可以直接引入在一个图书馆里面。我觉得其实可以跟豆瓣一样结合起来，会有那些话题小组，但是也会有对这个书的评价，但这只局限于这种书的那一方面，不是那种很学术类的东西。

你觉得我们的 UCL 图书馆可以怎么样借助不同的这些电子的设备，电子的平台来完善它的图书馆的服务？

我觉得可以弄一个单独的 UCL 的图书馆的一个 APP 的，就不要再插在 UCLGO 里面，不然我根本都不知道里面还可以看图书馆系统。就可以独立出来做一个 APP，然后把界面弄的稍微美观一点。主要是我觉得 UCLGO 里面该有的东西它都有了。

你觉得如果说图书馆做一个专门的移动的 APP 的话，你觉得它上面的功能或者它上面可以看的的一些东西需要和这个网页版的有所区别吗？

我觉得手机端可以引入的是一个借书的提醒。因为你这个东西肯定是用手机比较多，有时候你忘记，对吧？借书提醒这个东西可能在手机端会更适合一点。还有一个就是座位预订，就是你要出门前，你不会又为了这个预定座位，再单再把电脑打开一次，就比较麻烦，但是手机上就比较快，对，然后就感觉它的侧重点就少放在检索文献，而是图书馆的一些其他的活动支持上面，我觉得侧重点可能不一样，网页端可能更侧重于这种搜索、检索这方面。

好的，今天的 interview 就结束了。

English translated transcription

Interviewee 10--- SSEES: MA Comparative business economics --- Central China Normal University ---Female

R: OK, now can you explain the cognitive map you drew?

P: I drew this map according to the context, for example, when I go to the school library from home, and then go back home after a day of study. Before going to the library, I will first check if there is any available seat in the library through mobile phone. Or if I am going to use the desktop, I will also check the available PC. What I hope is that if the APP can have some route planning, for example, from your current location, give you a suggestion which library to go based on the available PCs or available seats. Especially during the exam week, I think it will be quite useful to diverse people into different libraries. Besides, if the APP can give you notifications automatically, to remind you that you have a book due or what books you have borrowed and the due dates of them; so when you go to the library, you can bring these books with you. In the library, I think the library App can help us search for some convenient facilities, such as the water fountain when you want to drink water, or the emergency services when you encounter some urgent problems. In addition, when you are writing essays, you may need some books or online resources, you can find them on this App. If there is a physical book that you need, you can find out which bookshelf of it on the app, and how to get to that bookshelf, which is also kind of a map function, just like some museum or gallery apps that give you navigation to the painting or art piece you want to see. I think this aspect can be developed in the future. Also, when you are using this app, I think it can also serve as a channel for feedback. For example, if this space in the library is particularly noisy or if someone is eating there, which affects your learning, then you can give feedback through the app to notify other users. Or when you are using the computer, and it crashes, then you can submit this issue directly on app, which will be faster to let IT service help you. Finally, when you leave the library, I wonder if it can develop the service of reserving the library seat for the next day, although it might be not realistic. I am just thinking that if there is service that can help you save your seat for a while and when you leave, the system can also help you cancel it. Another thing is about the personalization that can customize your search. For example, if you searched for some resources today and you read certain books, it can automatically generate some book recommendations that you have not read that are related to your search. Finally, the users can also provide some feedback on the accuracy of the services and search, such as space availability, which shows that there are a lot of seats, but when you go there, there actually no seat there, that is, the information of it is incorrect, then the user can provide feedback on the app. A function like this will be very good.

R: Ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment, or to say, the learning atmosphere, is there any difference between these two countries? How you experienced in these two countries?

P: First of all, I think there is a big difference on the course setting. For example, I having been learning economics, in China, all the courses are about the economy theories and we have around ten lectures per week which are about theories. However, in UCL, the course is normally divided into the lecture and practical session in computer room. For example, we have some quantitative courses, where we might use some statistical software. When I was in undergraduate, the teacher will teach you how to use this kind of software on class, but we don't have sessions to practice or give you some exercise questions for you to solve on class. In UCL, the two forms are combined, for example, there will be one lecture in combine with one tutorial to help you review what has been taught on the lecture. There are also some instructions on how to use the statistical software to let you operate by yourself and you can have deeper understanding, which helps a lot for the future essay writing and research. I think this is the biggest difference.

The second difference is the examination methods. In China, for my major, all of the exams are hand-written tests; in UCL, we have tests and essay writing, which I think can reduce some tensions during exam weeks. Sometimes, if you have too many tests, you have to review several courses in the same time, which I think is not efficient at all. If combine test with essays, there will be a diversion on your attention to different courses. You can spend some time preparing for the essay and some time preparing for test, which will be balanced.

Another point is that in UCL, everyone has a relatively balanced learning status from the beginning of term to the end no matter it is the enthusiasm or the perseverance. At the start of term, the teacher will tell how this course will be assessed, like 100% exam or 50% exam 50% paper, and you will have a clear plan in advance to help you arrange your study in the whole term. However, in China, our teacher only told you the method of examination is a test, but he or she wouldn't tell you what content would be tested. Always the case that at the end of the term, the teacher will give you some highlights on the textbook, and then you prepare for the test in one or two weeks, which is very different from here.

R: Ok, have you prepared anything for the study in UK when you were in China?

P: I have read some relevant literature before I came. Because I didn't have any experience of reading English materials for a long time in China, I wanted to help myself adapt a little before coming. There are some foreign databases on the library system of our undergraduate university and I searched some articles there. I also looked for some resources on Baidu. In fact, it is not necessarily articles or books, any English materials are fine, cause I just wanted myself adapt to the pure English environment.

R: But these are searched by yourself, not through the teacher?

P: Correct.

R: Have your department prepared any reading list for you?

P: Yes, and I saw it. Basically, these are textbooks in the reading list and some are very academic that hard to understand. So I searched the Chinese versions and read them.

R: Do you think that the preparations you made in advance helped you after you come here?

P: There are some help. What we learn now has some repetitions with my undergraduate course. In fact, we are digging into a deeper level on the basis of the undergraduate course. Therefore, because I read some related textbooks in advance, I have a feeling of reviewing when I have the course; besides, for some technical terms, I already know its English thorough preparation, which makes me enter the learning quickly. However, if I haven't done any preparation, I might be lost because I can't link the Chinese term to the English one.

R: What kind of information do you generally search in undergraduate study to meet your learning needs? Then, how you find it?

P: Articles, that are from journals or magazines. Then some exercise books, that is, when we take the exam, every teacher will have their recommended textbooks, but some textbooks do not have practice questions. When it is the exam time, we might search for related exercise books or pamphlet online, like the classic questions and answers. Besides, we may also search for some datasets, because economics is based on data, you need to process data, analyze, and get useful information from it. So datasets are very important source of information for us.

R: For the information you just mentioned, where did you search for them?

P: Most of them are from CNKI, that can be accessed from our university library system. There are a lot of links on our library website, that are gateways to various databases, such as CNKI or CSMAR database. For the exercise books, I usually go to search on Taobao or Baidu. In fact, those exercises are quite similar to the exercise books we use in the middle school and high school. For some economic data, I usually search in databases, like CSMAR, where there is link on the library website. So basically, I search information from our library website, which lead me to different places and databases.

R: Do you usually use Baidu to search study-related information?

P: Quite often. Sometimes, for example, we just learned a concept, that I may not understand, I would go to Baidu to see some introductions that helps my understanding. Or sometimes the teacher gave a topic and asked us to do presentation, at the beginning of the information collection, as an understanding of the whole topic, I would use Baidu and Zhihu to understand it as the first step. Then, for the deeper understanding and concrete academic articles supports, I will then find articles. Basically, that's the sequence of search for me.

R: Ok, after you came to the UK, is the information source changed?

P: Here I search on Google, which is similar to what I do on Baidu, for some conceptual things. Or sometimes, because the academic search is designed better on Google than Baidu, so I search for articles and academic resources on it. Some articles can't be found in UCL's library system, but I can find it in Google, which is quite wired (奇妙的). Also, I look at Wikipedia, and we use Investopedia in our major, which is similar to Baidu Encyclopedia, that is professional and focus on investment and finance. This website was found one time when I

was searching online by accident. When I was searching for professional financial terms, the explanation from this website popped up in the results list on the front, so I know the existence of this website.

R: What do you usually search for in our school library?

P: I usually search for books, like the textbooks. In addition, articles, databases, generally these three types of resources.

R: Ok, do you think that after you came to the UK from China, your study habits changed?

P: In China, all the coursework was rushed at the end of the term. In UK, the study pressure during the term is strong, like we usually have presentations to do, unlike what we do in China. Basically, there is no pressure at all during the term, and we rush to finish all the work in the last one or two weeks. Here, the learning path is like the flow of water. Besides, when I was in China, I would love to study in study room, which are provided by our university or sometimes, I study in my dormitory. Here in UCL, I prefer to go to the library, or the common study place in our dormitory. Almost the same.

R: What the library system in your undergraduate was like?

P: (open and look) I think there is a big issue with the default interface when you open this website. This interface is useless, if you really want to find resources, you can't find the search box for resources directly, and you need to find the proper search box. However, the UCL Explore is different, you can directly search once you open the page. Besides, this entry (information discovery) here, I don't even know what it is for, I feel no one use this. The 'bibliographic search' is to search for physical books in the library. The 'online resources' is to search electronic resources. Generally, we use these two. One thing that is not friendly is that the default interface is here (information discovery) that we don't usually use. The interface of Explore is relatively clean and simple, while this library interface (undergraduate) is a bit complicated, and the user experience is not very good. There are some library events below on the library website, like some notifications on the lectures and exhibitions in the library. However, there is no such notification on the UCL library website; the main function is the Explore. Our undergraduate library system is more like the homepage of some enterprises or companies I think. It has introductions of the library and the events in the library, which focuses on the library services; but UCL library focuses on the information and resources search of library.

R: Compare the library system of your undergraduate and the UCL Explore, what do you prefer about them and what do you think that can be improved?

P: As for the UCL one, I like its simple and straightforward design, which is easy to learn. For the undergraduate library system, sometimes when you search, you may not pay attention to the library events; but when you use the library website, you might suddenly notice the event that you are interested in, like we just saw an event about the Phantom of the Opera, you may just be interested in this and you can participate. It is quite good in this aspect. The biggest difference is still the UI design.

R: Ok, for the second part I will ask you about the behavior of information search. What learning activities do you do in the process of learning? You can think of some contexts or scenarios.

P: We need to do presentations, but there are different kinds of presentations. For example, the teacher will assign you an article to read, and let us discuss it on the tutorial. The learning method in economics is generally learning the theory first, and then analyzing specific datasets to see if the results from the datasets match the theory. Therefore, this kind of presentation is to learn a research method. There is also another type of presentation where the teacher gives you data to ask you analyze and dig into the data without telling you any theoretical background. This kind of presentation is harder than the previous one, because you need to search for a lot of academic resources as support for your findings.

Another study task is the tests of professional qualifications in our field cause the economics study has various qualification tests. Although there is no requirement from our university or department, we still have a high enthusiasm for such qualifications. Students in our major study together to pursue this learning goal. There are also resources that can support us in this aspect, like we can borrow books on these qualification tests from the library. There's also time when I am interested in some topics, for example, I am interested in corporate finance, I will borrow books in this area to learn more. The other activity is writing essays.

R: Do you do these activities in different locations?

P: I will come to the library when I prepare for presentations, because the PC in the library is quite good, where there are a lot of free statistical software, that can be used directly. For other activities, there is no certain difference on locations, the library stands out mainly for its free software.

R: So for the presentation, will you come to the library to discuss with other students?

P: We generally discuss online even it is group work, because it's hard to get everyone around, and we live in different places, and some are far from the campus, so the online discussion is easier and each one of us is responsible for one part.

R: What devices do you usually use when you study?

P: Because it is expensive to print here, I prefer to take notes by using some software on the iPad, such as notability, and I use iPad to read articles. Besides, these notes can be shared if you upload them onto Google Drive, so when you use the computer, you can also see the notes you have made on iPad, which is portable. For the mobile phone, I sometimes use it to record the lecture or take photos of teacher's blackboard notes.

For my laptop, I see the slides and course materials on it. When I was in undergraduate, actually our teacher didn't support us to use laptop in the class because they felt we were not concentrating if we use a laptop. However, in the UK, everyone use laptop to see slides and make notes directly. I also use it to write essays. So basically, in the early period, I use iPad to search for some resources, including article searching and reading. Right, I also draw mind map on iPad to help my understanding.

R: Can you briefly introduce how you use these electronic devices in the different locations?

P: If I am in the school library, I will use my laptop and the library desktop; while if I go to the study room, I won't bring my laptop, and I will only take books to read. I feel distracted if I use a laptop. The iPad is used when I read e-resources or when I do the exercises, to read directly in pdf format. The exercises in our field are already paperless.

R: Ok. Do you have a preference on these devices?

P: iPad is used in most cases, and then my laptop. PC in library ranks third and the last one is mobile phone.

R: Is there any learning activities that you do on your mobile phone?

P: I have downloaded Zhihu, Baidu Encyclopedia, and Baidu Drive, mailbox, which is used when the teacher send us some notifications. Besides, UCLGO, dictionary, and economic forum, which is the Chinese forum related to our discipline. Sometimes, when I encounter a new topic that I have not heard before and if I look at it in English, it's a little hard to understand it. So, I will go to see it in Chinese first and when I understand it in Chinese, I will then see it in English.

R: Ok, then, for our library system, it has a service page, which is the home page of the library, and then one is the Explore system. What information do you usually use on the service page?

P: I only use Explores, and I rarely use the other services.

R: What tags do you generally use in the Explore?

P: Advanced search, and find database. This database list is classified, where you can find specific database in certain field. I usually look at economic databases. However, writing different essays requires resources from different type of databases, so I generally just search in the main search box.

R: Do you use filter?

P: Yes, I generally look at the online resources. For type, I prefer articles and generally I won't tick the 'library' category, because I generally see online articles, rarely physical books. I also sometimes restrain the date, and if it's too old, I won't see it.

R: How you search in the search box?

P: I usually search the keyword. Right, there is also service for booking study space, right? I used that before.

R: Do you rely on our library system in your study?

P: I'm quite dependent on it, because I can find a lot of articles there. In addition to the library system of our school, I will also look at Google Scholar and some more specialized databases. But basically, the school library is adequate because it has links to all the resources. I tend to search in the library system first. If I can't find what I want, I will search it in Google.

R: Then, when you are using Explore, have you encountered any difficulties, or is there time when you cannot find what you want?

P: Yes, for example, if I am searching for a keyword, there will be a lot of results in one go. But I feel some of them are irrelevant. It's like as long as this keyword is included in the article, it will jump out. I think this aspect is not so good.

R: Can you think up a specific example?

P: In this term, I had a course of property rights. Our teacher gave us some suggestions on the essay topic for this course; and one of the topics is about the property rights in marriage. I wanted to search some resources of this topic, but I just couldn't find very relevant results, so I changed the topic...I have to give up writing on that topic. But sometimes, like when I really need an article, but I can't find it in Explore, I will search on Google Scholar and download directly from there.

R: Ok. Why do you think caused this situation?

P: I feel that in this year, the resources I cannot find are basically very old ones or some are open access resources that are public to users to freely download. Or there are also some articles that have copyright issues.

R: Ok. Apart from this situation, have you encountered any other difficulties in using our library system?

P: Basically, no...The biggest difficulty is that I can't find the certain resource or the results are irrelevant; and I have to spend a long time to find what I want.

R: The third part is about your library user experience. Have you used any mobile library apps in China?

P: No.

R: Then, on UCLGO, what information do you usually see on it?

P: I often check the PC, study space availability, timetable and Moodle. Nothing else.

R: Under what context?

P: Before I go to school, I will use timetable to see where I am going to have the lecture. The PC and study space availability are used when I want to study in the library, I will use them to see which library has less people and then decide which to go. Moodle is usually used when I am on campus, but there no laptop on my side or it is inconvenient to use my laptop, I will use the mobile phone to check information, such as ppts or notifications given by teacher.

R: Ok. As an international student, or as a Chinese student, how do you evaluate our school's library system?

P: I think a good thing about the Explore is that it the services and functions are listed out clearly, unlikely to our undergraduate library system, where it puts everything on the library website. It gives users all the things at a sudden. However, the UCL library has its services in a clear list and user can click into if they need anything, therefore, the user experience is better. Besides, the interface is simple and clear, which I like very much. Apart from these, as for the Explore search system, I think the filter can be included in the advanced search part, because I rarely use filtering after I have my result page; I usually constrain my search directly in the advanced search.

There is also another issue, and I don't know it is because of my operation or what. It's sometimes difficult to turn to the next page. For example, when you turn to the next page, you have to drag down and continue; but for my undergraduate library system, when you scroll down, it automatically refreshes and you don't need to click to see the next page. So I think this kind of page change is not so good.

R: Have you used the browser on your mobile phone to log in to our school library system?

P: Never before.

R: How about the Explore in UCLGO? Like this (operating) , you can get access into Explore, directly from here and the interface of it is similar to the website one....

P: Never used it, I don't know there is a Explore entry...But now I know and I will use it.

R: How do you evaluate the UCLGO now?

P: I think the interface is not very beautiful, but it has everything that should be in there. It gives me the feeling that it is similar to the website one, but it's more portable and this drag down menu here (the drag menu in Explore mobile one) is easier to understand than the webpage.

R: What features in the Explore are particularly helpful to you? What do you think is less helpful?

P: I think advanced search is very useful. There is a store request that I feel is useless. I have used it once, but it told me that the book you requested need a few days to come, then I never used it afterwards. I feel that its timeliness is not very good.

R: Ok. From the perspective of an international student, what aspects do you think our library system should improve to meet the needs of international students?

P: It seems that there is only English resources in our library system. There is Chinese resources, I have encountered it before, but I can't see it. The link cannot lead you to that article. I encountered this situation once, that I need to find it in CNKI by myself after I clicked on the link.

R: Do you use CNKI here? How do you use it?

P: By using VPN, to get through the Wall to the library system of my undergraduate school, because I still have friends who are doing masters there. So I borrow their university account to search in CNKI. Therefore, if our library system can enhance the link and resources of the Chinese databases, or not only Chinese resources, but also in other languages such as Russian, it would be better.

R: We just mentioned the mobile library at the beginning, usually it means the library system that can be used on mobile devices; there is another concept, called smart library, how do you understand these two concepts?

P: I think it will be personalized, through the techniques, like big data analysis, user preferences, for example, you may often search a certain type of books in the library, and then it will know that you may prefer this aspect of the resources, it will then give you some recommendations every day, just like what Zhihu does. Then I am thinking can it be a communication platform? Like some forums, where you can communicate with other users, just like a social tool, where users can discuss in this system or rate a book in this library system, something like that. I think it can be combined with the topic groups, like Douban, where there are ratings and comments for books; but this is limited to the books, not the academic resources.

R: How do you think our UCL library can improve its library services with different electronic devices or electronic platforms?

P: I think there can be a separate UCL library app, don't plug it in UCLGO, or I don't even know that I can see the library system there. It can be a separate full-function library app and design the interface beautifully. The main thing is that I feel UCLGO has everything that it should have already.

R: Do you think that if the library is designing a special mobile app, is there anything you think should be different from the web version?

P: I think the mobile version can introduce a reminder of books on due. Because for this kind of notifications, you use mobile phones more, sometimes you may forget, right? Book due reminders may be more suitable on the mobile phone. Another function which is needed on mobile library app is the seat reservation/booking, before you go out of home, there is no need to open the computer to reserve the seat again because it's troublesome to open up computer again. It is faster to operate on the mobile phone. And...I think the focus of the mobile library app should not be put on the literature search, but should be on the activities or services of the library. The website one should be focused on search and retrieval. The design focus should be different.

R: Ok, today's interview is over.

Participant 11

Chinese transcription

Interviewee 11---DIS: DH--- Communication University of China---Female

现在可以解释一下你的认知绘图吗？

我主要是想到了我希望的 physical 图书馆能够给我提供什么服务，然后把这些服务都做到移动应用上面去。我觉得最基本的就是能够搜索文献，还有希望能够 book study rooms，这些房间能够有不同类别

可以分别预定，比如说可以有 chatting room, rest room, music room, 我希望就是能够有不同的类别的用都可以分别 book。还有一个是可能比较难做到，但是很希望能够实现的是可以让我订座位，就是不用让我走到图书馆去找座位找半天，我也找不到哪有座位，我可以实时看这个座位上有没有人就会比较方便。另外还有一个希望能够有比较清楚的 space guiding。更希望的是它能够智能一点，我不知道现在能不能做到，希望以后可以做到，比如说我看不懂这个地图，实在太复杂，我不知道怎么走，但是也没有人可以问，包括 volunteer 的话，如果移动应用上面能够定位我现在在什么楼层、什么位置，然后它可以直接规划一个路线出来，告诉我怎么走，或者语音告诉我我现在应该怎么走，或者说以后图书馆里面可能会有一些小的 robot，就那种可以语音的，然后也能跟移动应用有个交互什么的，也能够去图书馆里导览我找到想要的东西，反正就是一种形式，我觉得。另外还有希望可以有一个提供餐饮的区域，我可以利用移动应用去订购跟支付，好了我直接去拿。我不用过去排队或者等或者怎么样。我能外加一个吗？就是希望打印的也可以实现这样的一个功能，就是我可以直接传文件过去，他打好了，我直接过去在某一个地方拿。

就是把这种服务都结合起来，然后通过图书馆系统去订这个服务？

对，预定这个服务，就不用我亲自过去，我可以在 APP 上看到它还剩多少时间完成，完成了我直接过去拿就好了，你可以 check 到不同的机器，哪台机器能用，然后这种。最后这些都是是一样的，就是不同的服务，我想说充电宝也可以监测一下也是挺好，你可以看到有哪些充电宝，哪个地方的充电宝是还有的，就可以去那个地方取，反正就是监测各种地方，各种服务有没有空余的。这个呢，是我觉得移动应用上可能，我当时想说如果手机的话搜到一个什么文件，我可以同步到电脑还是什么，但我没有想清楚，你的意思是不是文件可以同步到不同的设备上？

对，我是这样想的。

好。我们就现在开始正式的 interview，分成三个部分，第一个部分是以文化作为切入点，我问你一些关于你之前本科学习的一些经历，就是把中国的学习环境和这边的英国的学习环境做个对比。第一个问题就学习的氛围，还有学习环境而言，你觉得中国的大学和英国的大学比较的话是怎么样的？

我觉得学习氛围可能我个人觉得英国会更好一点，可能因为我本科学校的特殊性，就是学术氛围不是太浓，所以我会感觉我本科去图书馆次数也很少。但是这里的话我觉得学术氛围重，大家会学习氛围更好，我们本科比较注重实践，所以学术氛围可能没那么好。

你本科的时候一般会在哪里学习？

我会去自习室。我为什么去自习室呢？因为图书馆有网，我就会开小差，自习室没有网，所以基本上手机就是没用的。就可以比较专心的刷题。图书馆我也去，咖啡厅我也去，但是我因为可能不太需要借到图书馆的书什么的，所以我不太需要去图书馆，我基本上都刷题，所以我就选一个没有网的地方，或者能让我心情愉悦的地方自习。另外一点，中国图书馆我非常不喜欢的一点是他的桌子，人可以面对面，你知道吗？我特别不喜欢这一点，我觉得我一抬头就能看到对方在做什么，我希望有一个单独的空间，不要有人可以打扰到我，这样特别讨厌面对面的那一种，我有时候可能就蓬头垢面的，然后就想学习，就不喜欢别人能够看到我在干嘛。

你在英国这边一般会去哪里学习？

家里或者图书馆，图书馆也去。

就这种课程的这种结构或者是考核的方式而言，你觉得英国和中国你学的专业有什么样的区别？

我感觉这里的本科可能会好一些，英国的本科，因为我舍友是本科，他们的考评是平时也有小测试，会算进期末总分里的，虽然说期末考试评分比较重，但是我觉得这样比较好，就是能够分一些分数到其他不同的地方，但是我感觉好像本国内的本科跟这里的硕士基本上都是最后一次考评。就是 coursework 占百分之百，这样就可能会压力比较大。平时学习的时间，因为不用考核，就比较放松，但是一到 due 就比较要命。

那就课程的结构，就比方说这个课程的设置有什么区别吗？

中国没有 practical，就是上完课马上练习的那种，可能也是专业的区别，我们基本上都是上没有 practical 的课。都是比如说这节课上完就接着下一节，然后也不会把非常类似的课程集中在一起，他不会安排，比如说两节的日语精读课，基本上不会精读课马上又是日语听力，就这种非常密集的相似的课程摆在一起的那种。对，但我感觉这边可能上完了之后马上做 practical 有好处也有不好的，我觉得好处可能是学完马上就能操作可能会加强你的记忆什么的，不好的地方是我觉得疲惫，就太累了，其实上完课其实也没有消化，接着上 practical 的话感觉有点累，时间会长。

你本科学的是语言类的是吧？

是学的日语。

好，你觉得就是从中国到英国来，你自己的学习习惯有什么变化吗？

学习习惯...我感觉就是我本科的时候，平时还是读点书的，平时还是会比较扎实去读，也是因为语言，你必须背单词，然后课本得背什么的。但现在在这的话基本上就是最后赶 due 了。但的确也是看课程设置，因为像一些代码的那种，每周都有练习，那我会去做。但是如果如果没有，就是让我们读 reading 的话，我可能就不太读了。

好，你还在中国的时候，你有没有为了来英国学习做哪些准备？

有，因为我知道我申请这个课程有一些编程方面的东西，所以我有提前稍微自学了一下。

然后自学的話，你那些资料什么就是自学的信息什么都从哪里找到？

网上找的，然后也问了一些，他们有学过基本编程的同学，就是他们一般会怎么怎么学这个课程。

关于英国这边的课程信息，然后你当时是通过什么途径看到的？

就是学校的就是这么学院的官网

你觉得对于学院来说，就是在国际学生来之前，他们给你们发的这些信息，包括课程的信息，学校的信
息充足吗？

我觉得不是非常够，因为我感觉基本上他们就列一个 reading 的 list 给你，然后可能里面文章也还挺多
的，就是它一股脑给你放上去，也没有什么重点区分之类的。我觉得像一些技术编程的，我觉得他可以
考虑推荐一些网站，就是更具体化的让你先去掌握一些东西。reading 的话，我会更希望有可能的话，
教职工可以自己整理归纳一些比较精髓的东西，让我们先看看，不要直接一股脑给一堆 reading，我觉
得可能我会不想看，或者我觉得太多了，或者就看不懂，就会产生这种情绪，但是如果比如说十几页 20
页那种特别精华的东西或者一个大纲，我可能会更想主动去了解。

当你在中国的那个時候，你一般会为了学习搜索的都有哪些类型的信息，然后都是通过什么途径去找的？
论文的话会看知网。然后百度文库。但是因为我当时写的是日语论文，所以我也用 google scholar 翻墙
出去找。但是书很少，基本上看 paper。

这些文献，这种信息，是通过老师给你们一些 topic，还是你自己去搜到什么？

我定了自己的论文题之后，通过一个大概的 topic，然后自己去搜索的这些文献。

当你来了英国之后，针对学习搜索的这些资料信息一般都有哪些类型，都是怎么搜的？

这里的话我有看就是专业的书，这些书都是老师推荐的，reading list 里面有的，老师觉得上手比较快
的那种工具书我有买，买的二手书来看。另外也是 paper 老师提供的 reading list 里面的。

你都是在什么途径找的？

我会用 UCL Explore，基本上都用它，如果找不到话，会谷歌学术搜索一下。如果是一些编程类的课程
的话，我会去搜 W3School。另外一点是我觉得我看中文会比较快一点，所以我有在慕课网上面去购买一
些编程的中文课程，我有在同步学习。但是也没有学完，因为感觉我们也用不上那么多。

当你在之前在中国的时候，你一般在学习生活中会用到什么样的设备？

主要还是电脑 laptop，我没有 Kindle 和 iPad。我会用手机学习，但是我觉得手机上的学习基本上是那种
碎片化的学习，我背单词用 app 或者说在微信里看一些公众号的比较干货的推送，我觉得非常碎片化
的那种知识的积累，不是系统那种。

你觉得就是你学习的整个的方式而言，从中国到英国有发生什么变化吗？

我觉得本科的时候倒没有这么的利用网络去搜一些资料，因为语言学的东西我们基本上就是专注课本。
但是来到这里之后发现很多信息需要去网上搜，网上可以获取特别多的信息，我感觉利用互联网变多了
很多，学习方面。

你觉得就这种习惯的改变，是让你觉得自己学习更加有效还是？

我觉得更加有效了，因为可以获得更多不同的信息。

好，然后你在中国的时候，你们本科中传的图书馆系统大概是什么样的？你可以大概回忆一下，然后你
就介绍一下你们图书馆的网站，上面都有什么样的内容。

我能说我都没用过中传图书馆。

你那时候是不借实体书吗？

我是直接去图书馆，然后在图书馆直接在终端机上面用检索系统，我好像真的都没有印象我用过这个，
为什么我没有用过这个，是因为我感觉我学校找不到什么资料，我当时借我同学就是清华同学的他们的
账号，我用了他们学校的网站。

你觉得那个很好用吗？

那个也没有非常好，因为我感觉很多它提供了一些知网什么的，那些都是一些镜像的网站，感觉资料不
是特别新。而且他们比较注重的是科学类的，science 类的文献多一些。跟我的专业符合的比较少。我们
图书馆的网站上就是一些基础的一些信息，news 之类的，有一个搜索的功能。感觉这里也有借阅信息跟
room booking 的功能，馆藏的话，这么厉害我们还有馆藏。站内搜索，站内检索跟统一检索。这个站
内应该就是检索网站里面的包括活动和其他的一些信息，然后统一检索，应该就是中英文资源都可以，
这里还有一些数据库，数据库的入口会直接摆在这里。但是我感觉这些数据库入口，比如说我看一个，
我真的没有进来过，其实我们当时写论文的时候，老师给我们推荐过几个日本的数据库，但这个完全不
是。就可能真的查不到什么 paper 我感觉。因为老师也没有教过我们要用这个，我们用的是其他的网站。
就可能实用性不是特别强我觉得。

但你那个时候查一些网上资源会从知网上面查，对吧？

知网，然后另外老师推荐的就是日本的一些学术引擎。

你觉得中国的你用的知网，然后包括你们学校图书馆的系统，和英国 UCL 的图书馆系统对比的话，你各
自喜欢他们什么，各自不喜欢什么？

我觉得 UCL 的特别好用。就是你搜篇 paper，你可能大概知道这个 paper 叫什么名字，然后你搜的话，
它会有很多不同的 link 到出版社。可以直接获得资源，特别好用。但是我感觉国内的图书馆可能没有特

别多的资源，数据库，然后你可能需要一个一个点进去，然后去查 paper，他并没有把各个数据库的资源整合在一起。但我没有用过，我不知道我们学校是不是可以这样，大概会是怎么样呀？

因为其实一般大学中国大学的图书馆系统它都是用来检索实体书的，本图书馆收藏的一些实体书，但是它是会给你提供这些不同的学术数据库的链接，然后你再点进去。

对的，我觉得是这样的，但 UCL 就特别方便，不用再单独点数据库了。

你觉得知网之前用的时候体验怎么样？

知网不是特别好，因为如果不用学校的账号是需要收费下载的，而且感觉它的关键词的搜索算法不是特别好，就是我之前有搜过，具体忘了搜的是什么，但是我稍微换了一下词，搜出来的文献完全不一样，还挺奇怪的。Explore 的话我基本是已经知道文献名称是什么了我会直接搜那篇文章，就是通过老师给的 reading。其他的资料，如果不是通过老师的话，我可能会先在 Google Scholar 上面搜，在那个里面看看有什么文章，如果那边下载不了我会把资源的名字 copy 到 explore 里面。

我们现在开始第二部分，就是你作为一个信息搜索者，你的信息行为。一般在你的学习过程当中，一般你都会做哪些活动，然后你可以想一想一些情境或者是一些地点，你会做哪些活动？

看书，然后浏览一些网站，就是从互联网上获取一些信息。我也看视频，就是有一些教程，然后手机上的一些碎片的知识也有看。知识输出的话可能就写写论文，做 presentation 和 project，还有跟老师交流，跟同学交流，问问题，然后获得一些建议什么的。

你刚说就是视频，是通过什么途径看？

我会搜 YouTube 搜关键词，找那个视频。中国的话就慕课网，然后各种网易云课堂那种，我可能针对性的去搜。有时候会听一听 TED 演讲，就是获得一些比较 general 的一些信息。

刚刚说的这些活动，一般你都会在哪些地方进行？

看书读 paper 的话，可能就在家或者图书馆，做 PPT 肯定就是在教室里。然后问同学问老师不一定，有可能我是用手机微信 WeChat 聊的，有可能是 face to face 聊的，有可能是 email 聊的不一定。看视频的话，基本上也是图书馆或者在家用电脑。

一般学习过程当中你都会用到哪些设备？

用电脑和手机，电脑为主。基本上我刚才说的那些活动基本上都在电脑上。手机一般，比如说我要跟同学问问题什么的，我可能会用手机，就是一个交流的工具。但是基本上如果要搜文献什么的，我肯定不会用手机，因为我感觉屏幕太小了，也不方便，一次性展示的信息量也不太多。不过看视频可能会用手机。但是有一个问题就是视频如果要在手机上看的话，可能需要缓存下来，就是要保存到本地，但这个就比较难，因为一个视频还挺大的，手机里面容量没有那么大，但是如果你下载下来的话，好处就是你没有网的地方你也能看。还有就是上课的时候我会用电脑做笔记。来学校图书馆的话，电脑什么都会带着。对，这个是一个很大的区别，就是我本科的时候，基本上我都是用手做笔记的，就是写，但是我到这之后，我基本上所有笔记，任何东西全部都电子化。这个是很大的区别。

就是你在这边来学校图书馆学习的时候，你会用我们学校图书馆 desktop 吗？

会用，我会把我的电脑放在旁边，然后我可以看到两个屏幕，就是可以分屏看不同内容。但是基本上我如果能用学校的...这两个我就觉得首先是学校的电脑键盘不太好打。就是没有 laptop 使用感好，另外一个学校电脑不能打中文，所以我搜中文的时候，我基本上用我这个电脑，我可能会开两个同样的网页，同样的东西，但是一个是英文的，一个是中文的，我两个同时搜，可能会对比较看。

好的。你刚刚说到就是手机有时候你会看一些碎片化的信息，可能是比较 general 的一些学习的知识...

稍等我还要补充一点，刚才电脑跟 desktop，有时候我会在 desktop 上面做编程练习，但是因为他有个 worksheet 切换很麻烦，然后我可能就会用 laptop 上面摆着 worksheet，然后一步步跟着做，然后是在电脑上操作，desktop 上面操作。

好的，我刚提到你会用手机去学习一些碎片化的信息，你可以就把你的手机打开，会有哪一些 APP 是你平时用来学习的？

英语流利说，喜马拉雅听书，知乎，词典，产品经理，就是一个专门为产品经理设置的，里面有很多干货文章什么的，会分析一些产品之类的。还有就是流利阅读，我每天都用，就每天打卡。WPS office 就是一般别人通过微信发给我文档的时候我可能会用这个看，但是我基本上不用这个 WPS，就只是用他来看一下，但是我不太会看他仔细看，我只会浏览一下。

好的，你一般在手机上面做这种碎片化学习的时间多吗？

不是非常多。刚才还有个微信也算，会看推送的文章。

一般都会在什么时候你会用手机去做这种碎片化的学习，然后什么情景下？

流利阅读是每天都做的，就是我会用 20 多分钟听一整个课程。然后微信推送的话，基本上晚上睡前或者学习学累了，打开手机，刷到一些推送就会看。

也就是说你不是会花很长的时间在手机上面学这种东西？

不会，而且我觉得不太记得住，就是你看到之后也不会特意把它记下来或者抄下来，或者做一个 note。

基本上看过可能忘了。

我们学校图书馆，分一个主页面，这边会有很多服务，然后还有一个 explore 的搜索页面，你一般会看哪些信息？

直接就是 explore 去直接搜索，其他的服务都没用过。

那在 explore 里面你一般是怎么操作和搜索的？

就直接在搜索框这里搜东西，没用过高级检索。因为一般我搜索资料的时候都是在谷歌学术里找，然后已经知道了整个文献名称，才来 Explore 里面找具体的那个文献的。所以像这上面的几个功能(e-journals, databases, store request)我都没用过。Filter 我也没有用过。

好，我们图书馆一般开学的时候会做一些培训，你去过吗？

因为我之前上的是语言班，的确有，但是因为我基本上习惯了在谷歌学术上面去搜，然后搜完之后我再到这儿搜这个题目。我感觉我们学校图书馆对我来讲就是一个我在外面拿不到资源，我就过来看看你们能不能有免费资源可以下载。

你这个习惯有原因吗？

我也不知道，我就习惯在 google 上面先搜，给我一个启示，这个习惯是其实可能是从国内带来的，我觉得是因为国内大学的确就没有这么一个整合的东西。大家知道的知网、万维网那种需要分别搜索的。在国内反而会用一些筛选的功能。

你在谷歌学术的里面会用筛选吗？

谷歌学术里面，我可能就打关键词，年代我好像限定过，但是其他就没有，其他可能会加关键词。

好的，对于使用 explore 来说，你一般因为是直接找文章，那这个过程中你有遇到什么困难吗？

经常有一些文章搜出来之后是 peer review 还是 review 什么，就是没有办法看。（在网页上 show）这个是底下没有那个标志的就可以看，但有的话就不能看。

你知道 peer review 的意思吗？

就是一篇论文，还没有发表，就要经过你的同行的专家，或者你的同行的人，去看你的 paper，然后给你提意见，然后你就要进行修改，修改之后再给他们再看。如果最终大家都觉得挺好，没问题就可以发表是吧？是吗？

是这个意思，但一般来说 peer review 的话他都可以看，可能你当时看的那个是处在还没有未发表的状态，或者是他是发表了，但是是没有 open access 就不可以登进去的状态，其实一般来说 peer review 的话就是更权威一点。除了有遇到问题，还有没有遇到过什么样的困难？

还有是那种不能够...我忘了是这里还是谷歌学术，有些是不能下载的。可能是谷歌学术里的，就是有个数字图书馆，你只能看你不能下载，就只能在线看，都不可以下载下来。反正我有遇到过。

好的，那你在谷歌学术里面有没有遇到过那种你搜一个东西，但是没有搜到，或者出来的结果和你想要的不是很符合？

遇到过一次。搜到了，但是...其实 google 学术基本上都能搜到，但是有遇到一次是我同学有让我帮他找篇文献，然后我在 explore 上面找找不到，但是我在谷歌学术上找到了，只有那一家出版社有，但是要钱。

你觉得图书馆的培训在国内的情况是什么样？

太烂了。完全没有这种培训，高中可能就基本上不用，刚入学的时候没人跟你说图书馆很重要，可能也是因为我们学校特殊性，我感觉就是学术也没有那么重要，所以真的大家都不知道该怎么用。没有培训的，找资料都是通过知网，所以说到 UCL 了之后，就觉得这个也不是特别清楚我们图书馆系统是干嘛的，对，虽然做过培训，但是也不是非常精通，这个怎么用。基本上对我来说，我是在谷歌学术上面搜完之后，explore 上面去搜抬头。因为之前就对图书馆这个概念特别单薄。

好的，我们开始最后一个部分就是关于你作为一个图书馆的用户，你的用户体验。你之前有用过移动图书馆的 APP 吗？

没有。从来都没有。

你有下过 UCLGO 吗？

有，我会看看 timetable，这个是最常用的。另外的话我会看一下 Moodle，但是特别不好使，因为它界面会变化，就是网页版的。然后我会用这个 digital skills 去订一些课。Place finder 我好像用过一次，但是我感觉不是特别好用。上面有的关于图书馆的几个服务，pc, study space, explore 我都没用过。一方面可能也不知道有，另外我可能有看到过这个，但是我没有点进去，因为我基本上用电脑去搜资料，没有用手机。因为我感觉就在我的概念里，如果你即使你找到这个文献，你要下载一个 pdf，他也是下载到你的手机里面，你还得把手机里面的文件导到电脑里，如果不能系统里面同步的话，你就还得把这个导到电脑里面去，然后就很麻烦，所以我基本上用电脑。

你对 UCLGO 的评价是什么样的？

其实我也没有用几个功能，我感觉还行，就是能获得我要的信息。但是这个 Moodle 实在是设计的太不好。

其实 Moodle 它有一个单独的 APP 你可以下载。

我知道我有下载，但是也不好使。

好，然后的话你作为一个国际学生来说，让你评价我们学校 explore 系统，你会怎么评价？

我觉得 explore 是很棒的一个系统。但是它的资源的 accessibility 可能还需要加强，也不是所有文献它都有。另外的话，我觉得就是这个主页，我觉得就是信息太多了。它服务特别多，那一栏，我比如说我可能最常用的就是 study space, electronic resources, 或者 OPEN ACCESS，但是它就放在这里的话，就感觉不是特别有主次，就信息比较冗杂，然后我就会忽略掉这些信息。但这些如果是常用功能的

话,我觉得可以放在比较重要的位置,像 explore 搜索就是放在比较重要的比较醒目的那种,我觉得看到的就会可能会更注意到有这个功能。

好的。你一般在学习的时候,会依赖我们学校的 explore 系统去搜寻一些资料吗?

很依赖,大部分信息都是从上面得来的。

有一个关于习惯的问题,就是你学习的时候你会把 explore 打开就放在背景那里,还是只有在想查东西的时候才会打开?

想查的时候才会打开。

作为中国学生来说,你觉得我们图书馆还可以提高哪些方面来提高中文学生的用户满意度?

培训,真的要做一个必修课那种来培训,强制参加的那一种。最后还要来做个小测试,让你知道到底要怎么使用才能充分利用它。另外一个就是我觉得我刚才说的主页的一些功能的使用,它可能还要再分一下主次,不然我感觉信息很冗杂,如果没有做一个特别系统的培训的话,我可能不知道,感觉信息特别多,然后我不知道哪个功能该怎么用,哪些才是我最常用的最重点的功能。

好的,刚刚开始的时候,我提到一个概念,就是移动图书馆。还有另外一个概念,就更大一点的概念叫 smart library,智慧型的图书馆,就你对这两个词有什么样的理解?

移动的话,感觉会比较注重于移动应用,就是可以在网页或者说 APP 上面实现些什么功能。但是智慧感觉就是更大的一个概念,比如说一些在图书馆里面一些实体的自动化的东西可能会有,比如说我刚才说的一些 robot, guiding robot,就是代替人工,然后有个小机器人可以带着你去带你去找那本书那种。还有比如说一些书架高的地方,他可能会移动下来之类的那种传书下来的那种功能。就是不单单局限于就是一个网页或者 APP 你可以在上面实现什么功能,而是有一些 physical 的东西,借助这些科技把实体的图书馆变得更加的现代化。然后这些功能就是能够更多尽可能的跟移动应用结合在一起。就像我刚才说的,比如说我可以通过移动应用去订一些打印,我只要把文章发过去,就可以 check 这个机器是不是可以用的,我的打印还剩多少时间,什么时间我可以去取,甚至就是他能够给你送过来,或者怎么样。那种特别 imaginary 的东西。

好的。然后你觉得如果我们图书馆未来会设计一个移动的 APP 的话,你对它有什么样的期待?你觉得上面应该有什么样的功能?

我觉得最基础的还是搜文献跟搜实体书的功能,这个是最基本的。另外就是我在那个图上面写的,有一个我觉得我特别需要的,就是要有一个 seat 的 checking,我知道什么地方有位子可以坐,我就不自己去找。还有一个就是提供一些预订的服务,我觉得就节省等的时间。然后节省我找书的事情,我要找书也挺麻烦的,因为要自己看那个编号,然后有时候书很多,也挺麻烦的,就希望有一个能够有个 guide。就可能蛮难实现的。甚至可能以后书架如果发展先进之后,它可能就像自动售卖机一样,你输入这个东西,你要这本书,它可能就直接给你传输到一个窗口,你就不用自己去找了。

如果有这么一个移动的图书馆,APP 你会用吗?

会。如果能大量节省我时间,我肯定用,因为我觉得找书、找位子还挺花时间的。

好的谢谢!

English translated transcription

Interviewee 11---DIS: DH--- Communication University of China---Female

R: First of all, can you explain the picture you just drew?

P: I mainly thought about what services I would like the physical library to provide to me, and I hope these services can be designed in the mobile app. I think the basic thing is to be able to search for documents, and I hope it to be able to book study rooms. These rooms can be in different categories, for example, there can be chatting room, rest room, and music room. You can book different types of rooms separately. Another one, which may be difficult to achieve, but I hope it can be possible to reserve seat in the library that I don't have to go to the library to find a seat. It's usually spent me a long time to find a seat. If I can check if there is anyone on the seat in real time, it is more convenient.

I also wish there can be a clearer space guiding. I hope that it can be smart enough to, I don't know if it can be achieved, that if the space design in the library is too complicated and I don't know how to find a place and there is no volunteer I can turn to, the mobile library app can locate where I am in the library and it can plan a route, tell me how to go, like by voice, or maybe in the library there can be some small robots, which can speak to me and lead me to the place I want to go. I can also navigate the library by their assistance to find what I want. Anyway, it is a useful interactive form, I think.

Besides, I wish there can a space designed for catering, where I can use the mobile app to order and pay. After the meal is prepared, I can directly go and pick up it without queueing or waiting. Can I add one expectation? I am just thinking that for printing documents, there also can be a function that we send the documents to the system, then go and collect it directly at a certain printer.

R: Do you mean integrate all these services and you can book these services through library system?

P: Yes, I don't need to personally go somewhere to conduct the service, and I can see the progress of it through mobile app. After completion, I just need to go and collect. And you can check different machines, which one can be used and which is unavailable. The last part I drew is some different services. I want to say that the library can provide us with chargers and we can check on the app where we can borrow the charger. Anyway, it is to monitor various places and whether there are spare machines for various services. This bit, I wanted to say, if I find a file on mobile phone, can I sync to the computer or something, but I didn't think clearly.

R: Do you mean that files can be synced to different devices?

P: Yes, I think so.

R: Ok, now let's start the interview. The first part will ask questions based on culture and your experience as an international student. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment, is there any difference between these two countries?

P: I feel that the learning atmosphere is better here in UK. Maybe because of the special nature of my undergraduate university, which is focused on practise, the academic atmosphere was not too strong. And I rarely went to library when I was in China. However, in UCL, I feel the academic atmosphere is very good, and everyone is learning hard.

R: Where did you usually study when you were in undergraduate?

P: I generally go to the study room. Why? Because the library has free wifi, and I might be distracted by that. There was no wifi in the study room and even no signal, so the mobile phone cannot be used either. I can be concentrated on my work. I sometimes go to the library and cafes; but I don't need to borrow books from library, so I don't need to go there. I usually work on the exercise books and I just need to find a place where there is no network or a place that makes me comfortable. Another point is that, what I really dislike about the Chinese library is the desk. People are sitting facing to each other. I don't like this. I can see what the other is doing when I look up. I hope there is a separate space. No one can bother me. This is very annoying. If I go to the library, I just want to learn and don't want to be disrupted by anything. And I don't like others to see what I am doing.

R: Where do you usually study in the UK?

P: At home or in the library.

R: In terms of the structure of course or the way of assessment, what do you think is the difference between the UK and China?

P: I feel that the undergraduate course in UK may be better. My roommate is an undergraduate, their assessment is usually combined with small tests during the term and final test, and all of them will be counted into the final score, although the final test score has relatively high portion, but I think this way of assessment is better. It is able to divide the score into different parts. However, for the assessment in China and here for master course, there is generally one test at the end of term and that test or essay accounts for 100%, so it's more stressful for us. During the term, because there is no assessment, we are very relaxed about learning; but when it is the exam period, it's so stressful.

R: As for the structure of the course, is there any difference?

P: There is no practical sessions when I was in China, where you can practice what you learn in the lecture right after the class. It may also be the major difference. Our major in undergraduate basically have no practical lessons. And we don't have intensive class arrangement that put similar classes on same day. We don't, for example, have two Japanese courses together on same day. But I feel that there are good and bad things to have practical session; the good thing is that you can strengthen your memory after you operate by yourself. The bad thing is that I feel it's too tired. In fact, it hard to totally understand what is being taught in class right after the lecture. Then I feel a bit tired when I have the practical session.

R: Your undergraduate major is language, right?

P: Yes, Japanese language studies.

R: Ok, do you think your learning habits have changed from China to the UK?

P: Learning habits... I feel that when I was in undergraduate, I read some books regularly. I usually read them in a more solid way. It is also because of the nature of language studies that you have to recite words and know everything in the textbook. However, now in UCL, it's basically working on coursework and assessment if I have dues. It's also because of the major change, here for some programming course, there are practical tasks in each week, and I do that. But if there is no tasks and only assign us readings, I might not read it.

R: Ok, have you prepared anything for the study in UK when you were in China?

P: Yes, because I know that there are some programming courses when I apply for this program, so I have learned some basics in advance.

R: How did you learn it by yourself?

P: I found the related tutorials online and asked some of my friends who's learning programming about how they learn it and ask them to recommend me some materials.

R: How did you find the information about the course here?

P: From the school's official website.

R: Do you think that before you came, UCL or your department has provided you with enough information for learning?

P: I don't think it's enough. Basically, they just gave us a reading list, where there are a lot of articles. But it's just giving to you in one go and there is emphasis or focus. I think that for some programming course, they can actually recommend us with some website, which is more specific and help you get command some basics first. As for reading, I think, if possible, the faculty and staff can sort out some essential things, to let us to look at first, and don't directly give us a bunch of reading that we don't want to read further or we may feel it's hard to understand. But if it's just like 20 pages long or some outlines, we may have the passion to read.

R: What kind of information do you generally search in undergraduate study to meet your learning needs? Then, how you find it?

P: For writing essays, I look at CNKI and Baidu Library. But because I was writing Japanese papers at that time, I also used Google Scholars to find Japanese resources. I rarely look at books, basically papers and articles. After I confirmed my topic, I search by the keyword of this topic.

R: Ok, after you came to the UK, what kind of information do you generally search?

P: Here in UCL, I generally read books that are recommended by teachers in the reading list. And they also recommended reference books that are easy to understand, I bought the second-hand ones. Also, I search for articles in the reading list.

R: Where do you find them?

P: I use UCL Explore basically. If I can't find it, will use Google Scholar to find. If it's a programming course, I will go to W3School. Another point is that I think I read Chinese faster, so I go to the MOOC online to buy some programming Chinese courses. I have been learning it, but haven't finish it.

R: When you were in China before, what kind of equipment do you usually use in your study?

P: Mainly laptop, I don't have a Kindle or iPad. I use mobile phone to learn, but I think that the learning on the mobile phone is basically a kind of fragmented learning. I use apps or see some public accounts in the WeChat to see the updates and articles. I think it is very fragmented, not the systemic way of learning.

R: Do you think the way of learning changed from China to the UK?

P: I don't think I used the Internet to search for some learning information when I was an undergraduate. The linguistic studies basically focus on textbooks. But after coming here, I found that a lot of information needs to be searched online. I can get a lot of information online. I feel that the way I use the Internet to learn changed a lot.

R: Do you think that the change makes your study more effective or not?

P: I think it's more effective because I can get different kind of information.

R: What the library system in your undergraduate was like?

P: Can I say that I have never used our library system in Zhongchuan.

R: You don't borrow books at that time?

P: I went directly to the library, and then used the retrieval system directly on the terminal machine in the library. I don't even have any impression of why I never used the library

website. Probably because I feel that I can't find the thing I want on it and I borrowed the account of my friend who studied in Tsinghua university. I used their library website.

R: Do you think their library website is more useful?

P: It's just ok. I feel it provides some databases, like CNKI, which are mirrored websites and the information was not frequently updated. Moreover, they pay more attention to science, so there are a lot of resources in the field of science and less in my major. (Open the library website of their university) On our library website, there were some basic information as I remembered, like news and events. There is search functions, including the search in website, and search for all. Search in the website probably means retrieving some information like library activities and news in the website; search for all means the search for all the resources, including that from all other databases.

There are also personal borrowing information and room booking functions. And you can search for library collections on that. There are also some database links on the library homepage. Let's click into one...(operating), actually I've never used this Japanese database, at that time when we wrote the dissertation, our teacher recommended us several Japanese databases and we went directly to that. This one...I don't think we can search for any useful information from here. I feel that because the teacher provided us with everything and we just need to follow his instruction, so the library website is not that useful for us.

R: So you find resources by CNKI at that time, right?

P: Yes, from CNKI and other Japanese academic search tools recommended by our teacher.

R: Compare the library system of your undergraduate and the UCL Explore, what do you prefer about them and what do you think that can be improved?

P: I think UCL is particularly easy to use. When you are searching for a paper, you probably know the rough name of it, and then if you search, it will come out with a lot of results of different types and there are links where you can get resources directly. It is very easy to use. As for the library system in China, I feel that there are less resources and databases. You have to click into each database to search. It doesn't integrate the resources from all the databases. But I have not used it. I don't know if is any integrated search function...How is it like in the Chinese library system in general?

R: In fact, most of the library systems in China is used to retrieve physical books, but it will provide you with links to different academic databases, and then you can click and search separately.

P: Yes, I think it is just like what you said; the UCL one is more convenient that you don't need to click into different databases separately.

R: How's your experience of using CNKI?

P: CNKI is not very easy to use, because without the university account, it's chargeable to download resources. Besides, I feel the algorithm of keyword search is not particularly good. There was once when I search something, I forgot what term was searched; but then I changed the term a little bit, the results appeared were totally different, which was quite wired. As for Explore, I basically already know the name of the article I want to search and I just search directly by the title which is from the reading list given by the teacher. As for the other resources, if not through the teacher, I may first search in Google Scholar, and after I find what I want, I copy and paste the title of it and search in the Explore.

R: Ok. Start the second part now, which is about your behaviour as an information searcher. During the study here, what activities do you usually do and you can think of some contexts or places of these activities?

P: Reading books and browsing some websites, to get information from the Internet. I also watch videos; there are some tutorials in the video form. I also get pieces of knowledge from mobile phone. As for the output of knowledge activities, I may write essays, make presentations and do projects, communicate with the teacher or the classmates, ask questions, and get some advices from them.

R: You just said you watch videos. How do you see them?

P: I will search by keywords and find videos on YouTube. When I was in China, I use MOOC and NetEast Open Courses and on that, I will search with a focus. Sometime, I also listen to TED talks to get some general information.

R: Where do you usually do these activities?

P: For reading books and papers, it's generally at home or in the library. When I make PPT, I go to classrooms. As for discussing problems with teacher or classmates, I might use WeChat,

face to face chat, or send emails. When watching videos, it is basically in the library or at home by using my computer.

R: What devices do you usually use in your study?

P: The activities I just said are mainly conducted on my laptop or mobile phone. My laptop is the primary device. On my mobile phone, I generally discuss problems with classmates and I use it as a communication tool. But basically, if I want to search for something, I won't use mobile phone, because I think the screen is too small and inconvenient; the amount of information displayed on mobile phone is not too much. However, when watching videos, I may use a mobile phone. But there is a problem that if I watch videos on the mobile phone, it may need to be saved locally, which is very difficult; because a video is quite big, the capacity in the mobile phone is limited. The good thing about downloading to the mobile phone is that you can still watch it if there is no network. During class, I use my laptop to take notes. And when I come to the library, I will bring laptop. Yes, this is a big difference. When I was in undergraduate stage, basically I took notes by hand, but after I got here, I take notes and do everything on laptop in digital form. This is a big difference.

R: Do you use desktop when you come and study in the library?

P: I use it and I put my laptop next to it, then I can see two screens to see different content. But basically, if I am in the library...I think there are two bad things about that; the first thing is that the keyboard of library desktop is not comfortable to use. It's not like the feeling of using laptop. The other is that you can type in Chinese on the library's desktop. So, when I want to search in Chinese, I basically use my computer. I may open two identical web pages on these two devices, but one is English, the other is Chinese. And I am searching at the same time and compare the two.

R: Ok. You just said that you see pieced information on mobile phone, to learn some more general knowledge...

P: Wait a moment, I want to add one thing. I just said how I use laptop and desktop at the same time. Sometimes I do programming exercises on the desktop, and open worksheet on the laptop. I follow the worksheet step by step on laptop and operate on desktop.

R: Is there any apps you use to learn on your mobile phone?

P: Fluent English (英语流利说), the Himalayas FM, Zhihu, dictionaries, Product Manager (产品经理), which is a special app for product managers and there are a lot of articles inside, which analyze some products. I also have Fluency Reading (流利阅读), I use it every day. WPS office is used when I see the articles others send to me via WeChat on mobile phone, but I basically don't need this WPS. I just use it to look at documents, but I don't read it in detail, I just browse.

R: Ok, do you spend long time on mobile phone to learn?

P: Not very much. Oh, I also see articles from public accounts on WeChat.

R: Generally, when you use your mobile phone to do this kind of learning, and under what context?

P: I read on Fluent Reading every day, that is, I spend more than 20 minutes to listen to a course every day. Then, as for the public accounts in WeChat, basically at night before going to bed or when I feel tired during study, I read it on my phone.

R: In other words, you don't spend a long time learning this kind of thing on your mobile phone?

P: No, and I don't think I remember the thing I read on mobile phone. After reading, I won't write it down or take notes. Basically, I may forget afterwards.

R: Our school library website is divided into a main page and Explore search system. What information do you usually see on them?

P: I usually just go directly to Explore to search, and never used other services.

R: How do you generally operate and search in the Explore?

P: I searched directly in the search box and never used advanced search. Because I usually searched for information in Google Scholar, and then after knowing the title, I came to Explore to find the specific document. So I have never used these functions like this (e-journals, databases, store request). I have not used filter either.

R: Ok, our library does some trainings when the term starts. Have you been to any it?

P: I was in the language course and I did attend such trainings before. However, I get used to search in Google Scholar, so I search by topic in Google Scholar and then after I know the

title, I search in Explore. For me, our library system is the place when I come when I can't the resources from other places.

R: Is there a reason for that?

P: I don't know, I just get used to search on Google Scholar to give me inspirations. It might be from the habit I brought from China. I think it is because the Chinese university library systems do not have integrated search. Everyone knows CNKI and Wanfang, this kind of databases, and search information separately. When I was in China, I use filter to help me.

R: Do you use filter in Google Scholar?

P: In Google Scholar, I search by keywords. And I probably define the year of the resources and I don't use other functions. Sometime, I may add keywords.

R: Ok, for Explore, you usually find the article directly, is there any difficulties you encountered in this process?

P: There are often some articles that are labelled as peer review or review. Sometimes, the articles have such label cannot be viewed... (operating on the webpage) this one can be seen because there is no label underneath, but sometimes, if has the label, it can't be viewed.

R: Do you know the meaning of peer review?

P: It's like for an article, before publish, it needs to go through your peers, or experts, to review your paper, and give you some advice. You can revise it according to that and give it back. If everyone feels good in the end, it will be published, right? Is it?

R: Yes, you understand correctly. But generally, you can read the resources with peer review label. Probably the one you found is in an unpublished state, or it's published, but there is no access to it. In general, peer review articles are more reliable. In addition to this problem, have you encountered any other difficulties?

P: I forgot it is with Google Scholar or with Explore, there are some resources that can't be downloaded. It may be in Google Scholar, there are some resources that you can only read it but you can't download it. You can only view it online, but you can't download it. Anyway, I have encountered this problem.

R: Ok, then have you ever encountered situations when you want to find something but you can't find it in Google Scholar?

P: I have met once I think. I searched, but... In fact, Google Scholar can search nearly everything I want. But there is one time when my friend asked me to help him search something and I can't find it in Explore, then I searched in Google Scholar. I found it, but there is only one publisher has that and I need to pay to get it.

R: What do you think of the library training in China?

P: It's very bad. There is no such training at all. In high school, we don't use library system at all. When we first entered the university, no one told you that the library is very important. It's probably due to the nature of our university. I feel that academic atmosphere is not very good. So everyone really don't know how to use it. Without training, all the information is found on CNKI. Therefore, after I came to UCL, I don't really know what the library system is for and how can we use it. Although I have been to library trainings, I am not very proficient. Basically, for me, I always searched on Google Scholar, and once I confirm which one to use, I copy and search the title in Explore. For me, the skill of using the library system is not very good.

R: Ok, the last part is about your user experience as a library user. Have you used the mobile library app before?

P: No. Never.

R: Have you used UCLGO?

P: Yes, I see timetable on it, which is the one I use a lot. In addition, I look at Moodle, but it is very difficult to operate because the interface may change. It is the web version and is not designed for mobile in particular. I also look at this 'digital skill' to book some classes sometimes. I seem to have used place finder once, but I don't feel it's easy to use. I have not used any of the services about the library, like pc, study space, or Explore. On the one hand, I don't know there are these services in the app. In addition, I may have seen this, but I did not click in, because I basically use computers to search for information related to library, rather than using a mobile phone. Because I feel in my concept, if you find resources, you have to download a pdf. If you download it to your mobile phone, you have to import the files in to the computer. Without synchronization, it will be very troublesome, so I basically use computer to search.

R: what do you think of UCLGO?

P: In fact, I only used a few functions, I feel it's okay. I can get the information I want. But the design of Moodle is really bad.

R: Do you know there is a Moodle app that you can download?

P: I know and I downloaded that on my phone, but still it's not easy to use.

R: Ok. As an international student, or as a Chinese student, how do you evaluate our school's library system?

P: I think the Explore is a great system. But the accessibility of resources needs to be strengthened, and some resources cannot be found in it. In addition, I think there are too much information on the library homepage. It has a lot of services. In this left-hand list, for example, I may use study space, electronic resources, or open access, but if they are placed here along with other information, I may ignore it. I just feel there is no highlights of the most useful services. If these are commonly used functions, I think that they can be placed in more important places. For example, the Explore search is the most important function and should be highlighted to help us identify it.

R: Ok. When you are studying, will you rely on the Explore system to search for information?

P: I'm very dependent on it, and most of the information is obtained from it.

R: Ok, there is a question about your habit of using the library system. When you study, do you open Explore and put it there; or do you open it when you want to search something?

P: I only open when I search.

R: Ok. From the perspective of an international student, what aspects do you think our library system should improve to meet the needs of international students?

P: Training, and it is necessary to have the library training as a core course with mandatory participation. There can be a test in the end of training to see whether we really know how to use it. Besides, like I said, the services on the homepage, should be divided into main services and other services. Otherwise, I feel that the information is very messy. If I don't have a systematical training, I may not know how to use specific functions. Especially, I don't know which function to use under certain context and which one is the most important feature I use most.

R: We just mentioned the mobile library at the beginning, usually it means the library system that can be used on mobile devices; there is another concept, called smart library, how do you understand these two concepts?

P: As for mobile library, I feel it's focused on mobile applications, which is what you can do on the mobile phone or on the app. While the smart library seems like a broader concept. For example, there can be some automated things services in the library. For example, some guiding robots, which can do the work of people. They can guide you to find books or for the book which is on the high bookshelf, it can help you pick it and bring it down for you. It's not limited to have some features on mobile applications, rather, it is to use the modern technology to improve the physical library environment and service. In addition, a lot of functions can be combined with mobile apps, like I said before. For example, I can order some printing through the mobile application. I can check if the machine can be used by sending the article and how much time is left in my printing, and when can I go to pick it or it can even send you the document. That kind of imaginary thing.

R: Ok. Then what expectations do you have if our library design a mobile library app in the future? What functions do you think should be there?

P: I think the most basic function is searching resources and physical books. This is the most basic thing. The other is what I wrote on the map, which is one that I think I need in particular. I want to have a seat check to know where there is available seat that I can go to. I don't have to find by myself. Another is to provide some booking services, which will save a lot of time. Then, save me the problem of finding a book. It's very troublesome to find a book, even with the number. There are a lot of books in the same area and you have to understand the book number. I hope there can be a guide, which may be quite difficult to achieve. In the future, is the technology can be developed to a certain level, I hope the bookshelf can be something like a vending machine after you enter the books you want, it may transfer it directly to you through a window, and you don't have to find it yourself.

R: If there is a mobile library app, will you use it?

P: Of course, if it can save me a lot of time, I will definitely use it, because I think it is quite time consuming to find books or find a seat in the library.

R: Ok, today's interview is end!

Participant 12

Chinese transcription

Interviewee 12--- EE: Advanced Materials Science--- Northeast Forestry University---Female

R: 首先你可以把你刚画的这个图解释一下, 按照你画画的顺序可以。

P: 首先第一部分我就先画了一些数字图书馆使用的环境, 一部分对于我来说主要就是在学校图书馆, 就是这种集中的区域, 大家集中的使用, 不用拿自己电脑直接上网。还有一种就是可以用自己的私人的电脑, 可以在学校外或者其他像我们学校也会有一些 vpn 即使在中国或者是在其他地方也可以直接连接学校系统。第二部分就是现在我主要使用咱们学校数字图书馆一些用途, 一是在学术方面、课业方面主要查一些书籍, 一些 essay, 一些电子图书等等, 使用学校的一些数据库; 也会用学校的电脑看一些小说, 或者是看一些学校的数字媒体资源, 比如电影。如果在将来的话, 我希望数字图书馆可以有一些服务, 虽然你在家, 但是你也想体验到在图书馆的那种氛围的话, 比如说可以建一些 3D 的一些系统, 就不像只是有一个搜索栏, 你输入条件获得资源, 你可以像拿着鼠标, 就像玩游戏一样, 然后走在图书馆里的感觉。

R: 就是用那种借助 VR 技术, 3D 技术, 可以实现不管在哪里都可以, 眼前就有这个图书馆的系统可以直接去借阅?

P: 对的。

R: 好的, 然后我们现在开始正式的 interview。首先我会问你一些关于你作为一个国际学生从文化的角度出发的一些问题。你可以介绍一下你本科大学和专业然后在 UCL 的专业吗?

P: 东北林业, 木材科学与工程, 在 UCL 是 advanced material。

R: 你从一个学习氛围或者学习环境的角度来考虑的话, 你觉得在中国的学习体验和在英国学习有什么差别?

P: 还是有蛮多差别的。首先就从作业方面来说, 在国内的话, 可能老师更倾向于会给你一个比如说课程完成的时候会给你一个已经现有的一些课程作业的模式, 只需要参照写出来一份就可以; 在这边的话需要从零开始, 没有可以固定参照的模式, 你需要自己从头开始从资料开始找。本科的话更多的是老师会给一些指导, 或者是给你一些框架, 你需要往里面填东西, 这边的话你需要自己够要构造一个好的框架。

R: 你觉得从你的学习习惯来说, 当你从中国来到英国, 你的学习习惯有没有发生什么改变?

P: 学习习惯的话, 没有改变部分, 就是还是会拖到考试前才会完成。改变了的方面就是在国内的话, 可能觉得老师会教的比较细致一点。这边自学的比较多, 因为毕竟高中不在这边上, 就一些很多基础知识的话, 其实是不如他们本国学生的。所以需要自己多下一点工夫。需要自己学习的东西特别多, 在国内的话, 可能课堂上老师就把你要考试的、你要学习的百分之七八十的东西都教给你了。这边因为课程比较密集, 然后每周一两节课的话, 其实你需要自学的去消化课堂上的东西也是非常需要的。

R: 你来英国之前有没有做什么针对这边学习的一些准备?

P: 因为有之前有认识同专业的中国的学长学姐, 所以有向他们咨询一些这边课业的相关情况, 然后他们也会给我推荐一些有帮助的书。会有直系学姐, 就是之前会认识。都在同一个大学的。

R: 好, 你觉得他们给你提供的那些信息, 包括你的专业课的信息, 对你来说有帮助吗?

P: 会有帮助, 因为如果不是一个学校的话, 哪怕在英国其他学校可能更帮助不会很大, 但是她跟我是同一个专业同一个学校, 他完成了这边的课程和学业之后, 会对这个课程有她的理解, 就会更好的给我经验, 让我有所准备, 不会那么茫然失措。因为我们专业开设的时间并不长, 我们只有三届, 所以我可能只有两届学长学姐, 她们刚来的时候就会比较迷茫, 因为他们才开始, 但是我们这一届的话就会有一些经验了。

R: 你觉得你没有来之前, 你觉得 UCL 你们这院或者你们专业来说, 有没有给你提供足够的信息?

P: 我觉得就学校来说还是稍微少一点, 我觉得因为我们专业中国学生还是很多的, 因为毕竟母语不是英语, 所以特别是对于工科来说, 它的专有名词很多, 所以我们上课就会比较吃力。我们来之之前学校会有发邮件, 给我们推荐了一些书单, 可能也就发了一次。但其实那会儿就很高兴大家在学校玩, 可能也没有注意这些东西。其实如果来之前多准备一些的话, 上课还是会好一点。我觉得学校还是在研究生之前都跟学生强调一下, 要自己补充一些相关的知识, 会对以后课程顺利更有帮助。

R: 好, 你之前在中国读本科的时候, 你一般针对你的学习会搜索哪些方面的信息, 然后都是通过什么途径去搜索的?

P: 用的比较多的会是中国知网。然后是比较常搜索的是中文期刊，还有 Springer 等一些，会搜索外国期刊。

R: 也就是说其实更多的信息主要就是和你这个课程直接相关的一些期刊杂志？

P: 对，期刊杂志。然后还就是一些大概念，如果你对这个方向很不了解的话，就会搜百度，维基百科这些有一个大方向的了解。

R: 好的，你来到英国之后，和你学习相关的信息，你都会搜哪些，都是通过什么途径？

P: 来英国之后的话，主要用的就是谷歌或者是学校的 library system，信息的类型主要还是 essay、书籍什么的，就是和论文相关的期刊和书，因为我们学科专业性很强，它需要很学术的文章和很多 reference 去支撑你写的东西。

R: 也就是说你一般其实会在我们学校图书馆找，如果是概念性的东西会在谷歌里面去搜，也就是说其实在中国和在英国你搜的和学习相关的信息还是主要是和课程相关的，有没有一些信息是，可能从广义上来说学习，但是可能和你的课程不是直接相关，只是针对你个人的一个成长或者是兴趣这样的信息？

P: 因为国内感觉对人文教育方面不是很重视，英国的话什么展馆这些会很多，所以会经常搜这方面的信息，比如博物馆会有哪些展品什么的，会直接去到各个展览会，会搜比如说 national gallery 最近有什么展品。

R: 你在中国的时候，你们大学数字图书馆的系统是什么样子的？可以形容一下。

P: 数字图书馆的系统，你会有好多种方式可以找到这个系统。因为我们学校平时学生通常登录的比较多的是有官网、教务处，然后图书馆是单个的系统，但是教务处和官网上面都会有直接连接到图书馆的链接，所以从那两个界面连到学校图书馆。进到图书馆页面，首先你要输你的学号账号什么的，然后进入之后直接就是很多的数据库的入口，比如中国知网或者博士论文数据库、各种数据库的入口，会分中文和英文，然后你再进各自的数据库去搜索。

R: 它有类似于 explore 这样统一的搜索入口吗？

P: 他不会，比如说 Springer 和知网的话，它不会一起搜索，你必须得分别点击两个进行搜索。你必须要先进入到这个数据库，然后再搜索。

R: 你觉得在英国的图书馆和中国你们学校的图书馆，你可以对比一下，这两个系统你各自喜欢什么，各自不喜欢什么？大概评价一下他们。

P: 国内的话，因为它数据库是分开的，如果你很明白你想要找什么资源，比如会有分博士论文，硕士论文，还有什么会议论文，这样你会找的比较清楚。你想找某一个特定会议的论文，会找的很清楚。而这边图书馆的话是没有这样分的，所以你想到什么就直接在上面搜。

R: 就这两种方式你更喜欢，或者觉得哪种对你来说更有效？

P: 如果对于研究生来说的话，因为是有特定的课题的，它并不限于说你要找硕士或者是博士论文什么的。所以我觉得好的一点是它会比较方便。

R: 也就是说其实是针对你在这个阶段而言，你觉得英国的系统更适合你的课程的特点？

P: 是的。

R: 你觉得中国的系统有没有什么优点，可以让英国的系统借鉴的地方？

P: 我觉得也是有的。因为通常的话博士论文它会写的篇幅比较长，会写得非常的详细，因为博士他做了很长的时间，在整个专业领域都有非常详细了解，所以论文会写得很厚，他们把这个领域每一个名词或者每一个方向都会解释得非常的清楚。如果你对整个方向不是很了解的话，你想整个熟悉一下的话，会找一篇直接去找一篇博士论文看会比较比较好一点。因为他会写得非常的详细。中国的系统更好的是直接有这种博士论文的数据库，如果你想要了解某个领域的时候，就可以直接去数据库去找。

R: 好的。现在就开始第二部分，就是你作为一个信息搜索者你的一些行为习惯。然后你刚刚有说你在这边主要搜索的主要搜索和学习相关的信息，就是这些期刊论文。在这边学习的期间，不光针对你的学习，一般会在会搜索的信息都有哪些？

P: 在学校图书馆吗？

R: 不限于学校图书馆，就是整个你学习的期间，你可能在学校、可能在宿舍，或者可能从宿舍来学校的路上。

P: 学习其实还是少部分了，除了未完成作业之外，其实搜吃喝玩乐比较多。可能会旅行信息会比较多，会搜一些游记。

R: 好的，我们图书馆有一个主页面和 Explore，对于图书馆这个系统里面，你主要会搜索的信息都有哪些？

P: 我用图书馆的主页面其实比较少，用的多用是 explore，因为图书馆对我来说其实除了搜索...而且我用的多的是网上的一些资源，实体用的很少。你一般喜欢用数字版本的，因为实体的很有点麻烦，得还书。一般检索和学习相关的东西都会在 explore 或者是谷歌学术，因为其实谷歌学术，它的搜索整个系统会比学校的 explore 做的好。

R: 为什么你觉得？

P: 你在图书馆搜的话，可能它相关性没有像谷歌搜索出来那么相关，就是感觉谷歌的系统更好一点，但是谷歌有一些资源会没有权限，所以在谷歌上面搜完，再到学校图书馆里去找这篇文献。

R: 你觉得造成搜出来的东西不相关的原因是什么？

P: 觉得和技术方面有关系了, 就和图书馆的算法有关系。

R: 刚说的有时候搜不到, 你可以想一个例子, 比方说你搜什么, 然后没有搜到, 然后你当时是怎么做的?

P: 我的方向是关于钙钛矿电池, 就是一种太阳能电池, 如果我在谷歌上面搜的话, 就是搜索钙钛矿那一个词, 结果出来条目比在 explore 上面得到的感觉要多。比如说你搜钙钛矿一个什么东西, 比如他的一个什么导电层, HTL 层, 然后在谷歌上面搜下来, 就是你会发现它的好多结果都是, 钙钛矿 HTL 这两个词连在一起的, 在学校搜索的可能会分开, 但也都算在结果里。所以说可能检索出来的直接相关的文章会比学校这个多。这个时候就会先用谷歌, 搜完之后, 可以先看他的简介, 可能就想要特定的一篇, 如果有权限就直接看, 没有的话再把这题目放到 explore 里面搜索再看。

R: 好的我懂。你刚刚说到这些可能主要都是在你的 laptop 上面操作的, 你会用到其他的一些电子设备去用我们图书馆的系统吗?

P: 有, 但是主要还是电脑。手机用的会比较少, 因为它毕竟屏幕比较窄。我平时不用平板。

R: 你在手机上面一般做的一些活动都有哪些? 就是和学习整个学习相关的。

P: 其实手机的话会相搜索一些比较细节的东西, 就是不会搜索整篇文献那种。但是比如他这篇文献中, 比如你看到一半, 然后发现这个词不认识, 这个东西可能特别 specific 的, 就会上手机上面用谷歌这种搜索引擎搜索。就是说手机可能是作为一个辅助的工具, 这边放的 laptop, 这边会放个手机。手机上也用词典, 如果某个概念不是很清楚, 用手机搜就比较方便。

R: 你在手机上面有哪些你常用的 APP 是和学习相关的?

P: (展示) 金山词霸词典, 电脑的话我会使用一些叫欧陆词典, 就是你可以直接双击, 它就会在旁边出翻译, 然后就是手机上谷歌会用来学习的。有一个 Moodle 的 APP, 通常就是上课的时候会看课程表。

R: 你会在 Moodle 上面看其他的一些信息, 比方说老师上传的一些什么课件之类的?

P: 那个我通常用学校的, 就是 Outlook 邮箱看。有一些课件我们老师会在上课之前发到 Moodle 里面, 有一些, 他会给我们发到邮箱。上课的话我一般都会带着电脑, 因为用手机看的话太费劲了。

R: 好, 我总结一下, 你经常使用的是 laptop 用于学习, 但是手机会做一个辅助性的东西, 也会用上面的一些 APP 来辅助你的学习, 但不是一个很主要的工具。好, 那你有没有用过手机去登录图书馆的系统呢?

P: 没有。

R: 你手机上面有 UCLGO 吗?

P: 没有, 因为我之前下过, 但我觉得好像没有什么使用价值就删掉了。

R: 那你可以简单说一下你对 UCLGO 的用户体验吗?

P: 我都忘了他长什么样子。其实我之前下过, 我看它的主要功能也就是看 timetable, 还有一些连接的功能, 但是比如 Moodle, 有单独设计的 app, 我就主要用 Moodle, 就只下载了那个, 就把它卸载了。然后我觉得是其中有好些功能, 其实没有什么用处, 特别是这个 map, 我觉得光看这个你根本找不到路的, 他没有那种交互性, 用这个还不用谷歌地图, 好像没有什么用。然后其他的这些, 我觉得像 PC 其实不是特别有用吧, 因为大家通常也都知道, 特别是复习期间基本 11 点之后再就很难找位置了。整体来说, 可能就是功能性不是很强, 对, 就是其实里面最有用的就是 moodle 了, 但是 moodle 有单独的 APP, 就觉得他们两个重叠部分太强, 而它除了 moodle 之外的一些东西又不是特别有用。

R: Explore 上面有不同的功能和入口, 你一般会用哪一些?

P: 如果是想大体浏览这个领域的话, 就会直接在上面搜索一些关键词, 但其实它还有一个高级检索, 当我需要搜索特定的一个人或者什么, 会在那个上面把条件先限制一下。Filter 有时候也会用到, 比如说我们之前会有课程设计, 它是要求我们讲述一下木材在在工程中的应用, 那个时候用左边那个栏会用的比较多。因为如果你单看某篇文章的话, 可能对整个木材在工程领域讲得不会那么的多, 所以我就在类型那里选书籍, 比如说那种比较综述性的, 还有你可以选领域, 我搜这个的时候我就点的是建筑和 engineering。

R: 上面那个部分还会有一个是 database, 还有一个 e-journals, 还有 store request 就这些你会用吗?

P: 用的会比较少一点, 有时候会搜出来实体书, 但我其实一般都会用 e-book。不太会去学校, 所以如果搜出来前面有很多架号, 或者都在学校的那种书的话, 我就会过滤掉。所以从来没有过 store request, 数据库和电子文献那个也用得很少。而且对于像中国学生来说可能 e-book 会比较好一点, 因为拿到实体书的话很难搜索到一些关键信息, 但是数字书下载下来可以在文档框搜索关键词就很快。

R: 像你们学科有一些什么专门性的数据库之类的, 老师会给你们推荐吗?

P: 我们这个专业会有一点偏化学实验, 所以它会比如说有一个嗯...皇家化学学会, 他们这方面期刊的文章我会看的比较多, 但是我基本不会直接去这个数据库看, 只是搜到了看到这个数据库, 我会想到。基本就是我老师给我发的文献基本都是那个数据库的, 而且他发的文章就是发在那个期刊上。但是没有专门去这个上面去找。

R: 那么图书馆的主页你会用什么?

P: 用的比较多的就是 group study room。因为我觉得咱们学校的 group study 的地方太少了, 很少有可以小组讨论的地方。通常就像考试期间, 前几天想和同学讨论一下, 但是每个人只能定两个小时, 而且同学都说好几天之后都没有位置。我觉得用户体验非常的差, 包括小组学习的地方很少, 自主学习的地方也不多, 但是每人只能订两个小时。就很垃圾, 两个小时以后你没有地方可以去了, 通常界面里小组学习的地方全都被订满。个人学习的地方没有人定, 浪费空间。

R: 好的，你刚刚开始画那个图上写说你一般学习的地点可就是家和图书馆，然后你可以分别说一下你在家的情景下是怎么学习，在图书馆是怎么学习的？

P: 在图书馆的话，我通常也会带自己的电脑来，这样有一个方便的地方是学校的 desktop 你放在那里，你还可以在自己电脑上操作，双屏幕不用来回切换就很方便。在家的话，通常就是我来学校可能会找一些更多的信息，过滤掉我要的，把我要的回家再用自己的电脑精读。

R: 好的。你还有一些其他的喜欢学习的地点吗？

P: 我之前有回趟国，那个时候就用学校 vpn 系统，但是那系统感觉会很慢，虽然说能连谷歌，就是跟学校的界面是一样的，那就是真的反应速度特别慢。

R: 最后一个部分就是你作为一个图书馆的用户，你的一些体验。你整个之前的经历有没有用过关于图书馆的 APP？

P: 图书馆 APP 吗？大学的时候有。我们学校的，它会自己有一个 APP。那个 APP 是...我忘记它是否在手机上有了，它是在电脑上专门设计了 APP，是学校图书馆系统。这个就是在我大概毕业的时候才出来，当时写毕业论文的时候，用了这个东西。不是很记得了，但是因为刚投入使用，感觉不是很好，但它那个系统上面你还可以直接有打印的地方，你看好这篇文献，APP 里面有直接打印，图书馆有自助打印的地方。

R: 你觉得 APP 设计的是和本身图书馆网站很像还是？

P: 蛮像的，就是单独出来一个 APP，加了一个打印系统，你看好的一篇文章就直接在上面打印。

R: 你觉得你当时用户体验是怎么？你对他的评价如何？

P: 大学的话其实在学校看的书会比在这边多一点，因为毕竟是中文。还算方便，因为有 APP 你直接可以点进去，不用上网找，还挺方便的，那个 APP 里面会有加书单，也可以把自己想看的书先放在，就像购物车一样的地方。比如说这本书被接走了，就有那种排队系统，等别人还回来了会给你通知。

R: 说到这个，我想起，就是 explore 里面有一个 E-shelf 的功能，你用过吗？

P: 没有，我都不知道有这个。

R: 其实就是 explore 上面有一个入口，比方说你看到某些书或者什么，你觉得你感兴趣的你就可以把它收藏到你的书架里...

P: 对我知道了，有的，我有用过，我之前写作业有搜过一本书，但是被借走了，我看到也是有排队的系统，会通知你。

R: 好的，还有一个关于你用图书馆系统的习惯，你一般学习的时候是会把 explore 打开之后就那样放在那里，还是想到要搜的时候再打开这个网站去搜？

P: 放在那里，但是咱们学校图书馆它有一个就是隔几分钟不用会自动退出。退出之后你在登录之前所有东西没有了，重新搜就很麻烦。我觉得自动退出这种也可以，用户名密码也是自动保存的，点一下就可以，但是我希望它能保留它退出之前的界面，不然进去以后又得从零开始弄。

R: 你作为一个国际学生来说，让你来评价我们图书馆系统，你会怎么评价？你可以从它的界面，功能性，可以从你的需求方面来评价。

P: 我知道图书馆其实是换了新系统的，对吧？就像读语言班的时候有用过老系统。我觉得还是新系统是要比老的系统好用一些。因为老系统之前我刚来的时候是可以选择用新的还是老的，我基本没有选择用老系统，因为新的系统看起来就是更便捷。感觉老的界面起来比较杂，比较乱，新的系统可能会看起来比较干净。不好的地方，可能我觉得，使用上面它不如谷歌学术在技术方面做得那么好。我觉得不太好的一点还有，就是隔几分钟需要登出，它就会消除之前搜索的记录，还需要重新搜。

R: 你觉得你还是作为一个中国学生，你有没有什么对我们图书馆的建议？就觉得他怎么样就可以针对中国学生更用户用好一些？

P: 其实咱们学校图书馆的系统也可以是搜到中文的。你能搜到这篇文章，但你点进去，比如说是万方数据库，它不是出来这篇文章的那个页面，而是给你引到数据库的某一个整个期刊，也不告诉你年份，你在这里面得自己找，基本是给你引到某个数据库，某个期刊。这个期刊比如从 97 年到现在这么久，你需要自己找，也就是说它的和不同的数据库，尤其是中文的数据库的结合性不是很强。通常有些中国学生其实直接看英文文献有点难，如果在咱们图书馆想搜一点中文文献的话，就很麻烦，因为和中文数据库之间的连接做得不好。

R: 你觉得图书馆的搜索系统哪些方面对你，就是从中国学生的角度，来说最有用，然后哪些是你觉得难用的？

P: 比较难的就是很难抓住一些学术的关键词，就是 phrasing，可能你想检索的文字准确度。在这边比如说 academic 可能中英文用的词汇不是特别一样，所以可能检索不到你想要的信息，这是最难的。比如说可能一些专业的词汇，你用其他的一些软件翻译出来以后，可能是一个比较 general 的词汇，再到咱们学校图书馆里面搜索，可能就是搜不出来。我觉得而且现在比如说，材料专业，很少有一些专业的词典。也许可能就针对尤其国际学生，针对中国学生来说，可能学校对每个专业可以就出一些这种这种专业词汇的对照会很好。比如说材料学里面的话，中文的气凝胶，你可能用字典搜，就只是词义的堆砌，气凝和胶水放在一起，但是在材料中气凝胶是叫 aerogel。就是它有一个固定的专有名词，但是你在其他字典中很难找，专业的词典我找没有找到，而通常得需要购买，有些需要交费的，所以如果学校能有一个专门的可以查到各个领域的专业词汇的地方，我觉得会更好。

R: 好的，我们刚开始提到了一个概念，就是移动图书馆，其实还有一个更广阔的概念是智慧型图书馆，你作为一个图书馆用户来说，当你听到这两个名词的时候，你对他们的理解是什么？

P: 智慧图书馆的话，我觉得它不是你在操作整个系统，它会对你的数据，你平时通常看的书，可能会有一些分析，然后会推荐更适合你的，就是符合你的兴趣。它分析你整个使用的数据会推荐给你，基于你的习惯，给一些更个性化的推荐。移动图书馆的话，我觉得主要在于它的便捷，它的方便，就在哪里都可以使用，而且他能更适用于，在不同的设备上展示的更好。比如说他在手机上和在电脑屏幕上展示的屏幕的尺寸和各个模块的位置是不一样的，因为电脑屏幕通常是长形的，而且手机屏幕是这样竖过来的，如果还是一样的界面就是用的会比较麻烦。

R: 你觉得科技包括这些设备也好，APP 也好，还有一些的一些科技手段，在你的学习生活当中是一个什么样的作用？

P: 我希望最主要能做到帮我节省时间，帮我更快的找得到我想要的东西。

R: 你觉得图书馆应该怎么借助这些科技能让你的用户体验更好？

P: 因为现在图书馆的话，它主要分析的是文字，就对于图像分析可能会差一点。而且我们现在主要在图书馆搜索的话都是打字进去搜索关键字这样。比如说你在一篇文章中可能看到一个文献里的图片，然后你觉得这个图片不错，你想搜和这个图片相关的，就是类似于某个图片的其他图片就很难搜索的。就是说图片格式的搜索还是需要改进，我觉得比如说两篇文献中，如果它们的图像也可以对比的话，我觉得对于就是科研工作者来说还是有很大帮助的。因为两篇文章可能他们就是文字的话，可能说的同一个东西，但是他们用词不同，但是比如做出来的图可能会有相似的地方，就检索不到了。我觉得如果增加了图片搜索的功能，现在很多就是一些编程技术，比如 python 都用大数据分析然后加入了图像分析。我觉得如果图书馆也可以对文章中的图片进行分辨，然后检索的话会更好。

R: 好的，今天的 interview 就结束了。

English translated transcription

Interviewee 12--- EE: Advanced Materials Science--- Northeast Forestry University--Female

R: First of all, can you explain the picture you just drew?

P: The first part I drew is the environment I use the digital libraries. One part for me is the usage in the library, where there are lots of other students who are using the desktops in the library intensively. I don't use my own laptop at this time. Another part of usage is on my own laptop, and at this time, I will use it when I am outside of university or other places, like in China, when I can use VPN to help me connect to the library system.

The next section is how I use our digital library. Firstly, for the academic purpose, I use it to search for some books and other resources, like some essays, some e-books that related to my course, as well as some databases; I also use our library system to search for some novels, or to find some digital multimedia resources, like movies. In the future, I hope that the digital library can provide us with some services, like for example, although you are at home, you want to experience the atmosphere of the library, then the 3D and VR technology can help you achieve that; it is not like there is only a search box where you put keywords to get the resources, it will be something that by using a mouse, like playing a game, you feel that you are walking in the library.

R: Do you mean, with the help of VR technology and 3D technology, the library system can be used anywhere without the limitation on devices?

P: Right.

R: Ok, now let's start the interview. The first part will ask questions based on culture and your experience as an international student. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment, is there any difference between these two countries?

P: There are some differences actually. First of all, in terms of the coursework and assignments, when I was in my undergraduate, the teacher tends to give you an existed template or model for you to use in the coursework at the end of that course and all you need to do is write one according to that template. However, in UCL, we need to start from scratch and there is no required format that you can refer to. We have to start looking for information by ourselves. In undergraduate, the teacher gives more guidance, or some frameworks for us, we only need to fill in information inside; here we need to build a good framework based on our understanding.

P: Ok, do you think your learning habits have changed from China to the UK?

P: In terms of learning habits, there is no change for me and I still procrastinate till the deadline...If there is any change, I think that when I was in China, the course content and instruction given by teacher is more detailed and comprehensive. However, here I learn by myself more, because if we don't go high school in UK, we don't have the knowledge base as the native students. That's why I need to do more work by myself. There are a lot of things that we need to search and learn out of class. In China, the teacher may teach you 70% or 80% of what you need to know and learn for the coursework in class. In UK, the course arrangement is more intensive, and there are like one or two lectures for each course per week. In fact, we need a lot of time to review and understand what has been taught on class during our self-study time.

R: Ok, have you prepared anything for the study in UK when you were in China?

P: There are former senior Chinese students who learned this major in UCL and I asked them related questions about the course. They also recommended some helpful books. There's also a senior student who was in the same undergraduate university and we know each other when we were in China, so I asked her as well.

R: Do you think that the preparations you made in advance helped you after you come here?

P: It is helpful. If they were not in the same major and same university with me, it would not be as helpful as now. They learned the same course here in UCL, so after completing the courses, they have a full and comprehensive understanding of this course to share me with their experience and help me get prepared, which makes me aware of what I am going to have and I don't feel confused at all. Actually, this master program only has three years of history, and there are only two years of previous students ahead of me. For them, when they started the course, they were confused because there was no one to ask for experience; but for us, we can seek help from them, which is better.

R: Do you think that before you came, UCL or your department has provided you with enough information for learning?

P: I think it is still a little less information provided by UCL. There are a lot Chinese students in our major, after all, our first language is not English, so especially for engineering discipline, there are a lot of academic terms, so we feel difficult to understand the course and lectures. Before we came, they sent us a reading list once where they recommended some books to us. But in fact, the time they sent the email was in summer when everyone is having the holiday and we didn't pay much attention to these things. In fact, if we can prepare more before coming, the understanding on lecture content will be better. I think that the department and university should emphasize the importance of these preparations with the students before the start of the program. It is more helpful to learn some relevant knowledge beforehand.

R: What kind of information do you generally search in undergraduate study to meet your learning needs? Then, how you find it?

P: The mostly used one is the CNKI. And I always search for Chinese articles. I also search in Springer and other databases, for some foreign journals. As for some concepts, if I don't quite know about it, I will search in Baidu or Wikipedia to have a general understanding.

R: Ok, after you came to the UK, is the information source changed?

P: After coming to the UK, the main information sources are Google and our library system. The types of information I search for study are mainly essay, books, or journals articles related to the topic. Our course content is very academic and professional, which requires the support of a lot of articles and literature in the writing.

R: Is there any other information you search for, maybe not directly related to your course, but for your interests?

P: I feel that in China, we don't pay much attention to the general art and humanistic education; when I came to UK, I feel there are many exhibitions and events. So, I often search for information in this area. For example, what kind of exhibits will be in the museum. I go to various exhibitions sometimes, so I often search, for example, what is the national gallery's recent exhibits.

R: What the library system in your undergraduate was like?

P: Our digital library system can be found by a variety of ways, including through the links on university website, the academic office website, or go directly to the library system. After entering the library website, it first asks you to log into your account, and then you will see a

lot of database entries, like CNKI, doctoral thesis database and various databases. They are divided into Chinese and foreign languages. Then you go to different databases to search according to the type of resources you want to find.

R: Does it have a uniform search portal like Explore?

P: No, there's not. For example, for resources in Springer and CNKI, it won't search in these two databases together, you have to click to search separately. You must first enter the database and then search.

R: Compare the library system of your undergraduate and the UCL Explore, what do you prefer about them and what do you think that can be improved?

P: For the Chinese library system I use, because the databases are separate, if you know what resources or the type you want to find, such as doctoral thesis, master's thesis, or conference papers, you can find it more clearly. Or if you want to find a paper for a particular conference, it's straightforward to search. There is no such thing in the library system here, so you can search anything that you think of on it.

R: Which one do you prefer, or which one is more effective for you?

P: For master students, because we have a specific subject to research, and it is not limited to the type of resource, like doctoral thesis or other types. So I think it is more convenient.

R: In other words, for your current stage, you think the library system here is more suitable for the characteristics of your course?

P: Yes.

R: Do you think is there anything that our library system can learn from the Chinese system? Or is there anything that you think is Chinese one is better than the UK one?

P: I think there is. There is time when I only want to find some doctoral thesis, because in general, the doctoral thesis is completed in a long timeframe and they have very detailed understandings of the entire field, so the thesis will be very thick, including the detailed explanation of every and each terms and concepts. If you don't know a concept very well, and want to know more about the field, it will be better to read doctoral theses. The Chinese library system is better to have a specific database of doctoral thesis. If you want to know a certain field, you can go directly to this database to find.

R: Ok. Start the second part now, which is about your behaviour as an information searcher. During the study here, not only for your study, is there any other information you usually searched for?

P: In the school library?

R: Not limited to the school library, it is for the whole period of your study, you may be at school, maybe in the dormitory, or maybe in other places.

P: Learning is actually a small part information I search for. In addition to searching information for unfinished coursework, I search information about daily life more, like food & drink, entertainment, etc. I may search for travel information as well, like others' travelling experience.

R: Ok, our library has a main page and the Explore. On the library system, what information do you mainly search for?

P: I rarely use the library's main page actually, I use the Explore more often, because in fact, the library system for me is search, other than that... and I use a lot of online resources, I rarely use paper-based resources. Generally I search for digital versions, because the paper-based books are very inconvenient, that you have to return the book. Generally, for learning related things, I will search in Explore or Google Scholar. I feel that Google Scholar does better than the Explore.

R: Why do you think that?

P: If you search in our library system, it may not be as relevant as Google Scholar. I just feel the Google's system is better, but some resources on Google do not have permission for us to read, so after searching on Google, I go to our system and search directly for that article.

R: Why do you think unrelated things be found on Explore?

P: I feel that it has something to do with the technology, such as the algorithm of the library system.

R: Then, when you are using Explore, have you encountered any difficulties, or is there time when you cannot find what you want? Can you think up an example?

P: My dissertation topic is about a perovskite battery. It is a kind of solar battery. If I search on Google, once I search for the word of perovskite, the result is more than what I can get

on the Explore. Or for example, if I search for a perovskite something, such as its conductive layers, the HTL layer, and if search it on Google, I find that many of its results have these two words together, which is 'perovskite HTL'. For the result in Explore, these two words are not put in together, but these are also appeared in the results. So the articles that are directly related to what I want to find are less than Google Scholar. At this time, Google will be used first. I will look at the abstract or short introduction of the article first in Google Scholar, and if have the access, I will look it directly. If i don't, I will put it in the Explore and search again.

R: Ok, I understand. You just said that these may be mainly operated on your laptop. Do you use other electronic devices to use our library system?

P: Yes, but mainly on computer. Mobile phone is used less because it has a small screen. I don't use tablet for study.

R: What activities you usually do on your mobile phone?

P: In fact, the phone is used to search for some more detailed information, that is, it's not used to search the entire article. But for example, in one article, if I see something when I read it and I don't know this specific term, I will use my mobile phone to search it on Google browser. So, it's more like a supportive tool. I generally put my laptop in the middle, and my phone on my side. There are dictionaries on my phone, and when a concept is not very clear, it is more convenient to search by mobile phone.

R: We mentioned different devices before. Have you downloaded any learning related apps on your mobile phone?

P: (Showing) PowerWord Dictionary, and I use European Continental Dictionary on my laptop. That software allows you click on word and show up the explanation on the side directly when you read an article on your laptop, it's an imbedded function. Google on my phone can also be used for learning. There is a Moodle app, which I usually use to see the timetable in class.

R: Do you see other information on Moodle, for example, the slides or materials uploaded by teacher?

P: For that, I generally use Outlook mailbox. The lecture slides are generally sent through email or Moodle before class. I usually bring laptop when I go to class, so I will open them on laptop, because it is hard to read on a mobile phone.

R: Ok, then have you used your mobile phone to log in to the library system?

P: No.

R: Have you used UCLGO?

P: Yes, I used it before, but I feel that it is useless, so I deleted it.

R: So, can you briefly talk about your user experience with UCLGO?

P: I nearly forgot what it looks like. In fact, I downloaded that in order to see the timetable. I know that there are some other functions, like Moodle. But Moodle has a specifically designed app, so I delete the UCLGO and just downloaded the Moodle. Then I think there are some functions which are useless, especially the map. I think that you can't find a way according to this non-interactive map. It's better to use Google Map if you really want to your way. This function doesn't seem to be useful. For the other things, I think the PC availability is not particularly useful, because everyone usually knows, it is difficult to find a position after 11 o'clock especially during the exam week. So without checking it, you know how it's like. Overall, I just feel the functionality is not very strong, yes, in fact, for me, the most useful thing is Moodle, but Moodle has a separate app. Except for Moodle, the other things are not useful for me.

R: Ok, I get it. So you generally use Explore on laptop. Right, Explore website has some entries and function on the top, do you use them?

P: If I want to browse the field in general, I will search for some keywords directly. When I need to search for a specific author or something, I will limit the condition in advanced search. Filter is also used sometimes. For example, we have a course design before. It asks us to talk about the application of wood in engineering. At that time, filter was used very often. For articles, there might be less introduction on how the wood is being used in the engineering field from a whole perspective, so in the type, I chose books, which are more general. Besides, for the field, I chose architecture and engineering.

R: There is a database entry above, and also e-journals, store request. Do you use them?

P: I rarely use them. Sometimes, there are books I searched as results, but I prefer to use the ones which have e-book versions. Therefore, if I see some resources with bookshelf marks

on it, I will filter them out and I don't borrow books in the library. That's why I never use store request. And basically, I don't use the other two tags either. Besides, for Chinese students, e-books may be better, because it is difficult to search for some key information when you read a physical book, but downloading digital books allows you to search for keywords in the document box very quickly.

R: Is there any specialized databases in your subject the teacher recommends to you?

P: There are some chemistry experiment in this course, so there is a um... Royal Chemical Society, which I read more of their articles, but I do not go directly to this database. Just when I find an article from this database, I think of it. Basically, the articles that my teacher sent to us are basically from that database, and he also publishes article on that. But I don't specifically go to this database to find.

R: So what do you use on the library's homepage?

P: I use the group study room booking service. Because I feel that there are few group study space in our school, where you can discuss with others. Usually, just like during the exam period, I want to discuss with my classmates, but each person can only book two hours a day, and it's often says that there is no place after several days. I think the user experience is very poor. Also, the place for self-study is not enough. Usually the places in the group room booking interface are all booked and there is no booking service for self-study place, so it's kind of the resource waste.

R: Ok, you just drew on the picture that the places you usually study is your home and the library. Can you talk about how you learn at these two places?

P: In the library, I usually bring my own computer. So it is convenient to open the desktop and my own computer in the meantime. It is convenient to have double screens without changing back and forth. It is usually that I may find information at school, and filter out what I want, and go home read it on my laptop.

R: Ok. Do you have some other places you like to study?

P: I went back to China during Easter and I used our UCL VPN service. However, the speed was really slow. Although it can be connected to Google, and the same interface of what I used in UK, it was just really slow in terms of responding time.

R: Have you used a mobile library app in your previous experience?

P: Is the library app? There is one in my undergraduate university. We have a library app for our own. That app is... I forgot if it was designed specifically on the phone, or it was on the computer. That was designed and put into use when I was about to graduate. I used that when I was writing my thesis. I don't remember it very clearly, but because it was just put into use, the user experience was not very good, but you can also order print service on the system. There is a printing option if you find any article you want, and you can collect the print document on the self-printing machines in the library.

R: Do you think the APP is designed similar to its own library website?

P: It's quite similar interface, but juts in the form of an app. And a printing service was added. You can print directly the article you like.

R: What's your user experience of that at the time?

P: In fact, when I was in undergraduate, I read more books than in here, because after all, it's Chinese. On the app, you can search and read directly, and you don't need to find resources on other places in the internet, which is very convenient for me. Also, there is a book list function where you can save all the books you want to read, just like a shopping cart. For example, if the book has been borrowed, there is a queuing system that will notify you when someone else returns it.

R: Speaking of this, there is an E-shelf function in the Explore. Have you used it?

P: No, I don't know it...

R: Actually, there is an E-shelf on the Explore. For example, if you see some books or something you are interested in, you can save it in your bookshelf...

P: ah, I know it, and I have used it. I used to search for a book before I wrote my coursework, but it was borrowed. I saw that there is also a system of saving the books, just like queuing and it will inform you if it is available.

R: Ok, there is a question about your habit of using the library system. When you study, do you open Explore and put it there; or do you open it when you want to search something?

P: I will open and put it there, but there is one problem with our library system that it requires you to log again if there is no action for a few minutes. After it is logged off, everything you

searched before is gone. Re-searching is very troublesome. I think it's ok to quit automatically and the username and password are also automatically saved; but I hope it will retain the interface of what I searched before it exits. Otherwise, I have to start from scratch.

R: Ok. As an international student, or as a Chinese student, how do you evaluate our school's library system?

P: I know that this library system is actually the new one, right? I used the old system when I was in the language course. I think the new system is better than the old one. We can choose which one to use when I first came here, but I basically did not choose to use the old system, because the new one seems to be more convenient. I feel that the old interface is complicated and messy, but the new system looks cleaner. A bad thing of this system, I think, is it's not as good as Google Scholar in terms of algorithm. And the frequently logging out part is not so good. Like I said, it will eliminate the previous search records and you need to search again.

R: Ok. From the perspective of an international student, what aspects do you think our library system should improve to meet the needs of international students?

P: Actually, our library system can search for Chinese literature. I know that, but you can find the article name, when you click into the link, for example, if it is from the Wanfang database, after click, it is not the article page, but the whole journal page. It won't tell you the year and issue, and you have to search by yourself. For a journal, for example, started from 1997, you need to find in such a long time and long list of publications, which is insane. So, I think the integration with different databases, especially Chinese databases, is not very strong. Usually, some Chinese students actually have a hard time reading English literature directly. If we want to search Chinese literature in our library system, it is very troublesome because the connection with the Chinese database is not good.

R: What do you think is the most useful aspect of the library's search system for you, from the perspective of Chinese students, and which ones are difficult for you to use?

P: It is difficult to grasp some academic keywords, phrasing, or the accuracy of the expression on what want to search. The vocabulary used in Chinese and English may not be the same, so it's difficult to retrieve the right information you want. For example, for some academic words, when you translate it from Chinese English, it is direct translation, which is general, not the correct word they use in English. Besides, for our major, which is the material science, there is less academic dictionary in our field. If there can be some academic vocabulary dictionaries provided for Chinese students or other international students in different languages, it will be better for us to know what to search. For example, in the material science, we have a word which is aerogel (气凝胶) in Chinese, if I use the dictionary to translate, it's just the combination of the two words, air and glue. However, it has a special name of aerogel. But it's hard for us to find it in the dictionaries. Besides, there is no professional academic dictionary that I can refer to. A lot of such dictionaries are expensive and we need to buy. Therefore, if the school can provide us with some help on this, to let us search for these terms and topics, I will be good.

R: We just mentioned the mobile library at the beginning, usually it means the library system that can be used on mobile devices; there is another concept, called smart library, how do you understand these two concepts?

P: For the Smart Library, I think it is not only users operating the system, it's also analyzing user data, to figure out the pattern, the book you usually read, and then recommend resources that more suitable for you and in line with your interest. It can be based on your own habits of searching and provide you with more personalized recommendations. As for the mobile library, I think it focuses on its convenience and portability, that you can use it anywhere, and it can display in a good way according to different devices. For example, the size of the screen is different from computer to mobile phone, but it can adjust the position and character size. The computer screen is usually like a landscape, and the screen of the mobile phone is vertical, if the library system has same interface on different devices, it would be hard to read.

R: What is the role of technology in your study life?

P: I hope that the most important thing is to save me time and help me find what I want faster.

R: How do you think our UCL library can improve its library services with different electronic devices or electronic platforms?

P: Now the library search system is based on text searching, and there is no function to search for image. And now we are searching in the library by typing into the keywords. For example, if you see an image in an article and you think that the image is useful, it is very difficult to search for the other images or resources related to this image. That is to say, the search for image format still needs improvement. I think, for example, in the two documents, if their images can be compared and searched, it will be very helpful for researchers. Because the two articles may be using different keywords talking about the same thing, if the pictures inside are similar, they may still be retrieved. I think it can add some functions of image search, like some programming languages, for example, Python uses big data analysis on image analysis. I think if the library can also identify and analyse the pictures in the article, then it would be better to search.

R: Ok, today's interview is over.

Participant 13

Chinese transcription

Interviewee 13--- EE: Advanced Materials Science--- Northeast Forestry University ---Female

你可以先解释一下你刚画的这个图吗，按照你刚才画画的顺序。

我先画了一个大概的 APP 的背景。有四个功能，第一个就是订阅自习室，可以达到实时同步，或者是可以提前知道什么时候可以在线选座，因为一到高峰期大家都有订座位的需求，如果没有一个规定的时间去释放选座，会造成不方便。还有对于单独一个人的座位，有的时候比如说这个人出去半天不回来，这个座位上都是东西，就会有占座的现象，这种特别不方便，尤其是高峰期大家都找不到座位。如果未来 APP 上可以扫一下座位，知道现在这个座位有没有定就不用每层都要看一遍，或者是打扰别人学习。离开座位的时候再扫描一下，才能出去图书馆的门，比如说如果你不扫就出门了，可能其他人还是会觉得这个位置有人，就可以规定一下 30 分钟之后你如果不回来，这个位置就可以提供给别人使用。因为其实 30 分钟完全可以吃顿简单的饭，然后再回来接着学习之类的；比如说你回来可能正好 30 分钟过了，你也可以坐别的位置，就不会造成资源的浪费。另外，我画的这两个就是一个借书、一个还书，都可以用这个码扫一下就可以实现实时的借书还书。就是在不同的系统，这两个可以不用干预，但是都可以实时的同步一下这个信息。比如说我们借完之后可能是还到了那个统一的还书处，但是还是需要等人第二天或者是一个统一的时间才能再把它放回原来的书柜，如果可以建成一个实时的还书借书的系统，用户可以直接把书还到某个特定的图书馆的书架上，这样可能会比较便捷一点。借书的时候也可以知道具体哪一个地方，因为有一个编码，它会有很大一片区域，这样标的并不是特别的明确，如果说能给这个书在的位置拍一个照片，可以根据那个照片去直接更快的找。还有就是这种设施问题，包括厕所、喝水的 fountain 都在哪里的信息，如果有那种自动更新的，然后可以查询的，比如哪里有这些设备，就会特别好，也会比较实用。有一些软件它并不是实时同步的，所以大家就不怎么经常用，如果是实时同步，大家可能就比较喜欢用。

好，现在就开始正式的访谈，这个访谈就分三个部分，第一个部分就是从文化来切入，你作为一个国际学生你的一些体验。你觉得从整体的学习氛围和学习环境而言，就中国和英国的大学里面的这个对比是什么样的？

我感觉在这边就学习时长来看，可能就因为没有明确的闭馆时间，大家可能就学的时间比较长一点。就像我在图书馆复习的时候就感觉大家都学得很晚，我要离开的时候还有很多人在这复习。还有就是在这大家来到图书馆就学习的比较多，但在国内可能有一些来图书馆并不那么用功学习，就是有点懒散的，但是在这边大家都集中学习，然后这种 group room 也挺多的。可能我们本科学学校就 group room 比较少一点，大家可能就还是专注于自己学自己的，交流的少一点。

也就是说可能在这边有很多是需要同学和同学协作的，所以这种小组讨论很多？

对，我感觉其实这边这种小组讨论比较能促进大家的交流吧，可以听听大家不一样的想法还是挺好的，自己学可能会有自己总想不过来的地方，也许跟别人一交流就好了。

你觉得就从中国来到这边，你的学习习惯有什么变化吗？

可能感觉这边效率就高一点，因为周围的人都一起一起学习。可能之前在国内的时候，因为也都是自己一个人学习什么的。

你来英国之前有没有为了学习做什么样的准备？

可能就是看一下英语，英文单词，英文书，先找一下词汇。是针对专业的词汇，我们其实在本科也有学一些专业的词汇，但是用的少，所以可能就忘记了，所以来之前又看了看。

你当时就是那些资料，你都是从什么地方找的，就是自己找的还是？

我们会上专业课。就是专业英语的课，老师会推荐书。

你觉得在你来了之后你觉得有用吗？

专业上面的词汇，还是面积很大的。我们之前学的只是一个很小的一部分，发现在这边还是上课学习的那些词汇还是比较常见，自己找的并不是那种很地道的很专业的词汇。因为专业词汇是一个单词就对应一个单词，我学那个只是一个小部分，这边其实是一个大部分，而且用的交集不是太多。

好的，你在中国的时候，你一般就为了学习找的信息都有哪些，一般会去什么样的途径去找这些信息？

一般是先征求老师意见，推荐几本书，然后找一下之前的那些就是上过这些课的同学们问有没有这方面的书。如果没有的话就去图书馆再找一下。

也就是说你的途径主要是来自于老师同学，或者是直接去图书馆去找实体的书？

对的。

来了英国之后，你一般为了学习会找哪些信息，然后都是怎么找的？

一般在这边找文献比较多一点，因为本科学习的都是一些基础，需要用书来从头到尾的那种建立一个知识体系，这边的话主要是那种读文献，并不是基于那些基础了，脱离开基础，就主要讲了一方面的那些比较细化的，更专业更深的。比如说我们一开始学的那些合成分为哪几种，从哪个开始，那些原料什么的，现在抛开这些东西，直接就上升到用哪些材料，用什么方法直接合成，就是一个文献当中关键的东西。

这文献都包括什么，因为有很多种类型，比方说书，比方说期刊杂志会议论文就这些？

一般期刊杂志比较多。

除了这些文献的话，你还会通过其他的途径去找和学习相关的信息吗？

如果感觉有的时候就看文献还是有看不懂的地方，可能就看它的参考文献里面有没有书籍，因为书讲的还是比较细的。如果文章里面引用了书的哪一个章节，可能就看一下那个章节或者章节前后那些关于这个研究的更基础的一些东西。更体系一点的。

你本科是哪个学校的？

东北林业大学。

你之前在中国的时候，你们学校用的图书馆系统大概是什么样的？你可以回忆一下吗？

因为不经常用。就是能查书，我记得是能找到书的编号，可以查什么时候闭馆，就会有一个通知闭馆时间，还有今天上映的电影，有这种娱乐的设施，然后其他的就不是...就是信息不会更新的特别快。那个检索系统主要检索的是实体书，文献什么的在国内主要用知网，图书馆网站会有一个链接，里面会有各种的数据库，万方还有什么的。

你大概可以回忆一下当时图书馆系统界面大概是什么样子的吗？

就有很多小格子，就是每一个模块，上面有不同的链接，主要就是查文献和还有一个什么学校的图书馆通知，还有一些简单的，比如我们学校有那种存储柜子，有那个系统的链接。

好的。你觉得中国的图书馆系统和英国的图书馆系统，这两个系统对比的话，你喜欢他们什么？然后不喜欢他们什么？

这边的图书馆系统，我只用过就是用查书查文献，就只用 explore，还有就是打印，充钱的，然后我就不知道这边图书馆有什么功能了。还有就是我之前提到的，借书的时候还挺方便的，就过去借和还其实都挺方便的，扫一下就可以了。但是同步性还是跟刚才说的一样，并不是很及时。国内的这种系统上还是可能图书资源并不是很多，但是国内的图书馆主要可能就是用来学习，座位提供的特别多，像好几层中一大片都是学习的座位，英国的话主要就是供大家读书，就像在什么书店安了几个座位一样，就是座位少一点。

也就是说可能国内的比较好的点是提供了很多空间可以给你们学习，但是这边的话可能就是资源特别多？

对的。

你刚才也提到了，在中国可能更多的是自己独立学习，而且在中国会听老师的一些指导，但是在这边可能更多的时间都是需要去查阅很多概念的，但你觉得就是这种变化，这种学习模式的变化，有没有给你的学习的习惯带来一些改变？

其实我就刚来的时候比较忙，我就不知道要怎么学，因为上课老师讲的是跟本科虽然有一点关系，但是关系也不是很大，就很迷茫，不知道怎么补这一方面的知识。就问老师，老师说可以看一下书，找一下学校那种资料。其实那一部分就是帮助也是挺大的，就是书上面讲解的可能会比老师课上讲解的清楚一点。还是自己理解的有问题，如果有问题就去问一下老师，老师帮你解决之后这个可能印象更深。

好的，你在用英国这边图书馆系统的时候，你可以回忆一下，你刚开始来的时候有遇到什么困难吗？或者是有遇到一些你想搜但是搜不到东西的情况。

我感觉有的。一开始就是读语言班的时候就会写文章，那个时候就找文献，就特别难找，发现网页上的知识其实更多，比图书馆整理好的要多。可能我就感觉因为我们当时研究的东西还很浅，所以找文献可能有的就架的太高了，就觉得不适合我们。就没有总结性的那种用法，比如说我当时的题目就是木头建筑和钢筋混凝土建筑，就这种在文献里面可能就缩得很小，比如说什么样的混凝土怎么说，就是特别具体的一种，就不会像网页上介绍的，比如说单独比较木木头和混凝土，这两种的好和坏。

你觉得当时在图书馆里面找不到你想要的资源是主要原因是什么？

主要原因就是研究东西可能还是太浅，图书馆的资源都是研究的比较深的那种。

你觉得适合你输入的关键字有关系吗？

对，可能就是我的范围很大，然后在找的时候那些结果的范围又变得很小，所以这个就不太适合我。

你那个时候就直接在搜索引擎上面找？

对，这个时候用 google scholar，有时候用学校的找。

我们现在开始第二部分，第二部分的问题，主要针对你作为一个信息搜索者你的一些行为习惯。首先刚刚我们一开始会提到了，在中国和在英国你分别会去搜索和学习相关的一些资料，你可以想一想，在英国这边，不单单是为了你专业，就更广义上的一个学习方面，你会搜索哪些信息来满足你自己的学习需求？

除了专业之外的学习吗？还会接触，我有一些不懂的，我会看一些 YouTube 的视频，就比较直观，因为感觉可能看字还是不是很好理解，但是视频讲的就特别清楚，像一些加工方法，看视频就跟到现场看，其实也差不多。还有一些像，有的老师会有课会讲解一部分内容的，也是视频，都会从头到尾写一个计算过程，或者是怎么解一道题，就类似于公开课一样，也是在 YouTube 上面看的。还有段时间我想学编程，然后也是找了一些视频还有网页，因为编程需要有语言，有的网页就可以实现实时的练习和结果，你就可以尝试，那个网站是我哥做了一个网站，就是他们公司的网站，那个就是可以实现你一边写代码，一边看那一行怎么出来，哪会有问题，就是那种实时把你的写的代码直接转成结果，还可以给你有修改意见。

好的，也就是说就针对你整体的更广义的学习来说，你一般还是会搜一些 YouTube 的讲解视频或者一些专业性的网站。好的，你可以看到我们的图书馆网站分成了主页，就是一些功能和服务，还有 explore 这个搜索页，你一般会用的功能都有哪些？

其实一般搜图书馆网站直接就进去 explore 了，我有时候还会用搜一下 past paper，就是像历年的考试题。我一般就是在谷歌里直接搜 UCL past paper，它会直接出来。Explore 里面其实我没有研究明白，就是我搜索一本书，然后它下边会出来一堆，让我选是 book 还是 journal，（操作中）我搜完他并不是直接出来这种结果，他就会让我先选，这会出来好多就，有各种类型，让我分类之后再选。

哦，那你觉得那个是好还是不好？

就缩小了我查的范围，因为它分了好几类，我要想找每一类还得专门去点哪一个类别。

就是说你一般用的还是检索框最多，高级检索你会用吗？

我一般不会用。

就是说比方说搜索出来这些结果之后，左边有 filter，你会用吗？

可能会选一下年份和地点...这个一般我找的书都在 Science library,所以一般找书的时候，如果我在 science library 学习的话，我会直接去看一下这本书有没有。我记得我以前还会选一下日期，因为有的书太老了。

就是说你经常用的就是一个地点还有年份，像这个上面有数据库，e-journals，就这些你有用的吗？

没有。我感觉这么搜出来之后是书的范围比较大，如果把它缩小，可能有一些就被过滤掉了。

好的。你可以跟我介绍一下，你平时是都用哪些设备来学习的？

会用 iPad 或者是笔记本电脑。

你在这个电脑上面一般都会做的一些学习的活动都有哪些？

学习主要就是看一下 Moodle 上面的老师的 PPT，但是主要用的是 iPad，因为上面可以写一写记一记，电脑只是辅助一下，那上面可以存下来东西，然后还有自己的笔记。iPad 一般是会在上课的时候用然后私下复习或者读文献。

Pad 上面的话，你一般下载文献是怎么操作的？

就先从图书馆系统下载到电脑里面，然后会有同步，然后就直接在 pad 上打开进行阅读。

那 iPad 上面还有其他的 APP 或者是功能你用来学习的吗？

Moodle 有个 app 在 iPad，如果是哪个里面的东西，我就会在 iPad 上面直接打开。里面一般会有我们老师传的一些 lecture notes 那些。

一般的话你会学习的时候是会把 PAD 作为主要的一个学习工具，然后电脑用来辅助？

对，因为比较轻便，有的时候来学校就只带 pad。

你的手机的话是一般都会做什么样的活动，会进行学习吗？

手机一般就读一下邮件。其他的学习好像就没有。

你在 PAD 上面有没有登录过我们图书馆的系统？

没有，因为上面不好下载。下载下来不知道下到哪里去了，所以在电脑登录图书馆系统下载，再用 pad 打开。

那你在手机上面的话有打开过我们图书馆的网页吗？

没有。

好的。对于手机来说，它的功能对于你来说主要是什么呢？

手机的功能就是娱乐交流这样的。可能会有一些比如说公众号什么的，可能会关注一些关于我们专业方向的一些公众号，看一下他最近发了一些什么，比如说有个人研究了什么东西，可能会看一下。就是通过社交媒体上面的一些和自己专业领域相关的东西。

你一般学习的话，你的习惯是在哪里学习？

主要在图书馆，或者家里，家里可能是比较放松的时候，因为因为突然可能累了，就会躺下去歇一会，或者是累的看一会视频，周围也没有人，感觉就比较自由一些。但是到了考试周还是会来图书馆学习，周围这种氛围还是会让自己感觉有压力，就会学得比较多一点。

你来图书馆学习的话，你是会电脑和 iPad 都带吗？

是的。

你会用学校图书馆的 desktop 吗？

有时候会用，但是感觉有的自己的资料可能那上面没有，就发现不太方便。因为 iPad 上面存了所有的一些笔记，但是 desktop 上没有。

你来图书馆的时候大概是一个怎么样？学习的时候是怎么样操作的？

电脑放在那边，会有不认识单词就会用电脑搜一下单词，然后 pad 就是放在这里，pad 就会记一下。最近复习老师发了 PPT，然后还是用纸质版的就多一点，主要带着电脑，不怎么带 pad 了。

好，那就是说数字资源和纸质资源，你更喜欢什么？

其实都可以，当时是因为 iPad 还没有买 apple pencil，所以就没办法记笔记，然后主要就是记在我现在笔记上面。所以现在复习主要就是用纸质版的，后来就有了可以记笔记的笔，主要是比较便携一点，像如果带那些 PPT 就会很厚，而且特别沉。但是现在其实更偏向于用电子的资源。

好。然后的话你知道我们学校有一个 UCLGO 吗？你有下载吗？你对它的用户体验是什么样的？

下载了，那个是之前查课表可能比较多一点，然后其他...它会更新一些消息，比如说当时 student center 开了，那上面会更新。其他好像没再了解过。

你觉得它好用吗？你对他的一个评价是什么样子的？

它没有提醒的功能。比如说当时我们有一次考试，就是上面已经更新出来考试时间了，它没有提醒我们也都不知道。如果有更新的话，它要能提醒就会更好一点。

你知道它上面也有可以登录图书馆的这个部分，还有其他的图书馆的一些功能，你知道吗？

查书是吗？没太研究过，因为我很少用手机查。

在你之前的经历当中有没有用过移动图书馆的 APP？

以前本科的时候有过，但是不是很好用。刚才说的就是可以查书，有通知，有进各个数据库的链接，就可以查资料。但是我很少用，就是感觉用电脑查完之后下载下来比较方便，下载到手机里面不经常看。

我们现在就开始进行第三个部分，关于你作为一个图书馆用户你的用户体验，然后的话我先问一个关于你学习的问题，在学习当中的时候，你们会花多久在我们的图书馆系统上？

比如说一天学习八个小时，如果是在写 coursework 的时候，可能会花五六个小时查资料，就是很依赖图书馆系统的，因为查资料可以给自己点想法，就写不下去了，可能就会查一下资料。但是如果只是单纯的学习某一方面知识应该就用的时间不会太多。

好的。你从一个国际学生的角度是怎么样评价我们学校 explore 系统的？

如果想搜中文文献还是不太好找，它只能搜英文文献。比如有一些东西一些概念太复杂了，需要看一些中文来了解一下基础，但是基本上能搜到的资料还是英文的，毕竟那些词汇最后用的也是英文。这边系统也不太好找中文的，对，而且这边也登登不进去知网，像中国那些文献都找不到，这种时候我可能就会让国内的同学去找完，然后下载来看。

你觉得就是说你刚开始来 UCL 的时候，适应图书馆系统花的时间长吗？

其实如果搜索英文文献的话，跟国内差不多。在国内也有这种问题，有的文献找不着，研究的这方面可能很少有人涉及，或者是...就是不好找文献。来这边有的时候也是不太好找，但是用起来就跟国内差不多，只不过关键词变成了英文。

也就是说整体来说还是语言的问题？

对，如果说可能老师或者什么可以多提供一些关键词，就这样的会比较好。

你刚刚提到了，其实对于 explore 来说的话，你最经常用的其实就是引擎的功能，而且你比较喜欢看所有 result？

对，因为我感觉每次找出来的文献就是不太够，所以我就就会把范围扩大一点，然后看一下。

除了我们学校的搜索引擎之外，你还会用其他的搜索引擎去搜吗？

就是 Google Scholar。

我们图书馆系统上面有没有什么部分是你觉得特别不喜欢的？或者你觉得有没有什么地方是你觉得特别需要改进的？

倒是没有特别不喜欢。可能了解的还不是很多，用的不是太多，感觉 explore 还可以。主要用它就是找图书馆里面的书。实体书。搜索那些杂志什么的，还是主要用 google scholar 的。

也就是说你其实还是把我们图书馆系统作为一个检索的一个工具？

对，就是检索实体书的一个书目工具，但是就是像数字资源什么的，还是会去谷歌学术，就是感觉资源比较多。

但是可能有些资源你没有权限的话，你会怎么办？

但是一般那些没有权限的点会点到链接，链接会让你登录一下，你是 UCL 用户，然后它会又跳回去，就能下载了。

好的，你作为一个中国学生，你对我们图书馆系统有什么建议吗？

就是可以把知网加进来，加多一些中国的数据库，对。就是方便中国学生阅读。

刚刚一开始我有提到移动图书馆，但是你其实不经常用手机来学习。但是除了移动图书馆之外，还有一个词就是叫智慧图书馆。然后对于你来说，你对这两个词有什么样的理解？

移动和智慧，英语是？

英语的话就是 smart library。

智慧的话可能会比较比较智能，它能了解你的喜好，比如说你现在比较关注这方面，它可能会给你推一些这方面的关键词，那就说明它有信息的处理功能。然后移动图书馆可能就是便携一点，就可以不只在电脑上用，在手机上可以用。差不多就这样。

好，也就是说我总结一下，你觉得可能移动图书馆重点是在可移动性，但是智慧图书馆就更多的是一个个性化的设置，了解用户的需求。

对。

刚刚我们也提到好多设备，而且你其实挺喜欢用 iPad，把它作为一个很重要的学习设备，你觉得这些设备的话，图书馆可以怎么样借助这些设备，去提高它的服务和它的系统？

我就感觉手机上这些可以便携的这些设备，重要的是一个实时，因为电脑使用的情境是，你找到一个合适的学习空间了，然后把电脑打开，开始认真的学习一段时间。但是你如果在外出，突然就想查一个东西，需要实时的这种更新；还有可以有一些大家对于文章的评价或者什么那种，就写一些 comments 什么的，或者是就感觉就像朋友圈，可能大家比较喜欢看的東西，就是各种不同的想法，这种分享。对这种分享和便携应该是 mobile 比较注重的东西。但是对于像下载一些东西那种还是需要坐下来，需要有很长一段时间。

就是说图书馆就是在不同的科技和设备上面应该有不同的侧重，比方说在电脑的话，可能就是更多的就是学术性的一个功能，但是像在手机这样的移动设备上面多一些娱乐性、社会性，还有这种分享性的会更好，要突出不同的侧重？

对的。

好，结束了。

English translated transcription

Interviewee 13--- EE: Advanced Materials Science--- Northeast Forestry University ---Female

R: Can you explain the cognitive map you just drew, in the order of the three colored pens used?

P: I first drew a rough interface of the mobile library app. There are four functions, the first one is to book the study room, which can achieve real-time synchronization, or you can know in advance what time slots will be available for you to book. Because when it is the peak usage of the library, everyone has the need to book a seat; if the time to book the library seat or release the seat is not confirmed, it will cause inconvenience. In addition, as for the seat designed for single person, sometimes, for example, if the person leaves the seat and does not come back for a long time, his stuff is on the desk, so there will be a phenomenon of occupying seats. This is especially inconvenient, especially during the peak period. If you can scan your seat in the future mobile library app, to know if this seat is booked or not and you don't have to find seats on different floors around the library, or disturb others. When you leave your seat, you can scan it again before you can go out of the library. For example, if you leave without scanning, other people might feel this seat is still occupied. So there can be a restriction that if you don't come back after 30 minutes, this seat will be available and can be provided to others. Because in fact, you can eat a simple meal in 30 minutes, then come back and learn. For example, if you exceed 30 minutes after come back, you can find another seat instead and this act will not waste library seat resources.

In addition, the next part I drew borrowing and returning books, where I hope by scanning the code on the books, it can realize real-time borrowing and returning books. It will be in

different systems, these two systems can be used without intervention, and can update information in real time. Because now, you know, when we return a book, it will be put back to the return shelf, and it still need to be resorted and put back to the original location in the next day or several days after; if such real-time system can be built, users can directly return the book to the shelf of a particular library, which may be more convenient. Besides, if there can be clearer and more detailed information of where the books is when you are borrowing the book, it will be better. Now even though it shows the location code of each books, you still need to spend a lot of time on finding the book, because the code might appear in a large area and sometimes the information is not very clear. Therefore, if there can be pictures of where the book is, users can find the book according to that picture, which is faster.

I also expect there can be information about facilities, including information on where the toilet is and where the drinking fountain is. If the information can be automatic updated, then you can query where these devices are, which will be particularly good and practical. People won't use the software very often if the software that are not updated in real time. Therefore, I think the real-time feature is very important.

R: Ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment and learning atmosphere, is there any difference between these two countries?

P: I feel that in terms of the length of study here, maybe because there is no close time in the library, we spend longer time studying in the library. Like when I study in the library I feel everyone stays in the library till very late and there are still many people studying when I am leaving. Besides, I feel that there are more students come to library to study; but when I was in China, there were not so many people hard working in the library and the atmosphere is not so good. Here everyone concentrates on learning, and there are group rooms we can discuss together; but we have less study rooms in my undergraduate university and everyone was still focus on learning by their own and there was less communication between students.

R: So in UCL, you often discuss coursework with your classmates and there are lots of group discussion?

P: Yes, I feel that this kind of group discussion is more likely to promote communication between us. It is good to hear others different ideas. When I encounter something that I am confused with, it's better to communicate with others.

R: Do you think your learning habits changed after you come to UCL?

P: It feel my learning efficiency became higher after came here, because everyone around you is learning together. Maybe before when I was in China, I was learning alone all the time, so I don't have such feeling.

R: Have you prepared for learning before you came to the UK?

P: Probably the biggest preparation is English, including the English words, and books related to my major. There are academic word books that designed for our discipline. We actually have some academic vocabulary course in the undergraduate stage, but we rarely use it in practise and we might forget most of them, so I looked at it before coming.

R: How did you find these vocabulary books at that time?

P: We have courses of academic English in engineering and the teacher recommended books for us.

R: Do you find it useful after you come?

P: The academic vocabulary actually is very broad; what we learned before is only a small part. Besides, the vocabulary I learned in UCL in my major is common for native students, but what we learned before is not common or authentic at all. And the vocabulary for a term is in corresponding to one word; what I learned before is only a small part. There is actually much more than that and the intersection is not too much.

R: Ok, when you were in China, what information related to your learning do you usually search? And where do you usually find it?

P: Generally, I would ask the teacher for advice to ask him recommend a few books, and then ask for previous senior students who have attended the class to ask if they have the book. If not, I will go to the library and find.

R: In other words, you generally look for books either from your teacher and peers or from the library?

P: Correct.

R: After coming to the UK, what information do you usually look for in learning, and then how do you find it?

P: Generally, I look for more literature and articles here. Undergraduate studies are focused on the basics and it is necessary to use books to build a knowledge system from beginning to the end. However, for the master course, we mainly read literature on others' research, not based on those foundations. It builds up on the foundations and discusses more detailed, more specific and deeper topics. For example, we learned the kinds of syntheses when we were in the undergraduate stage, including what it is divided into and how it formed from which raw materials; now in this stage, we directly learn the materials that need to be used, and what methods can be used to synthesize, which are key things that can be found in the previous studies and articles.

R: What literature type do you usually find, because there are many types, such as book, journal articles, conference paper, etc?

P: Mostly journal articles.

R: In addition to these articles, will you find other learning related information through other means?

P: Sometimes if I feel that I can't understand something in the article, I might see if there is any books in the reference list, because books are generally have the comprehensive knowledge systems and it introduces the knowledge in detail. If the article cited a certain chapter, I might have a look at that chapter or the chapters around it to learn about the basic things on that topic, which is more systematic.

R: When you were in China, how was the library system you used in your university? Can you recall it?

P: I rarely use it actually. But I know it can search for books and I remember that I can find the bibliography number of the book. I can also check the open and close time of the library. There is a notification of when the library is closed on that day. Besides, there are events information such as the movies on the show and other entertainment events...but the information is not updated very quickly. The search system is mainly used to search for physical books, and for the articles and other resources, we mainly use the CNKI. There is a link on the library website where there are various databases, like CNKI and Wanfang.

R: Can you recall what the library system interface looked like?

P: There are a lot of small squares, like modules, where there are different links. The main parts are the search box for literature search and the library notice. There are also some basic services, like we have storage boxes in our library, there is service link of that on the page as well.

R: Compare the library system of your undergraduate and the UCL Explore, what do you prefer about them and what do you think that can be improved?

P: The library system here, I only used it to check books and look for article resources. For the library services, I only used Explore system and I know we can print and add money in library account and I don't know other services that our library has. Besides, as I mentioned, it is quite convenient to borrow books in the library and return books, that we only need to scan the book. However, the synchronization is not very good, the information is not updated in time. As for the library system in China, probably there may not be a lot of book resources; and the library is mainly used as study space, so there are lots of seats available in the library, like several floors in the library are provided to study. In UCL, I feel that the library is just like bookstore, and there are only a few seats there.

R: That is to say, perhaps a good point about the Chinese library is that it provides you a lot of space for you to learn, but here there are more resources?

P: Correct.

R: As you mentioned earlier, in China, there may be more independent study, and in China, you listen to some guidance from the teacher, but here you may have more time to search for concepts and course-related knowledge. Do you think learning habits has changed after you come to UK?

P: In fact, there were a lot of thing for me to do when I first came. I don't know how to learn. Although the content of the course has something to do with my undergraduate major, but it is not exactly the same and it is not directly related. I was very confused and I don't know how to make up for this. And I asked the teacher and he suggested me to read some books

and look for related literature. In fact, it was really helpful, because the content in the book is explained in more detail and clearer than what the teacher taught us in the lecture. Or I still have problems with understanding the course. If there is a problem, I will go and ask teacher. After his help, I have deep understanding and impression after the problem is solved.

R: Ok, when you are using the library system in the UK, is there any difficulties you encounter? Or is there any situations that you want to search something but can't find anything?

P: I feel there is. At the beginning, when I was having the language course and I need to write an article. When I searched for articles at that time, it was particularly difficult to find. I found that there was more knowledge on the Internet than in the library system. Maybe it was because the things we studied at the time were still very shallow, so the search for literature may be too deep for us, and I feel that it is not suitable for my writing. There is no such summative introductions. For example, my topic at the time was wood construction and reinforced concrete construction. The topic may be too specific in the articles and others' work, like for example, what kind of specific concrete is used. And unlike the information on the web, where there are comparisons between wood and concrete, and discuss their features in a summative way.

R: What the reason might be that you can't find the resources you want in the library system?

P: The main reason is that my research may be too shallow, and the resources of the library are the ones that are deeply studied.

R: Do you think it is related to the keywords you typed in the search box?

P: Yes, it may be that the scope of the keyword I typed is too broad, and then the range of results is limited when I look for it, so they are not suitable for my purpose.

R: Did you look directly at the search engine at that time?

P: Yes, at this time, I will use Google Scholar if I can't find things I want on Explore.

R: Ok, for the second part I will ask you about the behavior of information search. What information do you do in the process of learning? This learning is a broad concept that probably are not directly related to your course.

P: Apart from the leaning on the course? I will also search...for the things that I can't understand, I will watch some YouTube videos, which is more intuitive, because I feel that I might not understand the text well, but the video is especially clear. For example, for some engineering processing methods videos, watching videos is just like you are on the scene with them. There are also some...some teachers will explain some of the concepts in videos, which writes the calculation process from beginning to the end, or solves a problem in some certain method, and it will be like the online open class, and we can watch it on YouTube. There is also a time when I want to learn programming, and I found some videos and websites online. Programming requires us to write language, and some websites implement real-time exercises and results. You can try it online. There is a website that was made by my brother's company, which enables you to write codes while watching how the line comes out. If there is a problem, it gives you the suggestions of how to revise the code. It is the kind of real-time conversion of your code into a result.

R: Ok, that is to say, for the broader learning, you usually search for some YouTube video or some professional websites. Ok, you can see that our library website is divided into homepage, which has some functions and services of the library, and the search page of Explore. What functions do you usually use?

P: In fact, generally, after opening the library website, I will directly click into the Explore system. Sometimes also search for past papers, which have the exam questions over the years. I usually search 'UCL past paper' directly in Google, it will come out directly. In fact, I don't have a fully command on using the Explore. When I searched for a book, there will be a bunch of results underneath that ask me to choose book or journal... (operating) It does not like this; anyway, sometimes when I search something, it will come out different types of resources and ask me to choose the category.

R: Oh, then do you think that is good or not?

P: It narrows down the scope I want to search for, because it is divided into several categories, so I need to check each category to see which category I need.

R: Ok, so you generally use the search box, will you use advanced search?

P: I generally don't use it.

R: How about the filter?

P: I generally choose the year and location... Th books I usually look for are in the Science library, so when I am looking for a book, if I study in the Science Library, I will go directly to see if this book is available. I remember that I used to choose the date because some books are too old.

R: Have you used the database, e-journals, and these on the top?

P: No. I feel that the way I am searching right now will have a large range of resources. If I narrow it down, some of it may be filtered out.

R: Ok. Can you tell me how you use digital devices in your learning?

P: I generally use an iPad or a laptop.

R: What learning activities do you usually do on your laptop?

P: On the laptop, I look at the teacher's PPT from Moodle, but I mainly use the iPad, where i can write and take notes on it. The laptop is just an assistant device, where I save and store all the files, as well as my notes. For the iPad, I generally use it in the class or read and review the work after the class. I often download articles or the readings I want to see on my laptop and then there is synchronization function in ios, I then transfer the files to my pad and open it directly on the pad to read.

R: Is there any other apps on the iPad you use to learn?

P: Moodle has an app on the iPad, and if there is any material in Moodle, I will open it directly on the iPad. There are some lecture notes from our teachers.

R: So, in general, iPad is the main learning tool for you, and laptop is an assistant device?

P: Yes, because it is relatively light and portable, when I come to university, I often only bring my iPad.

R: What kind of activities do you usually do on your mobile phone, will you conduct learning activities?

P: The mobile phone generally used to receive emails. No other activities related to learning.

R: Have you ever logged in to our library system on iPad?

P: No, because it seems that we cannot download articles on that. I once tried to download, but I can't find it after I download it. So, I generally use my laptop to download articles in the Explore and open it on iPad.

R: Then, have you opened the webpage of our library on your mobile phone?

P: No.

R: Ok. For mobile phones, what is its function for you?

P: The main function of the mobile phone is entertainment and communication. That's it. There may be some public accounts on WeChat, for example, I followed some public accounts in our filed, which is academic-lead. I probably check what they published on the public account to see what they are studying recently or others' research. I might have a look on this, like through such social media platforms which are related to my area of expertise.

R: Where do you generally study?

P: Mainly in the library, or at home. When I study at home, my learning status is relaxed because I can have a rest or sleep for a while if I feel tired. Or I can watch some videos because no one is around, and I feel freer when I work at home. However, when it is the exam weeks, I come to I the library to study. The surrounding atmosphere makes me feel pressured and I learn more in a focused status.

R: If you come to the library to study, do you bring both laptop and iPad?

P: Yes. I bring both when I come to library.

R: Will you use the desktop in the library?

P: Sometimes I use it, but I feel that some of my own documents and files are not stored on that, which is not convenient. Because all the notes are stored on the iPad, but not on the desktop.

R: When you come to the library, how the devices are used? Can you recall the setting of that?

P: My laptop will be placed over there, and if there is any word I don't know, I will search in the dictionary on my laptop. iPad is placed here, I do reading and taking notes on it. But the recent situation is that, our teacher gave us the printed slides and when I review the course, I use that a lot. So recently I bring my laptop and those printed slides to the library and I don't bring my iPad.

R: Ok, do you prefer the digital resources or the paper-based resources?

P: In fact, for me both are fine. Before I bought the Apple Pencil, I don't make notes on my iPad, so I make notes on the printed slides. That's why now I am using the paper slides to review the course; however, I bought Apple Pencil that can make notes very easily, because it is portable. For the printed slides, they are very thick and especially heavy. So, now I prefer to use electronic resources.

R: Ok, do you know the UCLGO? Have you downloaded it? What is your user experience with it?

P: I downloaded on my phone and I used to use it to see the timetable more, but for other functions...Like there are some news updates, for example, when the student center was open, there was news updates about it. For the other functions, I haven't explored anymore.

R: Do you think it's easy to use? What's your evaluation of it?

P: There is no reminder features. For example, we had an exam at a time; the time for the exam has been updated on the timetable, however, it didn't remind us and we had no ideas about the exam either. If there can be some notifications, I will be better.

R: I see. Do you know there are some functions about the library services?

P: To check books? I haven't studied it too much because I rarely use my mobile phone to check library system.

R: Have you used a mobile library app in your previous experience?

P: I had used one when I was in undergraduate stage, but it was not easy to use. Like I said before, it can search for books and there are library notifications and the links to different databases where you can search for resources. However, I rarely use it. I feel it is more convenient to download it on the computer. If I download it to the mobile phone, I rarely read it.

R: Let's start with the third part about your user experience as a library user. Then I will ask a question about your study. How long will you spend on our library system in your learning?

P: For example, if I study eight hours in a day, if it is the time of writing coursework, I may spend five or six hours to look for information and resources. So, I am actually very dependent on the library system. Because looking for resources can provide me with some thoughts or inspirations, when I can't proceed the writing, I will look for some resources. However, if I only study one concept of knowledge, I probably won't spend that long.

R: Ok. How do you evaluate our Explore system from the perspective of an international student?

P: The system can only be used to search for English resources; if you want to search for Chinese literature, it is not easy to find. For example, there are some concepts that are too complicated to understand and I need to look at some Chinese explanation to understand the basics of that; but basically, the information I can find is still in English. After all, those terms were originally in English and the system is not designed in Chinese. Besides, it is difficult to log into CNKI here in UK. If I can't find Chinese literature, I may seek help from my friends in China to download for me and send to me.

R: when you first came to UCL, did it take a long time for you to adapt to the library system?

P: In fact, it is similar to the Chinese library system and you just need to search in English. There are also problems in the Chinese library system when you can't find the resources sometimes if there are less people studying that topic or...it's hard to find relevant materials. Here in the Explore system, it's also sometimes hard to find proper resources, but the operation and experience are similar to the Chinese one. The only difference is that the keyword we type in changed to English.

R: In other words, there's the problem with language?

P: Yes, if it is possible that the teacher can provide some keywords or terms to search, it would be better.

R: You just mentioned, in fact, for the Explore, you use the search function more and you prefer to see all the results?

P: Yes, because I feel that the literature I find every time is not enough, so I will expand the scope a bit and then look at all of it.

R: In addition to our Explore, will you use other search engines to search?

P: I use Google Scholar as well.

R: Are there anything on our library system that you think can be improved?

P: There's nothing I don't like in particular. Probably I don't know it well because I don't use every function of it. I feel that the Explore system is OK. I mainly use it to search for books in

the library, the physical books. As for the search of the articles and journals, I mainly use Google Scholar.

R: In other words, do you actually use our library system as a tool for retrieval library book collections?

P: Yes, like a bibliographic tool for retrieving physical books, but for digital resources, I will go to Google Scholar, and I feel there are more resources.

R: But there may be some resources that you don't have access to, what do you do?

P: But in general, those resources have links where you can click into and log into the UCL account. Then you can download.

R: Ok, as a Chinese student, do you have any suggestions for our library system?

P: I think it is possible to add the CNKI database or more Chinese databases, for us to search Chinese resources easily and we can read the Chinese articles as we wish.

R: We just mentioned the mobile library at the beginning, usually it means the library system that can be used on mobile devices; there is another concept, called smart library, how do you understand these two concepts?

P: As for smart library, it might be more intelligent, that it can understand your preferences, for example, if you are interested in this topic recently, the smart library can provide you with some keywords in this topic for you to search. It may have the information processing functions. Then the mobile library may be portable, so you can use it not only on your computer, but also on your mobile phone. That's almost the case.

R: We just mentioned a lot of devices, and you actually like to use the iPad as a very important learning device. If you think of these devices, how can the library make use of these devices to improve its services and its systems?

P: I feel the important thing about the mobile phone, which is featured as portable, is the real-time updates. While for the context of using laptop is that, when you find a proper space for study, you will open your laptop and study with a focused mindset for a considerable amount of time. When you are out, if you suddenly want to check something or search something, mobile phone is better because it has the real-time updates. Besides, there are some comments of articles or posts on social media platforms, like friends' circle in WeChat, where you can see what others are reading recently and you can have a look on different thoughts. This kind of sharing and portability should be something that mobile pays more attention to. But for something like downloading articles require us to sit down in a space suitable for study and study for a while.

R: That is to say, the library should have different emphasis on different devices. For example, if it is computer, it may be more focused on academic functions; but there can be more social, sharing or entertaining functions on mobile device such as mobile phone. So it should highlight different focuses.

P: Correct.

R: Ok, the interview is over.

Participant 14

Chinese transcription

Interviewee 14--- Bartlett: Space syntax: architecture and cities ---Tongji University---Male

现在你可以解释一下你画的图吗?

前面三个是 mobile library 的载体, 第一个是电脑, 一般会在电脑上用学校图书馆, 来搜索论文和阅读论文的地方; 第二个是手机, 一般会进行日常的一些搜索, 比如突然想到什么就会去搜索一下, 会在上面看 overview 这样的概览, 如果需要时间 reading, 一般会选择好之后去电脑上阅读; Kindle 的话就是对于各种各样的书会下载到上面去看, 一般阅读的最终载体是它, 也可能在 online shop 里去买一些书刊。这部分是对于未来的一个发展, 主要还是觉得有可能是 VR, 第一个它可以带来面对面的一个交

流，就是不再是面对屏幕，你有可能是在一个虚拟的图书馆里，你能看到对面的脸，大家有可能会指向同一本书。第二个就是虚拟现实可以，比如说你看到它是一本书，但是因为它是电子的，所以很多人都可以读这一本，就不像传统图书馆里只能就是，因为是物理的，所以一个人同时只能占有一本书。然后第三个是它的存储时间会很久，因为是数字化的，所以就不用担心书坏掉。最后一个它可以节省一些物理的空间，就不用再建那么大的图书馆，存储那么多的书，有可能只要一个数据中心就好。最后是对他一些期许，前面两个都是 accessibility 的问题，因为比如像学校图书馆，如果离开了校园网就并不是所有人都能访问了。第二个比如说很多政府的数据是分级的，有些是 open 的，有些是 safeguard，还有一些是 sensitive，就不是所有人都能看的，所以我希望以后这些资源能让更多人看。最后还是想有一个更加轻便和方便的一个硬件吧。

好的，我们现在就开始正式的 Interview。第一个部分我会问你以文化这个角度为切入点，问你一些作为一个国际的留学生，你的一些经历和体验，然后第二个部分就是你作为一个信息搜寻者你的一些信息行为还有你的习惯。然后第三个部分就是你作为图书馆的用户你的用户体验。你本科是在同济大学，现在在 UCL，你觉得就是从学习环境和学习氛围的角度去思考的话，有什么不一样的地方？

感觉没什么不一样。因为我本科家离学校近，我也是走读的，到这里来又是住单人间，其实差不多，本科的时候没有住宿舍的。

你觉得就上课这个角度来说，从专业结构这个方面来说有什么不一样吗？

读的专业不一样，肯定它结构也不一样，偏向也不一样，而且本科教育和研究生教育本来就是两套体系，本科有可能会让你涉猎更广的区域，让你对每个领域都了解一些，但是研究生就是你选择了你想要读的，所以会更加专精一些。所有的课都是围绕你的专业在展开。

好，你觉得你的学习习惯从中国到英国有发生变化吗？

没什么变化，都是自学，就是必须自学，你上课听了之后如果回来不自学，那就不能理解啊。

好的，你本科的专业是什么？

建筑学与历史建筑保护。这个是偏建筑设计的，在英国是建筑分析，本科和硕士这两个专业其实分别就在于建筑设计更加偏于 intuition，就是更加靠直觉，拍脑袋那种。它的逻辑也不是数理逻辑，它的逻辑就是自圆其说。然后 conservation design 的话，比较注重一个检验的过程，就是你的检查建筑物哪里坏了，然后你得分析为什么会坏，然后根据破坏原理进行修复。但是设计的过程你得考虑一些，比如说美观耐久之类的问题，就不是一个纯粹的数理逻辑。建筑分析的话是建筑和城市分析，它是根据一套就是特定的理论来预测人的行为。还是比较有数理逻辑的，虽然不是高中那种数理逻辑，它会更加偏离散性一点。

你来英国之前有没有做一些针对于英国这边学习的准备？包括可能专业的知识，或者是就是一个广义上的学习的准备。

广义上的学习是没有的，只不过我是之前看过这个理论，就是 Bartlett 这个人发明的，我对这个理论很感兴趣，所以我就来 Bartlett 读了专业，然后别的没有准备。

那么你都是通过什么样的途径去了解这个的？

就是在本科的图书馆找他写的实体书看的。

你觉得对你来这边的学习有帮助吗？

有帮助啊，我们专业就是分两部分，一部分是他们最早期做的一些研究，是研究空间结构和社会结构的关系。然后第二部分是研究就是这种关系应该怎么样用一种数学模型来计算。我当时看那本书是关于计算方面，所以对社会学的含义不是很了解。到这边来之后，就是我一开始脑子里就知道是个怎么回事，是怎么算，是用了哪个模型，来到这里之后，第一学期跟第二学期前半学期都是注重讲它背后的一些社会逻辑，那就会自然而然的把它计算逻辑和社会逻辑并在一起看，就会理解的快一些。

当你在中国本科学习的阶段，一般会找寻和学习相关的哪些方面的信息？

在图书馆里看和专业相关的书。如果是广义上的学习的话，也会看一些哲学书，会看编程的书，会找跟关于专业相关的论文看。哲学书是无聊，编程书是因为小时候学过，所以不想扔掉，专业的书是为了写论文。那些书大部分都是电子的。

你这些电子书都从哪些途径找的？

编程书一般是 CSDN，就是国内一个就比较有名的一个就是论坛。哲学书基本看的是实体书，图书馆借的，专业论文一般是从图书馆的引擎上去下载。图书馆有买了很多系统，当然学校里自己也有，比如说之前的学位论文也可以下载到。

好的。你来到英国这边之后，一般和学习相关的信息都有都会找哪些？从什么途径去找？

一般专业相关的书还主要从 explore 的引擎上去找，如果找不到的情况下，会去 Google Scholar。计算机方面书还是 CSDN，别的没了吧。在英国的话我会偏向于看数字版本的，我会下载到 kindle 上去看。

好的。你在中国的时候用的图书馆系统大概是什么样？

你看吧（打开网站）。一般来说你要搜东西，你先登录，登录好了之后，就可以在这边搜索，它会把所有购买的数据库，跟自己大学里数据库的相关的东西都会给你。右边有个列表，是各种数据库，电子学位论文的入口，他会把常用的数据库放在最上面。下面一般是一些通知，不定时的展览，公告等等。其实它学术搜索和 explore 很像，整合了所有拥有的一些数据信息和资源，但是这边会有一个小的界面，

里面把这些资源分类让你更好找到想要的资源类型。不一样的可能就是中国的这个你需要先登录之后可以随意使用资源，但这边需要隔一段时间输一次用户名密码。

好的。我们学校图书馆系统和你本科的时候用图书馆系统相比的话，你喜欢他们什么，不喜欢什么？

感觉都还挺好用的，我本科学校跟 UCL 在线图书馆用起来差不多，就没什么区别，但如果在我在本科的时候，因为我们学校图书馆面积会更大一点，我会更喜欢，有时候如果出来遛弯的话就会在上面找个书，就去看实体书，但在这因为图书馆比较挤，所以我就不愿意出来。

也就是说在这你一般都是不借实体书，就主要看网上的在线的资源？

我从来不借书。我在同济的话也是坐在那看看完就走，不会借出来。

你刚刚有说到，如果有时候我们学校的图书馆搜索不出来东西的时候，你有没有可能会用到 google scholar，你能大概形容一下你在用图书馆系统的时候遇到过哪些困难吗？

就是搜不到的时候。我不记得具体是什么了，但是那次老师就是课后 PPT 给了一些 reference，但是没有给链接，我就去搜，里面就有一本我在 explore 里面没搜到。然后就去了搜了搜 Google Scholar，搜到了也不需要付费就直接可以下载。

你觉得如果有搜不到这个情况的话是因为什么？

我也不知道，大概是它觉得这个东西看的人少，就没有收录，也不用买嘛，free 的。

好的，你就觉得从本科学习到现在硕士学习，图书馆系统在你的学习生活当中的这个角色是什么样的？

从中国到英国这个角色有发生变化吗？

是有的，在本科不太用这个东西，我们都是设计课为主，画图就行了。到这来之后，因为是个分析专业，所以需要读大量的前人的研究成果，这个时候就非常依赖图书馆系统去找各种各样的论文。它也是属于一个主要用的一个学术搜索引擎。

好的，我们现在就开始第二部分，就是作为一个信息搜索者的行为习惯。你一般在英国会找的和学习相关的信息，从一个广义阅读的概念，搜的信息有哪些？

在图书馆里面一般都是就跟专业有关的，有可能会去一些什么电子书论坛，下载中英文的小说看，然后还有 CSDN 上面下的书。你可以看我的 Kindle，这本是网络小说，这个是作家小说，这个是编程的书，这个是小说，这是诗集，还有一些别的东西。

也就是说你其实很经常用 kindle？

对的。

好好。你刚刚在画图的时候你一般会用到的设备就是你的电脑，还有你的手机还有 kindle，对吧？你可以大概的说一下你是怎么样用这三种设备，在上面都会进行哪些活动？

在电脑上就是搜索论文，比如说在我们 explore 里面去会搜东西，比如说会大概的浏览一下。真正的阅读一般会在上面读，手机是平时，比如说跟同学聊起个什么东西来的时候，你想给他展示一下，这个时候电脑跟 Kindle 都不合适。Kindle 是适合阅读的，但不适合搜索，电脑是适合搜索，但不便携，所以只能靠手机和同学之间交流专业问题。

那么这些设备一般都在什么地方使用呢？

Kindle 的话，各种地方吧，寝室，学校，街上，在路上的时候就能随时随地拿着看。电脑的话会带来学校背在身上，电脑的话其实就是寝室和学校。手机是随身带，但不太看吧，有信息会看一下。

你用过手机去登录我们图书馆系统吗？

登陆过呀，需要搜索东西的时候会看，就是通过 Chrome 浏览器打开这个网站的。

好的，那你知道我们学校有一个 UCLGO APP 吗？你用过吗？

太慢了，它的浏览器。那个浏览器内核是基于 IE 的吧，所以不太好用。

你可以评价一下它吗？

APP 吗？挺好的，就是它把各种功能都整合在一起，让你知道里面有些什么，还能看课表，有什么特殊的东西都会通知你。有些新闻也能看，然后至少让你知道我们学校有哪些服务，比如有图书馆搜索服务，虽然知道这个服务登的慢，但总归是知道有这个东西，你也可以通过别的途径来快速的登录。但是我不经常用它。

大概是什么样的情景下你会用手机登录图书馆系统？你对他的评价是什么？

就跟同学聊的时候就是说找到一篇论文里面说什么的，然后他说不知道，我又解释不清楚，就打开 Chrome 进入图书馆，跟电脑一样的就输入用户名密码，输完之后就找到那篇论文，然后点出来下载，然后打开，再翻到那个我要跟同学讲的地方给他看。整体来说体验挺好的，就是你登录图书馆的体验跟图书馆本身没有关系，你的用户体验是基于浏览器的，用不同浏览器感觉是不一样的，比如你用 chrome 的时候，手机跟电脑都一样，你没什么感觉，当然他也没有特别为了手机去优化什么的，比如你用国内一些比如说 UC 浏览器，它有可能会把页面重排，排之后有的地方你可能找不到，但是它会更加适合你阅读，比如字会变大，然后界面也不用去放大缩小。就这样是跟浏览器相关，跟图书馆设计没有关系，或者你可以这样理解，就是我们图书馆没有专门为 mobile 设计过 page。

其实那个就是专门为手机设计的，是去年十月份才推出的优化过的版本。

完全没感觉到，好像是，不好意思。（操作并使用）那这个就还挺好的，我对他评价变高了。

好。你以前的经历当中，或者你在中国的时候有用过图书馆 APP 吗？

超星图书馆，但我在那个上面不下载书，也不看书，是专门看视频用的，里面有一些公开课，我就光看公开课，但我不经常拿那个看。我一般用 EDX，或者中国的慕课看，我对超星评价不高，那种总感觉不太好用，是我们学校买了它的系统，学生就都可以用，相当于是很多高校的资源整合了，就是电子书、公开课什么的。

我问你一个关于习惯的问题，你一般学习的话是会来学校图书馆学习，还是会去？

都在家里。偶尔觉得闷的时候会去我们学院的 studio，就是建筑学院专门为硕士生提供的 studio，你们是进不去的。因为我们每个人都会被分到一张桌子，那个桌子就是我们的，就跟高中一样。可以在里面学习、做模型什么的。图书馆很少，但也去过一两次。但是在图书馆从来没有借过书。

你可以说一下原因吗？

网上都有电子版本的，我们一般不看大部头（体系复杂、内容涵盖量大、主题相对深刻、篇幅较长、体制较大的著作）的书，大部头的书我们自己会买。我们大部头的书只有两本，那两本我都有实体版在寝室。

好的，你一般在家学习的话，会一直开着 explore 的系统吗？

不会的，随用随开。

那么 explore 里你经常会用的功能是什么？

在这打 keyword，filter 会用，一般选择 topic，就是 architecture，还有就是文件的 type，only online resources。其他的我从来没点进去过，因为这里能搜到就搜到了，搜不到也就搜不到了，上面有什么用。我一开始是尝试过上面的那个东西，后来发现没什么用，就用这个了。

那这个功能的页面。你有用过什么？

我一般在 UCLGO 上用，就看图书馆空位。

也就是说功能页实际上对你来说就是 UCLGO 里面的功能的？

对的。

第三个部分，你作为图书馆的用户，你的体验。你可以评价一下我们学校 explore 系统吗？

挺好的，数据库系统都差不多，就他有的你就能查到，他没的你就查不到就这样。

你觉得查不到的时候和文化有关系吗？

没有吧，就是它没有收录。

你对这个系统在不同的设备上面的评价一样吗？

差不多吧，电脑端因为常用一点，肯定电脑上稍微方便一些，其实跟它本身的设计没有关系，是跟你观看的介质有关系，就因为你下载都是 pdf，没经过转换的时候，pdf 是不能适应智能适应手机的，你就在电脑上看会好一些，在手机上字小。

你觉得图书馆系统有哪些功能是你觉得特别满意的？哪些功能特别不满意的？

没有什么特别不满意，也没有什么特别满意，大体满意就能用就行了，工具又不是实物。

你作为一个中国学生，你觉得我们图书馆系统还有哪些需要改进的地方以适应中国学生的需求的？

英语足够好就不需要改进。

你觉得你适应图书馆系统用的时间长吗？

10 分钟。差不多，你看他同济的图书馆也是点一下打 keyword，这也是点一下打 keyword，有什么区别呢。

刚刚我们提到不同的设备什么的，你在手机上面有下载哪些和学习相关的 APP 吗？

看网课啊，看一些建筑作品集的地方。建筑学院、筑龙学社这两个是看建筑学相关的地方，比如说教你怎么做平面图什么的，知乎就是平时乱刷刷。腾讯课堂、EDS、跟中国大学慕课就是看一些你想要的，但是学校不教的东西。Pinterest 和 Issuu 是平时建筑学的学生看作品集的来源，就看别人怎么做集子的。

你一般用手机来学习的时间多吗？

不多。睡觉之前你不可能坐在电脑前面玩，对吧？躺在床上有两种选择，一种是不困的时候，kindle 上看见学术的书，然后看着你就困了，然后如果已经很困，但是不太想睡的时候，就这边看一下游戏，微信聊个天，QQ 聊个天什么的也睡了。平时既不能用 kindle，也不能用电脑的时候，你就跟同学交流的时候，你必须要有个设备，同时具备强的连接性和强的便携性的时候，你就会用手机。

你觉得我刚开始提到的一个移动图书馆，然后还有一个概念是智慧图书馆，你对这两个概念是怎么理解的？

移动图书馆的话其实就很简单，把图书馆数字化就行了，让书籍可移动，就让把数据数字化，可移动可检索。智慧图书馆有可能会比如说根据你的行为习惯，帮你推荐一些书，或者说会告诉你同学都在看什么这种这样推荐。Smart 就是要跟人一样，你跟一个人交流的时候，他不会只告诉你这个书在哪，他可能会告诉你跟这个相关的还有哪些，他可能会觉得这本书不适合入门，那么适合入门的是哪些，或者告诉你最近同学都在借这本书，你也可以看一看。

你觉得我们学校图书馆系统可以怎么样借助这些科技来提高？

不可以的，因为欧洲的信息保护条例太严，所以你觉得可能就是没有办法去搜集其他用户的那么深层的信息。

你觉得你们专业老师有没有给你们提供一些信息什么的，就是你觉得对于辅助你的学习特别有用的信息？

就是 reference , reading list 也有, 网站也有, 我觉得老师提供的太过丰富了, 根本就看不完, 要取舍, 大概不会每个都用, 就挑自己感兴趣的看。
好的。结束了。

English translated transcription

Interviewee 14--- Bartlett: Space syntax: architecture and cities ---Tongji University---Male

R: Can you explain the picture you drew?

P: The first three are the carriers of the mobile library. The first one is the computer and I usually use it to search in the library website, searching articles and reading articles. The second is the mobile phone, which usually performs daily searches, such suddenly If you think of something, phone is used to search at this time. And I read overviews on that. If I find something useful by the overview and decide that I am going to read it, I will go to read on the laptop after I choose a certain article. The Kindle is used to download all kinds of books. Generally, the platform or vehicle to read is Kindle and I buy eBooks in the online shop of it. The next part is the possible development in the future. The main expectation is the use of VR. First of all, it can bring a face-to-face communication, that is, we no longer need to face a screen, we may be in a virtual library, where you may see other users and you can see what books are borrowed by them. Second, virtual reality is able to, for example, when you are reading a book, because it is in the virtual format, a lot of people can read this book. Unlike in the traditional library, because the books are in physical form, so one book can only be borrowed by one people. The third thing is that, by using VR, all the books will be virtual and they can be kept for a long time and no need to worry if they get destroyed because of the time. The last thing is that it can save some space and there is no need to build such a large library to store so many books, it is possible to have just one data center.

Finally, there are some expectations for mobile library. The first two are about accessibility issues, because for example, the university library system cannot be accessed by everyone if it is out of the campus network. The second thing is that, for example, many government data has hierarchical structure, some are open, some are safeguard level, and some are sensitive, that not everyone can see it, so I hope that these resources can be viewed by more people in the future if possible. Finally, I want to have a hardware that is lighter and more convenient.

R: Ok, now let's start the interview, which has three parts. The first part will ask questions based on culture and your experience as an international student. The second part will ask questions about your information seeking behaviour as an information seeker and the third part will ask questions about your library experience. Let's start the first part of the question. You had your undergraduate in China and now you came to UK to continue your study as a master student, in terms of the learning environment, is there any difference between these two countries?

P: I feel no difference. Because when I was in my undergraduate stage, my home is near to the university, so I live in home, not in the dormitory with other students. Here in UK, I also live in a single room. So, it is almost the same.

P: Do you think there is anything different from the course structure?

R: The majors are different, so the structure is definitely different. The focus of the course is also different. Besides, the undergraduate education and postgraduate education are two systems. The undergraduate course may allow you to explore a wider area and let you know about each field. But the master course is for you to choose what you want to explore in depth and it is more specialized. All classes are built on your specific area of research.

P: Ok, do you think your learning habits have changed from China to the UK?

R: No change, I always do self-study...we have to study by ourselves. If you only have lectures, but don't study afterwards, you can't understand it.

R: Ok, what is your undergraduate major?

P: Architecture and historic building protection, which is in the area of architecture design. In the UK, I learn architectural analysis. These two majors are different in the way that the architecture design is based on intuition, which is more intuitive and the idea comes to you.

The logic behind it is not mathematical logic, rather, the logic is based on your own explanation. The conservation design pays more attention to the process of inspection, that is, when you check where the building is broken, you have to analyse why it is broken, and then repair according to the destruction principle. But during the design process, you have to consider the issues, such as aesthetics and durability, which is not a pure mathematical logic. Architecture analysis is the analysis of architecture and city. It is based on a set of specific theories to predict human behaviour, which has mathematical logic, that is not the mathematical logic of what we learn in high school, it's somehow deviated mathematical logic.

R: Ok, have you prepared anything for the study in UK when you were in China?

P: There is no preparation in a broad sense on learning, but I have read the theory before, which was invented by the professor in Bartlett. I am very interested in this theory, so I came to Bartlett to continue master. Nothing else.

R: Where did you find this information?

P: I searched the physical book in our undergraduate library.

R: Do you think that the preparations you made in advance helped you after you come here?

P: Of course, it is helpful. Our program was divided into two parts, the first part is the early research they did, studying the relationship between spatial structure and social structure. Then, the second part is the research on how this relationship should be calculated using a mathematical model. I was reading the book about that mathematical model, so I didn't know much about the meaning of social structure. After I came here, I knew that what all of this is about and how to calculate and what model is used; the first term and the early second term is focusing on the social logic behind the scene, so I study the mathematical logic with the social logic together, and I understand it faster.

R: What kind of information do you generally search in undergraduate study to meet your learning needs? Then, how you find it?

P: I find books in the library that are related to my major. If it is learning in a broad sense, I also read some philosophy books, and programming books. Also, the articles and papers related to my major. I read philosophy books when I am boring; I read the programming books because I learned it when I was young and I don't want to forget about it. Most of these books are e-books. The programming books are generally found and downloaded on CSDN, which is one of the famous forums in China. The philosophy books are basically physical books, that are borrowed from the library. The articles and resources in my major are from the digital library system. Our library purchased lots of databases and we have a database of our own university, where I can find and download all these resources.

R: Ok, after you came to the UK, is the information source changed?

P: Generally, the books related to my major are found on Explore system; if I can't find it, I will go to Google Scholar. The programming books are still searched on CSDN, nothing else. In the UK, I prefer to look at the digital version, and I will download it to the Kindle to read.

R: What the library system in your undergraduate was like?

P: You can have a look (open the website). Generally speaking, when you want to search for something, you need to log in first. After logging in, you can search here. It will give you all the purchased databases and related contents of my own university. There is a list on the right, which is the entrance to various databases and electronic dissertations. It puts the commonly used databases on the top. The following are some notices, exhibitions in the library, announcements, etc. In fact, its academic search is similar to Explore, integrating all the information and resources that it has, but there will be a small interface here, which classifies these resources so that you can find the certain type of resources you want. The difference may be that in China, you only need to log in once and you can use the resources at will, but here on the Explore system, you need to enter the username and password from time to time.

R: Compare the library system of your undergraduate and the UCL Explore, what do you prefer about them and what do you think that can be improved?

P: I feel both are very good. My undergraduate library system is similar to the UCL Explore. It is no different, but when I was in the undergraduate course, because the space in our library is much bigger, I prefer to go to the library and see if there is any book I am interested in. When I go out, I sometimes wander around in the library and read the physical books there. Here in UCL, because the library is crowded, I am not willing to come out of my room.

R: In other words, in this case, you generally do not borrow physical books, mainly read the online resources?

P: I never borrow books. When I was in Tongji, I just sit in the library and read in the library without borrowing it.

R: Then, when you are using Explore, have you encountered any difficulties, or is there time when you cannot find what you want?

P: The biggest difficulty is the time when I can't find the thing I want. I don't remember the exact book I wanted to find; but it was from the reference list of the PPT given by our teacher and there was no link to it. It was a book and I went to Explore to search for it, but I can't find in Explore, so I went to search in Google Scholar, and I found it and I can download it without paying.

R: Why do think that happened?

P: I don't know, probably because there were less people that read it and our library doesn't purchase it. Besides, we don't to pay for that, it's free in Google Scholar.

R: Ok, you think that from the undergraduate study to the current master's degree, what is the role of the library system in your study life? Has the role changed from China to the UK?

P: Yes, it changed. When I was in undergraduate, I rarely use the library system, because we mainly have design courses, we only need to draw and design architectures. After came to UK, because the major changed to architecture analysis, we need to read a lot of literature around this field to see what previous researchers have done. Thus, we are relying on the library system to look for different types of resources. It is also the main academic search engine that I primarily used.

R: Ok, for the second part I will ask you about the behavior of information search. What information do you do in the process of learning?

P: When I am in the library, I generally search for information related to my major. Besides, I also go to some e-book forums, to search and download some Chinese and English novels. Another place I search for information is the CSDN to search for books. You can see my Kindle (opening Kindle). This is an online novel. This is a novel of famous writer. This is a book of programming. This is the poetry collection, and there are some other things.

R: In other words, you often use Kindle?

P: Correct.

R: Good. The device you usually use are your computer, and your phone and Kindle, right? Can you explain how you use these devices and what activities you generally do on them?

P: On the computer, I generally search for papers, for example, in our Explore and browse and result list and decide which ones to download. For reading, I will use Kindle. The mobile phone is used in normal life to, for example, communicate with classmates, or sometimes when we are discussing something, and I want to show him, I will use mobile phone. At this time, the computer and the Kindle are not suitable for displaying something for others. Kindle is suitable for reading, but it is not suitable for searching. The computer is suitable for searching, but it is not portable, so it is easier and proper to discuss learning problems with classmates on mobile phone.

R: So where are these devices generally used?

P: Kindle is used everywhere, like in the dormitory, on campus or on the street or road (means when he's out), you can take out and read anytime anywhere. The computer is carried with me in the bag when I come to university and it is used basically in dormitory and university. The mobile phone is carried with me all the time, but I don't look at it all the time. If I have notifications or messages, I will have a look.

R: Have you used your mobile phone to log in to our library system?

P: Yes! When I need to search for something, I used Chrome browser on my phone to open the website.

R: Ok, do you know that our school has a UCLGO app? Have you used it?

P: Yes, it's too slow. That browser is based on IE, so it is not very easy to use.

R: Can you give comments on it?

P: The app? It's good because it integrates all kinds of functions, and let you know what services our university provides. You can also check the timetable, and if there is any news, it will notify you. There are also news in it that you can review. At least, you know what services in our university, such as the library search. Although I know it's slow to use these

services, I know that it's there and you can use. Of course, you can access through other quick ways. I rarely use it.

R: What kind of scenarios would you use your phone to log in to the library system? What is your evaluation of the experience?

P: When I discuss something with my classmate, and we mentioned an article and the content of that article, but my classmates can't understand what I am talking about, and I can't explain myself clearly. Then I opened the Explore on the Chrome of my mobile phone. It's just like what we do on computer, I just entered my username and password. Type into the article name and find it and then click view online to open it. I scroll down to the part that I want to explain to my classmate to let him see. Overall, the experience is quite good. I have to say that the experience of logging in to the library has nothing to do with the library system itself. Your user experience is based on the browser you used, and you will feel different with different browsers.

For example, when you use Chrome, the interface of mobile phone is similar to the interface on computer, so you don't feel any difference. Of course, I think it doesn't optimize anything for the mobile phone version. But, for example, if you use some Chinese browsers, like UC browser, it may rearrange the pages for you based on the screen. After that, you may not find the thing you want in the normal location. Yes, but it will be more suitable for you to read on mobile phone, like the characters will become larger, and you don't need to zoom in and out on the screen. But this is related to the browser, and has nothing to do with the library design, or you can understand that our library has not designed a page for mobile.

R: In fact, that is designed specifically for mobile phones, and it is an optimized version that was launched in October last year.

P: I didn't feel it at all, it seems to be... I'm sorry. (operating) That is quite good, and my evaluation of it becomes better.

R: Ok. Have you used the library app in your previous experience when you were in China?

P: Chaoxing Library app, but I don't read or download books on it. I used it to watch videos. There are some open classes and I sometimes use it to watch open classes. I don't often use that; generally, I use EDX, or China's MOOC. From my experience, I don't think the Chaoxing library app is good to use. Our university purchased it and all the students can use, which basically integrates the resources from many universities. There are e-books, and open classes on it.

R: I ask you a question about your habit. When you study, will you go to the library or other places?

P: I usually study at my dormitory in my flat. When I feel bored, I go to the studio of our department, which is the studio for master students provided by Bartlett and it's only for students in our department. Other students won't have access to it. Each one of us is assigned to a desk which belongs to us, just like high school. You can study and make models there. I rarely go to the library, probably one or two times and I have never borrowed any book in the library.

R: Is there a reason that you don't borrow books?

P: There are electronic resources on the Internet. Besides, for our major, we generally don't look at the theory books (with complex structure, comprehensive content, longer length and big volume). Even there are, we tend to buy the books by ourselves. There are only two theory books that we need to look at, and I bought the physical books and they are in my dormitory.

R: Ok, when you are studying, will you always open the Explore system?

P: No, I only open it when needed.

R: So what features you often use in the Explore?

P: I generally type keyword here in the search box, and I will use filter here. I generally will choose topic, which is architecture, and then the type, for which I will select the online resources. I have never clicked on other places, because I think that if I cannot find the resources in this way, I can't find it anyway. I think I've tried the tags on the top, and found it's useless. Then I never used that after.

R: How about the service page? Have you use anything on that?

P: I usually use it on UCLGO, just look at the library space vacancy.

R: In other words, the function page is actually the function of UCLGO for you?

P: Correct.

R: Now let's start the third part, as a user of the library, I will ask about your experience. How do you think of our Explore system?

P: Quite good, the database system is almost the same, you can find what you want if it has the resources; if they don't have it, you can't find it. That's it.

R: Do you think it is related to culture when you can't find it?

P: No, I think it is because our library doesn't purchase it.

R: how do you evaluate this system on different devices?

P: I think it's similar experience on different devices. The computer one is commonly used because the operation is easier. In fact, it has nothing to do with the design. It is related to the medium you use. When you download pdf, it cannot be converted, because pdf cannot adapt to the mobile phone. It's better to read it on the computer, and the characters are



smaller on the mobile phone as well.

R: What features do you think the library system make you feel satisfied? What features are particularly unsatisfactory?

P: There is nothing that I am particularly dissatisfied with, and there is nothing I am particularly satisfied with. For me, I think if I can use it and generally I am satisfied with the basic functions, it's fine. It is tool, but a real thing.

R: As a Chinese student, what do you think our library system needs to improve to meet the needs of Chinese students?

P: If your English is good enough, no improvement is needed.

R: How long it takes you to adapt to our library system?

P: Around 10 minutes. The Tongji library system is just like Explore, that you just type into keywords to search information. There is no difference on the operation.

R: We mentioned different devices before. Have you downloaded any learning related apps on your mobile phone?

P: I used the online classes apps or the apps for architecture designs. (Show the apps in the mobile phone) The School of Architecture and the Building Dragon Institute are two apps I used to look at architecture studies. For example, it teaches you how to make architecture plans or other designs. Zhihu is used when I have spare time and I use it to see casual knowledge. Tencent classrooms, EDS, and Chinese MOOC are used to learn something you want to learn, but the university doesn't teach you. Pinterest and Issuu are the source of the works for students in the architecture major, to look at how others do the architecture collections.

R: Do you spend long time on your mobile phone to learn?

P: Not much. Before going to bed, you can't use your computer to see information, right? There are two situations when I am in bed. One is when I am not so sleepy, I will read academic books on Kindle, and through reading, I will gradually feel that I want to sleep. The second situation is that when I don't have the feeling to sleep, I will play games on it or have chat on WeChat or other things. When I can't use Kindle or computer, and when I communicate with my classmates, I must have a device that have strong connectivity and portability in the same time, then I use my mobile phone.

R: We just mentioned the mobile library at the beginning, usually it means the library system that can be used on mobile devices; there is another concept, called smart library, how do you understand these two concepts?

P: The concept of mobile library is actually very simple. It just needs to digitize the library resources to mobilize books and satisfy the need to search and retrieval in a mobile way. The smart library, might be, for example, recommend books for you based on your personal behavioral habits, or tell you what your classmates are searching and reading. Smart is to be like a person. When you communicate with a person, he will not only tell you where the book is. He may tell you what is related to this book and he might feel that this book is not proper for an entry level of study and recommend you the books that are in the entry level. Or he may let you know what your classmates are borrowing that you may also want to have a look.

R: How do you think our UCL library can improve its library services with different electronic devices or electronic platforms?

P: There is no way, because the information protection regulations in Europe are too strict, and there is no way to collect the in-depth personal information from users.

R: Do you think that your department or teachers have provided enough information for your study that is in particular useful?

P: The reference lists and reading list. There's also websites provided by the teacher. Actually, I feel that it's too much and I can't finish reading that all. I need to judge and choose. I probably won't use every one of them. I will pick the one I am interested in.

R: Ok, today's interview is over.

Participant 15

Chinese transcription

Interviewee 15--- Medicine: MSc Drug Design --- Central China Normal University ---Male

你可以先把你刚刚画的图解释一下。

开始的时候觉得要做出一个这样的网站来作为一个移动图书馆，在移动端上使用，它需要把书提供给他们的 customers,还有 readers，他们可以给予这些书一个评分，或者是用其他途径去表现出他们的 read preference，了解他们喜欢什么或不喜欢什么，然后基于这些数据可以产生一个很大的数据库，去分析出用户的阅读习惯。也可以知道哪些书比较好，哪些书不太有人读，就可以形成一个推荐系统，这个系统可以把情况反馈给 website，website 可以基于这些信息去对数据进行一个分类和推送，实际上就是进一步再反馈给需要的消费者，这个流程就可以更加针对性的对于受众去推荐比较好的书。还有一个，就是图书馆的书的来源，它是基于就是实体书，或者是别人写出来的书，或者是他们的一些文献，或者是发表出来一些东西，把它整理成数据，然后放在 website 里边，然后根据它数的阅读量大小，引用量，可以作为钱反馈给 writer，我觉得就还是要给写书的人一种动力。如果要动力的话，我觉得钱是最好的动力。这样的话也可以形成一个循环，就是书的供应链，包括它的受众，读者和作者联系起来，就这样会比较好，然后我的想法大概就是这个流程。

好的，我们现在开始采访，第一个部分，从文化为切入点，你作为一个国际学生的一些题。你本科在国内的学习，跟来到英国之后的学习，你的学习习惯发生了什么变化？

没有什么变化，其实还是按照以前的方式在学习。实际上其实一直以来我的习惯，都不是那种每天都特别喜欢学习的人。我一般都是到感觉自己快要挂科，快到 deadline 的时候，大概前一周的样子，然后开始定计划，每天都要干些什么，然后就一步一步来，做完以后就接着考试什么的。就是根据我的 coursework 在学习。

那你为了 coursework 做准备的这些行为有没有什么变化，从中国到英国？

准备的时间会更长，我去我在本科不管做 presentation 还是写论文，presentation 我一般会用一天时间准备，加做 PPT，一般情况下我也不会准备演讲稿。在这边有时候会准备演讲稿，有时候不会。presentation 一般会提前很久，反正会提前好几天去准备。

你觉得那个时候就是老师对于你的影响是怎么样的变化？

其实没有什么区别，因为基本上我们去问老师问题，他其实不会怎么回答。包括我们之前 deadline 的时候，我们考试的问题非常难，其实我们基本上是不知怎么做的，都是慢慢一点一点弄出来了。我们也去问了老师，老师就说，如果要是我把答案告诉你们了，还要你们做这个东西干嘛？其实我觉得这很奇怪，感觉他的意思是这个作业并不是让我学到东西，而是让我们自己去学然后给我们一个分数。反正就是说我感觉他的出发点好像不太对。我们基本上都是在自学。

那么这种情况下你们会同学一起讨论吗？

有些是讨论，有些不是讨论，比如说我觉得我学习也算有一点点认真，所以就是说如果要是布置的作业特别难的时候，我一般会跟我同学就在图书馆待好几天那种。但是一般情况就是固定的那几个人，还有几个同学的话，他们就是前面一直没有做作业，到后面快要到 deadline 的时候，他会问我们，然后大家就一起把它们做完，大概这样子的。

好的，你来英国之前有为了这边学习做什么准备吗？

没有。雅思准备？

也可以是语言上的，只要都是为了学习的都可以。

其实我以前做的准备其实并不完全是为了到这边来。如果我要学东西，基本上是为了我以后的规划，就是我大一到大三上学期，是学本科的内容。然后大三下，包括整个大四，除了毕设之外，我还学了很多金融的那个课，我基本上把那个专业的课刷了一遍，如果是单纯是为了到这边来的话，我觉得应该就只有语言。

好的。你当时就是找和学习相关的信息都有哪些，然后你都是在哪儿找？

像金融那个课，我就是直接选修了我们学校的那门课，然后一方面可以刷分，一方面就把这门课学习了。另外专业上的话其实主要就是去上课，上课就是教材就基本是主要途径。

你会搜一些数据资源之类的吗？比如说期刊杂志。

不太会搜，但是如果要是这种课本上没有讲，然后老师布置了一些奇怪的题目，比如说价格发行，反正就是本科书里面没有的话，就是需要我找到一个现货价格跟期货价格的这种概念，我就是会去谷歌学术里面搜那个文献，就是用 VPN，有时候百度学术也会用。就是 low 一点。

你来了英国之后，就针对于你们专业学习的信息，你都会搜什么？怎么搜的？

其实有一小部分是看 PPT，有一大部分都是在网上面乱搜，因为我有时候根本就不知道我们那个作业到底是在干什么，一般我就会在谷歌学术里面搜。我们现在作业交了，现在想起来还是很难。我们课真的不多，一周三四节的样子，就是因为课不多，所以老师讲的少，PPT 上内容也特别少，所以真的大部分都是在自学，自己需要搜索很多东西才知道他在讲什么，PPT 写的跟玄学书一样，我真的服了。

你在中国的时候，在华师的时候，你能回忆一下你用的图书馆系统大概是什么样的吗？你可以回忆它的界面，它的功能，然后你一般都是怎么用的？

说实话，我没用过。我也从来没去过图书馆。真的，我从来没去过图书馆借书，我只去图书馆学习。

你不看教材以外的书吗？

国内真的就是你把教材看完了，考试我觉得没有什么问题。而且我觉得教材真的很多了，一本书 300 多页，厚的 300 多页，薄的也有一百多页，看完了我觉得也够了。

因为你没有用过图书馆系统，你大概也知道它是用来干嘛的吧？

我就只知道它是搜书目的，可以找到书在书架上的位置。类似于检索的，我们学校还买了那种数据库，知网什么的，可以通过校内网登录然后就能直接下载了，就是不需要付费的。

也就是说你在中国的时候学校的图书馆就是一个 study space？

是的，主要就是用它来学习好。我们以前就是会在图书馆占座，准备考研的时候，因为图书馆里面就有很多准备考研的同学，我就坐在他们的对面，占座的时候我就会在座位上放一个小熊，这样就没有人会占我的位子了。

我们刚说的中国的图书馆系统差不多就这样，然后你觉得英国的我们学校 explore 系统，你对他的评价是怎么样的？你一般使用他的习惯是什么样的？

我好像也没有怎么用过。我也是登谷歌学术的时候，就是输入了学校的账号之后就可以免费的下载了，这样的。学习自己的那个网站的话我看到同学用过，我看他搜过...好像是有一次作业的时候，我看他搜关于抗体的一本书，就是在图书馆保存着的，他们就用的学校的图书馆系统搜到之后看它的位置，然后我们一起去借书了。然后那本书好像也有电子的资源，有 pdf 可以下载的，好像也是免费下载的，我当时都惊讶了，在想为什么可以免费下载...

学校所有的资源都是免费的，也就是说你不怎么用学校的图书馆系统，都在谷歌学术上搜索？

对的。

你能说下原因吗？

我觉得可能是因为国内的习惯吧，因为我在国内的时候就是开始用谷歌学术了，UCL 图书馆的系统从来没有用过，而且读一本书好长，但是在网上搜别人的文章什么的，我觉得读得要稍微快一些，毕竟文献短，就四五页，长的话还有十几页，然后有一大半是 reference，其实还是挺短的。

也就是说你其实经常看的是那种期刊杂志的文章比较多，你知道我们图书馆系统是可以就直接搜索所有类型的，就不单单是书吗？

我只知道有书。

还有期刊和杂志呀。

啊？我一般都是用谷歌学术了，我觉得它搜的是最好的。

其实我们学校的图书馆系统和谷歌学术是差不多的，甚至有时候会更多，因为会搜出来博士论文，就是你搜索之后所有的资源、所有类型的都会出来，包括书，然后杂志，会议论文，博士硕士论文等等，真的你不知道吗？

真的吗，我后悔了，我说不定当初应该搜一搜的。

我们学校图书馆，一般开学的时候会有那种培训，你没有去过吗？

去过。我去了并不代表我会用啊...

你不知道上面可以搜到什么东西的吗？

我...因为好像..不知道。

好，其实你更偏向于用谷歌学术搜索和学习相关的东西。那你用谷歌学术搜索的时候有遇到什么困难吗？或者是有没有什么是你想搜但是没有搜到的？

有啊，比如说我们的作业，太难了，去谷歌学术上根本搜不到。

你们老师是布置一些比较新的别人没有做过的题目吗？

我觉得上一届可能做过，但是我们找不到上一届的人，我们专业就 9 个中国人，上一届人肯定也不多。

你有来之前有加那种群，就是认识之前的学长学姐？

我加过群，但是我没有找到认识的，我天天在上面问有没有我们专业的学长，但是没有人回我。而且我来的时候，我只找到一个跟我同专业的人，那是真的是，我当时觉得我简直像个孤儿。

第二部分的问题就是关于你作为一个信息搜索者，你的行为习惯，然后你刚刚有提到针对于学习，可能你经常就是去谷歌学术上面搜和你学习相关的文献杂志什么的，那就是从广义上的学习来说，你有搜过什么信息吗？

我对学习不感兴趣，哦对，知乎，里面都是人才，我觉得它不算是碎片式的，他挺系统的，比如说我有一段时间沉迷唱歌，然后我就在里面搜，里面的大老真的很多。包括有一段时间，我想学 B box，然后我就去知乎上面搜，后来我又去了 b 站上面搜，真的有好多有用的信息。

那两个 APP 你一般在什么上面看呢？

知乎 B 站就在手机上还有 pad 上看，其实差不多。

这种电子设备你都是怎么用的？

我手机使用率...给你看我的屏幕使用时间，（操作）其实还好，因为最近我在学习，所以手机时使用时间极度减少，我刚看我都惊了，我每天怎么可能只有五个小时时间，这不科学。可能因为我最近在学习，因为我 6 月份有个 CFA 的考试，所以我就这段时间每天上午在学习，下午做实验，晚上也在学习，所以玩手机时间极度减少。但是我平常的话一般每天使用时间应该是在十几个小时。

你一般用手机做什么呢？

你可以自己看，微信，斗鱼，QQ，知乎，英雄联盟。因为最近不是英雄联盟有一个比赛，所以我在斗鱼上面看他的比赛，但是平常我一般不翻斗鱼的，我一般都是用微信或者 qq。WPS office 是我做实验的时候，我写一些笔记和在文献上做了一些笔记，这些东西就是我做实验的时候会翻出来看一下。比如说我配了哪些试剂，然后用来干吗的，会在上面写。

也就是说你在做实验当中会用到的是自己的手机在做笔记？

对的，我不喜欢用电脑。可以，但没必要，就是因为我感觉电脑它那么大。如果要是...哦，对了，这个文档是用电脑写的，不是用手机写的，但是在电脑上写好我会传到手机上面，我做笔记的时候，一般就是，做那种大型的笔记，比如说 PPT 上面写笔记，或者是文献的笔记，我都是用电脑写，然后在手机上面看。我一般看笔记是用手机。

你可以去介绍一下你做实验，包括上课是怎么用这些设备的？

我出门的时候一般情况是什么都不带的，就带一个手机。因为我感觉书包很重，今天是个特例，因为我今天本来想去 science library 学习的，结果今天有炸弹，我真的服了。反正平时我是就只带个手机出门，因为学校里也有电脑，所以用学校的电脑就够了。在自己的电脑上我就一般写那种笔记，比较方便比较快，然后看笔记一般用手机。iPad 一般和我学习没有什么关系，一般就是上面看剧。自己的电脑除了做笔记，更多的时候用来打游戏。写 Essay 一般是在学校写，因为我们的 essay 一般就是有 deadline，而且很难，需要查很多文献，所以一般是在学校用 desktop，因为学校电脑屏幕比较大，就可以分屏，可以边写边看，比较多的东西。其实如果要是我待在家里面，实在不想出来，我就会用一下自己的电脑，但是我经常用的还是学校的 desktop，因为电脑屏幕真的很大。

好的。你在手机上面除了这个做笔记的功能之外，还有哪些和学习相关的功能吗？

其实我以前特别喜欢用的一个软件是万德。万德是个神器，这是我基本上就是所有的信息都源于万德，然后其他这些 APP 其实我基本没用过。万德就是纯了解市场信息，就包括近期的新闻，就是这个世界上发生的，基本上绝大多数新闻上面都会在第一时间发布，所以如果要是了解市场信息什么的，真的很有用。好的。你有下载 UCLGO 吗？

没有，知道但是没用过。

一开始的时候，你有说你以前有用过移动图书馆的 APP 对吧？在国内的时候

其实没有用过，我只是知道我们学校好像是有，但我真的没什么体验，因为我其实就真的是用图书馆只是因为他买的知网还有一些其他的数据库，我就是用它来下载文献用的。

对于 explore 来说你可以根据你有限的的使用经历，你对他怎么评价的？

大概回忆一下就是好像还行，但是我觉得就是在我们学校网页搜到那种搜索，我觉得好像没有谷歌搜到的好。

为什么你觉得？

从结果上来说是这样的，就是搜出来的相关度不够高吧，其实我也不记得当初为什么选择谷歌学术没有选择我们学校图书馆了，但是谷歌学术的算法肯定是比学我们学校图书馆要好得多，毕竟人家那么大一公司，全球的第一，再怎么检索系统、算法这种东西肯定要高于我们学校的。

好的，你作为一个国际学生，可以说一下你对图书馆系统有什么期待吗？

要我说，我觉得最好的图书馆系统应该是能把作业答案放在上面，就是比如说往的卷子和答案，不然还能干嘛。如果要是我真是想求资源的相关度，信息的完整度，我为什么不去谷歌学术了，为什么一定要在学校图书馆。

你有在 explore 搜索过 paper 吗？

没有吧，我没有印象。但是但是我觉得谷歌学术肯定比学校的要好。

我刚刚开始的时候提到了移动图书馆这个概念，对于你来说，你觉得理想中的移动图书馆是什么样的？

就这样想我画的这样。虽然我是觉得他大概应该是这个形式，但是我觉得就更加突出针对用户的需求一些。对，因为移动图书馆如果要是做一个 APP，首先得有人用它，如果不针对客户需求的话根本没人用。还有就是评价分享的功能来根据偏好推荐。

除了移动图书馆还有一个概念就是智慧图书馆，smart library。你对他有什么理解？

我们以前学校有个智慧教室，基本上就是信息化程度会比较高。但是要说它怎么高，我也没有怎么觉得，就是喜欢做些花里胡哨的东西，比如说什么什么空调，然后什么调节成人体最适宜的温度。智慧图书馆，应该基于大数据分析，可以使用深度学习算法，个性化的向受众服务。

你觉得图书馆应该做一个什么样的系统来满足不同设备的平台的要求？

我觉得把就是它的各种端口...其实图书馆本质还是借书搜书，看书，我觉得在不同端口，使用者想怎么看就怎么看，顶多就是 APP 都得适宜那个设备，看起来比较方便一点，就是那种。但是实际上我觉得它还是要基于各种平台上面，用户的偏好，就是得到那些他们的数据，然后来进行分析，像这样做一些推荐，或者是针对客户需求一点就是这样的。

好的，结束了。

English translated transcription

Interviewee 15--- Medicine: MSc Drug Design --- Central China Normal University -- -Male

R: Can you explain the picture you just drew?

P: In the beginning, I thought that a website like this should be designed as a mobile library that is used on mobile devices. It should provide books to the customers, which is namely the library users, as well as readers. They can give these books ratings, or use certain ways to show their read preference, and understand what they like or dislike. Based on these data, a large database can be generated to analyze the user's reading habits. We can also know which books are popular and which haven't been read for a while, and then a recommendation system is built. This system can give feedback to the library website. The website can then classify the information and return data back, which actually will be the feedback for users based on their habits in a further way. This whole process is able to recommend proper books for readers which is more targeted.

Another thing I drew is, the source of the library books, which are the physical books, or books written by different authors, or some articles, or published materials. The library needs to organize these into data, and put in the website. Based on the amount of read, times of cites, certain things like money can be return to writers of these resources as a motivation. In terms of motivation, I think money is the best one. In this way, there will be a good

circulation, like a supply chain with resources, readers and writers, which connect the reader with the author. This will be a good practice and my thoughts is basically like this.

R: Ok, let's start the interview now, the first part will take culture as the entry point. Have your learning habits changed after you came to UK?

P: Nothing has changed. In fact, I am still studying in the way of what I have been doing as usual. In fact, I have never been the type of student who studies every day and is enthusiastic about learning. Generally, what I do is when it is the deadlines, and I feel that I probably will fail in the exam, I start making plans one or two weeks before the deadline and then study following the plan step by step. Basically, I study based on my coursework.

R: So, have your habits of preparing for the exams changed after you came to UK?

P: I spend longer time on the preparation. In my undergraduate, no matter it was writing essays or doing presentations, I generally spend one day to prepare, including making the slides. I would not prepare any speech outline at that time. However, in UCL, I sometimes prepare the speech outline and the preparation for a presentation is very long, generally several days in advance.

R: Do you think your habits of studying changed because of the environment change?

P: In fact, there is no big difference, because basically when we want to ask teacher questions, he rarely reply to us, even it is the time of deadlines, like last term, our exam questions were very difficult and basically none of us know how to do it, but we figured it out gradually. We asked teacher, but he said, 'if I tell you how to do it, why I assign this question'... I'm so confused...I feel that this assignment is not for learning, but to let us learn by ourselves and then give us a score. Anyway, I feel that the aim of such assignment seems to be wrong, we basically study by ourselves.

R: So in this case, will you discuss with your classmates?

P: Sometimes we discuss together, and sometimes don't. I think I put a lot of efforts in learning actually; when the coursework is very hard, I generally spend several days with my classmates in the library. But the general situation is that fixed number of people. There are a few students who don't do the work at the start, when it is nearly the deadline, they will join us and we finish the coursework together.

R: Ok, have you done any preparation before you came to UK?

P: No. IELTS preparation?

R: It can be language preparation, is there any other preparations?

P: In fact, the preparation I have done was not entirely for studying in UK. If I want to learn something, it is basically for my future career planning. I finished the learning of the content of undergraduate study before the third year. For the third year and last year of university, except for the dissertation, I learned financial courses by myself. If you ask the preparation for studying in UK only, I think it's just the language.

R: Ok. When you were in China, what information you usually find for your learning? Where do you find?

P: For the courses of my major, basically we just have lectures and we mainly use the textbooks. That is the main source of the learning information. For the finance class I just mentioned, I took the elective course of my university, by having that course, on one hand I can have more points; on the other hand, I can learn the knowledge.

R: Do you search for other resources? Like journal articles?

P: Not really. I basically just use my textbook, it has everything we need and the content for coursework. However, if there is a test question that cannot be found on the textbook, but the teacher assigned us some strange questions, like the price distribution, anyway, if there is no related content in the textbook, I would search for articles in Google Scholar. For example, I would search the concept on spot price and futures price for this question. The Google Scholar can be used via VPN. Besides, sometimes I use Baidu Academics, but the quality is a bit low.

R: After you come to the UK, what information will you search for your learning? How to search?

P: In fact, a small part of information comes from the PPT the teacher used during lectures. A large part of the information comes from the Internet, because sometimes I don't even know what our homework asks us to do. Generally, I will search in Google Scholar. Even that we have submitted the coursework, I can still feel the pressure and tension I had...Actually we don't have too many lectures, basically we have three to four lectures per week. So

because that we don't have too many lectures, the knowledge we can get from teacher is limited and there are less content on PPTs. Most of time, we are learning by ourselves and we need to search a lot of things online to know what he is talking about. PPT is just unclear as the metaphysical book, I really feel helpless.

R: When you were in China, can you recall how is the library system of your university? You can think about its interface, its features, and how do you generally use it?

P: To be honest, I have never used it. I have never been to the library to borrow books. Really, I only go to the library to study.

R: Don't you read books other than textbooks?

P: It's true that as long as you understand the content in the textbooks, there is no problem with the exams. Besides, I think the content in the textbooks is already adequate. There are more than 300 pages in a thick textbook, and more than 100 pages in a thin one. I think it is enough if you finish reading it.

R: You haven't used the library system, but you probably know what it is used for?

P: I only know that it is a retrieval tool for books and you can find the position on the bookshelf of the books. Similar to a search tool. Our university library also purchased different kind of databases, like CNKI and we can freely download the resources by logging into our university account. No need to pay.

R: In other words, when you are in China, the school library is a study space for you?

P: Yes, the main function for me is to study in there. I used to find and occupy a seat in the library; especially when it was the time for other students who prepare for the postgraduate exam in China, there were a lot of students who study in the library. I was sitting opposite to them. When I occupy the seat, I will put a bear toy on the seat, so that no one would take my seat.

R: Then, how do you think of our UCL Explore system? What is your habit of using it?

P: I don't have much experience of using it. When I was searching in Google Scholar, I just used our UCL account to freely download in there. That's it. For our library system, I once saw my classmate used that, he used that to search for...a book about antibodies, and that book was kept in the library. He used that library system to check where that book was and we went to borrow the book together. Then the book seems to have electronic version, that can be downloaded as pdf, and it seems to be free to download. I was surprised at that time, wondering why we can download it for free...

R: All the resources of our school are free...So you never used our library system and you just search on Google Scholar?

P: Correct.

R: Is there any reason for that?

P: I think it may be because of my habit formed in China because I started to use Google Scholar to search resources at that time. I've never used the UCL library system; besides, it will spend a long reading a book; but if I read an article from the internet, I feel it's quick to read. After all, it only has several pages, like four or five pages for short ones; for the long ones, it's around ten pages and there are a lot of references. So I think it's quick and short to read.

R: In other words, you usually search for journals, articles and that kind of resources. Do you know that our library system can search all types of resources directly, not only books?

P: I only know that I can search for books.

R: There are also journals and articles and other types.

P: What? I general just use Google Scholar, and I think it is the best.

R: In fact, the library system of our school is similar to Google Scholar, and sometimes even more, because there are also for example, doctoral thesis. After you search, all the resources and all types will come out, including books, journal articles, conference papers, doctoral thesis, etc., you don't know?

P: Really, I never know! I regret it, I should have searched on it.

R: Our library has trainings when the term begin, you haven't been to the training?

P: No, I have been to. But it doesn't mean that I should use it...

R: You don't know what can be found on it?

P: I... it seems... I don't know.

R: Ok, in fact, you are more inclined to use Google Scholar to search learning related things. So is there any difficulties you encounter when using the Google Scholar? Or is there the time when you want to search something but not found?

P: Yes, for example, when our homework is too difficult and the topic is too strange, I can't find any related resources in Google Scholar.

R: Are your teachers arranging relatively new topics that others have not done?

P: I think the students in previous years of my major have done, but we can't find them because there are only several students in our major each year. There are only 9 Chinese students in my class, and it is similar situation of the student in last year.

R: Did you find any previous students on the internet?

P: I joined several WeChat groups of the UCL students before, but I didn't find any of them. I asked every day in the group if there is anyone in my major, but no one replied to me. When I came to UCL, I only found one student in my major, it is true, I thought I was like an orphan.

R: The second part of the interview is about your behavior as an information seeker, and you just mentioned that for learning, you may often go to Google Scholar to search for related articles. In terms of learning in a broad sense, have you searched any other type of information?

P: Zhihu, there are talents on that platform, and I don't think it is fragmented, the knowledge and information there is quite systematic, for example, I have been addicted to singing for a while, then I searched inside, and there were lot of talented people. Including previously, I want to learn B box, then I went there to know more about it, then I went to the Bilibili to search, and there was also a lot of useful information.

R: How do you usually look at these two platforms? On what devices?

P: Zhihu and Bilibili are generally used on my mobile phone and iPad. Almost the same.

R: How do you use this kind of electronic device?

P: My mobile phone usage... I will show you my screen usage time. (Operating) Actually the screen time is alright, because I have been preparing the exam and learning recently, so the time of using the mobile phone decreased to a large extent. Actually, I am shocked, how can I only have five hours using phone per day? This is not right. Maybe because I am studying recently, because I have a CFA exam in June, so I am studying every morning, doing experiments in the afternoon, and learning at night, so the time for playing mobile phones is extremely reduced. However, my usual daily usage time should be around ten hours.

R: What do you usually do on your mobile phone?

P: You can see the list yourself, WeChat, Douyu, QQ, Zhihu, League of Legends. There was a game competition in the League of Legends recently, I watched the game on Douyu, but usually I don't use it. I usually use WeChat or qq. WPS office is used when I do the experiment, I write some notes and make notes on the articles, which I will look at during the experiment. For example, what reagents are added and what those are for, I will write notes on it.

R: In other words, you use your mobile phone to take notes when you are doing experiments?

P: Yes, I don't like to use laptop. I can use a laptop, but it is not necessary, because I think the laptop is so big and heavy. If it is... Oh, yes, this document is created on my computer, not on the mobile phone, but when I have it on my computer, I will send it to my mobile phone and make notes on phone. When I make notes, for the long notes, like what I make on PPTs, or the literature, I will use laptop to make notes and read it on my phone. For general notes, like in my experiment, I will use my phone.

R: Alright, can you explain when you go to the experiment and when you go to the class, how do you use these devices?

P: When I go out, generally, I bring nothing except a mobile phone because I want to lighten my bag. Today is an exception, because I was planning to study in the Science Library today. Anyway, I usually only bring a mobile phone when I am out, because there are desktops in the university and it's enough for me to use that. On my own laptop, I generally write notes on it because it's more convenient and faster; then I use my mobile phone to read it. iPad generally has nothing to do with my study, it is generally for watching dramas. In addition to taking notes, my laptop is used to play games more often. When I write essays, I generally go to the library to use the desktop because the screen is relatively large and I can split the screen, writing and reading in the same time. Actually, if I stay at home, and don't want to come out, I will use my laptop to study. But the most frequently used device for study is the desktop in the library because the screen is really big.

R: Ok. What other learning-related features do you have on your phone in addition to note taking?

P: In fact, I used to use an app called Wandu, which is a brilliant tool to learn financial knowledge. All of my information in that area comes from Wandu and for the other apps on my phone, the frequency of usage is not as much as this one. It is a tool to help you get to know the market information, including recent news, which is happening around the world. Basically, most of the news will be released in the first time, so it is really useful to know what is happening in the market.

R: Ok. Do you have UCLGO?

P: No, I know it but I have never used it.

R: In the beginning, you said that you have used the mobile library app before when you were in China, right?

P: Actually, I have never used it. I just know that our university library has such app, but I haven't experienced it. The only reason that I use our school library is because of the databases it purchased, including CNKI and others. I use it to download the articles.

R: Based on your limited experience of using Explore, can you evaluate it?

P: It seems to be okay as far as I can recall, but I think the results searched from the Explore seems not as good as Google Scholar.

R: Why do you think that?

P: I think from the search result I can feel that the relevance is not so good. In fact, I don't remember why I chose to use Google Scholar, but not our library system; but I feel it has better algorithm. As a big company, the top one in the world, at least the retrieval system and algorithm is definitely better than our university.

R: Ok, as an international student, can you tell me what expectations do you have for the library system?

P: From my view, I think the best library system should be able to search the answer to the homework, such as the past papers and its answer. If I really want to search relevant resources and I want the integrity of the information, why don't I go to Google Scholar and why I have to use our university library system?

R: Have you searched past papers in Explore?

P: No, I don't have an impression. But I think Google Scholar is definitely better than the school.

R: I just mentioned the concept of mobile library at the beginning. For you, what do you think of the ideal mobile library should be?

P: Just like what I drew here. Although I think it should probably be in this form, I feel that it should be focused more on the needs of users. Yes, because if the mobile library wants to design an app, first of all, it needs to have users. If it is not targeted at the customer's needs, it will not be used at all. There also should be some commenting and sharing features to recommend based on preferences.

R: In addition to the mobile library, there is another concept which is the smart library. How do you understand it?

P: We used to have smart classroom when I was in China. Basically, the degree of informatization will be relatively high. But if you really ask me to say how it was, I feel that it's just impractical; for example, for the air conditioners, it says that it will be adjusted to the most suitable temperature for adult body. However, I don't think there is any necessity of that. Smart libraries should be based on big data analytics and can use deep learning algorithms to personalize the audience.

R: What kind of system do you think the library should do to meet the requirements on different devices?

P: I think it should use the various platforms... In fact, the essence of the library is to borrow, search and read books. I think that on different devices, it should provide users with the information they want to see. At most, the app needs to be designed in a suitable way for that device, which is convenient and easy for users to use. But in fact, I think it's still should be based on various platforms, and collect the users' usage data and analyze to know the user's preference and give some recommendations or give services that are targeted on them.

R: Ok, it's over.