

# **Collaboratively developing an Information and Digital Literacy model and framework for the University of Sheffield: A case study.**

**Catherine Anne Bazela**

A dissertation submitted to Aberystwyth University in partial fulfilment of the requirements for the degree of MSc Information and Librarianship Studies under Alternative Regulations.

Department of Information Studies

Aberystwyth University

2017

## Abstract

The research has a main focus on Digital Literacy, and aims to look at the development of an Information and Digital Literacy model and framework at the University of Sheffield and provide recommendations for the working group when creating the model and framework.

When examining the literature, it became apparent that there is not an agreed upon definition of Digital Literacy, with many different literacies such as Information Literacy, ICT Literacy, and Meta-Literacy all being related to the Digital Literacy. In some cases the terms were being used instead of digital literacy to describe a set of skills which allow a person to access, and evaluate information in the digital age. Frameworks built around these definitions also vary greatly with regards to approach and resources needed to implement a framework and also raised the question of transferrable skills for employability. Further areas discovered within the literature included whether students need support with Information and Digital Literacy Skills.

Qualitative interviews were carried out with staff who had expressed an interest in Information and Digital Literacy, or were closely involved in developing a model and framework at the institution.

The study showed that there was not one set definition of Digital Literacy within the institution. It was also felt that students do need Information and Digital Literacy support, and that this should be embedded in the curriculum where possible. When looking at how the model at the institution differs to those already published, preliminary comparisons were made. Further exploration in this area, as the model and framework develop, is recommended.

## Declaration

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

Signed  (candidate)

Date 9<sup>th</sup> April 2017

STATEMENT 1 This work is the result of my own investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction is clearly marked in a footnote(s).

Other sources are acknowledged by a reference list giving explicit references. A bibliography is appended.

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# Abbreviations

ACRL - Association of College and Research Libraries

ALA – American Library Association

ANCIL – A New Curriculum for Information Literacy

DL – Digital Literacy

IDL – Information and Digital Literacy

EC – European Commission

FE – Further Education

HE – Higher Education

ICT – Information and Communications Technology

IL – Information Literacy

IT – Information Technology

LISA – Library and Information and Science Abstract

OU – Open University

SCONUL - Society of College, National and University Libraries

TUoS – The University of Sheffield

UNESCO – United Nations Educational, Scientific and Cultural Organization

VLE – Virtual Learning Environment

## Acknowledgements

The author would like to thank all those who gave up their time to participate in the research at the University of Sheffield. Thanks to all those at my workplace who kept me motivated throughout, and to senior management who allowed me to carry out the research at my workplace.

Special thanks to my partner, Sam, who has been incredibly understanding and supportive throughout the process. Also, to my family and friends who have been supportive and understanding throughout.

## Chapter 1: Introduction

In the past twenty years there has been growing interest in the concept of Digital Literacy (DL) with definitions appearing more readily in the mid-1990's by Lanham (1995) and Glister (1997). However, after a relatively quiet decade, the term came into more popular use in the mid-2000's. In Higher Education (HE), the concept of Information Literacy (IL) has been at the forefront of skills development for the past 20 years. As technology was became more accessible, so the access to information grew; library bodies started to incorporate the terminology with the American Library Association office for Information Technology Policy's Digital Literacy Taskforce (2013). This group created a definition of DL, but it was not a definition that was adopted by all libraries. Various library bodies and national bodies (e.g. Association of College and Research Libraries, 2015; JISC, 2014a; Reedy & Goodfellow, 2012; SCONUL, 1999; Secker & Coonan, 2011; Sharpe & Beetham, 2010) have provided definitions, models and frameworks on how IL and DL skills should be provided within the HE sector.

The purpose of this research is to explore what Information and Digital Literacy (IDL) means to the University of Sheffield, and provide guidance and information for a working group who are currently in the process of creating an IDL model and framework. The research will do this by looking at the concepts of IL and DL, exploring frameworks which have been produced by national and international bodies, as well as the current model at the University of Sheffield.

The research questions were informed by the literature review which found that there is no agreed upon definition of DL. It also found that transferrable skills and employability have

become increasingly important graduate attributes, with suggestions from national and international model and frameworks that these skills should be something embedded within the curriculum at HE institutions.

The main objectives of the research are to look at the following:

- How is Information and Digital Literacy defined at the University?
- Do students need the support?
- Can you teach a literacy separate from the curriculum?
- What resources are needed to support such a framework at the University?
- Does an Information and Digital Literacy Framework give transferable skills?
- How does the approach at The University of Sheffield (TUoS) differ from published frameworks?

Suggestions for the university model and framework will be informed by qualitative semi-structured interviews with members of staff from the university who have an understanding of IDL and may have been involved, or shown an interest in IDL.

As the research aim is to provide guidance to one university, the results of this study will not be generalisable to any other institution, data was gathered from staff members who had shown an interest in IDL. This is due to the framework still being in consultation stages at the time of writing; as the research was conducted in the workplace it was not appropriate to include students or staff who had not expressed an interest at this stage when working groups on the area were being formed. The research is timely from an institutional point of view as it

enables some feedback on the processes in terms of staff expectations of such a model and framework.

The study starts with a review of literature surrounding the concepts of Information Literacy and Digital Literacy; the literature review starts with looking at the development of the term DL, and then focuses on DL in HE. The review then looks at how this concept has been put into practice with models and frameworks created by institutions, national and international bodies. It finally looks at the state of the current model and framework at the institution being researched.

The next section looks at the methodology of how the primary research was carried out and ethical considerations that would need to be taken into account to conduct the research, and the ethical issues of conducting research within the workplace. It also looks at the techniques used to gather data via qualitative research and methods of analysis. Themes from the data will be explored and discussed in relation to relevant literature. The final part of the research will be conclusions drawn from the primary research, make suggestions with regards to the IDL model and framework, and look towards future research for further consideration.

## Chapter 2: Literature Review

*Broad Topic: To look at the concept of Digital Literacy (DL) and the evolution through Information Literacy (IL), the models and frameworks produced surrounding Digital Literacy in Higher Education (HE). It will also focus on the Information and Digital Literacy (IDL) model and framework at The University of Sheffield (TUoS).*

The purpose of this literature review is show the current definitions of DL by researchers and how it is associated with IL and other literacies. It will also explore selected frameworks from national and international organisations, as well as selected HE institutions who have been implementing their own models and frameworks of DL. Finally, it will look at the work undertaken by TUoS in the work that has been undertaken to start creating an IDL model and framework. Given the scope of the research, much of the information used has been published quite recently and may be grey literature.

Issues were encountered when searching for information on the subject. Firstly, there are many frameworks and models of IL and DL available, as well as numerous definitions in various subject areas for example ‘Digital Literacy’ may bring up articles in computer sciences due to the nature of the term, there are also many related literacies such a ‘meta-literacy’ and ‘computer literacy’.

Further issues were encountered when looking at Digital Literacy frameworks and models, once again there are numerous policies, models and frameworks available especially for HE institutions in the UK; with 164 HE institutions in the UK (Universities UK, 2017) and

thousands more institutions globally, there is potential to have many models and frameworks available for analysis. Models will have to be used selectively for the purpose of this review. Authorship of models also raises problems, especially in the UK scene as a few authors have risen to prominence by creating institutional models and then working on the national organisational models meaning that there may be many similarities between the models and frameworks as well as personal bias towards previous items they have authored.

Finally, there were noticeable gaps in the literature when looking for literature surrounding international and national models and frameworks, despite the frameworks and models being used, there is little published information available about the usability and evaluation of such models and frameworks, this will need to be taken into account when comparing models and frameworks (See appendix iii for full search strategy).

## 2.1 Defining Digital Literacy

Discussions surrounding literacies has been present for many decades, Stordy (2015, p.456) notes that the 1980's saw at least 35 terms relating to literacies written about, explored, and used as a measure in order to define what skills someone possessed in order for them to be deemed 'literate' in a specific area. Bawden (2001) concurs that the use of 'literacy' has increased over this period with terms such as IL; Computer Literacy; Library Literacy; Media Literacy; Network Literacy; and DL (p.219) as concepts used within the literature.

### 2.1.1 Information Literacy

When looking at the use of the term ‘literacies’ in HE, IL has been used as a forerunner to DL. Library organisations and associations have produced many definitions of IL. The American Library Association (ALA) (2000, p.2) provided a definition which identified that a person who is information literate would be able to “recognize when information is needed and have the ability to locate, evaluation, and use effectively the needed information”, this definition also has the same qualities as the definition published by CILIP in 2003 (CILIP, 2013). The American Library Association and SCONUL were also agreeable in the qualities of IL, but also noted that information technology (IT) skills were overlapping with IL and ‘digital fluency’ was becoming more normalised due to the growth of electric information and the growth of device use (American Library Association, 2000, p.3; Peterson, 1999, p.303; SCONUL, 1999, p.5). The increasing availability, relative affordability, and rapidly changing nature of new technologies has meant that students in institutions generally have increased ownership of devices including laptops, tablets and mobile devices (Cassidy et al. 2014, p.132) . Coupled with the growth of internet usage increasing rapidly since the early 1990’s this has led to more places for people to consume and disseminate information (Dale, 2011).

### 2.1.2 Digital Literacy and other literacies

The growth and availability of the World Wide Web, along with the information being hosted online, concepts of DL started to appear in the mid-1990. Lanham (1995) defined DL as a skill that allows someone to interact and “understand information, however presented” in the age of multimedia (p.198). This view introduces interacting with information, with new technologies and formats. Glister (1997, p.1) defined DL as “the ability to understand and use



information in multiple formats from a wide range of sources when it is presented by computers”, which Bawden (2008, p.18) notes has become one of the standard definitions of DL. Glister (1997, p.2) did not provide a list of components which come together to make the literacy, but did note that the use of digital skills would become essential, and the ability to access information via the internet would be essential. DL did not come into popular use despite the inclusion of IT in the definitions IL until at least a decade after the publication of Glister’s (1997) work (Bawden, 2008, p.24; Martin, 2006b).

Other terminologies, such as e-Literacy, were starting to come into use in the decade after Glister’s (1997) work. Martin (2003, p.18) noted that in order for someone to be e-Literate they needed to “operate comfortably in information-rich and ICT supported environments”, this was to be used in conjunction with IL due to growth of electronic information (Martin, 2003, p.21). Global bodies were also acknowledging the increasing use of technology in convergence with information seeking behaviour, The DigEuLit project was commissioned due to the emergence of a new literacy, and this project looked to build a framework for the literacy known as DL (European Commission, 2003 as cited in Martin 2006a). Martin (2006a, p.15) acknowledged that his original 2003 definition of e-Literacy had become “synonymous with Digital Literacy”. This demonstrates the fluidity of the term as Martin (2006a) accepts that e-literacy has become known as DL.

Further definitions of DL appeared from organisations within the library sphere, the American Library Association Office for Information Technology Policy’s Digital Literacy Taskforce (2013) was tasked with coming up with a definition that could be applied to different library sectors, they came to the conclusion that:

“Digital Literacy is the ability to use information and communication technologies to find, understand evaluate, create, and communicate digital information, an ability that requires both cognitive and technical skills”  
(American Library Association. Office for Information Technology Policy’s Digital Literacy Taskforce, p.2)

Mackey and Jacobson (2011) reported that there are several concepts of literacies that all have worthwhile skills, proficiencies and knowledge embedded in them and that no individual framework or definition has the answer to provide all the skills needed in the digital age (Bawden, 2001; Bawden 2008; Belshaw, 2012, Martin, 2006b). Mackey and Jacobson (2011, p.70) propose that Meta-literacy may provide a solution in that it combines IL, Media Literacy, DL, Visual Literacy, Cyberliteracy, and Information Fluency and “provides an integrated and all-inclusive core for engaging with individuals and ideas in digital information environments”.

Global bodies have also used multiple literacies to clarify their approach to ensuring that every member of society can access, evaluate and disseminate information. UNESCO (2013) decided on the terminology of Media and Information Literacies to describe the basic human right of access to information by using Information and Communications Technology (ICT) and digital skills (p.13); this contains the same theme as Glister’s (1997) definition, but is rebadged with a new ‘composite’ name in order to avoid confusion with the various literacies, including DL and will also cover other literacies that are being developed and written about (UNESCO, 2013).

### 2.1.3 Digital Literacy in Higher Education

Despite the ambiguity in the definition of DL, the concept has started to be used more readily in the HE Sector. Ventimiglia and Pullman (2016) note that students within HE should be Digitally Literate and list attributes such as “being able to create digital solutions” (p.38) as well as being able to apply their skills to new technologies and become efficient in their use of technology whatever career path they may take. This places emphasis on HE institutions to provide these digital skills as part of the educational process in order to give graduates the attributes they need to be successful in their future employment. Ventimiglia and Pullman (2016) also state that there are differences between the skills students have, and what employers expect.

Woods and Murphy (2013) explored linking DL skills and employability by carrying out various tasks using digital skills, such researching companies for job interviews and use of social media (p.156) with outcomes being a webpage hosted on the institutional website linking skills to employability attributes. Beard and Dale (2010) concur that there must be a link between the teaching of digital literacies and employability. The emphasis on graduate attributes has further been supported by a survey compiled by the British Computer Society (French, 2014) which found that 81% of employers require digital skills, whilst 52% of employers felt that their employees had the skills and transferrable skills to cope with the development (p.55). This is having an effect on the learning and teaching taking place in Higher Education (Goodfellow, 2011, p.132), as HE institutions find themselves needing to promote the attributes and skills they can provide for current and potential students which will prepare them for a career outside of education (Crawford & Irving, 2012).

#### 2.1.4 Summary of Digital Literacy

Whilst the definitions of DL differ, they still have common themes and qualities: being able to access, interact and evaluate information on a digital platform (Stordy, 2015), many definitions also identify that people will have to keep up to date with technology and adapt their skills in order to stay digitally literate throughout their life. The different definitions of DL may be due to the changing nature of how information is accessed in society and lead to definitions needing to be specific to the context in which they are used. This could lead to literacies being kept separate (Cordell, 2013, p.181), or merged together as our understanding of interacting with information using technology deepens (American Library Association. Office for Information Technology Policy's Digital Literacy Taskforce, 2013; Ibrahim, 2009). Belshaw (2012) argues, the term DL may need to be left ambiguous in order for people in different sectors to apply their own context and processes that will suit the need of the organisation or institution without being restricted (p.222).

DL has also come to the attention of HE sector as a whole, not just the academic libraries, as transferrable and digital skills are becoming a requirement of graduates once they leave education. This expectation will influence what HE institutions include as graduate attributes and look to change or add to curriculums to provide these skills as part of their offer to current and potential students, as well as market themselves as an institution that provides employability skills as well as a first rate education (Goodfellow, 2011; Ventimiglia & Pullman, 2016).

## 2.2 Models and Frameworks – Professional Bodies

Numerous models and frameworks of IL and DL have been published by academic institutions, and advisory bodies for HE which have been adapted to influence practice. This section will look at some of the models and framework.

### 2.2.1 SCONUL Seven Pillars

The SCONUL framework of IL which introduced the ‘Seven Pillars’ model (SCONUL, 1999) which has subsequently been updated to include changes in the technological landscape and make more user friendly for institutions by clarifying the uses of the model (see Figure 1) (Gallacher, 2009; SCONUL Working Group on Information Literacy, 2011a, p2) and introduce ‘lenses’ which allows the model to be adapted to suit different needs for libraries such as ‘Digital Literacy Lens’ and a ‘Graduate Employability’ lens (Goldstein, 2015; SCONUL 2017; SCONUL Working Group on Information Literacy, 2011b).

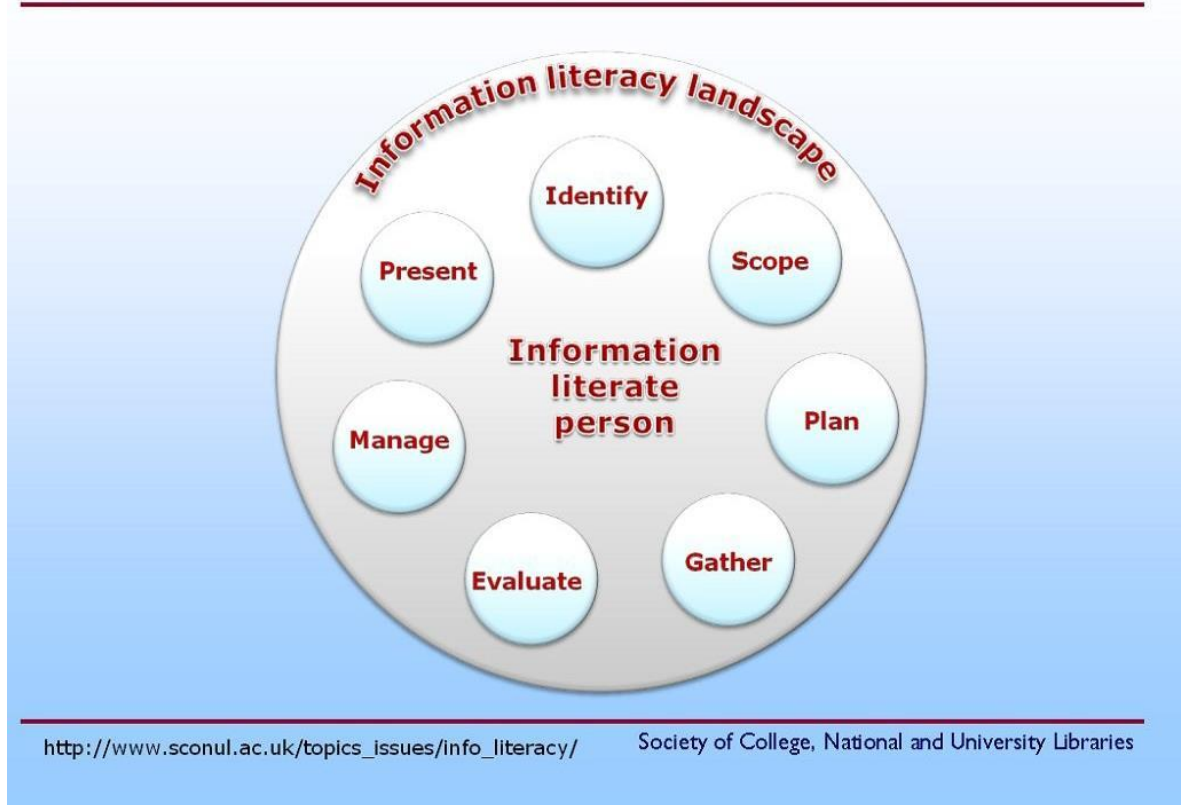


Figure 1 SCONUL Seven Pillars of Information Literacy (SCONUL Working Group in Information Literacy, 2011a, p.4). (Reproduced under [Creative Commons license CC-BY-SA](#))

### 2.2.2 A New Curriculum for Information Literacy (ANCIL)

The ANCIL framework published in 2011 includes 10 strands which make up the competencies of an information literate individual (see Figure 2), which fall into 5 “broad learning categories” (Secker & Coonan, 2011, p.5). The framework provides examples of activities which would allow the institution using the framework to select relevant elements when designing activities around framework (Secker & Coonan, 2011). Supporting documentation was provided alongside the framework, it is also designed to be integrated into the curriculum and involve everyone in the learning process, from librarian to course designer (Secker & Coonan, 2011, p.6). DL is mentioned and included in the toolkit which

notes that students should be able to use digital sources within their work and be able to evaluate them for quality (Secker & Coonan, p.2011, 27).

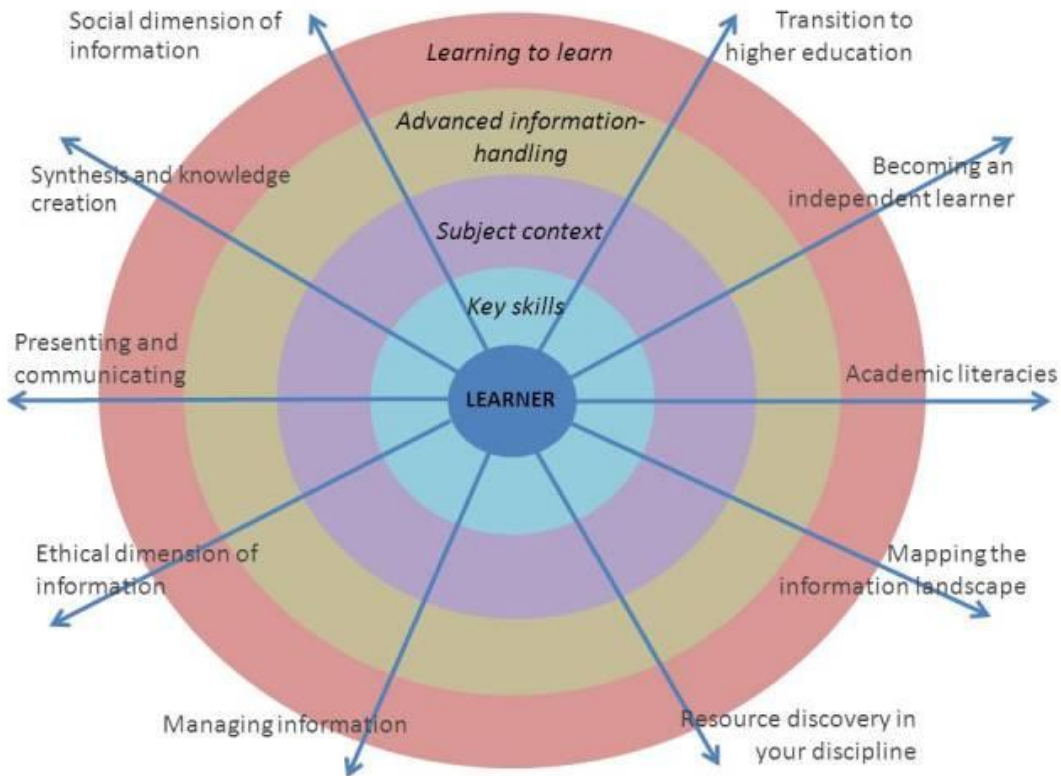


Figure 2 ANCIL Spider diagram (Secker, Coonan, Webster, & Wrathall, 2011) (Image reproduced under [Creative Commons license CC-BY-NC-SA](#))

The model (see figure 2) uses a circular structure that allows the user to progress through various stages at the same time, with the user becoming more accomplished as they reach the outer stages of the circle (Coonan, Secker, Wrathall, & Webster, 2012). HE institutions who implemented the model found that the model is aimed at undergraduate students, rather than students of all level of study (Coonan, Secker, Wrathall, & Webster, 2012).

### 2.2.3 JISC Model and Framework.

In 2014 JISC published the Developing Digital Literacies framework as part of the ‘Developing Digital Literacies Project, 2011-2013’ which worked with a variety of stakeholders and HE institutions in order to look at how to support learners in the digital age (Gray & Davies, 2017). The framework defines digital literacies as, “those capabilities which fit an individual for living and working in a digital society” (JISC, 2014a, p.1) and is comprised of seven elements heavily influenced by other literacy and skills (see Figure 3).

The 2014 framework iterates the need for the development of DL within HE institutions to take place at a strategic level and be implemented in the curriculum, and that all those involved in the learning process should be involved with the development of such a policy (JISC, 2014a).



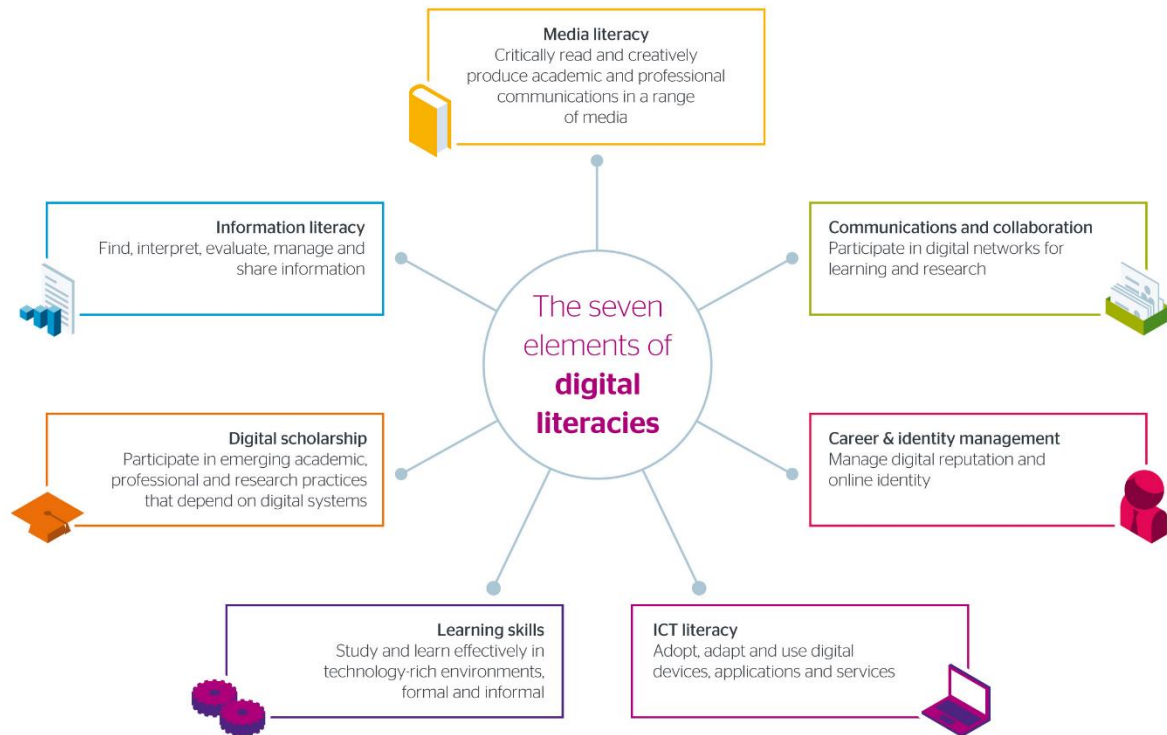


Figure 3 JISC (2014a, p.1) The seven elements of digital literacies. (Reproduced under [Creative Commons license CC-BY-NC-ND](#))

To compliment the 2014 framework, JISC published a model (see Figure 4) to demonstrate “capabilities which for someone for living, learning and working in a digital society” (JISC, 2015, para.3). The model places emphasis on ICT literacy being the main driver of all the elements associated, they also include employability as a driver for DL policies with students being included as main stakeholders, as well as DL being incorporated in the curriculum (JISC, 2015).

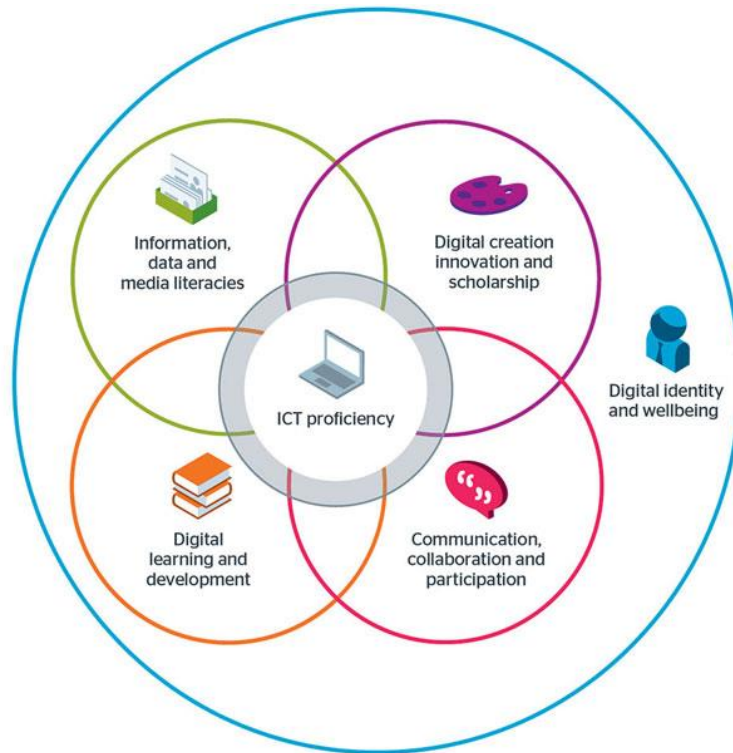


Figure 4 JISC (2015). Digital capabilities: the six elements. (Reproduced under [Creative Commons license CC-BY-NC-ND](#))

#### 2.2.4 Association of College and Research Libraries (ACRL) Framework

The 2015 ACRL Framework for Information Literacy for Higher Education framework sets out a list of concepts which it sees necessary to be Information Literate. It involves examples of skills which the user should have and how they could be used by professionals to help design their practices (Association of College and Research Libraries, 2015). It also states that the skills needed to be Information Literate are more efficient when included in the curriculum and course design (Association of College and Research Libraries, 2015, p.2). The framework attempts to change the outlook of students when finding information for study and research, it also aims to improve evaluation skills of students and give context to information (Chavez, 2016, p.217).

### 2.2.5 Sharpe and Beetham's (2010) Model

Sharpe and Beetham (2010) created a model showing how e-learning can happen effectively (p.88), was the forerunner of the JISC (2014a) model of DL. In this model they look at DL as a repeating process where the user will have to use the skills they gain in the context of their current surroundings which gives this a circular structure where a user may progress and regress in literacies as technology changes. The model has been the basis for institutional models at Bath University, Cardiff University, University of Reading, Oxford Brookes University, and Leeds Metropolitan University (now called Leeds Beckett University) (JISC, 2014b).

The model can be used as a hierarchy where a person moves from one model to the next as they become acquainted with a certain software, or become more competent in their skills (Sharpe & Beetham, 2010, p.91). The model also allows flexibility in that it allows users to go through the hierarchy when a new technology is encountered, but it also allows the user to drop down levels if they feel that they need to learn new competencies, skills, or encounter new technologies (Sharpe & Beetham, 2010, p.96).

Sharpe and Beetham's (2010) model also recognises that learners can learn at different rates and is dependent on access to software (Sharpe & Beetham, 2010, p.95), if it was integrated in the curriculum it may cause some people to fall behind, but if the student is able to apply it to academic outcomes then it will serve them better in employment (Sharpe & Beetham, 2010, p.97) Onus is placed on educators to make sure that this is embedded in the curriculum.

### 2.2.6 The Open University Library Framework

The OU Library framework (Reedy & Goodfellow, 2012) maps IL and DL against level of study, students are expected to reach a certain level of competency by the end of the level of study. The framework maps from access level study through to master's level. The model is presented as a linear model, although it is not prescriptive and some flexibility is expected as the OU teach a variety of courses meaning that some students may progress faster than others (Reedy & Goodfellow, 2012).

### 2.2.7 Doug Belshaw (2012) theoretical model

Doug Belshaw's (2012) theoretical 'Matrix of Elements' (Belshaw, 2012, p.200) model of DL comes as a response to models and frameworks which are too prescriptive in their outlines and proposes that an ideal model of DL should comprise of eight essential elements which will allow context of the setting to determine the outcomes.

### 2.2.8 Summary of the models and frameworks

The four frameworks produced by professional bodies all allude to instil IL or DL in HE institutions, however their definitions of what IL or DL mean differ, and an example of this is seen in the ACRL (2015) framework which draws on Meta-Literacy by Mackey and Jacobson (2011). Belshaw (2012) also places emphasis on the context of the situation leading to the definition of DL, rather than giving it a standard definition. The JISC provides its own definition of DL which also looks to incorporate skills in people which will allow them to create and disseminate information through technology (JISC, 2014a; SCONUL Working Group on Information Literacy, 2011a). Secker and Coonan (2011) also recognise that digital technology is important in shaping an information literate individual. The differing

definitions gives further credence in the opinion that there is no one framework or definition that can provide all the skills or guidance needed (Bawden, 2001; Bawden 2008; Belshaw, 2012, Martin, 2006b).

The above models all place emphasis on embedding the IL or DL skills into the curriculum, however, buy in from those who are involved in the learning process needs to happen in order for the framework to be applied consistently across the institution. Reedy and Goodfellow (2014) note that integrating DL into a curriculum can be difficult due to module and course teams not agreeing on what the definition of DL is. Most of the models use a circular model to demonstrate that the literacy is not a threshold but a continuous development. The OU model of IL and DL is the only model looked at presented in a linear fashion looked at, although it does allow flexibility in the stages (Reedy & Goodfellow, 2012).

There is criticism on the national body models and frameworks for not providing support to the institutions attempting to implement them in terms of providing clarification of how to apply the frameworks and models into practice (Gallacher, 2009; Hess, 2015). The models do not mention the provision of staff training in order to ensure they are implemented correctly (Craven, 2016; Inskip, 2014; Reedy & Goodfellow, 2014, p.12). JISC (2016) have responded to this criticism by creating a programme using the Digital Capabilities model (see Figure 4) as the basis of providing digital skills for staff within HE institutions in order for them to be able to cope with the changes of technology.

## 2.3 Information and Digital Literacy at the University of Sheffield

The University of Sheffield Library began to respond to the increasing number of institutional, national, and international frameworks on DL as early as 2013 with staff from the Learning Resources and Services Team (now the Library Learning Services Unit) attending events held around the country to look at the concept. The appointment of a new Director of Library Services pushed the progression of a DL policy further to look at an international perspective; a team of staff were tasked with looking at available literature and frameworks in order to establish where it would fit in with the current IL offer, and create a vision of DL. Discussions were held at an away day about what such a model and framework would look like for the university and where it would fit with the current model of IL. The team also how it could be implemented within the curriculum, in a face to face manner, and within the library resources within the Virtual Learning Environment (VLE).

The outcome of the day was that the aim of creating a vision of DL was not appropriate due to lack of a definition of the term. If DL were to be used it would have been a rebranding of IL, it would not have had meaning for students who would actually be experiencing the literacy at the Library (Haworth, 2015). If the group were to suggest something based on the day, a plan would be needed in order to create buy in from the Library and other members of the University including academic departments (Pacheco, 2015). Concerns were also raised about using the term 'Digital' as it could imply that the library was moving towards IT services rather than providing a service by the Library, as a result the library executive board decided on the term 'Information and Digital Literacy' (IDL). It was also decided that the model should be circular to represent an ongoing process (Association of College and Research Libraries, 2015; Belshaw, 2012; JISC, 2014a; SCONUL Working Group on

Information Literacy, 2011a) as students may have to use any of the skills at any point of their academic career (Haworth, 2015; Pacheco, 2015).

The process of developing a model continued, using the change technique of appreciative inquiry (Cooperrider, Whitney, Stavros, & Fry, 2008, as cited in Grant & Stokes, 2016), which led to the creation of the working vision statement for IDL within the University

Library:

“Our inspirational Library Learning Services Unit blends digital skills with information literacies enabling transformative learning for education, employment and digital citizenship.”

(Library Learning Services Unit, 2016)

A preliminary model was created by the library service as to what would ideally be the model of IDL (see Figure 5.).

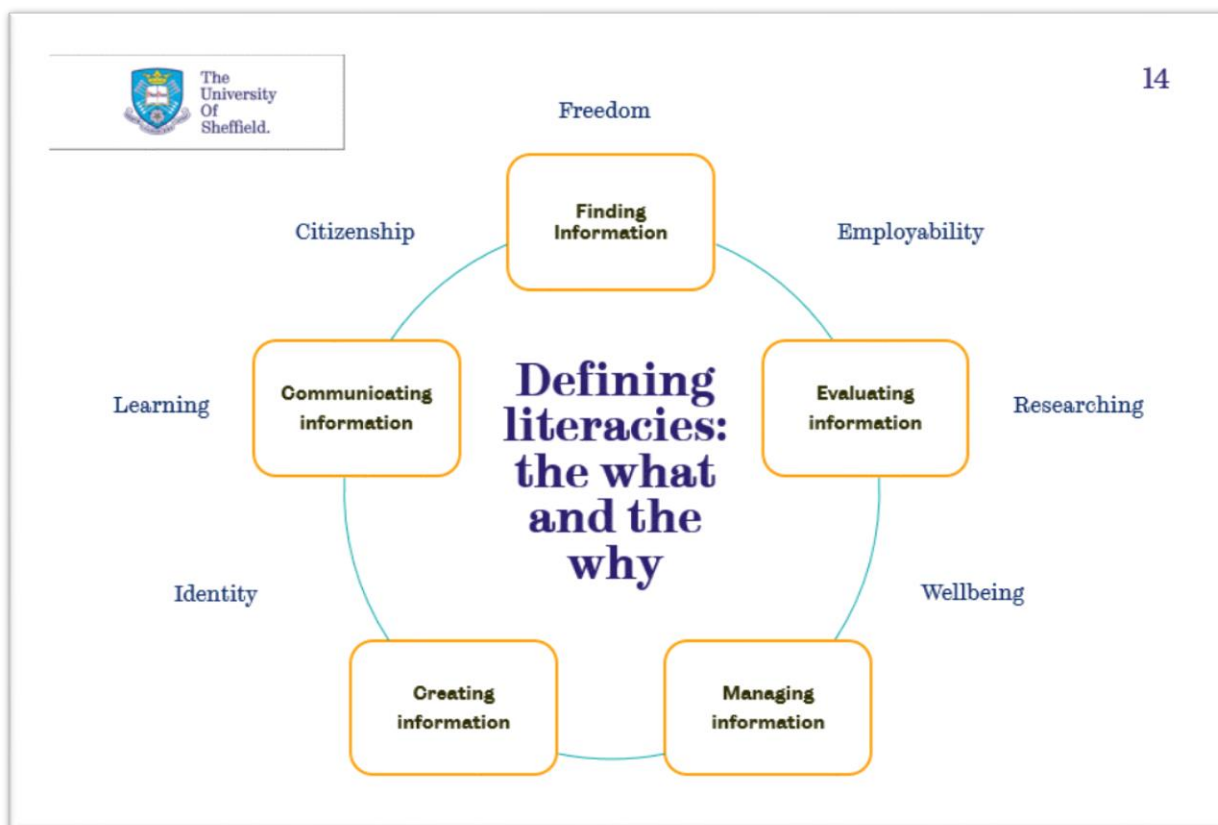


Figure 5 Preliminary model of Information and Digital Literacy at the University of Sheffield Library (Grant & Stokes, 2016, slide 14) (See Appendix ii for permission of image use. All rights reserved).

The model (see Figure 5) was then modified and uses the terms, “Discovering, Understanding, Questioning, Referencing, Creating, and Communicating” (Grant, 2016; University of Sheffield Library, 2016b), with the model being designed to be presented on the Library webpages (See Figure 6). The model is under constant review with terms being, this includes a proposal to replace referencing with ‘attributing’.

In the design process the model took on a linear look due to presentation on a mobile display, even though the model is circular, a compromise had to be made in order for it to look accessible for the intended users. Belshaw (Tedx Talks, 2012) notes that using a linear model can appear to be ‘disingenuous’ (12m 17s) due to creating a structure that insinuates that



thresholds need to be met. Further changes may need to be made in order to clarify look of the intended model (See Figure 6).



*Figure 6 Information and Digital Literacy Model (Grant, 2016) (See Appendix ii for permission for image use. All rights reserved)*

Momentum from the work of the Library Learning Services Unit, and an increasing importance in the sector on creating an IDL offer has given prominence to IDL with the library. This led to IDL being included in the Library Strategic Plan (University of Sheffield Library, 2016a) in particular the strategic aim “to prepare students with the research skills and the information and digital literacy skills they need to be at the cutting edge in their discipline and influential digital citizens” (p.4).

IDL has become an area of development within the whole of the University and has been alluded to in the Learning and Teaching Strategy 2016-2021 under the strand of ‘Developing

a Flexible Approach' of using different modes of study which will be carried out be “supporting innovation by exploring new ways of teaching, the spaces in which learning takes place, and in the technologies we employ” (Academic Learning Services, 2016, no pagination). The aim of the Library now is to work with stakeholders throughout the university to create a staff facing framework and a student facing animated model for IDL.

## 2.4 Conclusions

The literature review has explored the concept of DL in terms of its definitions, the frameworks surrounding it, and the model in progress at TUoS. The literature has shown that there is not a consensus on what DL is but most of the definitions allude to information seeking in the digital age. We have also seen that other literacies, such as IL have adapted to include the technological aspect of information seeking. The definitions agree that finding and using information via various means and being able to evaluate quality is important, however, how we get people to be 'literate' varies.

When looking at DL in a HE context, we see that transferrable skills for employability are important, numerous models and frameworks have been created for the HE sector. When looking at models and frameworks of IL and DL in HE, they suggest that IDL should be embedded in the curriculum. Transferrable skills and employability are also themes that have been mentioned in all of the models and framework, the models suggest that these also need to be embedded in an IL or DL programme. Some models suggest that IL and DL should be embedded in the curriculum; in some cases create thresholds of what a student should be capable of at certain levels of HE. This was seen in the Open University model (Reedy & Goodfellow, 2012) which had certain skill expectations which should be met at the end of

that level. Other models suggest that learning IL and DL skills is a continuous circle of learning, such as JISC (2014a), ANCIL (Secker & Coonan, 2011), SCONUL (2011a), and Belshaw (2012).

This research will look at these factors in more detail whilst also looking at one HE institution which is currently building a model and framework, examining if these literacies need to be embedded in the curriculum, if they provide transferrable skills, whether students need support, and resourcing for such a model to be implemented. This will be explored through a case study consisting of qualitative interviews at a HE institution. The next chapter will focus on the methods used to create the study at TUoS.

## Chapter 3: Methods

This chapter will focus on the methodology and research methods used for creating a case study to investigate Information and Digital Literacy (IDL) at the University of Sheffield. This will cover justification of the approach chosen, methods used, ethical considerations, details of qualitative interviews and analysis, and problems encountered when conducting the research.

### 3.1 Introduction

The chosen methodology for this dissertation is a case study to investigate IDL at TUoS, a case study is defined as “a research design that entails the detailed analysis of a single case” (Bryman, 2016, p.688) meaning that it is a “framework within which the collection and analysis of data takes place” (Bryman, 2016, p.695). In this research, the ‘case’ in ‘case study’ is referring to where the research is taking place (Bryman, 2016, p.60-61) meaning that the case study will be a framework rather than a research method.

### 3.2 Justification of the approach

This research focus of the case study is IDL within a Higher Education (HE) institution, in this case study the context is very important as it is examining one institution rather than generalising to a whole sector, as the researcher is looking at developing a deeper understanding of this area. The research will take place in the researchers’ place of employment, this allows for access to information, such as internal documents, which might not otherwise be available for the research. It also allows detailed insights into the institution

and the processes that have been involved in the creation of the research area – an IDL model and framework (Pickard, 2013, p.104).

A qualitative approach has been chosen due to the flexibility it affords when gathering data. The researcher is interested in finding out the perspectives of those who will be participating in the research as they are involved in the creation of the IDL model and framework, and it allows participants to emphasise what is important to them, when looking creating such a model and framework (Rubin & Rubin, 2012).

A quantitative approach would not be appropriate for this research as it the research concerned with identifying perspectives at a HE institution rather than numerical data which would be used to test a hypothesis. It is concerned with the views and opinions of the participants, the aim is to look at common themes that emerge from the research data gathered and use them to make suggestions for a model and framework whilst answering the research questions identified (Bryman, 2016, p.401).

### 3.3 Ethical Considerations

The research carried out for this study was subject to review by the Department of Information Studies at Aberystwyth University, guidance from the DIS Ethics Policy for Research (Urquhart & Rogers, 2014), and The British Psychological Society (2014) Code of Human Research Ethics was followed for ethical practice and procedures during the research.

Informed consent will be gathered from interviewees before they participate in the research, each will receive an information sheet informing them of the purposes of the research, this will be sent to the participants via email and then once again read through in the interview in front of the researcher. Two copies of the consent form will be signed by both participants and researcher with each keeping a signed and dated copy for their records. Contact details of the researcher and research supervisor were provided on the information sheet and consent forms for to allow for any concerns the participant may have. Any information that could lead to identification of the subject will be anonymised.

As the research is of a qualitative nature, using unstructured interviews, the issues of confidentiality and anonymity of those who participate in the research is of utmost importance. The interviews will be kept on an encrypted laptop away from the workplace, data will be deleted in accordance with the DIS Ethical Principles for Research (Urquhart & Rogers, 2014). Permission will also be sought to use part of a transcribed interview for the purpose of demonstrating coding on the data gathered, however, any identifying information will be removed or censored. Transcription and analysis will be carried out by the researcher only, data will be stored and used in accordance with the Aberystwyth University Information Compliance Policy (Aberystwyth University, 2013) with raw data being deleted after the timeframe for appeal has elapsed.

### 3.3.1 Workplace Bias

The research was conducted within the workplace, this led to some ethical considerations to be taken into account. Firstly, there may be workplace bias from the researcher showing the place of employment in a favourable manner within the case study, every attempt has been

made to be neutral during the research process. However, conducting research in the workplace allowed the researcher access to materials and people who they may not have been able to gain access to as an external researcher. Workplace contacts enabled the researcher to approach potential participants who may not have been approachable for interviews without a workplace network.

Permission was also needed from the workplace to conduct the research from senior management within the library, this was granted by the Associate Director, Learning Strategy and Student Engagement (See Appendix i), as a result of this senior managers have been kept up to date with progress of the research.

Permission was needed to use internal documentation within the literature review, permission was sought from the section leader and those who authored the documents included in the paper, for diagrams permission was sought from the author, if needed, to uphold copyright law (see appendix ii).

### 3.4 Methods Used

The methods used to collect information in the study were:

- Literature Review
  - Internal Documentation
- Semi-structured interviews

### 3.4.1 Literature Review

According to Pickard (2013, p.25) the literature review can take on the role of a research method as it assists the researcher to explore the literature for key themes or identify further areas of investigation. The aim of the literature review in this case study was gain a deeper insight into the subject area in order to clarify the aims of the research, identify any common themes or disagreements within the literature, and inform on the areas to be investigated during the course of the research (Yin, 2014, p.15).

The main areas identified for the literature review were:

- The definition of Digital Literacy and how it has evolved from Information Literacy within the HE context
- The frameworks surrounding Information and Digital Literacy by national bodies
- The current state of Information and Digital Literacy at the University of Sheffield

The search strategy involved searching for items on the researcher's home institution library catalogue using PrimoCentral, academic databases LISA and the Library Literature and Information Science Full Text (H.W. Wilson) were used using keywords for search strategy (See Appendix iii). Reference chaining and serendipity also allowed for some literature to be discovered, further search terms were also acted on as it became apparent that the themes were important to the aims of the research and informing the outcomes.

Due to the nature of some of the items in the literature review, the World Wide Web was used to discover items such as frameworks from organisational bodies and other HE



institutions. Internal documentation, or grey literature, has also been included in the literature review as it brings the reader up to date with the current picture of IDL at the University of Sheffield.

### 3.4.2 Semi-Structured Interviews

The interviews consisted of face-to-face, qualitative semi-structured interviews which allowed for lines of enquiry to be followed if the conversation around the original questions led in a different direction. Qualitative interviews have been chosen for collecting data, Yin (2014, p.110) notes that interviews are “commonly found in case study research”. Rather than use a structured interview, semi-structured interviews will be used as they allow the interviewee to talk more in detail about their opinions and express opinions on the area being discussed which may be different to those views and opinions of the interviewer (Rubin & Rubin, 2012). This follows the interpretivist approach as the focus is on understanding what is important to the participants (Bryman, 2016, p.375). As the research is concerned with looking at understanding concepts, gathering opinions and identifying themes within those opinions it will be vital to hold conversation surrounding the subject which may lead to follow up questions on the subject area, a structured interview would not be suitable for this purpose.

It was decided that face-to-face would be the best method of collecting the data as it allowed for the researcher to read non-verbal cues; for example if someone was finding a question difficult to answer, the researcher would be able to rephrase or clarify in order to gather data rather than attempt to interpret silence via another method such as using the telephone (Bryman, 2016, p.203). Before interviews were conducted, the researcher tested the questions

on a colleague who works in the field, questions were amended in order to encourage conversation and be open-ended rather than closed ended (Jensen & Laurie, 2016, p.177). Once questions had been adapted, a pilot interview was conducted in order to test the questions in action and allow the researcher to practise interview technique (Jensen & Laurie, 2016, p.175). During the pilot interview it was decided that one final question, ‘Do students need this help?’ would be added to the schedule as the flow of conversation did not flow to the subject of students. This was important as the subject of a case study is a University. The pilot interview also allowed the researcher to test recording software used to capture the interviews, as well as test back up software. Using two recording devices proved to be vital as the researcher unintentionally moved an audio file which corrupted in the process meaning the backup recording was used.

Due to the time constraints of the research, interviewees were contacted and asked if they would be available for an interview at a convenient time and place for them, they were sent the participant information sheet which outlined details of what would be required of them (see appendix iv). Four of the six participants replied to the invitation and volunteered to be interviewed within a week, the remaining two volunteered to be interviewed within two weeks of the initial approach. Once time, date, and location had been arranged the participants were sent an interview pack which consisted of three images and links to IL and DL models and frameworks on which they would be questioned, the models were JISC (2014a), Reedy and Goodfellow’s (2012) Open University Model, and Doug Belshaw’s (2012) framework. Participants then signed a consent form if they agreed to participate in the research (see Appendix v).

### 3.5 Participants

Several members of staff were identified as potential interviewees due to their involvement with the subject area at the University. From the initial list of potential participants it was decided to approach people who represented a mix of different staff who students may encounter directly, or have some input into the student journey. From the list, seven members of staff were either approached directly, due to previous networking by the researcher, or they were introduced to the researcher by a workplace contact in management who enabled the initial contact to take place. The main purpose of interviewing staff was to gain an insight into the processes needed to support students at the university, and as one of the outcomes of the research is to provide suggestions for the model and framework of IDL, it was decided that those who had to create and implement the policy may provide an insight into the area being researched.

The staff interviewed were:

- L1 and L2 – Librarians based within the university
- LT1, LT2 and LT3 – Learning technologists based in professional services
- A1 and A2 – Academic staff based within different faculties within the University.

They will be referred to using the above codes in this research.

### 3.6 Methods of Data Analysis

The interview schedule consisted of nine starting questions to steer conversation (see Appendix vi), the nature of semi-structured interviews meant that further questions could be asked as a follow up if the specific area needed more clarification or depth. The interviews

were audio recorded using software on a laptop and tablet, interviews were then transcribed with any off topic conversation being removed in order to avoid possible identification of participants in the transcripts. It was decided that the interviews would be transcribed manually by the researcher (see appendix vii for extract of transcription), although time consuming it allowed the researcher to listen to become more familiar with the data gathered (Jensen & Laurie, 2016, p.238).

The analysis of the data was carried out manually due to the number of participants, the subject area having various meanings to different interviewees, unfamiliarity with the software package NVIVO, and time constraints meant that this would be the most efficient option of analysing data. Transcriptions were then used to create a spreadsheet that consisted of answers to the questions, and then themes identified from the answers, which allowed for clearer comparison between responses, it also allowed for themes to be identified easier (see appendix viii for example of themes identified).

### 3.7 Limitations

Due to the work currently in progress on an IDL model and framework the researcher was limited in the potential participants who they were able to contact as new project groups were being made around the time of the research. The researcher did not want to imply that being contacted for the research meant that the participant would be included in working groups automatically.

The limitations of qualitative research mean that the results of the research are not generalisable to the HE sector or wider population as the case study was a single case, however, the research allows for a deeper understanding of one IDL at TUoS, and allows the researcher to focus on the characteristics of the case more than if a wider reaching study was carried out (Thomas, 2016, p.162).

There were also some limitations due to the preparation work the participants were asked to do prior to the interview, out of 7 interviewees 3 consulted the models in depth. The four who did not consult the models prior to the interview, consulted them in the interview. This was a drawback as it meant that they had not had time to look at the models in depth, however, it may give an insight into how people feel at first glance of an IDL model. All were able to provide comment on some or all of the models.

The researcher underestimated the amount of time needed to transcribe the documents, on average it took around 5 hours for each interview to be transcribed. This could have been resolved by using speech-to-text software. Further to this, it may have been useful to learn a software package for data analysis in advance of the research in order to be able to utilise it during analysis of data.

### 3.8 Methods Summary

Overall, the approach adopted for looking at one institution was adequate. Further people could have been interviewed, however the researcher was limited due to workplace sensitivities. A qualitative approach was necessary as it allowed in depth information from

people involved in the process. Transcriptions were carried out manually to allow the researcher become more familiar with the data gathered. This was analysed manually due to the small number of participants and the different meanings associated with the topic, unfamiliarity with the software package and time constraints.

Ideally, students at the institution would have been approached possibly with a questionnaire gathering both qualitative and quantitative data on subject areas around IDL. These could have been used to identify whether students feel they need IDL and explore the IDL skills they have by asking questions on ability, and understanding on the area. Due to time constraints and the research falling in exam time it may have had extremely low response rates. This may be an area to consider for future research in the area of IL and DL.

## Chapter 4: Results

This chapter will explore the findings of the qualitative interviews with participants and how it is related to the literature in the area.

### 4.1 Themes identified

The themes were derived from the literature review and through the analysis of data gathered in the interviews. These will be examined in relation to the literature.

### 4.2 The concept of Digital Literacy

All interviewed were familiar with the concepts of Information Literacy (IL) and Digital Literacy (DL), however, as seen with the Literature Review in Chapter 2, the terminology differed from person to person. L1 and A1 identified that Information Literacy and Digital Literacy (IDL) were skills sets needed to access and evaluate information:

“For me it’s predominantly a skills set and a way of thinking for somebody in order to access and take part in a digital activity or access to information”  
(A1)

L2 and LT1 both focused on the concept of DL and that it was a literacy made up of other literacies such as ICT Literacy, Media Literacy and IL. L2, LT1 and LT3 agreed that DL is needed in the digital world in order to be able to survive and allow people to protect their digital footprint and identity in the digital world.

LT2 did not provide a definition of IL or DL, but suggested that they were more or less the same thing, with DL just adding a digital aspect on IL, LT3 also suggested the same:

“...they are very, very similar sort of skills I think, and I think a lot of it is applicable in both arenas just because a format is different the content can be very, very similar. So an awful lot of the stuff that used to be physical information is now sort of digitally based.”  
(LT3)

LT2 also suggested that the main focus should be on IL:

“Digital Literacy is the same thing as Information Literacy as far as I am concerned, it’s just putting the digital aspect on it. So, the literacy has to come first, it should always be about Information Literacy and the digital is just an aspect of that”  
(LT2)

Only one interviewee (A2) connected IL solely with the library:

“Information Literacy is something that I associate with other disciplines than my own. So I recognise it as a term used by people in the information school here, or who work in the libraries and for me that is a very librarian route into Digital Literacies. I understand where that comes from really which is the term Information Literacy is a term that was used pre-digital and was about understanding the Dewey system, and knowing where the books were, and understanding how different sources might provide you with slightly different slants on the information that you are looking for...” (A2)

However, A2 did acknowledge that the digital skills within DL will allow people to have skills for outside university.

Overall, even though the definition and meaning of IDL differed to each participant, they all agreed that it was a set of skills needed to be successful bit inside a Higher Education (HE) institute and outside of HE.

### 4.3. Supporting Students

Within the literature it was noted that HE institutions should provide skills for students to become information and digitally literate (Ventimiglia & Pullman, 2016), interviewees were



asked directly whether students needed the support when it comes to IDL as they all have contact with students within the HE institution. All were in agreements that students were in need of support. L1, L2, LT1, LT2, LT3, A1, and A2 all agreed that students need support in the area of IDL. L2, LT1, LT2, and A1 felt that this was mainly due to them not being able to identify themselves when they are not able to do something:

“I think that they will think that they are good enough because they often don’t recognise their own problem until they see someone else working at a higher level and then they go, ‘oh I need to know how to do that’”  
(A1)

A2 stated that the students are aware that their skills may need updating, but compare themselves to the generation below:

“They are aware that their literacy skills, their digital skills in particular are not as good as they could be and they refer to young people, younger than themselves, as being really good at using technology”  
(A2)

L2 acknowledged that we have been assuming that the next generation of students will come through with improved IDL skills:

“We’ve been saying for some time that the new generation of students won’t need any extra assistance – now we’ve been saying that for about a decade I suppose and we’re still having students come through with different levels...”  
(L2)

L2 also offers a solution that students need to start being taught the basics at school level, before they come to university, which is in agreement with LT1. LT1 felt that students were able to identify areas where they may need some assistance or help when it comes to IDL skills and that this may be due to the change in academic expectations when entering HE from A-Level education:

“To be fair to students’ academic referencing, academic rigour is something that you don’t really do as much of or at the same level at A-level standard, so they come to university and what they are expected to do is completely new...”

(LT1)

LT3 took a different view to others suggesting that the digital world is an ever growing and ever more complex place to navigate, and that everything we need to be able to navigate it in an ethical manner – that is to understand why we do something and the potential effects of using such information may have:

“We live in an environment that is ever more complex and if you don’t understand the information environment, this is the information age and if you don’t understand the information soup you are swimming through and who is trying to what to you then you’re open to all kinds of exploitation and you’re also opening yourself to all kinds of ethical problems down the road because your own use of information won’t be appropriate”

(LT3)

LT3 also raised the point that the skills learned within the information environment will be beneficial to students’ future careers as they will be the ones creating and disseminating information:

“People that we are teaching here will be the professionals of the future, they really need to know the information they are going to be passing on to people, it’s no small thing that we are producing the teachers, the engineers, the doctors, the dentists, the educators and the researchers and the knowledge producers of the future...”

(LT3)

This raises questions of how to support students with IDL when they are studying at university.

## 4.4 Embedding Information and Digital Literacy resources

The question of teaching IDL skills separate from the curriculum is a strand that appeared in the literature, with models and frameworks suggesting that IDL should be embedded within the curriculum. When asked about this, all interviewees were in favour of it being embedded. L2, LT1 and A2 felt that embedding IDL was beneficial due to subject differences as it would allow students to add context and engage with the literacy they are learning if it is, and that a one-size fits all approach of offering skills would not be beneficial to the institution:

“Part of it is because there are disciplinary differences, learning your skills within your discipline we know is always the better. It’s more authentic, as they say, there is also the engagement part of it. If students know, if it means something to them they become more engaged...”  
(L2)

LT3 stated that embedding allows students to give it context to the subject they are studying, and in doing so will make the skills more meaningful to students as well as providing a way for students to understand how an IDL model and framework can provide value added skills for them when implemented:

“If you see the relevance of it to the subject you are studying and to you as a whole person then, that lends a lot of credence to what it is you are being taught and it does introduce that kind of translation...”  
(LT3)

LT1, LT2, and A1 all felt that embedding would be the most beneficial way to get students to engage with IDL, otherwise it may just be seen as something else that they have to try and fit in to their lifestyles:

“Students have a big workload, and a lot of expectation upon them and they don’t have the time to go outside of the work that they are expected to do for their course so we have to make it part of what is required of their course.”  
(LT2)

L1 felt that embedding skills would lead to more well-rounded graduates who are able to engage better with information.

When asked if there are reasons not to embed IDL into the curriculum, respondents came up a few reasons why they felt it could be taught separate, however the overall opinion was that it should be embedded within the curriculum at some level.

LT2 suggested that even though there is the view that embedding allows a subject specific context to be applied to IDL, having it separate as it allows time for deeper learning in the area to take place:

“It gives a lot more time and space for the depth of learning that indeed you would not have time for within the curriculum”  
(LT2)

However, LT2 also goes on to state that even though this learning could take place separate from the curriculum, it would need to be embedded at some level to raise awareness. A1 discussed how having IDL hosted separate to the curriculum would allow students to access the extra skills when a student feels that they need support, but this would only work if a student was able to identify that their skills may need updating in a certain area, meaning that embedding would still need to happen at some level:

“Having it separately allows them to access it on a needs/must basis if they can identify that they need to do it. When you integrate into programme, it might be a bit hidden, they might not realise that they are learning it, whereby having it discreetly does give it recognition, so there is probably an element where you have it integrated but that integration does point to supporting services.”  
(A1)

Whilst all respondents felt that embedding IDL was beneficial and essential, all felt that there would be barriers that could prevent this happening. The consensus amongst participants is time, curriculum design, and resource. A1 acknowledged that if such a thing were to be embedded within the curriculum, it would not be something that you could just add on to the existing modules:

“I think the big thing is curriculum design, it’s not an easy thing to bolt on to existing taught materials, so you have got a module and suddenly someone says, “Oh, you’ve got to put digital literacy into that” – it’s not easy.”  
(A1)

L1, L2, LT1, LT2 and LT3 acknowledged that adding extra work to the academic workload would be a possible barrier to embedding:

“The curriculum is already very full, the academics might not think that they have the time and space for it within their teaching...”  
(LT2)

L1 and LT2 also noted that due to these time pressures that academic are under, they may not see IDL as a key skill or skills that needs to be included within the curriculum:

“They might see it as something that they don’t have the time for. There might already be academics who think that they are already doing it and don’t need our help with it.”  
(LT2)

L1 also recognised that students, as well as academics, may feel pressures of time if IDL were embedded within the curriculum:

“I think that time pressures that academics are under, and the students are under, may not have time to embed that within the curriculum, or see it as relevant core skill.”  
(L1)

LT1 stated that when a model and framework are put in place, there may be people who already feel that they have been embedding IDL skills in the curriculum already and those

implementing the model and framework cannot make assumptions that people have not been embedding already:

“A lot of them might even feel slightly patronised because it’s stuff they are already doing anyway, so you know we can’t see that academics as people would be against this sort of thing. But the only real reason I can think of why not, is piling more and more work on academic and also reinventing things that already work quite well.”

Another challenge to embedding IDL is to get students to recognise that they do need these skills within the curriculum, L2 and LT1 noted that universities tend to have preconceptions of student skills when they come to university which may prevent uptake or interest in IDL skills, and students themselves may not be able to recognise that they lack certain skills:

“The assumption and perception that all students these days are digitally literate is one of those perceptions that has to be challenged particularly in their own self-assessment of their abilities is not good. So there are a number of those barriers of why do I need to learn this, I already know how to do this.”

(L2)

“We have all these horrible stereotypes of digital nativeness that has become a bit too much presumed of students. A lot of students can, but I don’t think many students come where they can’t turn on a computer, answer emails and open a web-browser but they don’t know how to use technology in a professional academic way, but they might not know that because they can use a computer – they can do all these things.”

(LT1)

The consensus amongst participants is that IDL skills do need to be embedded within the curriculum as students are unable to recognise that they need skills or think that they already have the skills, or the university expects that students already have these skill due to their generation. Embedding IDL skills may cause problems during implementation due to the workload of academics and curriculums which are quite full of core competencies for the subject area.

## 4.5. Resources needed to support Information and Digital Literacy

When participants were asked what resources were needed to support IDL, they identified three strands that the resources could take. Firstly, there was resource in terms of people needed to buy into the model and framework and push uptake. Secondly there were physical resources needed and support needed for a model and framework identified. Finally, there was the need for staff development and training, as people will need to be able to support it.

L1, LT1, LT2, and LT3 responded that there needs to be buy in with senior management at the top level from within the university, and buy in from the academics who would be responsible for implementing the skills teaching within their courses and modules:

“To ensure that the people at the top, like senior managers, sort of like the Pro-Vice Chancellor for Learning and Teaching etc. are on board with the model and aware of it, so that we can promote it and get academics and the students on board.”  
(L1)

“Getting the academics on board and weaving into existing practice, that kind of learns student’s digital skills or information skills...”  
(LT1)

As well as academic and top level management buy-in, it was also identified that academics need someone to support them in their implementing of a model and framework such as a champion, meaning someone within the department who is setting good practice and others can approach for support:

“Get some champions on board, I definitely think a champion model of how they have done it, and how painless it was”  
(A1)

“Making sure that there is someone within each programme to champion it and keep an eye on it, otherwise there can become gaps in what they are learning.”  
(LT3)

After identifying that there needs to be buy-in and champions for the cause, participants started to talk about the physical resources that may be needed. There seemed to be consensus that short videos that support the model, for both staff and students would be useful as it would allow academics to slot videos in to the VLE in order for students to access them easier.

“What I would like to see is, as much as possible, media rich little vignettes - three minute videos that you could go have a look at, and if you want to delve into something because you want to see what it means more. Particularly as an academic teacher, then you have a resource to help you with that. And resources that can pop into where the students’ spaces are so something that assists students in their virtual learning environment possibly at a module and programme level would also be very helpful.”

(L2)

“A really easy to find webpage where all these resources are, tutorials which are mainly video that are really short and that are very searchable, so they’ve got really clear titles as to what they are about. That’s absolutely key that they are short and very well tagged – that they’re all in the same place and easy to find.”

(A2)

Web based resources, such as tutorials, were also identified as being a resource needed to support a model and framework. Further to this, it was identified that web-based resources could support face-to-face workshops:

“Information skills tutorials are very important in such a setting and the workshops that we are running as well. If we can develop these further and make them to more relevant to what we are trying to achieve now and what’s being taught in the curriculum, those two things together is what we need to cover all bases.”

(LT2)

Staff training was an area identified by less than half of respondents, however three of seven identified that there would need to be some sort of training in place for those who implement the model and support the model:



“Some kind of staff development so that people can get their heads around it either in engaging as CPD videos online thing, or it might actually be better to get people in a room and get them discussing how they have integrated it all”

(A1)

“We need to build an understanding...so that we are not confusing people when we need to go out and talk about it because we have a workforce that has been educated at different times in this digital journey and in different places and will come at this different.”

(L2)

LT3 mentioned that there needs to be documentation that would be easy to follow for those who would need to implement the model. Academics tend to have high workloads; they would need something that was clear and highlights the essential points of the model:

“I think something that’s clear but not overly prescriptive that recognises that there are subject differences and recognises that they are busy people and something that highlights that it needs to be seen across a student’s journey with us, it can’t just be something that the library will take on and do for you.”

(LT3)

A variety of resources have been identified that would support a model and framework, LT1 points out that a lot of departments have learning technologists within their departments who would be knowledgeable to the subject differences, whilst other departments who do not have a learning technologist may need to rely upon support services within professional services to meet with students and offer support. LT1 stopped short of saying that staff training would be needed, but did recognise that a wide variety of staff would be involved in supporting such a model and framework and in order to offer support everyone would need to be on the same page.

## 4.6 TUoS model

Participants were invited to look at the current model at TUoS and offer opinion. Participants were also asked whether a model and framework would be needed at the University due to others being openly available for use.

All participants felt that there needed to be a model at the University. L2, LT1 and A1 felt that a model was needed as it would allow the university to put its own perspective on the literacies and tailor the model to fit with the culture of the university:

“I think it is important, it evolves and I think what we’re looking at is what it means at Sheffield is really important perspective. It may not be what it means at different institutions but how do we do this design and consultation so it means something for Sheffield”

(L2)

“I think for a start, we are a leading university, I think we need to be at the forefront of this kind of stuff. I think we need to put our own stamp on it. I think we, all universities have their own similarities and differences between all universities. We have our own unique mix of subjects and students, and student background and everything and I think that we need to decide what we want the Sheffield student to look like.”

(LT1)

“Creating our own model will fit with our own creative patent, and how we create curricula here, that’s changing so our own model fits into our own culture which is great. I think it also help with the ‘not invented here’ syndrome, I think having something that is tailored to Sheffield using our own jargon, services and talking the language we’re used to is really useful.”

(A1)

LT2, LT3, and A2 felt that a model would be needed in order to provide focus and allow people implementing it to understand what skills they need to provide for need to involve and how they could provide IDL skills and increase uptake. It would also allow students to understand what type of learners they are expected to be within a HE institution.

“We need one to give focus to what we’re doing, it’s all very well using coming up with workshops, tutorials etc. ways of supporting students in their Information and Digital Literacy, but success of anything like that has been getting it embedded in the curriculum so a framework will allow academic to see how and why they need to include this and give us a foot in the door to get our information included in the curriculum which will increase its efficacy.”

(LT2)

"I do think that it would be useful as I think it raises everybody’s awareness to how our students, although they’ve all got computers in their pockets and use them hourly that they are not necessarily using them for learning in ways that might be useful to them at university.”

(A2)

Participants were asked to identify the strength and weaknesses of the current model at TUoS. L1 and A1 liked the colours used on different literacies as it would make the model stand out to both staff and students. A1 also liked that colour coding would make it easier to identify what areas of IDL are being met within the curriculum and allow for students to identify what areas they have covered:

“I think a big strength of the model is the identifiable colours for me, because in curriculum planning mentality it does mean I can use the colours to identify to those students where we are meeting the certain domains – I might do it overtly, or it might just be there and they will pick up on it over time, ‘Oh, I’m doing a whatever colour that is, light blue colour, and therefore this is about referencing’ and this will help students identify themes and follow tracks of skills, and I really like that.”

(A1)

L2, LT1 and LT3 liked that the terms were relevant to the setting of a HE institution flexible enough to be interpreted in different ways, which could be useful when looking at subject differences:

“I think they are words in which most people trigger the right kind of thoughts that they are supposed to be doing”

(LT3)

LT2, however, saw the vagueness of the terminology as a potential weakness. The ambiguity may leave people without knowledge of what they are meant to accomplish in that particular aspect of IDL:

“They are flexible terms which can be applied to many things which is both a strength and a weakness because it means that you could take that model to any department or any discipline and find some common ground they’re a bit perhaps the weakness is that people will look at that and think that maybe it’s a bit vague, what exactly does that mean?”

(LT1)

LT3 and A2 found a strength in the model to be that it does not specify whether skills should be paper based or digital, as the model is about information and how someone uses it:

“Being able to reference something yourself, creating your own artefacts whatever format – it does get away from that whole paper based, versus digital as well which is good. It’s about information, not where that information happens to be held, or kept, or stored, and communicating what it is that you have communicated”

(LT3)

LT2 found that the model looked too linear. When looking at it, the first impression may be that a person has to work through the levels of the model:

“The current presentation of the model looks very linear, it makes it look like a process to be followed, which it isn’t.”

(LT2)

LT2 offered a solution of the model being shaped like a web where everything is interlinked, rather than a linear or circular model as they both suggest that a process needs to be followed.

## 4.7 Other models and frameworks

Participants were asked to look at other models of IL and DL in order to identify what they liked from a model or framework in terms of content and layout.

LT3 and L3 felt that the models did not have an ethical outlook on the use of information, and stated that they would like a model to be based on ethics as an underpinning factor:

“There needs to be an ethical underpinning to the whole lot – if you don’t have any grounding in ethics then what’s your critical thinking and ethics based on?”  
(LT3)

LT1 felt that there needed to be IT skills as a core underpinning value as they can be used as a foundation for the other elements of IDL to be based on:

“...underpinning IT skills means that the rest of it just becomes easier, you’re not thinking about technology, you’re just doing it because you’ve got those skills and then the softer skills.”  
(LT1)

A1 suggested that a strength to models and frameworks is the non-linearity of the models as these allow staff to see where areas may need to improve which are not dependant on another area, L1 also agreed that a non-linear model could be beneficial:

“I like for the JISC model the fact that it’s non-linear so the idea you can look at it and the various domains and you can say ‘yep, I’m strong there and I need to do some work there and whatever else’, and I agree broadly with the categories.”  
(A1)

A1 identified a strength of other models and frameworks is the detail they offer, as it allows curriculum design to be aligned to the model and framework.

“I think for planning curricula it’s really good because it’s broken up by levels – Level 1 right through to masters and it’s broken up by categories. When you’re

putting curriculum together you can almost constructively align your curriculum to the OU model very easily.”  
(A1)

In contrast, A2 finds the specifics to be unnecessarily complicated and prefers an approach which can be responsive to change:

“If I were doing this I would have something like baseline and enhanced and leave it at that... Because I think that the detail that has been put into these types of things, the details are about specifics, those specifics are likely to change over time so I think it’s much more useful to have a broad brush and take that approach”  
(A2)

A2 also commented that progression charts may come in useful when raising awareness of IDL skills to students.

## 4.8 Summary

This chapter has presented the results of the qualitative interviews, the next chapter will look at how they relate to the literature review and look to answer the research question.

## Chapter 5: Discussion

The discussion will focus on how the results presented in the previous chapter support or contradict the views presented in the literature review. It will also look at how the findings support the aims and objectives of the dissertation as well as what the results contribute to the research questions of the dissertation.

### 5.1 The purpose of the study

The aim of the dissertation was to look at the implementation of Information and Digital Literacy (IDL) at the University of Sheffield (TUoS) in order to provide suggestions for an IDL model and framework. The objectives of the study was to look at the following research questions:

- How is Information and Digital Literacy (DL) defined at the University?
- Do students need the support?
- Can you teach a literacy separate from the curriculum?
- What resources are needed to support such a framework at the University?
- Does an Information and Digital Literacy Framework give transferable skills?
- How does the approach at TUoS differ from published frameworks?

## 5.2 Summary of results

The interviews conducted provided a variety of answers to the research questions of this dissertation. A summary of results in relation to the research questions and the existing literature will be presented:

### 5.2.1 The concept of Digital Literacy

The first research question looked at how IDL was defined at the University. The results showed that participants all had a different definition and understanding as to what Information Literacy (IL) and Digital Literacy (DL) were. There was some disagreement between participants on whether the focus of a model or framework should lie with digital ICT skills, with IL skills, or be kept separate from each other. The overall meanings of their interpretations showed that they all understood the literacies to be a skills set which would allow students to navigate through the information they need to interact with in their academic careers and their careers after academia.

The results of this research question concur with the findings of the literature review into this area. Stordy (2015) sums up the definition of DL by noting that accessing, interacting and evaluating materials are the common areas which definitions tend to address. The splits over whether the literatures should be kept separate mirror the opinion of Cordell (2013) who suggested that literacies may be kept separate depending on the context they are used in, which was also touched upon by Belshaw (2012) in his theoretical model. The literature found that the definition of DL specifically is something that is tailored to the context in which it is being used; this has been seen in research carried out by Stordy (2015) and Bawden (2001), who found dozens of definitions of what literacies are when they carried out



literature searches. The literature also shows that other terms are coming into use such as meta-literacy which has been drawn upon by ACRL to inform their definitions of IL and DL (ACRL, 2015).

### 5.2.2 Supporting Students

The next research question looked at whether students needed support of IL and DL skills whilst they are attending a HE institution. All interviewees agreed that students did need the support in order to become information and digitally literate. An interesting observation that came out of the interviews was that members of staff in both professional services and academic staff felt that students may not be able to identify areas where they do not have IL and DL skills. However, one of the participants did feel that even though they needed support, they were able to identify that their skills may need updating as they compare themselves to the next generation of IL and DL users. One respondent used the example of current affairs as an example of why IDL is important to the wider population, not just those in HE; they felt that mis-information presented in the news showed the need to support people with IDL skills such as evaluating information.

Within the literature, it was observed that students do need these skills and training whilst in HE, however, the main focus for most of the literature was about the definitions and building of frameworks. Goodfellow (2011) and Ventimiglia and Pullman (2016) identified that graduate attributes are becoming something of a requirement, especially when it comes to providing transferrable skills. The place to provide these skills was within their education at HE level.

The idea that skills need to be provided at HE level was questioned by one interview participant who felt that the implementing of IL and DL skills should start in Further Education (FE). This is a potential area to explore in further research on implementing IL and DL models and frameworks within HE. Another potential area to explore is IL and DL in a real world setting, looking at how people use information and how they evaluate information.

The responses also started to answer the research question one whether an IDL framework gave transferrable skills to students. The responses that align with do students need support show that the interviewees believe that transferrable skills are an integral part of support offered. This will be revised in the later section.

### 5.3.3 Embedding Information and Digital Literacy

The next area to be looked at was whether IDL should and could be taught separately from the curriculum. There was a general consensus within the results that overall IDL should be embedded within the curriculum, this would allow context to be added to the skills set and be relevant to students in their learning and future endeavours. Others felt that embedding IDL would be the only way to get students to engage with IDL, as they generally have a heavy workload already; unless IDL carried credits it would be unlikely that students would actively participate. There was also a feeling that embedding within the curriculum would provide transferrable skills without them knowing that it was happening as they would be able to access, interact and evaluate information as well as develop digital skills along the way.

Reasons were also provided by interviewees as to why keeping IDL as a separate strand to the curriculum may provide some benefit to both staff and students within a HE institution. The main reasons given is that it would allow those interested in developing IDL skills to go further in exploring what is available than if it was embedded within the curriculum, this is mainly due to time constraints within the curriculum which may place limits on what can be taught. Another reason given is that it would allow people to acknowledge that they have learnt something that may become hidden if embedded, the student may not realise that they have learnt a skill. However despite these reasons, all felt that it should be embedded at some level.

The observation from the results that IDL should be embedded into the curriculum is not new, this has been put forward in models and frameworks from SCONUL's Working Group on Information Literacy (2011a), Secker and Coonan's (2011) ANCIL framework, JISC's (2014a) framework, ACRL's (2015) framework, Sharpe and Beetham's (2010) model, and The Open University Library framework (Reedy & Goodfellow, 2012). It would appear that this is an accepted route for IDL when implementing a model and framework. The literature, and many interviewees, suggest that even though it is expected to be embedded within the curriculum and the benefits that go alongside embedding, there are also barriers to embedding into the curriculum.

#### 5.3.4 Resources needed to support an IDL model

The research question of resources needed to support an IDL model and framework started to be answered alongside reasons why or why not IDL should be embedded within the curriculum. The question of what resources would be needed was asked with the assumption

that an IDL model and framework would be made with the intention of embedding within the curriculum. The results showed that most interviewees felt that in order for IDL to be successfully embedded within the curriculum, there would need to be support available when it comes to implementing a model and framework, this is a problem that had been identified within the literature. Gallagher (2009) and Hess (2015) both found that when it came to implementing a framework, guidance was lacking on how to actually do it especially when it came to integrating it within the curriculum.

Interviewees highlighted the need for other support and resources, such as embeddable resources for the VLE; people available to explain the model and framework; buy in from senior management; as well as academics; and those involved in curriculum design.

Following from this, staff noted that there should be some form of ‘champion’ who shares best practice of embedding the skills into the curriculum, and provide support to staff and students. In the literature Reedy and Goodfellow (2014) noted that they encountered problems when people disagreed on what IL and DL actually are. Buy in from top level management at the university could allow the IDL model and framework to be set within strategies. This would provide those who set curriculum an indication of what is expected at university level as opposed to a model and framework that is set from within a department which would not be able to push the uptake and support needed.

One strand that came up in readily in the literature, but not so much in the interviews was the issue of staff training. One of the criticisms of models is that they provide plenty of suggestions of skills that should be taught, but they do not provide support for training the staff who will be ultimately responsible for embedding and teaching IDL as part of the

curriculum (Craven, 2016; Inskip, 2014; Reedy & Goodfellow, 2012). Only two interviewees specifically stated that some sort of CPD or understanding of a model and framework would need to be available so that people would be able to understand what they were meant to be implementing, and allow those in supporting roles to be able to assist with queries. This finding in the interviews was unexpected as it had been one of the main criticisms within the literature review. One explanation for this may be because those interviewed were already knowledgeable of IDL and did not consider someone starting from the beginning of the process.

### 5.3.5 Transferrable skills

The question of whether an IDL framework can give transferrable skills is something that has been touched upon within the results and the above sections in the discussion when talking about the concept of IL and DL. Within the literature this is a strong theme which features in the definitions of DL as well as the frameworks from international and national bodies, as well as institutional models. Woods and Murphy (2013) found that the skills gained from DL can be beneficial for employability. The British Computer Society found that over 80% of jobs require digital skills (French, 2014), meaning that these skills need to be taught and learned somewhere. Crawford and Irving (2012) found that HE institutions were promoting attributes as a graduate outcome.

Within the results respondents linked DL to the skills of being able to identify quality information and sources, and that universities should provide these skills. When discussing the concept of DL, the theme of transferrable skills seemed to be implied as people responded about a skills set, which was not necessarily related to their academic career, but a skills set

for life. Interviewees also stated that providing IDL skills which were in the context of their area of study would be beneficial to them as the skills are more meaningful. When discussing the IDL model and framework in progress at TUoS one respondent mentioned graduate attributes being an important reason why a model is needed, to allow these to be incorporated.

### 5.3.6 Models of Information Literacy, Digital Literacy, and the University of Sheffield Model.

The final research objective was to look at the approach taken at TUoS compared to other models, the research question ‘How does the approach at TUoS differ from published frameworks?’ This was quite an ambiguous question as there are hundreds of frameworks available from Library Associations, HE facilities across the globe, and other groups such as UNESCO and the European Commission. In order to identify these differences, several of the most established models were selected within the literature, and participants were asked to look at models prior to their interviews to identify what they liked and disliked. They were also presented with the current TUoS model during the interview.

From the interview data, it became apparent that people liked that there were underpinning factors to models and frameworks, such as ethics and IT skills being the foundation for models, as then the skills can be used as a basis for other elements within the model.

Interviewees also liked the non-linear models such as JISC (2014a, p.1; JISC, 2015) as it suggested that you could look at the various aspects of a model without being dependent on prerequisites as seen in the Open University framework (Reedy & Goodfellow, 2012). The current TUoS model has incorporated some traits associated with a continuous process rather

than a linear model as it was recognised that students may need to use any of the literacies at any given time in their studies (Haworth 2015; Pacheco, 2015). The current presentation makes the model appear linear and unless the person implementing it knows that it is meant to be a continuous process it may lead to the model being interpreted incorrectly. However, it was also suggested by some interviewees that a circular model of IDL may not be the most appropriate as it implies that you still need to follow the stages of the model repeatedly, and that a web shaped model may be the answer to linking the aspects of IDL together without suggesting an iterative process.

Observations made about the models and frameworks by participants are not new. It is apparent in the literature that most of the models and frameworks are designed to be used flexibly. ACRL (2015), for example, uses a framework that gives examples of good practice and shows how it could be included in the curriculum, but doesn't give a defined shape of the model. Belshaw (2012) provides a matrix of elements which aims to be less prescriptive in their use, the framework is determined by the context in which it is to be used in, meaning it is not limited to the HE sector.

When looking at the model and framework in development at TUoS, interviewees were enthusiastic that a model and framework was in progress at the institution as it allowed a local context to be applied and the model tailored to the culture of the institution; this is consistent with the literature which found context of DL to be a factor in determining a definition and in turn making a model and framework relevant to the institution (Belshaw, 2012; Chavez, 2016). This is one way in which the model at TUoS differs from national models as it is designed with a very specific context in mind. This may lead it in a different

direction from other models and frameworks, as its definitions will be specific to the institution rather than a broad statement. The results also found that the interviewees felt it would provide understanding of what skills should be embedded within the curriculum, and provide skills for students which can be used outside of the university, which is one theme that has appeared in the literature (French, 2014; Woods and Murphy, 2013).

Participants expressed positive comments about the visual aspects of the in-progress model such as the colouring of the terminologies; this would allow easier identification across the curriculum, be useful in curriculum planning, and be eye catching to students who may be able to use it to identify which aspects of IDL they are doing. One comment that stood out from the others was that the model did not side with digital or print, it focused on providing the skills regardless of the format. This may link with the model being context specific to the HE institution in that they are creating it in a way that does not dictate if something has to be done digitally to match criteria on a model and framework, just that it may allow a new skill to be learned.

An area on the model that respondents felt could be improved was the terminologies used on the TUoS current model: Discovering, Understanding, Questioning, Referencing, Creating and Communicating (Grant, 2016). These were felt to be good terms to use, as they have a meaning that is relevant to HE, but also lacked a definition which means that they could be interpreted as being too vague and lack any clear guidance for the departments using it. This finding was to be expected for a model in the early stages of development, but shows that clarification will be needed in the framework.



The literature surrounding development of the model and framework is mainly internal documentation, this means it will show a strong bias towards the model and framework and is mainly descriptive; the interviews allowed a chance to gather opinion on the model which can be used towards the aim of the dissertation. To answer the research question of how the model differs, it can be seen that the model is being created with institutional processes and services in mind, and creating its own definition of IDL that will be institution specific. This differs to national frameworks, who have a model that is intended to be used across many institutions. Without a full model and framework to compare to other completed models and frameworks, it is difficult to compare and contrast. This does lead to a further research opportunity, to follow the progression of the model and continually look at the similarities and differences to other models already published.

### 5.3 Limitations of the study

The main limitation of the study is that it is case specific to one HE institution, meaning that the results will not be generalisable to any other institution, this due to the different strategic aims and demographics of HE institutions. It became apparent when analysing the results of the interviews that it may have been beneficial to interview people within the institution who had little or no involvement with IDL, this could have included staff members involved in the teaching process, and students. Decisions within the workplace were being made regarding the commencement of a working group on IDL – approaching staff not involved in the process may have led to interest in the working group and may have delayed the start or imply that involvement in the study meant automatic involvement in such a working group. This case study looked at the opinion of staff, but future research could be done looking at the student perspective as the building of a model and framework is an iterative process, as the

development progresses the next phase could seek students opinion on the area of IDL and the new model and framework.

## 5.4 Recommendations from the results

The aim of the research was to provide recommendations for TUoS as they progress in the building of a new model and framework. The following recommendations been arrived at by analysing the data collected with support from the literature reviewed.

The first recommendation is made with regards to the definition of IDL that will be given as part of the model and framework, the definition of IDL will underpin the foundation of the new model and framework that is being created. It has been seen in the literature and results of the interviews that the definitions of IDL vary greatly, however, they have the same overarching theme; a set of skills that will provide students with the means to successfully complete their study and be transferrable skills which will translate to employment. The definition that is chosen for the model and framework will need to be succinct enough to provide a clear meaning of what IDL means at TUoS. However, the definition will also need to be responsive to changes within the information sector in order to be as future-proof as possible and be open to interpretation from those who will be implementing the model and framework at the institution. The shape of the model also came into question when interviewing. Most interviewees felt that something non-linear would be beneficial as it showed that people could learn different skills at the same time, rather than it being a process of learning one aspect then moving on to the next. For this reason a web-shaped model may be beneficial to show this process.

The new model and framework should also be embedded in the curriculum throughout the institution; this will be a difficult feat to accomplish as it will need to be seen as a priority for those who are responsible at design stage or those involved in the evaluation for programmes implemented at the institution. This will require support from management at the top level of the institution in order to raise the status of the model and framework as a strategic priority which is to be implemented by all. Implementing the model and framework from the top down to all faculties will mean that it will need to be responsive to the subject differences; subject differences may cause a rigid model to be disregarded. Subject differences may be a factor when embedding certain aspects of a model and framework for example, the definition may hold different meanings to different subjects especially with regards to skills for employability after education. This was a theme identified from the research as well as in the literature, different subjects use different types of information and software. The framework will need to be flexible rather than prescriptive in order to accommodate these differences, it cannot be a one size fits all model if it is going to succeed.

The success of the model will also be dependent on how academics perceive it within their departments and in relation to their subject. A recommendation from the interviews is that there should be a system of assistance in place in order to allow greater ease in implementation. This has been suggested in the form of resources available to support such a model and framework; in terms of resources, the interviews found most would like to see digital resources, such as videos, made to compliment IDL; these should be embeddable in the VLE and be available to all who would like to know more about the subject area and provide more explanation on an area if needed. The idea of departmental or academic champion have also arisen from the research; this would allow those who have adopted aspects of the model into their programme would be able to share good practice to others

within their department. Further to this, staff who support students in their journey will also need some sort of support or training in order to field queries regarding IDL. Not all staff will need an in-depth knowledge of the model and framework, but must be able to refer queries on to the correct person. Staff may also need training on the skills of IDL, it was identified in the interviews that not all staff have the same educational background and it may be that some continuing professional development may be needed in order to allow consistency in staff awareness.

It is also important to remember that the main customer base of a HE institution are the students, of all levels, who study at the University. The new IDL framework will impact on some aspects of their academic career, whether it be new activities or new technologies that they will have to use. A student facing model may assist with the understanding of what IDL is and what is expected throughout their academic career; the model and framework created may too complex or too long, therefore, the option of more concise information may be preferable for students who would like to find out the basics with the full model being available for those who would like to find out more.

The final recommendation is that there will need to be a process of feedback and change throughout the creation and implementation of the model and framework. This will allow those responsible for the creation to be reactive to the needs of departments and allow them to keep up with the latest innovations in IDL. This may be done as a process of action research which will allow for the continuing evaluation of the project, this will be outlined in the recommendations for further research.

## 5.5 Recommendations for further research

As recommended in the limitations of the study, further research could be conducted using staff and students, who are not familiar with the concepts of IDL, or the current version of the model and framework at the institution, as participants. Including these groups as part of the research may give a more accurate view of how IDL is perceived, and what resources are needed in the creation and implementation of an IDL model. Research on the IL and DL skills taught at FE institutions could also be conducted to identify if IL and DL skills are being introduced at that level, and how they relate to the model and framework being implemented at the institution.

Research could also be conducted which looks at comparing the model and framework at TUoS with other models and frameworks which have already been published. As noted in the summary of results, the research question of how the current model at TUoS differs from other models was left largely unanswered and more research in this area is required before the question can be answered. This was due to the model and framework being in the early stages of development which did not allow for this comparison. Future research could explore this as the model and framework begins to take shape. It may be an ongoing research project which also looks at continual evaluation, feedback, and change throughout the process of creating and implementing an IDL model and framework. The research would need to provide feedback in order to inform changes that may be needed or recommended in order to improve the model and framework; this could utilise action research, which is a form of applied research which looks at adopting a cycle of planning, action, observation and reflection (Bloor & Wood, 2006) where the working group can learn from the research as well as utilise the results to inform the model and framework (Byrne, 2016). This type of

research also benefits from user feedback in that those who are affected by the IDL model and framework, such as staff and students, would contribute feedback and inform the research (Bloor & Wood, 2006).

## 5.6 Summary

The discussion section has related findings to the literature review and identified areas of future potential research. The next section will draw the dissertation to a close by concluding areas covered.

## Chapter 6: Conclusion

This chapter will review the research questions asked in chapter 1, and look at whether the dissertation was able to answer them.

### 6.1 Conclusions from the Literature Review

The questions were derived from themes identified within the literature which found that there was not an agreed upon definition of Digital Literacy (DL). The literature also found that transferrable skills, including employability, were coming to the forefront with regards to Information Literacy (IL) and DL teaching within Higher Education (HE); prospective employers are becoming more expectant of graduates and their skills set. This expectation from employers has given a new emphasis for Universities to deliver these skills as part of their programme outcomes.

Embedding of IL and DL is a topic brought up in existing models and frameworks where they specify that these skills should be included within the curriculum. With these areas highlighted, research questions were made, and interviews carried out.

### 6.2 Concluding the methods

The methods used in gathering the information consisted of a semi-structured qualitative interview; this allowed participants to provide a good deal of depth to their responses, and allowed the researcher to follow up on strands that may have come to light during the

interviews. It may have been beneficial to include members of staff who were not familiar with Information and Digital Literacy (IDL), and students from the institution.

### 6.3 Concluding the research findings

The following section will look at the findings of the dissertation with regards to the research questions. The research provided the answers below.

The first question concerned how IDL defined at the University of Sheffield. The research found that within the institution there is not one agreed upon definition of IDL, however the overall theme of the answers was that that IDL is a skills set enabling students to work with information both in their academic careers and after.

The second question asked whether students need support when it comes to IDL. Interviews from staff members, including academic staff suggested that students do need this support. It was highlighted that whilst students are capable of using a computer or other digital technologies, they need support when it comes to academic practice of creating, evaluating and disseminating work. Whilst this may not apply to every student who passes through TUoS, it applies to many.

It was asked whether a literacy can be taught separate from the curriculum. The results suggest that segregation of literacy from the curriculum reduced the effectiveness, but sources disagree to what extent. Some interviewees were in support of running workshops alongside the curriculum, which would be available to staff and students who either need



more support or would like to find out more about certain areas of IDL. However, even those who were in favour of workshops felt that embedding at some level should happen.

What resources are needed to support a framework at TUoS was explored. The main resource identified by interviewees was support from top level management, as well as embeddable resources for VLE systems, and the idea of a 'champion' model where one person or department leads by example of good practice. Somewhat surprisingly, staff training was something that was not mentioned by everyone, but was a criticism of the models within the literature. Those who did identify it felt it would be needed to ensure people were able to cope with implementation and support students and academics where needed.

The question of whether or not an IDL framework could give transferrable skills was answered indirectly. Respondents answered that they thought IDL was a skills set for education, employment, and life skills, which would imply that an IDL framework should include a relevant skills set which will enable transferrable skills for future employability.

The final question looked at whether the approach at TUoS differs from published frameworks. This question was largely left unanswered, this was due to the model and framework at TUoS being in early stages of development. The chance to look at this question may come in the form of further research which follows the progress of the development and compares to current models and frameworks.

## 6.4 Concluding the recommendations

The recommendations that have come from the research for the implementation of an IDL model and framework are that the definition of IDL will need to underpin the model, and be flexible enough to have meaning for all subjects. The new model should be embedded in the curriculum, with supporting materials such as workshops and videos that allow for further support and information. Staff training will also be needed to ensure that it can be supported, and there will also need to be a student facing model that allows students to understand what is included in IDL without having to read a full framework that may be aimed at academics. Finally, a continual process of feedback and change in order to accommodate differences within subject areas and to allow the model and framework to be responsive to new innovations.

## 6.5 Further research suggestions

This research project has highlighted new areas of potential investigation which could be followed up when the model and framework are more established. Due to the fluid nature of the subject area, action research methodology would suit further study when looking at the development and evaluation of IDL work.

Another potential area of study which was identified is to look at the way IL and DL are taught in FE institutions, as it was identified that students are coming up to HE without skills relevant to IL and DL skills needed in HE. It may be that some investigation will be needed on what is being taught and how it relates to the policies.

## 6.6 Limitations

There are limitations of this study that need to be acknowledged. Firstly, the research took place in the workplace which may have led to unintentional biases towards the institution. Although a conscious effort has been made to avoid this it may still be an underlying bias within the research. As the research focused on one institution, the results are not generalisable to other institutions in the sector.

The study also had a low sample size and only sampled those who had expressed an interest in IDL which may mean that the participants were more knowledgeable. It may have been useful to expand the sample to include staff who have not been involved in IDL, and students. Nevertheless, the results of this research give insight into the current version of the model and framework. The findings also be of use to the IDL working group, which was being assembled as the research was taking place, who will be able to look at the results and recommendations when developing the model and framework further.

## 6.7 Personal reflection

The study has enabled me to look deeper into IDL and into the opinions of those involved in the creation of an IDL model and framework at a HE institution. More than anything, I learned that the opinions of those interviewed seem to reflect the position they hold at the University. When interviewing academics it became apparent that there are subject differences, even in the approaches to IDL in the curriculum and their interpretations; whilst librarians and learning technologist focused on the skills, literacies and underpinnings. This

has changed the way I think about IDL as I may need to be open to how people perceive it based on their own discipline and profession.

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# Appendices

## Appendix i

### Permission from Associate Director, Learning Strategy and Student Engagement

15/03/2017

University of Sheffield Mail - Dissertation



Cat Bazela <c.bazela@sheffield.ac.uk>

#### Dissertation

6 February 2017 at 17:02

To: Catherine Bazela <[REDACTED]>

Hi Cat

Thankyou for sharing - you just need to add in where the data will be stored (but I expect you already know that). Yes, I'm most happy to approve this case study at TUoS as part of your dissertation. It will be exciting to see what you discover.  
Well done so far, this looks like it will be a really worthwhile project.

I'd get an appointment with the interviewees as early as possible, and give them plenty of notice to prepare for the meeting.

Keep me updated on your progress and good luck!

[REDACTED]  
Associate Director, Learning Strategy and Student Engagement  
The University Library  
The University of Sheffield  
Sheffield S10 2TN  
[REDACTED]

We're in The Sunday Times 100 Best Not-For-Profit Organisations to Work For 2016.  
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On 6 February 2017 at 15:18, Catherine Bazela <[REDACTED]> wrote:

Hi [REDACTED]

Please find attached my participant information form and consent form.

Many thanks  
[REDACTED]

On 2 February 2017 at 09:03, Vicky Grant <[REDACTED]> wrote:

Hi Cat

Alison and I had a chat about your dissertation yesterday. We both agree that it is a great proposal and it will really good to learn from your findings.

Thank you too for confirming that Aberystwyth have granted you ethics approval. Could you share you participant information sheet and consent form with us, when you've got those done. Then Alison will be able to send you an email confirming permission to conduct your case study at the University of Sheffield.

Well done on your work to date on this - it really is going to be an important and worthwhile piece of research.

Thanks  
[REDACTED]

---

[REDACTED]  
The University Library  
Information Commons  
University of Sheffield  
Sheffield  
S3 7RD

# Appendix ii

## Permission to use internal documentation

15/03/2017

University of Sheffield Mail - Permission



Cat Bazela <c.bazela@sheffield.ac.uk>

### Permission

To: Catherine Bazela <[redacted]> 24 January 2017 at 11:15

Hi [redacted]

Yes of course, I give you permission to use the documentation and outcomes of the away day.

Thanks,

On 24 January 2017 at 08:41, Catherine Bazela <[redacted]> wrote:

Hi [redacted]

As part of the literature review I am looking at what we did on our away day to get to where we are now. Please may I have permission to use/reference some of the documentation including the vision statement and the current model?

Many thanks

[redacted]  
Digital Skills Training Coordinator  
Library Learning Services Unit

The University Library  
Information Commons  
44 Leavygreave Road  
Sheffield  
S3 7RD

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#WeAreInternational



Cat Bazela <c.bazela@sheffield.ac.uk>

**Permission**

To: Catherine Bazela <[redacted]>

14 February 2017 at 07:21

Dear Cat,  
Of course, you have my permission to use this material as required.  
Best wishes,  
[redacted]

On 7 February 2017 at 10:33, Catherine Bazela <c.bazela@sheffield.ac.uk> wrote:

Hi [redacted]

As part of the literature review I am looking at what we did on out away day to get to where we are now. Please may I have permission to use/reference some of the documentation including the vision statement and the current model?

Many thanks  
[redacted]

[redacted]  
Library Learning Services Unit

The University Library  
Information Commons  
44 Leavygreave Road  
Sheffield  
S3 7RD  
[redacted]

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#WeAreInternational

[redacted]  
Library Learning Services

The University Library  
The Diamond  
32 Leavygreave Road  
Sheffield  
S3 7RD  
[redacted]

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[redacted]



15/03/2017

University of Sheffield Mail - IDL permissions



Cat Bazela <c.bazela@sheffield.ac.uk>

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## IDL permissions

8 March 2017 at 09:53

To: Catherine Bazela <[REDACTED]>

Hi [REDACTED]

A note to confirm my permission for you to use the information and digital literacy models I have created as part of our Library Learning Services Unit work.

Best wishes  
[REDACTED]

--

[REDACTED]

The University Library  
Information Commons  
University of Sheffield  
Sheffield  
S3 7RD

[REDACTED]

## Appendix iii

### Search Strategy

The search strategy consisted of carrying out multiple search strategies on databases and the World Wide Web.

The starting point for the search was the library catalogue of Aberystwyth University and the institution of my employment (also a HE academic library). Both use Primo as the library catalogue, the first search was for books on the subject matter of Information and Digital Literacy. The search carried out on both catalogues were:

“Information Literac\*”

“Digital Literac\*”

Wildcard searching was introduced in order to catch any item that used the word “Literacies” or “Literacy” (See table 1 below for results).

*Table 1 Search results from library catalogues*

	“Information Literac*”	“Digital Literac*”
Aberystwyth University	181	27
University of Sheffield	452	35

The next step in the literature search was to look at the “Articles and more” tabs of both universities to look for more recent research. The initial search used “Digital Literac\*” as a starting term with an anticipation that this would return a large amount of results. A peer review filter was added.

*Table 2 Search results from library catalogues looking at Articles and More*

	“Digital Literac*”	Peer-review filter
Aberystwyth University	5,344	2,819
University of Sheffield	9,577	5,083

Further search filters were used in order to narrow down the search results to a manageable set, as the research is concerned with first and foremost with digital literacy the terms “Digital Literacy” and “Digital Literacies” were used; this narrowed the University of Sheffield results to 487. The search using Articles and more at Aberystwyth were narrowed down using “Digital Literacy”, this narrowed results to 204. Whilst still a large number the results were becoming more manageable. Further filters were used in order to narrow down results further, for example “Higher Education” was used and narrowed down the results to 40 at the University of Sheffield, and 13 at Aberystwyth University. Abstracts were read in order to determine usefulness. Search queries were saved to alert to new content in all searches carried out on the databases.

Searches were also carried out on the academic databases Library and Information Science Abstract (LISA). 331 results were retrieved, this covered a period of 20 years, when the peer-review filter was added, and this reduced to 236 articles. The search was modified to include “Higher Education”, once the peer review filter had been added this returned around 90 results. A search was also carried out on the Library Literature and Information Science Full Text (H.W. Wilson) database returning 180 results for “Digital Literac\*” and 23 for “Digital Literac\*” and “Higher Education” The most suitable articles from both searches have been used.

RSS alerts were created in all databases to alert the author to new articles or research which may have been published, as well as rerunning the searches.

Chaining references from journal articles and books has also been used where necessary to gather more information on certain points raised within the literature, further to this there was an element of serendipity when looking at electronic journal platforms where suggestions were made that were connected to the article being read. Bibliometrics also came in useful as it allowed the researcher to see what articles had cited those being read, and led to more articles being discovered.

With regards to national and institutional frameworks, a different approach had been taken. The World Wide Web has been used to discover item, however, knowledge via the workplace meant that previous knowledge of these frameworks existed. JISC, SCONUL, ALA, ANCIL, and OU frameworks were all known about, however, whilst reading them they also allowed for citation chaining to take place. Library catalogues and academic databases were also used in order to look at literature surrounding the frameworks, however there was variation in the results with some, such as ALA having over 500 articles, whilst ANCIL ranged in the single digits (see table 3). However, the amount of results which were pertinent to the dissertation were low.

*Table 3 Search results from Articles and more tab within University Catalogues. Results not narrowed to peer-reviewed,*

Search term	Aberystwyth Library Catalogue	University of Sheffield Library Catalogue
JISC “Digital Literac*”	93	203
SCONUL “Digital Literac*”	50	85
ALA “Digital Literac*”	214	542
ANCIL	6	6
OU	96	383

When looking on LISA and Library Literature and Information Science Full Text (H.W. Wilson) there were few results available, these were results from all items searchable, due to low numbers of results it was decided not to use any additional filters (see Table 4 for results), of these results even fewer were pertinent to the dissertation.

*Table 4 Search results on LISA and Library Literature and Information Science Full Text (H.W. Wilson) looking at literature surrounding national frameworks*

Search Term	Results from LISA	Results from Library Literature and Information Science Full Text (H.W. Wilson)
JISC Digital Literac*	9	1
SCONUL Digital Literac*	17	2
ALA Digital Literac*	19	9
ANCIL Digital Lit	1	0
OU	1	2

Internal documentation was obtained through work previously carried out by the team in which the researcher is part of.

## Appendix iv

### Participant Information Sheet

Research project reference number: 6198

Research Project Title: **Collaboratively developing an Information and Digital Literature model and framework for the University of Sheffield: A case study.**

Research project for Master's Dissertation (MScEcon Information and Library Studies, Department of Information Studies, Aberystwyth University)

*I am a postgraduate student at the Department of Information Studies at Aberystwyth University, I will be conducting the study. You are being invited to take part in a research project based at Aberystwyth University. Before you decide whether or not to take part in the research it is important that you understand:*

- a) Why the research is being done*
- b) What it will involve.*

*Please take time to read the following information carefully. If anything I have written below is unclear, or if you would like more information about this research project and what it involves, then please contact me (my details are listed at the end of this information sheet).*

*All information about your participation in this study will be kept confidential. Details about how this will be done are included in Part 2 of this letter.*

#### **Part 1. Why are we doing this research: what is its purpose?**

The concept of 'Digital Literacy' has come into use more frequently in the library and academic sector, however, there does not seem to be a clear definition of the concept meaning that the creation of the models and frameworks available can vary greatly. This research project aims to suggest recommendations for such a model and framework which are currently in progress of being created at The University of Sheffield. It will also look at the following elements which have been common themes in the literature surrounding the subject:

- Can a literacy be taught separate from a curriculum?
- Does such a policy support employability and transferrable skills, and are these important?

- Do students actually need support in the area?
- What resources are needed to support a model and framework

It also aims to look at the similarities and differences of the approach taken by The University of Sheffield when compared with other Information and Digital Literacy Frameworks published nationally.

The project is aimed to be completed by the end of April 2017. The study is being undertaken as part of the Department of Information Studies at Aberystwyth University

## **Part 2: What does the study involve: what is the conduct of study?**

You have been identified as a potential participant in this research due to your current interest in Information and Digital Literacy at The University of Sheffield. It was felt that you would be able to offer in-depth and professional knowledge regarding the subject area of the case study.

### **Participation**

You do not have to take part in the study if you do not wish, it is entirely your decision. If you do decide to participate, you will be provided with a copy of this information sheet for your own information, you will also be asked to sign a consent form. You may withdraw from the study at any time, you do not have to provide a reason for withdrawal.

### **What is required of me if I do choose to take part?**

You will be invited to attend a semi-structured interview, which will be arranged at a time to suit you. This will take place at a convenient place at The University of Sheffield. It is anticipated that the interview will take no longer than one hour to complete.

Prior to the interview, you will be asked to be familiar with up to four models and frameworks of Information and Digital Literacy, you do not need to know every detail of the frameworks, just hold a familiarity with the models and frameworks used, in the interviews you will be asked to express your opinions of the models in terms of strengths and weaknesses.

The interviews will be semi-structured in nature in order to find your opinions, knowledge and expertise of the research topic being studied. The topics included in the interview are your does information and digital literacy mean to you, are frameworks and models a useful

way of implementing information and digital literacy, the skills that information and digital literacy provide, embedding information and digital literacy into the curriculum and your opinions on the current model at the University of Sheffield.

If you do chose to participate, all you will need to do is take part in the interview and be familiar with the models chosen.

### **Recording**

The interviews will be audio recorded for the sole purpose of informing the research, and will be used in accordance with the UK data protection legislation and the ethical research procedures of Aberystwyth University. Raw data will be stored on

### **Confidentiality**

All the information you will share with us will be treated confidentially. Both the conversation and the information you provide will be treated confidentially by the interviewer.

### **Anonymity**

All interviews will be anonymised and personal data removed at the transcription stage. Any direct quotes included in the report (that is, quotes of things recorded in the interview), will be used selectively and anonymously (that is no one will be able to attribute/link words to you).

### **Data Security**

The information will be kept securely, and only for as long as necessary to: a) analyse the research and b) report on the research and its findings c) until the end of the appeal window of the qualification (6 months after the qualification is gained). The data will be stored on Aberystwyth University secure, password protected, cloud storage.

If you wish, you can request a copy of the transcript (printed words) of your interview.

### **Ethics**

This project has been ethically reviewed by the Department of Information Studies at Aberystwyth University and permission to carry out the research has been granted by The

University of Sheffield Library. The code of human research ethics, by The British Psychological Society have also been consulted for this research.

### **Results of the study**

The research is being carried out as part of a Master's Dissertation. The research findings will inform The University of Sheffield in the development of their Information and Digital Literacy model and framework. Anonymity will remain intact if this is the case. The findings will be made available to all participants at the end of the study, who will be contacted to ascertain if they would like to receive a copy of the finished dissertation. Results of the study may be published to a wider audience.

### **Contact Details**

For further information regarding this study, please contact

Catherine Bazela [cab41@aber.ac.uk](mailto:cab41@aber.ac.uk) or [c.bazela@sheffield.ac.uk](mailto:c.bazela@sheffield.ac.uk) 0114 222 3987 (Researcher)

Allen Foster [aef@aber.ac.uk](mailto:aef@aber.ac.uk) 01970 628412 (Dissertation Supervisor)



## Appendix v

### Consent form

**Title of project:** Collaboratively developing an Information and Digital Literacy model and framework for the University of Sheffield: A case study.

**Name of student/researcher:** Catherine Bazela

**Project authority:** This research is being undertaken as part of a Master's in Information and Librarianship Studies from Aberystwyth University

1. I confirm that I have read and understand the *Information Letter* dated February 2017 for the above study.
2. I have had the opportunity to consider this information and ask questions about it and have had these answered satisfactorily.
3. I understand that my participation is voluntary and that I am free to withdraw from the study up to, and including the interview stage, without giving any reason and without my legal rights being affected.
4. I agree to take part in the above study.
5. I agree that the data I provide may be used by Catherine Bazela within the conditions outlines in the *Information Letter*.
6. I agree to the use of any anonymised direct quotes in the report.
7. I agree that the findings of the research may be published.

<b>Name of participant</b>	<b>Signature</b>	<b>Date</b>
<b>Name of researcher</b>	<b>Signature</b>	<b>Date</b>

**Please return this Consent Form to: Catherine Bazela ([cab41@aber.ac.uk](mailto:cab41@aber.ac.uk) or  
c.bazela@sheffield.ac.uk)**

## Appendix vi

### Interview Questions

1. In this interview we are looking at the concept of Digital Literacy. What does Information and Digital Literacy mean to you? What do you understand by this?
2. Prior to the interview you were asked to look at three models of Digital Literacy. These were by JISC, The Open University Library and a theoretical approach by Doug Belshaw – what do you see as the strengths and weaknesses of these models and why?
3. Why and how will a model and framework of Information and Digital Literacy be useful for the University of Sheffield? Why do we need one?
4. In the literature, there is a lot of theorising that embedding Information and Digital Literacy could be beneficial to institutions – why do you think this is?
5. Do you feel that there are reasons why Information and Digital Literacy should not be embedded within the curriculum?
6. What are the possible barriers for embedding IDL into the curriculum?

7. I'd like you to have a look at the current model of Information and Digital Literacy as it currently stands at The University of Sheffield. What do you perceive to be the strengths and weaknesses of this model so far?
  
8. What do you see as the main resources needed to support such a model and framework at The University of Sheffield?
  
9. Do students need the support?

## Appendix vii

Extract of transcription of an interview

Interviewer: **Int**

Participant: **A1**

**Int:** What does information and digital literacy mean to you? And what do you understand by the term?

**A1:** So, for me it's predominantly a skills set and a way of thinking for somebody in order to access and take part in a digital activity or access to information

00:00:38

**Int:** Prior to the interview you were asked to look at three models of digital literacy that you might have already been familiar with, so just looking at the strengths and weaknesses of these models, what do you see as the strengths and weaknesses of them?

**A1:** I think when I look through them, and I've looked through them in the past for my own teaching, so in my own teaching I'm involved in teaching new first year students and part of that teaching involves some areas of digital literacy normally so they can find information for assignments, but also be professionals online that's the additional sort of headache if you like, that we have with our medical and dental students. I think just very briefly, I like elements of all three of these models and what I'm familiar with, I like for the JISC model the fact that it's non-linear so the idea you can look at it and the various domains and you can say 'yep, I'm strong there and I need to do some work there and whatever else', and I agree broadly with the categories I think, they had an older [newer] version that had a laptop in the middle which I really didn't like because it put a computer at the centre rather than a person – I always struggled with the idea that you'd be looking at your computer and digital literacy would be coming out of that when really it comes out of the person, so I do like this [JISC model]

Going on to the next one, the OU one, is massive. The document, I find phenomenally detailed. I think for planning curricula it's really good because it's broken up by levels – Level 1 right through to masters and it's broken up by categories. When you're putting curriculum together you can almost constructively align your curriculum to the OU model very easily.

Doug Belshaw's stuff is, I really like and I really like his specific breakdown. I don't like the codes, because I can't remember them – they all begin with C which is not helpful to me so I keep having to sort of refer to it if I'm talking about it. What I really like is some of the elements he has got, I love the civic element – I like the way he has broken that out and I also like the confidence part of it as well, the way he has broken that out as well which is not really explicit in some of the other models so it's one of those things of bits of each. If I was writing a curriculum, I'd use the OU one and I'd be mapping out. The JISC one, is good for covering domains and I think Belshaw's one I think is really good for when you are trying to

think about what it means to a student as a set of skills. So there is no clear winner if you like, I like bits of all of them.

00:03:38

**Int:** Do you see any specific weaknesses within the models that aren't very useful to you in your teaching?

**A1:** To me, I think one of the weaknesses to me is that if I were to give them to a student, I don't think they stand up very well. I think a student looking these, now they might watch the TedTalk [Belshaw] actually because the way it is presented, y'know I think Doug has written a book but also this version is full of meme images which might actually talk to my students. The JISC one is very clear but I think many students won't get to this point, they won't recognise that they have a development need until they have one and in my experience a lot of digital skills, a lot of students think that they have enough until they see somebody else who can do it better than them and then they realise that the game has moved on and they need to go back, so they wouldn't do it from a model like this – they do it from each other which comes under one of these domains [JISC model].

The OU one is the scale of it, I think it could be a bit briefer and more accessible, but I think it's really good if you are planning a curriculum to have all those bits and integrate it in. The Doug Belshaw one, I can't hang my hat on, I can't remember it only elements because it doesn't have a very visual look for the way I work - I can't remember those without looking at them and listing them down, in fact I have a paper version of this that I use where they are actually listed.

00:05:15

**Int:** As you know, at the University of Sheffield we are creating a model and framework of Information and Digital Literacy – why and how will a model be useful for the University of Sheffield – to create their own model?

**A1:** Creating our own model will fit with our own creative patent, and how we create curricula here, that's changing so our own model fits into our own culture which is great. I think it also help with the 'not invented here' syndrome, I think having something that is tailored to Sheffield using our own jargon, services and talking the language we're used to is really useful. I think also, having a model means that we can integrate it into our existing development structures. When writing a new curriculum, you throw it in there and it goes in there and it's integrated already, so I think it's really useful to have something there. I think a lot of people think that it's a deficit in their design structures but they don't know what to do with it. So having that model there will really help you.

## Appendix viii

### Analysis of results – example

Digital Literacy	Skills set, way of thinking for someone to access and take art in a digital activity or access information
Students needing support	Students don't realise that they have a developmental need until they have one...a lot of students think they have enough until they see someone who can do it better. Diverse student body
Embedding	<b>YES</b> In isolation something that students won't engage with, too many other pressures, subject, other skills, academic skills (such as notetaking). Putting DL at the side makes it easy to ignore. They need to be stretched and you do that by context of the subject. If it doesn't carry credit and is done separate, they will focus on the credit. <b>NO</b> Allows people to access it when and where they want if they can identify the need for it. It might get hidden in the programme, but having it discreetly does give it recognition. Point to supporting services. Barriers of embedding include curriculum design - have to go back to the start
Resources needed	Big part will be its own digitalness. Good embeddable VLE resources, a lot will probably find its way as VLE based resource - will need to be clear and usable. Will need a check that this is happening at redesign phase of curriculum - when we look at programme level review will need a dig lit argument in there. Staff development so people can understand it, CPD videos, get people together to talk about it, a champion model on how people have integrated.
Transferrable skills	When you look at all of these models it's actually all the way through your programme and it becomes even more relevant as you are near graduation and in particular you are doing a dissertation, for employment
TUOS approach v models	<b>OU</b> large document, detailed and good for planning curricula because it's broken up into levels and categories. <b>JISC</b> Non-linear so you can identify various domains. Other JISC model with laptop in middle as DL skills come from person. <b>Belshaw</b> codes hard to remember, have to refer to model to know which bit you are talking about, confidence and civic is good. Bits of each model would be useful for curriculum; OU for mapping, JISC domains, Belshaw for what is means as a skills set. Students wouldn't look at them or get the point of them. Models would not show students what they need. OU needs to be briefer. <b>TUOS</b> creating our own model will fit with creative patent how we create curricular here, will be tailored to the environment - should be able to integrate it to curricula. Guide people on how to use it. Colours are a strength - breed consistency, can be used in curriculum design, students may pick up on the eventually. Not linear, you can bounce around. May need to be more development to produce something like OU framework