Factors Influencing Academics' adoption and use of Twitter in UK Higher Education

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Abstract

Twitter is one of the most widely used social media tools, increasingly the object of academic research but also in use by academics themselves in their daily professional practice (Focus, 2010; Gerber, 2012; Lupton, 2014; Rowlands, Nicholas, Russell, Canty, & Watkinson, 2011). A number of empirical studies have been conducted to identify the uses and benefits of Twitter by scholars, at a general level. Among its core benefits appear to be that it offers a professional and scientific conversation channel, a means for sharing research ideas and increased research visibility, bridging geographical distances among academics community and practitioners; the facilitation of global partnerships in research; augmentation of teaching and learning; and the strengthening of academics' engagement with public audiences, enhancing academic esteem and self-promotion (Lupton, 2014; Pearce, Weller, Scanlon, & Kinsley, 2010; Veletsianos & Kimmons, 2012a; Veletsianos, 2013). However, there has been little qualitative research on how academics practice Twitter (Kieslinger, Ebner, & Wiesenhofer, 2011; Lupton, 2014; Veletsianos, 2011, 2013). In this context, the aim of the study was to explore academics' adoption and use of Twitter in UK Higher Education and the factors that influence their use of it.

The study employed a qualitative method within an interpretive methodology (Mason, 2002; Miles & Huberman, 1994). A semi-structured interview was the main method of data collection; complemented by digital observation and interview observation. A total of 28 academics from five faculties at The University of Sheffield (UoS) were interviewed. A thematic approach was taken to data analysis (Braun & Clarke, 2006).

Findings captured detailed trajectories of academics' Twitter use and six main themes emerged in the findings, namely: (1) the characteristics of Twitter users, (2) immediate drivers to adopt Twitter, (3) the pattern of adoption, (4) the range of Twitter uses, (5) temporal and behavioural patterns of Twitter use and (6) academic concerns over using Twitter. In addition, the study explores how attributes of the platform and technology affordances have key roles in shaping the practice. The study found that academics' participation on Twitter is complex and multifaceted. Academics engage with Twitter for different purposes mainly in pursuit of academic interests and not for personal use. Findings identified nine types of Twitter use namely: (1) communication; (2) dissemination; (3) pedagogical activities; (4) building relationships and maintaining networks; (5) performing digital identity; (6) taking micro-breaks; (7) information seeking and gathering; (8) learning and (9) coordinating or amplifying other social media and website use. They perform these activities in strategic ways through a certain routines

and develop approaches in managing its use. However, there is no simple formula to carrying out these activities.

From a broader perspective, this study recognised two different views of the academic experience in relation to technology that could be relevant also to microblogging: a pessimistic and an optimistic view. Twitter use reflects issues identified by pessimistic commentators relating to the challenges faced by modern academics, such as: increasing competition to produce more quality and 'impactful' research; an agenda of excellence in teaching; pressure for public engagement; the rise of the academic 'portfolio CV'; the research excellence framework (REF); and the wider effects of globalisation and the neoliberalism agenda (Henkel 2005; Clegg et al. 2003; Selwyn 2007; Fanghanel & Trowler 2008; Fanghanel 2011; Clegg 2012; Lorenz 2015). All these could be thought to affect how microblogging is taken up. On balance however, the experience of academics reflected more optimistic views of the impact of technology in Higher Education (Kirkup, 2010; Pearce et al., 2010; Scanlon, 2014; Veletsianos & Kimmons, 2012c; Veletsianos, 2013; M. Weller, 2011). Interviewees saw themselves as innovators and use Twitter as a vehicle to respond to the heavy workload that burdens them and they found the tools support their work in convenient and effective ways.

The research makes a number of practical recommendations, providing suggestions to stakeholders in higher education such as institutions, academics and software developers. These include recommendations to provide staff with social media awareness training, promoting policies and guidelines for effective use for academics work including teaching activity, fostering take up through 'key evangelist' and promotional activities, offering helpdesk support, and teaching staff to anticipate risks such as managing social etiquette on Twitter. From a technical perspective, the study could inform the future design of technologies to support academic work.

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Chapter 1 : Introduction

1.1 Background of the study and importance of the research

There has been much interest world-wide in the subject of social technologies on the internet. The emergence of Web 2.0 technologies is changing the way users connect in a range of social and professional contexts (Anderson, Hepworth, Kelly, & Metcalfe, 2007). In 2004, the term Web 2.0 was first coined to describe a shift from static and proprietary systems where content and applications are usually maintained, created or published centrally to ones that can be constantly altered by their users as participatory and collaborative platforms (Kaplan & Haenlein, 2010). This advanced development of the World Wide Web has had a huge impact on the internet world, where it offers flexibility in facilitating networking and online communication and enhanced collaboration, social linkages and knowledge sharing between users around the globe (O'Reilly, 2005). Thereby a new '*social fabric'* has been arguably constructed (Anderson et al., 2007). Selwyn (2012, para. 2) suggests that, in recent years, the wide-scale uptake of these technologies *'has transformed the ways in which the internet is experienced by most end users'*.

Social media is media is built upon Web 2.0 principles and practices (Kaplan & Haenlein, 2010) and is of particular importance because of its potential to change how people communicate, search and exchange information online (Gruzd, Wellman, & Takhteyev, 2011a). This group of Web 2.0 applications, which has also been named user-generated content (UGC), enables online users to enter a more social participatory phase and be dynamic contributors creating, managing, annotating, curating, reviewing and sharing information/data as members of online communities (Kaplan & Haenlein, 2010).

The main features of social media are that: (1) it offers a highly interactive platform where users participate in activities including sharing resources, discussing and exchanging ideas and work collaboration in virtual communities and dynamic networks; (2) it is ubiquitous and interactions are supported by web-based technologies and mobile platforms and (3) it is a 'real-time' environment, meaning the users engage virtually, with no delay (Kaplan & Haenlein, 2010); and (4) offers 'mass socialisation'; i.e. harnesses the power of crowdsourcing through the community of online users rather than individual users (Selwyn, 2012, para. 1). There has been a deluge of social media sites that offer a variety of services. Among the early social media tools were *Wikis* and *Blogs,* which were joined later by social networking sites (SNS) (e.g. *Myspace, Flickr, Facebook, Twitter, YouTube, Google*

Plus, Linkedln) (Anderson et al., 2007; Grosseck, 2009; Rowlands et al., 2011; Tenopir, Volentine, & King, 2013).

Since their inception, the expansive use of social media has been seen in many sectors of society, including business, health services and government (Aharony, 2009; Barsky & Purdon, 2006; Barsky, 2006a, 2006b; Cahill, 2011; Osimo, 2008; Tredinnick, 2006). Higher Education (HE) is one of the most active fields where people have been trying to use such technologies to improve the quality of educational outcomes. For instance, many institutions have embraced social media with enthusiasm for its potential to aid in learning, facilitate information sharing and foster collaboration among teachers, researchers and administrators, as well as students. Specifically, HE administrators are already adopting social media in various university functions including, but not limited to, university-wide communication, facilitation of enrolments, marketing and promotion, and public and alumni relations (Wankel & Wankel, 2011). Taking on social media provide them with the opportunity to share stories of students and alumni that in turn forms credibility and opportunities for future business (students) and ultimately affects the institution's reputation (Solis, 2008).

Thus there has been a lot of rhetoric around social media. However, the question of whether social media can benefit HE is perhaps best understood in more equivocal terms. New Internet phenomena have often been envisioned through the lens of technological utopia and dystopia (Howcroft & Fitzgerald, 1998). According to Surry and Farquhar (1997), utopian determinists believe that technology and its development are unavoidable and autonomous and hold the promise of prosperity and human salvation. On the other hand, dystopian determinism sees the opposite arguing that technology while unavoidable and autonomous, will destroy humanity and the natural world because it is morally corrupt. Accordingly, some commentators from a dystopian view point have made the criticism that it is still unclear how web 2.0 technologies may bring qualitative change to higher education and are very negative about what the technologisation of education represents.

Concerns that have been raised from this more sceptical perspective include: the impact of introducing new technological trends to education, particularly in relation to social technologies as a mere whim. For example, in its attempts to remain competitive and follow current digital trends, HE frequently initiates use of digital technologies that are incompatible with the stakeholders' needs and often not initially designed for the academic profession (Veletsianos, 2011). This can disrupt formal educational systems.

Further, technologies can be seen as forms of surveillance and control that undermine academic freedom (Selwyn, 2007). There are also doubts relating to technological immaturity such as the question of the suitability of social media applications use in academic contexts such as for education, learning and knowledge (Grosseck, 2009). In addition, critics have concerns over time spent learning how to use these new tools; and their fragmented and specialised nature (G. Collins & Quan-Haase, 2012; Grosseck, 2009; Selwyn, 2012). It is often that technologies are seen as a form of managerial control.

Despite these criticisms, with the on-going development of social media applications, enthusiastic academics have been practical innovators taking steps to explore such tools. A number of researchers of the use of social media in HE have suggested that the use of Web 2.0 tools for the advancement of teaching and learning in education has been successful (Seal & Przasnyski, 2001; Selwyn, 2012; Wankel & Wankel, 2011). Besides instructional purposes, academics have begun to expand their use for a wide variety of purposes including for scientific and professional reasons (Lupton, 2014). Some authors have argued that social media use may transform the very nature of academic communication, writing, scholarship, research patterns, relationships and identity (Kirkup, 2010; Nicholas & Rowlands, 2011; Veletsianos, Kimmons, & French, 2013; Veletsianos, 2013; M. Weller, 2011).

Microblogging via Twitter is one of the most common examples of social media being used in academia (Lupton, 2014; Page, 2012; Rowlands et al., 2011). This platform is popular for immediate communication and can include links to photos, videos or other online content. The 'micro-communication' features of Twitter presents users with an efficient way to communicate, by just typing short messages of 140 characters, which does not require much time and effort to be invested during their engagement (Ebner, Lienhardt, Rohs, & Meyer, 2010; Holotescu & Grosseck, 2008). But despite the limited characters needed to be input, it can offer continuous public discourse in an open environment. These features mark Twitter's difference with Facebook, which is more popularly used for establishing personal social networks rather than public discourse (Ebner, Lienhardt, et al., 2010; Ellison, Steinfield, & Lampe, 2011). Twitter has been found to support communication activities and promote collaboration, through discussion, giving updates, putting questions and providing suggestions that facilitate an increase in awareness between scholars (Honeycutt & Herring, 2009; Junco, Heiberger, & Loken, 2011). It has also been claimed to be an effective information dissemination tool for sharing links and resources, while supporting social networking (Reinhardt, Ebner, Beham, & Costa, 2009).

It has been suggested that Twitter aids informal learning, is advantageous for news consumption and can serve as a personal archive of information through the favourites feature. In many ways, Twitter seems to have added value to current educational practices (Murthy, 2013).

A number of empirical studies have been conducted to identify the uses and benefits of microblogging for scholarly purposes. According to these studies among many core benefits that Twitter offers are: a channel to engage in a professional and scientific conversation; a backchannel to support communication at conferences; a medium for sharing and exchange of research ideas and so increasing research visibility; and a means to augment teaching and learning (Pearce et al., 2010; Pepe & Mayernik, 2011; Veletsianos & Kimmons, 2012c; Veletsianos, 2013). Twitter is found to be useful in connecting and maintaining networks among groups of practitioners and scholars and for developing professional learning networks (Alderton, Brunsell, & Bariexca, 2011; Dunlap & Lowenthal, 2009; Greenhow & Robelia, 2009). Of late, interest in impact indicators through social media have exploded where Twitter-specific ‘altmetrics’ have revealed patterns of informal scientific citation. This has been particularly seen as a popular discussion in some academic conferences and symposia (Letierce, Passant, Decker, & Breslin, 2010; Priem & Costello, 2010).

Individual academics, groups involved with research projects and departments have increasingly adopted Twitter to fit their scholarly needs; for instance in broadcasting and advertising their own research, publications, events or other academically relevant updates in the same way as other commercial, political, or societal actors do in their public relations and marketing efforts via Twitter (K. Weller, Bruns, Burgess, Mahrt, & Puschmann, 2014). This digital innovation has particular potential importance in shaping the behavioural norms among modern academics in performing their scholarly activities and engagement in professional lives (Veletsianos & Kimmons, 2012c). The studies identified above suggest the involvement of academics on microblogging platforms is an evolving practice (Dijck, 2012), but that they do not necessarily use them extensively for professional purposes.

Despite the apparent importance of Twitter to some academics, there is little evidence as to the extent of why and how academics practice Twitter; this has received less empirical attention and remains a neglected area of research (Kieslinger et al., 2011; Lupton, 2014; Veletsianos, 2011, 2013). In fact, none of the published studies focuses solely on investigating the factors influencing the adoption and use of Twitter in the academic context. Previous research has primarily concentrated on identifying what are the common activities academics perform on Twitter, particularly within different contexts of usage such as around conferences or pedagogical use, or types and details of tweet sharing (Ebner, Lienhardt, et al., 2010; Gao, Luo, & Zhang, 2012; Junco et al., 2011; Rinaldo, Laverie, & Tapp, 2011; Ross, Terras, Warwick, & Welsh, 2011; Veletsianos, 2011). While these studies discuss the types of activities academic use Twitter for, the uses are described in rather general terms. Researchers have argued that scholars begin to shape conventions of Twitter use to fit scholarly aims and objectives (Veletsianos, 2011). Yet there is a lack of empirical evidence in understanding holistically academics' motivations, their rationale for and perceived benefits to participation, specifically how these uses significantly relates to their work practices.

Furthermore, there have been few studies in the UK, and those that have tended to been based on surveys of broader use of social media. Often microblogging studies refer to other countries such as the USA and Australia where many aspects of the higher institutional policy and strategy, culture, and norms are likely to be different. Therefore, within the current limitation, this study attempts to examine in detail what factors influence academics' adoption and use of Twitter in UK HE in particular.

Current literature argues that the use of social media is not primarily associated with classroom learning and accommodating the needs of "digital native" students (Selwyn, 2009, 2012). Its adoption may come about by higher institutional and departmental social media initiatives, interdisciplinary work, disciplinary interest, cost-cutting, attitudes towards technologies, individual's history and principles of technology, facilities use, social influences, professional competency and development (Ajjan & Hartshorne, 2008; Alderton et al., 2011; Gruzd, Staves, & Wilk, 2012; Rowlands et al., 2011; Veletsianos, 2011). Other studies indicate that scholars who actively engage in social media for professional interest due to the positive support received from their colleagues and institution (E. Collins & Hide, 2010). While all these claims are made on social media adoption in general, there are significant gaps in our understanding of what are the initial key drivers that motivate scholars to adopt microblogging in different ways. Looking into the larger political, economic and social forces at work may give us some clues to this (Gruzd et al., 2012; Lupton, 2014; Selwyn, 2009).

Examining Twitter adoption may also reveal how conventions of use emerge and become coordinated to academic routines. In particular, further study is needed to identify what processes occur during adoption and how academics experience its use during the routes to adoption. The temporal and physical rhythms of its use and how Twitter affordances are appropriated has not yet been studied. The appearance of digital devices in mediating academic practices is a significant aspect that needs further attention. Significantly, understanding common characteristics of academics that use Twitter may bring another view the type of user's in microblogging adoption. All of these issues are significant for the construction of a picture of how academics use Twitter and a prompt to conduct more research in the field.

The potential negative impacts on academics are also not well defined and examined in previous research. So far, the majority of published studies highlight the risk of using Twitter in instructional uses (Dunlap & Lowenthal, 2009; Grosseck & Holotescu, 2011; Lowe & Laffey, 2011; Rinaldo et al., 2011). Other previous studies tended to treat issues in rather more general terms of the use of social media tools and revealed common problems associated with academics' privacy and copyright issues, information credibility, no recognition, time constraints, risks to academic's career, personal attack, information noise, etc. (Gruzd et al., 2012; Lupton, 2014; Nicholas et al., 2013). Therefore, it is important for studies to identify the types of risk that academics experience in using Twitter.

From a methodological viewpoint, the majority of studies on Twitter in HE have tended to use quantitative methods. The data analysed are of users' experiences gathered in surveys and they have often been about social media use as a whole (Lupton, 2014; Nicholas et al., 2013; Tenopir et al., 2013). Few qualitative studies have examined Twitter usage by individuals in their work activities (Ebner, Beham, et al., 2010; Honeycutt & Herring, 2009; Kieslinger & Ebner, 2011). Several of these quantitative studies have received criticism for their research method, e.g. the reliability of the data in relation to gender demographics (Kieslinger & Ebner, 2011). Moreover, the insights gained by researchers regarding individuals' practices are reported only at the descriptive and statistical level (Kieslinger & Ebner, 2011) that provides a broad picture rather than detailed explanation. Much is to be gained in filling out our understanding of microblogging use through more in-depth qualitative research.

Thus, this study seeks to provide rich descriptions of the nature of microblogging participation by academics. The outcome of the research can be useful to other researchers to continue studying the nature of social media adoption in different levels and contexts. It is envisaged that the findings from this research will make a contribution to the body of knowledge on academics' adoption and use of microblogging in academic settings and provide better understanding for implementation of Web 2.0 technologies and social media in the larger institutional context.

1.2 Research aim, questions and objectives

The aim of this research is to explore academics' adoption and use of Twitter in UK Higher Education and the factors shaping this.

1.2.1 Research questions

Eight specific research questions were identified and serve as the basis of the study as follows:

1. *What are the characteristics of academics who use Twitter?*
2. *What immediate drivers shape its use?*
3. *What are the common patterns in the process through which they adopt it?*
4. *For what purposes do academics use Twitter?*
5. *What temporal and material habits of its use do they have?*
6. *What are the features of the technology that enable it to be used in different ways?*
7. *What are academic users' concerns about Twitter?*

After a critical analysis, the data collected for the study was found to offer important findings about the broader contextual factors shaping academics' use of Twitter; hence a new research question materialized:

8. *How does the use of Twitter reflect the changing nature of the role of an academic in the UK in 2013?*

1.2.2 Objectives of study

a) To locate previous research literature on Twitter use by academics in HE and to identify a research gap. This task involved critically assessing published studies on microblogging use in broad areas, including its development in HE and narrowing to academics' Twitter use. The purposes were to (1) provide a knowledge base of the area of study; (2) develop theoretical background and specific aspects of enquiry; (3) help contextualise findings within the existing body of knowledge; and (4) formulate the study aims, research questions and refine methodology.

b) To develop a suitable research design, through reading literature and conducting a pilot study. This included identifying a research site, defining a sampling strategy and respondents, laying down procedures, data collection methods and identifying ethical and practical problems of the research.
c) To do initial observation on use of Twitter through performing a pilot study in order to: 1) build general awareness of the research background; and 2) determine the final direction of the study. The activities include developing and refining the research questions and testing the research instruments and procedures chosen.
d) To conduct in-depth interviews in order to gauge in more detail academics' experiences of Twitter including questioning how they use Twitter, what is the process of adoption, when and where they normally use Twitter, and what types of tweet they usually send.
e) To transcribe, code, analyse and synthesise thematically the data collected to produce a classification of academics' use of Twitter. This stage aims to answer the first seven research questions.
f) To compare the findings with the key literature of previous research in order to explore the significance of the study.
g) To interpret the findings and offset the immediate findings in the widest context of higher education as a whole, so answering the eighth research question.
h) To summarise the overall meaning of the study and make recommendations to stakeholders in higher education based on the framework of findings.

1.3 Research journey

This section describes briefly how the research developed and the design choices made, including in the pilot study. This description is to make clear to the reader how the researcher anticipated undertaking the research procedure, the evolving nature of the research study and how the research aim and questions developed during the research process. Specifically, it describes how the initial focus of the study shifted after considering the results from the first round of exploration, producing a revised aim and approach for the second and main phase of research. It is also particularly important to clarify the timing of the study because of the changing nature of Twitter over a short time period.

The research began in October 2011. The researcher was interested in studying Web 2.0 and social media applications that were being adopted in HE and decided on microblogging and especially Twitter, because of its emergence as a notable phenomenon. Following this research interest, the researcher began to direct the focus towards a pilot study. The pilot study focused on the practice of microblogging, specifically Twitter, for learning and teaching by academics. In particular, the focus at that point was to examine how and why academics engage in microblogging in learning and teaching and how their uses of it in teaching shape students' learning experiences. A key defining conceptual framework was intended to be the concept of engagement (Kahu, 2011; Kuh, 2012). Thus the aim and the research questions were defined as follows:

Research Aims:

The aim of the pilot study was to explore academics' adoption and use of microblogging in learning and teaching in higher education.

Research Questions:

1. *What are the different ways academic use microblogging in teaching?*
2. *How does the use of microblogging both reflect and shape teaching practice?*
3. *How do the different uses by academics shape student learning experiences/ engagement?*
    - *How does Twitter interaction promote social connections amongst students?*
    - *How does Twitter use increase students' engagement on a course?*
    - *How does Twitter use support students' in-class learning experiences?*

A small-scale pilot study was conducted during the spring semester 2012 (a 4-week period); the sample included three tutors (one academic staff member and two postgraduates) and 50 students were recruited. A qualitative approach (mainly semi-structured interviews and secondary data of surveys) was adopted to investigate the research phenomenon using both quantitative and qualitative types of data sequentially, in order to provide the best understanding of the research problem.

The research process of piloting the interviews and survey enabled the researcher to gain a new insight on how the study as a whole should develop. As Yin (2009) suggested, a pilot study is useful to help the researcher review and re-plan data collection design as well as structure a relevant lines of questions. On the basis of assessments made during this pilot study, some significant points were identified and described, which supported the researcher's belief that the topic was worthy of further research and exploration. It was also concluded that the research focus should be widened to academics' use of microblogging in academic practice in general, decentring learning uses, and the student experience in particular. There were three main reasons why the research focus was shifted: (1) during the piloting, interviews suggested that the teaching perspective was too narrow and that this element was one among other core Twitter activities that they were undertaking meaning that the behaviour as a whole needed to be studied; (2) the researcher felt unsatisfied with the outcome of the pilot study: the respondents (students) were not forthcoming and the results were shallow. The researcher sensed a more naturalistic approach could be used redirecting attention to academics; (3) the researcher recognised that, in examining the naturalistic setting, a qualitative study would be more appropriate than a quantitative study.

The researcher refined the research design and ended up employing chiefly qualitative methods as the focal approach to main study. The newly emergent study aim, research questions and objectives were reformulated as stated in Section 1.2. This shift from the initial exploration to the final stages of data gathering is not an uncommon case during the research progress (Kumar, 2014). The researcher has taken considerable care to anticipate any changes or problems in the process. One of the measures was that, during the pilot study, the researcher ensured that while the key concepts were discussed according to the research enquiry, the researcher strove to maintain openness, flexibility and freedom to any valuable ideas that were significant to be added into the full-scale study framework to provide greater chances of a clear outcome.

The main study involved investigating a small group of 28 academics (purely lecturers) at the University of Sheffield from five major faculties (Science; Medicine, Dentistry and Health; Engineering; Social Sciences; and Arts and Humanities) in the period from December 2012 to July 2013. Two stages of data collection were commenced with the first round of 13 academic participants and a second with 15 academic participants.

A further evolution of the study should be noted. Once the main data analysis had been completed, it became apparent that there were wider contextual factors that might be explored to fully explain the phenomena of Twitter use. These underlying causes were always an objective for the study; but towards the end of the project a desire to grasp this at a deeper level led the researcher to return to the relevant literature to gain better understanding of the context of study, and focus on broad trends that have influenced HE policy and systems. It was at this point research question 8 was put forward. Grasping the broader context of social forces emerged as of key importance to the study because in explaining the fundamental reasons for why and how academics use Twitter.

1.4 Scope of the project

This study focuses exclusively on academics who worked in The University of Sheffield. Some reasons for this were as follows:

1. To focus in depth. Setting the boundaries in this way limited variables which might influence the research context. This could include the university's objectives, systems, organisations, performance, strategy, student populations, etc. The researcher believed that studying in depth within the University of Sheffield would give her deeper understanding of how academics work within the complex HE environment, i.e. their relationship with the university, their connections and communications among colleagues and students, as well as the institutional support available to enable the academic to pursue their philosophy and goals in academic work.

2. Familiarity – The researcher was familiar with the university culture, structure and atmosphere of Sheffield, as this was the institution where she had enrolled for her PhD study. This familiarity gave the researcher an advantage in constructing, planning and developing a research strategy in recruiting participants, as well as being able to describe the research context within its chosen boundary effectively.

3. Access to research participants – The researcher's knowledge and awareness of the university system provided her with greater opportunities to have direct contact with the research sample through the university email, website or by visit. The physical location also made it possible to access the sample easier and hence the researcher could carry out multiple visits to academics' workplaces (if necessary, to acquire detailed information), and for conducting interviews and arranging appointment times. Another advantage was that the researcher, being a student at the university, had better prospects of making contact with academics in the university, since they knew they could trust her and supported the contribution the research would make to the university.

4. Cost and Time – Having better access to participants helped reduce the time and cost of travel for the researcher, since the researcher's funds were limited. This is important because, on some occasions the academic participants might need to reschedule a meeting and this would have been likely to adversely affect the researcher's plans and interviews schedule if she had needed to make regular long journeys without always being able to collect the required data.

1.5 Thesis structure

This following section gives an outline of the thesis, listing each chapter and giving brief details of their contents.

Chapter 2: Literature review. This chapter sets out the scope of the relevant literature. It critically reviews studies in social media and microblogging that have relevance to the context of this study's interests. It discusses the main features of microblogging, and its practice in different settings. It then introduces Twitter as an emerging microblogging tool that has shown potential for use in many fields including in the HE environment. Previous studies of its use in HE are reviewed. The chapter highlights key previous findings about Twitter practices in academia and discusses its implications for academic practice. The shortcomings of this tool from the educational view are also presented. Through critical evaluation, some gaps were identified within the body of literature. The analysis suggests some limitations including lack of focusing on academics' microblogging adoption and use for scholarship practice. Identifying this gap has contributed to the development of the study's aim, research questions and the objectives of study.

Chapter 3: Research methodology. This chapter outlines the research design of the study, methodology and data collection and analysis methods. The beginning of the chapter is devoted to explaining the choice of research methodology in the light of the research questions and the research assumptions. It starts with explaining the philosophical assumptions made; the ontological and epistemological view that informed the research design. It is explained that an interpretive stance was adopted. The section summaries the rationale of choosing the research methodology used, the research phases and the techniques applied for data collection. It also gives details on the data analysis process, justification of the chosen mode of analysis. Finally, ethical issues are discussed in this section.

Chapter 4: Drivers and trajectory for using Twitter. This chapter together with chapter 5 and 6, focus on presenting the overall findings that emerged from the in-depth interviews, data analysis and interpretation gathered from the academics in the University of Sheffield on their perceptions and experiences of using Twitter. This chapter sets out three emerging themes. The first theme describes the common characteristics of Twitter users. The second theme highlights the main drivers that influence academics to adopt Twitter and the third theme discusses the process of Twitter adoption by academics.

Chapter 5: Academic use of Twitter. This chapter unfolds the range of Twitter uses that develops after the adoption. Nine themes are presented with details of how this uses are significant to academics practices.

Chapter 6: Patterns of Twitter use and Concerns related to the use of Twitter. This chapter highlights academics approach to using Twitter, including the behavioural and temporal habits of use and the way they manage their Twitter activities. The chapter also reveals some worries they feel when using it.

Chapter 7: Discussion. This chapter integrates the salient points of the research findings delivered in Chapters 4-6, and contextualises them in the light of previous studies. The chapter consists of three sections; first it summarises the key findings of the study. Secondly it compares the outcomes with the most relevant previous studies, namely those of Veletsianos (2011) and Lupton (2014). The findings are also discussed in relation to other studies in this area. Thirdly, it unfolds the contextual factors that influence academics use of Twitter for academic purposes. It introduces two different views on trends in academic life and the use of technology in particular: a pessimistic and optimistic viewpoint. The pessimistic view criticises globalisation and the neo-liberal agenda that is seen to be transforming UK Higher Education governance and policies. Technology is seen as part of this new regime of control. The optimistic view outlines how technologies can be instruments to respond positively to the structure that underlines academics' need to perform. In relation to these viewpoints the study comes down firmly on the side of interpreting Twitter users experience as positive.

Chapter 8: Conclusion. This is the final chapter. It concludes the thesis by summarising the research. This chapter describes the overall work; restates the research questions and the key findings, presents a statement of empirical and theoretical contributions, offers methodological reflections and considers the practical implications of the study. Suggestions for future research are discussed.

Chapter 2 : Literature review

2.1 Introduction

The introduction and integration of Web 2.0 technologies in society have opened up new possibilities to academics in managing all aspects of their professional endeavours. Social media are among the popular tools that have been explored by academics because they have realised their potential benefits and begun to embrace them in their work. As described in chapter one, this study concentrates on understanding academics' participation in microblogging, specifically in Twitter. The study is interested in understanding factors that shape academics' adoption and use of Twitter in the higher education setting. The starting point for this research was built on reviewing literature in two different areas: (a) social media use in higher education and (b) Twitter in higher education. The scope of the review is shown in Figure 2-1.

The initial part of this literature review, which forms a background for the study, consists of a review about the relationship of social media with higher education. The discussion is, then, narrowed down by presenting studies relating to microblogging and centres it on Twitter, being one of the most important emerging social tools (Magna, 2010) available today. This analysis also includes an examination of studies on how Twitter is integrated in higher education.

Earlier searching for relevant literature (in November 2011), revealed that there were a limited number of studies on microblogging particularly in the context of higher education, with less than 25 scientific papers found (Gao et al., 2012). Among this material, the literature was largely focused on Twitter in pedagogical uses (Ebner & Schiefner, 2008; Gao et al., 2012; Junco et al., 2011; Rinaldo et al., 2011). In relation to the abovementioned statement, a gap was seen in the published studies related to the discussion of academics that use Twitter. Linking these ideas together, the researcher designed an initial exploration or a pilot study to understand further how academics use Twitter for their teaching and learning (see also Chapter 3). The outcome from the pilot study triggered the researcher to broaden the scope of study. Thus, this prompted revisit of pertinent literature to focus on the use of Twitter for academic purposes. There is a lack of literature found about the topic being explored and the existing studies often provide general and descriptive application of Twitter, putting less emphasis on the detailed reasons that academics use it. Specifically, the 'how' and why' questions have not really been considered by most studies previously conducted. This suggested that there was a gap in the literature regarding qualitative studies of the use of Twitter and the problems of such practice among academics in HE. This gap prompted the researcher to explore this area deeper and to understand why academics want to adopt Twitter. To respond to this gap, the research questions for the study were reformed. Similarly, this research presented an updated literature review on: a) studies of Twitter in HE, and b) the wider educational context. However, the review of literature for b) is presented in the discussion chapter (see Chapter 7).

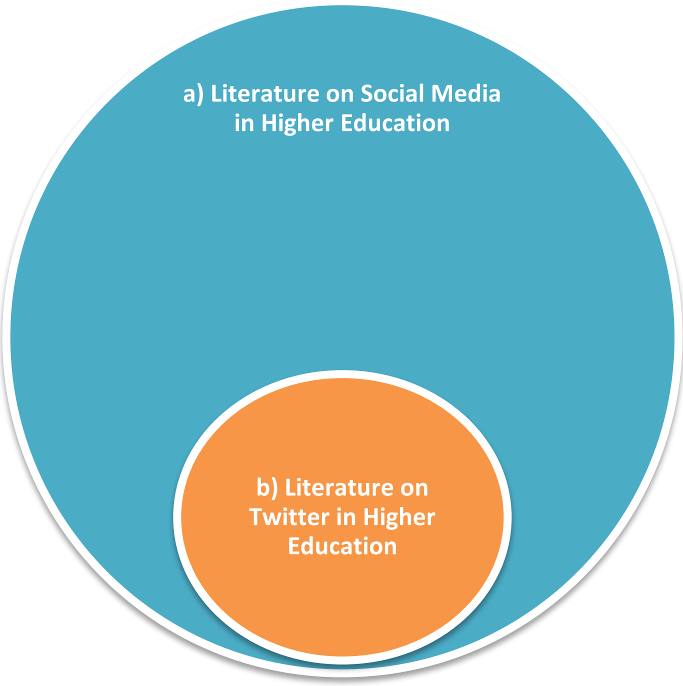


Figure 2-1: The scope of literature reviewed

The purpose of this literature review is to situate the literature on Twitter within microblogging and social media and to discuss its adoption in higher education, particularly by academics. It begins briefly with an overview of Web 2.0 and the social media phenomenon (Section 2.2). The next section highlights the growing number of studies of social media in higher education (Section 2.2.1). The emergence of microblogging is then described with some examples of microblogging tools and the key features of microblogging (Section 2.3). Twitter, the main microblogging tool for this study, is presented with some of its background history (Section 2.4) and features (Section 2.4.1). Furthermore, the studies of different motives and intentions of use are discussed (Section 2.4.2) and Twitter in the light of research perspectives (2.4.3). It is, then, followed by discussion of the literature around the use of Twitter in academic settings (Section 2.5). The different practices of Twitter by academics are also discussed (Section 2.5.1, 2.5.2, 2.5.3) and the issues around the application of Twitter are explored (Section 2.5.4). Based on this review, the research gap in previous studies is identified and how this research could address the gap in conclusion to this chapter (2.6).

2.2 Web 2.0 and Social Media

The revolution of the World Wide Web - from Web 1.0 to Web 2.0 – involves a move from developer controlled content and a strong copyright regime to an open and social sharing culture connecting people worldwide and offering possibilities for a collaborative workspace. People can interact in a hybrid environment (physical and virtual) and can share work via a global information space (Anderson et al., 2007). Fundamentally, with Web 2.0 the platform is now being utilised by two parties: the software developer and end-users (Kaplan & Haenlein, 2011). Stephen Downes (2010) sees Web 2.0 and its emergence to be more of a social revolution rather than entirely a technological one because it points towards an attitude change rather than a technology in itself. This attitude is directed towards fostering participation among users through an enabling and encouraging means by embedding openness in its application and services.

Web 2.0 offers a new concept of social community driven by inquiry and exploration though a web-based platform. It creates value through democratisation of information production and applications that are driven by millions of Web participants. Accordingly, Web 2.0 has led to some profound changes in social, political and economic aspects of modern society (Manno & Shahrabi, 2009; Attia et al., 2011; Darwish & Lakhtaria, 2011; Azab, 2013). Some examples of spheres of activity where it has seen to have had impact include places where organisations redefine businesses marketing, where new platforms are built for customer relationships, where dynamic channels for journalists to broadcast information to readers are fostered, for politicians to win voters, for teachers to inventively educate students, for people sustaining social relationships, as well as for individuals to perform or assert their identity online (Hughes & Palen, 2009; Tawileh et al., 2013).

Despite the Web 2.0 meme, the meaning of this technology is still debated and ambiguous (Anderson et al., 2007; Grosseck, 2009). While there is no single definition of the term Web 2.0, a widespread agreement is present where 'a concept and a platform' is seen and it has some basic principles that characterise it, such as user generated content (UGC), collective intelligence/harnessing the power of crowd, meta-data, network effects, dynamic content and openness (Anderson et al., 2007; O'Reilly, 2005). Web 2.0 offer its users creativity, more inclusive, ability to share and harness information, autonomous participation and the ability to create their own information and material contents in a low cost dynamic network platform (Franklin & Van Harmelen, 2007; Grosseck, 2009).

Social media, based on Web 2.0 services, are websites that support collaboration among individuals and communities, facilitate social communication, assist in putting together communities, and increase involvement and sharing of social responsibility (Guy, 2012). This concept of social media was first manifested in weblogs as 'open diaries', as well as in social networking sites (e.g. Myspace and Facebook). However, there is no universally accepted definition of social media, as it is constantly in a state of change (Tess, 2013). Nonetheless the term is generally used in the contexts of business, academia and the media (Gruzd et al., 2012; Kaplan & Haenlein, 2011; Senadheera, Warren, & Leitch, 2011). Among the agreed categories of social media are blogs and microblogs, media sharing tools (video, audio, text, images), online documents, Really Simple Syndication (RSS), social networks, tagging, virtual worlds, and wikis (Gu & Widén-Wulff, 2011; Kaplan & Haenlein, 2010; Nicholas & Rowlands, 2011).

Social media adoption has surged globally over the recent years. To illustrate this development some statistics are presented based on the data of the most popular social media sites today. For instance, Facebook had attracted over 640 million subscribers by 2011 and it increased significantly to about 1.49 billion monthly active users as of June 2015. Twitter, had 175 million users in 2011 but immensely expanded to about 316 million users as of June 2015. For the popular video site, YouTube, there were a total of three billions views per day during the same period and it is increasing at a quick rate everyday of every year (Chen & Bryer, 2012; Senadheera et al., 2011; www.facebook.com; www.twitter.com; www.youtube.com). This massive growth shows the prominence of social media and it has become dominant in the ways in which digital technology is currently used by people around the world (Selwyn, 2012). Many industries and practitioners of different fields including business, marketing, management, science, and technology are searching for the best formula to benefit from these powerful tools. Conceptually, social media can be understood and experienced in many forms. As introduced by Kietzmann et al. (2011, p. 243), there are seven key functional blocks that represent the social media ecology. These are illustrated in Figure 2-2 together with the key summary (source adapted from Kietzmann et., al 2011) as described below.

Figure 2-2: Social media of functional blocks

- Presence: The extent to which users are able to determine online visibility of other users, which also includes location.
- Relationships: The extent to which people in the network relate and establish connections with each other.
- Reputation: The extent of how users identify and recognize the social position of other people as well as the contents being exchanged in the network.
- Groups: The extent to which users form communities online.
- Conversation: The extent to which users on the platform communicate and exchange ideas with other users.
- Sharing: The extent to which information sharing among users is seen, by exchanging and distributing contents.
- Identity: The extent to which social media users disclose or conceal themselves.

This fundamental model was suggested for businesses and organisations in framing their social media strategy to help them understand the needs of their audience (Kaplan & Haenlein, 2010; J. Kietzmann et al., 2011). The blocks represent different facets of users' engagement when participating on different types of social media and can be used to discuss the implications it may have for firms. Notwithstanding this, the honeycomb model provides a useful lens for other researchers and practitioners in studying social media as a phenomenon by linking their focus, research questions and theoretical views (H.

Kietzmann, Silvestre, McCarthy, & Pitt, 2012). This present study on the use of Twitter among academics considers this framework as a foundation and lens in presenting and understanding the academics' adoption of the social medium, as seen in the subsequent chapters.

2.2.1 Social Media in Higher Education

Amidst this wider development of digital technology, Higher Education (HE) started exploiting social media for academic purposes. Although the concept of Web 2.0 and social media is still at early stage, a number of efforts have been undertaken in implementing these social tools. Such activities include maintaining state-of-art facilities and resources and advocating its use to HE stakeholders, i.e. the faculty, administrators, libraries, educators and students. The emerging social media strategies include aims for marketing and public relations (Fuchs, 2010; Lupton, 2014; Reuben, 2008), rebranding and reputation (Vita & Case, 2010), teaching and learning (Danciu & Grosseck, 2011) and programme or course development (Selwyn, 2007).

There has been much discussion around whether Web 2.0 technologies and social media can be effective tools in education (Foroughi, 2011; Franklin & Van Harmelen, 2007; Greenhow, Robelia, & Hughes, 2009; Grosseck, 2009; Hall & Keynes, 2010). Some have seen Web 2.0 as the future of education (Hargadon, 2008). The contribution of Web 2.0 towards collaboration in pedagogy has been extensively reported in the literature. As a collaboration platform, Web 2.0 enables educators to communicate with their students; foster collaborative work among students; and build and strengthen relationships between colleagues students and communities around a borderless world (Grosseck, 2009; Hartshorne & Ajjan, 2009; Selwyn, 2012). In addition, as a platform for "collective intelligence" it enables education practitioners to share diverse sources and scientific ideas (O'Reilly, 2005, p. 5).

Studies have found that academics broadly have supportive attitudes towards social media/Web 2.0. In corollary, even non-users are keen on social media rather than showing reluctance or scepticism (Procter & Williams, 2010). Social media users actively utilise Web technologies as a supplement to their academic activities, including sharing their research findings via emails, listserv and web groups, as well as through personal webpages or blogs, social networks, wiki and Twitter (Nicholas & Rowlands, 2011; Nicholas et al., 2013; Rowlands et al., 2011; Tenopir et al., 2013).

Although social media are gaining recognition and significance in academic communities, and higher education in general, the development of digital technologies does not seem to always spread to other parts of the academia such as the institutions, faculties, or the publishing platforms that support them. Veletsianos (2011) argues that acquisition of technologies by institutions of higher learning frequently start not from the intent to integrate it to the academic profession, but of other purposes. For example, a number of universities currently employ software and communication systems that are contrary to the needs and creativity of academics across departments, institutions, and disciplines in relation to teaching and research (Gruzd et al., 2012; Unsworth, 2007). In addition, many scholars have expressed their concern regarding the lack of support from their home institution for the use of online publishing (e.g. blogs) and online community participation (Kirkup, 2010). These reasons contribute to the low level of initiative to adopt social media among scholars; however, they can also be considered as obstacles that can be tackled.

Other criticisms are raised regarding the impact of social media that are brought to the current HE systems. Some authors have referred to this impact as disruptive because its incorporation requires a reorganisation in terms of policy and infrastructure that may 'upset' the current education systems and the concerned actors (Thompson, 2008; Foroughi, 2011). In relation to the organisational effect, social media are considered as tools that help in offering decision-making strategies because of its autonomous, cost-free and flexible characteristics. Nonetheless, the initiatives are not restricted to the classic top down decision making, rather, the effort can be facilitated by different groups or through individual initiative to be made by the institutions, faculty or faculty members (Foroughi, 2011; Nicholas et al., 2010). But this can only be considered as effective if a clear understanding of social media application is understood and applied in mitigating conflicts of interest among different stakeholders. Specifically, this is related to what and how social media should be used for the general use and educational purposes.

Another example of a problematic use of the technology could be institutions introducing social media with an aim to achieve the 'Starbucks Effect'- as a strategy in competing for student recruitment by offering better digital facilities and advanced virtual-learning programmes (Minocha, 2009). While this effort may seem beneficial in securing increased institutional income, the tools generate more burden of effort to groups such as the faculty and their members. These people are forced to change, their workloads are increased and adopt competitive attitudes in order to produce solutions for institutional marketing and reinvent current curricular programmes (Selwyn, 2012). From the side of the academics, diverse issues occur as to whether to respond thoughtfully to the new social media diffusion. Accordingly, some academics have considered cultivating social media innovatively whilst others show conservative attitude. These issues are discussed further in section 2.2.1.1 and 2.2.1.2 in this chapter. From a broader perspective, external HE investors such as the funders, industries and governments may have special interest that indirectly influences the social media take up. As a result, another tension is being shaped with regard to the use and adoption of social media in academia.

Furthermore, some authors suggest that Web 2.0 technologies may hinder the long-established notion of learning and scholars' creativity in seeking and generating knowledge. One study claimed that the use of Internet has shaped a new information literacy behaviour among learners, which is more towards 'skimming and scanning' rather than in-depth analytical thinking and discernment of various information accessed over the internet (Rowlands et al., 2008). This view is paralleled by the critique made by Nicholas Carr (2008) on whether the use and much reliance on web technologies have a disrupting effect in the learning principles of 'higher order thinking skills' when he posed the question: 'Is Google making us stupid?'. These points suggest the need for higher education to consider ways to effectively adopt social media so as to improve overall academic quality and delivery. Moreover, scepticism surrounding technology use in connection with learning is accompanied by fundamental issues relating to conflicts between intellectual and academic 'dogmatism'. Further arguments about how information-seeking online could hinder the creativity and critical thinking of learners are also relevant to consider (Carr, 2008). With these perspectives, there are critical viewpoints on the potential impact of social media use. Higher education, then, needs to think carefully about the impact it may bring to scholars' work practices (Greenhow & Gleason, 2014; Selwyn, 2012).

2.2.1.1 Social media for academic practice

Early reports suggested that the adoption of social media among scholars for academic practice was slow. An early survey of American faculty members conducted by Pearson (2009) found that the majority of academics used social media for private use rather than professional purposes. Another survey of 4,600 faculty members from 50 colleges in the US, found that over 80 percent academics had never experienced a social media tool (FSSE, 2010 as cited in Guy, 2012). In the UK, results of a similar study showed that most academics from 46 institutions indicated that they either "rarely" or "never" utilised social media to share their research (Maynard & O'Brien, 2010). However, recent studies show more up-take in US-based institutions, where more than half of 7,969 academics have initiated social media for professional use and 41 percent for teaching (Seaman & Tinti-Kane, 2013). In the 2010 study conducted in UK, over 1,200 researchers claimed to use social media frequently for academic purposes (E. Collins & Hide, 2010). In relation, the latest international survey conducted by Lupton (2014) found that social media is widely used for academic professional work.

A number of empirical studies have been conducted to identify the uses of social media for scholarship purposes. In summary, such studies identified eight benefits derived by scholars when using social media, namely: a) the ability to make connections and develop networks (Gruzd et al., 2011a; Lupton, 2014); b) facilitation of communication, stimulation of ideas and collaboration among peers internally and globally (E. Collins & Hide, 2010; Nicholas et al., 2013; Rowlands et al., 2011); c) dissemination of research and teaching where scholars use blogs or microblogs to share information on their research (Letierce et al., 2010; Rinaldo et al., 2011; Rowlands et al., 2011; Veletsianos, 2011); d) informal interaction and communication among colleagues within and outside higher education (Gruzd & Staves, 2006); e) publicising of research development and self-promotion own scholarly work (e.g. articles, books and conferences presented, especially in regard to public outreach/public engagement) (Lupton, 2014; Nicholas et al., 2013); f) support of communication and engagement between instructors and students and among students in classroom learning (Junco et al., 2011; Lowe & Laffey, 2011); g) keeping abreast with scientific issues and general information (E. Collins & Hide, 2010; Lupton, 2014) and h) it provides support (academic and emotional) among academic peers with the ability to connect staff with different levels of academic seniority (Lupton, 2014).

It is suggested that in order to maximise the potential of social media tools such as blogs, file-sharing services and wikis as a platform for scholarly scientific writing and publishing, they should be managed in conjunction to traditional ways to disseminate information such as monographs and journal papers, among others (Gruzd & Staves, 2006; Kirkup, 2010; Rowlands et al., 2011). Social media use is increasingly becoming a mainstream media for academic communication and for sharing practices, as well as a vehicle for facilitating new ways of scholarly working (Scanlon, 2014). The Table 2-1 below is an example of social media used by majority of academics.

Table 2-1: Social media categories and tool example (source adapted from Gruzd et. al 2012)

Categories	Services examples
Blogs	Wordpress.com
Microblogging	Twitter, Tumblr
Wikis	Wikipedia, Wikibooks
Academic social networking	Academia.edu, LinkedIn, ResearchGate
Non-academic social networking	Myspace, Facebook
Online documents management	Google docs, Scribd
Media repositories	YouTube, Flickr
Presentation sharing sites	SlidesShare, Slideboom
Social bookmarking tools	Delicious
Video/tele conferencing	Skype, IMs
Virtual worlds	Second Life
Bibliographic management sites	Mendeley, Zotero

Nonetheless, incorporating social media into scholars' routines is not just a task to be designated to them as academics. The use of tools should be adapted to specific academic tasks (Lupton, 2014, p. 30).

2.2.1.2 The risks of social media for academics practice

Despite the aforementioned advantages of using social media in academic applications, a number of authors have revealed pitfalls associated with it. Even enthusiastic and digital literate academics have a cautious view of using social media (Lupton, 2014). Some general issues in social media adoption may relate to the newness of the technology, as well as reluctance to spend time in learning the application. In addition, there is an issue arising from the more sophisticated functionality of social media.

Pearce, Weller, Scanlon, and Kinsley (2010) claimed that there are conservative attitudes about social media among some academics in higher education. Nicholas et al. (2013) highlighted some specific concerns, as follows: (1) lack of trust in the validity of sources and networks; (2) being a novice in social media skills; (3) resistance to the social media concept; (4) time management issues (faculty workloads) (Chen & Bryer, 2012), where academics preferred to utilise time for research; (5) the lack of importance and recognition of using social media in higher education policy and rewards systems (Kirkup, 2010), which focuses performance on traditional peer-review, journals and citation indices; (6) the perception that social media is not a form of scholarly communication platform; (7) the lack of a formal indication to measure dissemination and citation in social media, compared to the long-established guideline of impact factors and peer reviews; (8) the lack of direct benefits of using it, and its failure to enhance their career appraisal; and lastly, (9) the openness of social media platforms bringing the possibility of participation from scholars and non-scholars, that may just bring "noise" to their discussions rather than value, and which would therefore be a "a waste of time".

Despite identifying many significant uses of social media, Lupton (2014) argues that social media risks cannot be ignored. Some risks identified by authors in relation to social media include: concerns about personal and professional use and its boundaries (Gruzd et al., 2012; Kirkup, 2010; Veletsianos & Kimmons, 2012c; Veletsianos, 2013); the risk of compromising their career if social media is imprudently used with threats on security and privacy (Veletsianos & Kimmons, 2012c); time pressures, lack of integrity and quality of their postings, the interpretation of social media use as an obligation, and threat of cyberbullying (Chen & Bryer 2012; Gruzd et al. 2012); over self-promotion by other users, the possibility of occurrence of plagiarism connected to their ideas, as well as intellectual property right and copyright issues. Grudz et al. (2012) added that his interviewees felt social media have no professional acknowledgment and offer limited benefits, especially in terms of work-related matters. Furthermore, social media also cause distractions and potentially harm reputations as similarly mentioned by other studies.

Gruzd et al. (2011) further reported that time constraints and information overload associated with social media use were considered as concerns for many. On the other hand, Nicholas et al. (2013) presented that a particular group of established researchers felt that information overload is a less challenge because they have the skills to retrieve valuable information. In addition, they consider the information valuable because it was passed to them through colleagues on social media. Some also argue that social media hinder academic individual freedom, creativity and 'deep thinking' when too much reliance on collaboration for knowledge production is attributed to the different media (E. Collins & Hide, 2010).

2.3 Microblogging

Microblogging, one of the most popular forms of social media, has grown rapidly in the 2010s and shows potential for impact on the way people communicate and share information (Ebner, Beham, et al., 2010). This is in connection with the popularity of blogging as an online or virtual journal for people to post topics that they consider interesting and might also be of interest to others. Even before microblogging became widespread for social network users, its precursor known as blogging was one of the main social media tools. This social platform allow users or ‘bloggers’ to write short essays, personal thoughts or reflections about general issues, as well as particular subjects or interesting activities. Because blogging is done online, it exposes the writer to a broad audience around the world. Hence, the platform enables users to share their articles with other readers, who can read, respond to and interact with the content within the Blogosphere.

Microblogging has a number of different characteristics from traditional blogging. Users can write and share brief text updates of a much shorter length, ranging from 140 to 200 characters per post. Users can also broadcast updates on any news story, interesting thoughts, current status and other interests with their family, friends, colleagues or interested followers who are connected to them (Ebner & Schiefner, 2008; McFedries, 2007). Microblogging allows users to send quick notifications, using mobile devices, tools and software applications (Ebner & Schiefner, 2008). In a social media classification, microblogging would be positioned between traditional blogs and social networking sites, with a high degree of self-presentation/self-disclosure and a medium to low degree of social presence/media richness (Kaplan & Haenlein, 2010).

Several microblogging tools and sites have emerged through the years. They seem to be used differently in different sectors and specific communities, according to various needs. Some notable services which are frequently mentioned are Twitter, Jaiku, Tumblr, Pownce, Edmodo, Yammer, Sina Weibo and Plurk (Holotescu & Grosseck, 2008; Java, Finin, & Tseng, 2007; Kaplan & Haenlein, 2011; http://www.weibo.com). Regardless of their different functions, all these microblogging platforms are rather similar. They mainly offer users with variety of services, such as sharing photos, web links, text, audio files and images that can be accessed across different applications (i.e. web browser, third party services and mobile computing devices) (Java et al., 2007; McFedries, 2007). Most microblogging sites are mostly proprietary, but there are also others that are developed from open source versions (Kieslinger & Ebner, 2011).

Microblogging features include posts often called ‘status updates’, which are made in response to the question “*What’s happening*?”, otherwise understood as “*What interesting thought do you want to share at this moment?,*” and the answers include messages of context, invitation, social statements, inquiries and answers, news broadcasts and announcements (Makice, 2009). Many posts are comments or replies to other user's postings, pointing to internet resources such as website or links that the user wants to share, with the aim to encourage critical thinking or prompt inquiries (McFedries, 2007). An interesting aspect of microblogging is that, senders can customise their posts for their target audience or put on a 'public' setting for everyone to read them. Similarly, some microblogging sites offer detailed privacy settings, where users can choose to connect and interact within a specific group members or block certain audiences (Kieslinger & Ebner, 2011).

In the past few years, microblogging has been considered as increasingly valuable and popular to stakeholders, mainly because of the ease of use access and immediacy (Kieslinger et al., 2011; Zhao & Rosson, 2009). The tool has modernised the diffusion of information and communication patterns by empowering the user to contribute in information creation and broadcasting the information to worldwide on a 'simple click of mouse'. In addition, it supports the real-time communication among users, creates new source of updating knowledge and raises information awareness through a collective of users sharing from diversity of fields (Kaplan & Haenlein, 2011).

2.4 Understanding Twitter in context

After some years of operation, Twitter (www.twitter.com) became the world's most popular social networking tool and as a microblogging site in 2013 (Java et al., 2007; Kieslinger & Ebner, 2011; Marwick & Boyd, 2011). Recently, it became the second leading social media site after Facebook (Wright et al., 2015). Its massive popularity was revealed through the number of users exceeding 500million (Smith & Brenner, 2012) with approximately of 500million tweets per day (www.twitter.com, 2013). In addition, its earnings reached 1.4 billion US dollars in the same year, making it the most profitable social network in the industry (Quittner, 2013 as cited in Senadheera et al., 2011). Twitter, as a new phenomenon is increasingly embedded into the people's daily social and communication activity globally. Because of this, it is seen to be gradually influencing many aspects of people lives. This is characterised by millions of people accessing it from anywhere and anytime they wish, as long as an Internet connection is available.

Its founders - Evan Williams, Jack Dorsey and Biz Stone - created the social platform in March 2006 in San Francisco (Java et al., 2007; McFedries, 2007) and launched it on July 15, 2006 (Kierkegaard, 2010). One of the sketches of Twitter by Jack Dorsey in 2000 is shown in Figure 2-3. Its founder wanted Twitter to be as present as 'electricity, email, SMS, or phone' to have the same universality as these multi-purpose tools and services (Minocha, Schroeder, & Schneider, 2011). Twitter's definition at first was however equivocal, as narrated by its inventor Williams (2013) (as cited in Lapowsky, 2013):

"With Twitter, it wasn't clear what it was. They called it a social network, they called it microblogging, but it was hard to define, because it didn't replace anything. There was this path of discovery with something like that, where over time you figure out what it is. Twitter actually changed from what we thought it was in the beginning, which we described as status updates and a social utility. It is that, in part, but the insight we eventually came to was Twitter was really more of an information network than it is a social network."

This statement clearly positions Twitter as a flexible and 'autonomous' service within social media continuum. This is so because Twitter is seen to have a changeable pattern regarding its services that developed over time. With its subtle changes, it may affect the users' pattern of behavioural and communication content (Dijck, 2012). In that respect, Twitter's meaning has not yet been finally fixed. Furthermore, with the mass of data created through the 500millions accounts of user communities, it becomes more complex to define it holistically. Perhaps, Twitter is defined by the users that deliberately engage in this platform. As Danah Boyd (2007) indicated, people regard Twitter for its value and efficacy; and because of this, Twitter is known to be shaped by users to suit their needs. Nevertheless, many researchers generally regard Twitter to be best understood as a social networking site and part of the social media (Naaman, Boase, & Lai, 2010; Nicholas et al., 2013; Wright et al., 2015).

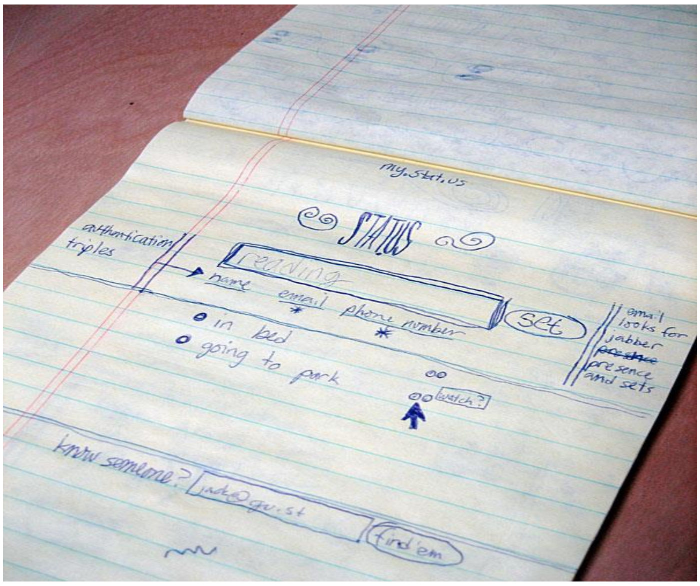


Figure 2-3: An original sketch of Twitter by Jack Dorsey in 2000 (source: https://www.flickr.com/photos/jackdorsey/182613360/

Twitter is currently achieving massive growth in online communities, businesses, the entertainment sector, blogging, and research. This is mainly seen as a result of its functionality, speed. global interconnectivity, open interaction, and knowledge-sharing features (Jansen, Zhang, Sobel, & Chowdury, 2009; Kaplan & Haenlein, 2011; Murthy, 2013; K. Weller et al., 2014). The widespread diffusion of Twitter is remarkable, and this seems to have happened for a number of reasons. They include the following: (1) it reaches users globally; (2) it has a user friendly web-interface that makes users easy to get familiar in using it; (3) it can be installed and accessed conveniently from mobile computing devices such as smartphones, laptop or tablet thus offer user greater use of it; (4) it allows third party software developer to design and integrate Twitter into a customised application because of it was built from Twitter API; and (5) it has a strong feature of a short text based messaging that makes it unique and distinct from other microblogging services or social networking applications (Kieslinger & Ebner, 2011; Thoms, 2012).

Despite Twitter's success and positive features, a continuing improvement is still being done by the team because users' demands also increase as they use the platform. In October 2010, Twitter.com redesigned its interface with new improved features and was made more user-friendly when viewing and using it. One of the new features allows users to view videos and images from other website links (i.e. Youtube or Flickr) on their Twitter timeline (www.twitter.com, 2012). To date, several more enhancements were made by the administrators. Other developments made in July 2014 include a new feature of 'time-activity' on mobile where users can view a number of engagements of other users in relation to their tweets. Furthermore, it also allowed users to track their tweet impressions to help users view record and analyse their own social media strategies and monitor their use (Techcrunch.com, 2014). An example of which is shown in Figure 2-4. Subsequently, in January 2015, Twitter adds two new major features including the video sharing and group direct messaging. The former enables users to share 15 seconds of a brief of 'story' or 'events' whilst the company can advance in promoting their products. On the other hand, the feature on group direct messages offers an opportunity to users to have a private conversation with up to 20 people simultaneously (ITportal.com, 2015). These efforts seem to largely gratify their users while staying competitive in social media business. During the conduct of this research with a focus on the use of Twitter among academics, these features were not yet developed when the academics were interviewed. Hence, there is a probability that some changes can already be seen regarding how the academics use the network based on these new features. However, these new practices are not part of this research.

In addition, some companies have collaborated with Twitter.com to develop applications that enable Twitter to be integrated simply with other web clients and mobile applications such as on Mac, Android, Ipad/Iphone (Müller & Stocker, 2011). Early in 2007, Facebook, already a hugely popular SNS, has adopted Twitter, which partly explains its upsurge in its popularity (Dijck, 2012). The Twitter platform enables integration using API with third party software, creates more affordances to its platform services and increases user contributions in the Twittersphere (Wählisch, Venaas, & Schmidt, 2013). Other software developers were creating better platforms for managing and supporting the use of Twitter and its compatibility with other services such as Google. This compatibility offers new developments where users are given more consistent and better experience when engaging with Twitter (Dijck, 2012; www.twitter.com 2012).

Mobile technology has opened up new approaches to social collaboration in which the microblogging platform can be accessed in more convenient, instant and rapid ways (Cochrane & Bateman, 2010). The latest innovations in mobile use have had a positive impact on how users participate and use Twitter. Smith and Brenner (2012) found a strong correlation between Twitter and smartphone usage, where a massive growth in Twitter adoption has been seen to be influenced by the increase in the number of smartphone users among young adults aged 18-24. Specifically, Twitter users are seen to be more engaged in the network when using smartphones rather than other gadgets

(Smith & Brenner, 2012). In relation, general usage of Twitter is also higher for smartphone user than the basic phone user (Smith & Brenner, 2012). A study conducted by Cheng, Caverlee, and Lee (2010) demonstrated that most updates were uploaded through other third party applications/web services and mobile devices, rather than through the Twitter official website. Among the favourite web-based services that Tweeters use is TweetDeck.com (A. Cheng, Evans, & Singh, 2009). Tweetdeck is a web-based application that serves as a tool used for organizing social networking pages or profiles, specifically for Twitter and Facebook. While it has 19.7% market share in Twitter.com (Cheng et al., 2009), Tweetdeck is not exclusively used for Twitter but can also be used in tandem with other social networks such as Facebook and LinkedIn. The application is commonly used in managing multiple accounts by arranging the stream or updates based on schedule, filters, and preferences. The advanced features of Twitter, designed with flexibility of access and the capability to tweet using mobile devices and text messaging, is the key to the success of social networking tools Kierkegaard (2010) suggests.

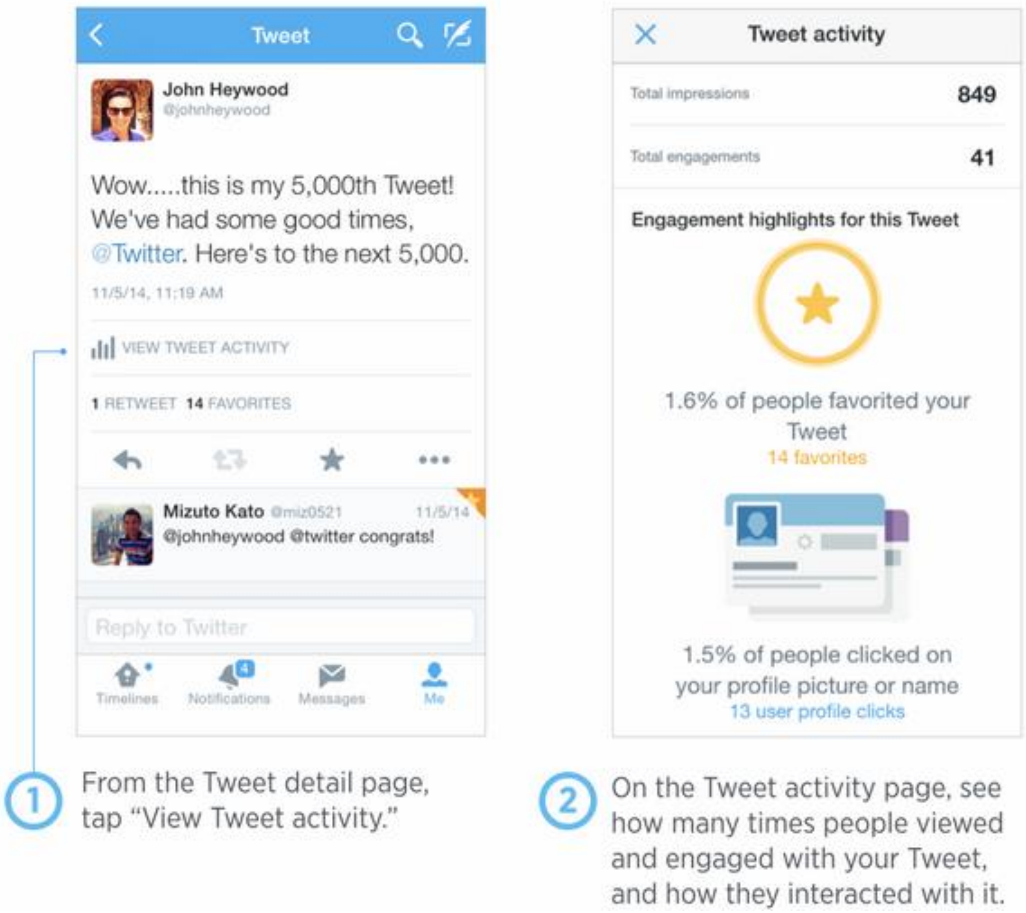


Figure 2-4: The example of 'tweet activity' feature (source from Techcrunch.com)

In theory, Twitter can be seen as a platform mediating interaction, a model of a type of online participation and a means for the creation of an identity or self-presentation (Murthy, 2013). Early studies mainly showed Twitter to be a 'daily conversational medium', with some perceiving it to be a 'pointless babble' because common types of tweets were not very informative and meaningful to others (R. Rogers, 2014). However, the views of it being a 'pointless babble', a fad or trivial activity have been superseded as the platform has increasingly shown its value. The features of Twitter that could be valuable for academics and those that are only used for social or trivial activities interplay to make the platform valuable as it develops through years. What is noteworthy is the fact that a growing number of Twitter users began to develop creativity in its use by journal keeping, meeting new friends, job searching, feeding news, information seeking, and consumer complaint, to name a few (Murthy, 2013). Further, Twitter has developed as a support network for people who are having health problems (i.e. dietary, exercise). Through Twitter they could receive a range of assistance and advice from health professionals, medical experts or other members of the public that are willing to share their opinions on health issues (Hawn, 2009). This new way of interaction has reengineered the traditional way some patients receive advice and treatment (Hawn, 2009). Twitter update culture has also created a peripheral awareness for its users through broadcasting critical issues and news to users. These examples illustrate how the use of Twitter has indirectly transformed the flow of media communication (Hermida, 2010).

2.4.1 The features of Twitter

Twitter offers users diverse means of communication, primarily based on being able to post short texts called *'Tweets'*, which are restricted to 140-characters (McFedries, 2007). Initially, Twitter asked users the question "What are you doing?" A few years later, in November 2009, it was refined to "What's happening?" Twitter's latest version (which was the version in use during the conduct of this research) is asking people to "Compose a new tweet". Tweet updates or 'streams' commonly share stories of people's daily activities and thoughts, or links to a wide range of information, such as events and online resources such as news, articles, blogs, photos and video (McFedries, 2007; Miles & Huberman, 2010; Naaman et al., 2010). This feature connects to the previous discussion of microblogging, which makes Twitter a microblogging site rather than a full blogging site as mentioned.

Figure 2-5: The development of Twitter posting status from 2006 - 2014. Source: Google image

A 'Tweet' post can be set to public or private viewing, so users can send a personal message between two people that is reciprocated using a 'DM' (Direct Messages) command. Any user can also re-post or re-publish other people's 'Tweets' using the 'RT' (Retweet) command. The symbol '@' is used to address specific users directly, and the '#' symbol (hashtag) represents one or more topics or subjects in discussion (Boyd, Golder, & Lotan, 2010). The term 'follower' applies to a person that subscribes to the feed of a Twitter user's postings and 'followee' denotes as user's friend or people that a user has following them. Twitter's 'favourite' feature enables a user's followers to show their support or 'agree thoughts' while saving a user's posts into their own personal information collections.

Participants in the global Twitter community can remain connected to existing followers while attracting new ones because Twitter networks undergo process of analytics. In here, calculation of the similarity of interest among social connections (i.e., users and their followers) is done, and this automatically suggests potentially interesting people to be followed within that group of networks (Schmidt, 2014). Twitter also enhances the networks of people through the use of #hashtags, where it links strangers to communicate within the same themes (Murthy, 2013). As a communal space, the use of #hashtags asserts individual or group identities and promotes the emergence of unintended communities of shared values and interest (Cox, 2008).

The 'follower' and 'following' relationship provides the backbone of the underlying social network (Boyd & Ellison, 2007). However, unlike Facebook, Twitter profiles are minimal. The user has to decide whether to follow other Twitter users, through clicking the *'follow'* button on the Twitter page and automatically connecting to them without needing to reciprocate (i.e. to follow back). This process is not required to access multiple networks and participate through their own initiative (Boyd, Golder et al., 2010; Watts, 2011). The table below summarises the key terminology of Twitter.

Table 2-2: General Twitter Terminology

Terms	Definition
Tweet	A microblog post of 140-characters
Direct Messaging (DM)	To send a personal message to another Twitter user
@Mentions	To send a direct a message communication to intended user
Retweet (RT)	To repost someone else's Tweet through your account
Hashtag (#)	Categorises tweets for easy searching and retrieval of topics, as well as to widen contribution from other users on the discussion of popular topics
Reply	To respond directly to other user's message
Following	To network with other user and follow the user's Twitter's feed
Follower	A user subscribed to another Twitter user's account
Tweetup	Face to face meeting with other Twitter users (unprompted or planned)
Favourite	To 'like' a Tweet post or function to save the tweet for personal collection
Lists	To organise and categorise people in the following list
View Tweet activity	To measure the frequency of how often people view and engage with your Tweets

According to Bruns and Moe (2013), Twitter's structure of communication can be divided into three sets of layers, these are 1) meso (followee and follower networks), 2) macro (public trending of topic or keywords on hashtags), and 3) micro (temporal interpersonal communication). The different layers require researchers to study various activities connected to each divisions in an in–depth manner in order to understand the flow of communications and information dissemination within the community structure of Twitter. The majority of studies on the macro level focus on the hashtags that develop instant public communication of current issues and how it creates too many interactions that sometimes overwhelm the traditional media. Examples include its use in broadcasting natural disasters (Bruns & Burgess, 2011); breaking news i.e. the U.K. riots (Vis, 2013); political elections (Larsson & Moe, 2012); and celebrity news. The use of hashtag networks to group of discussions based on topic, where issues are shared across the public and other users are able to contribute to the collection of sources and stories (www.twitter.com, 2010). At the micro layer, Honeycutt and Herring (2009) examined the patterns of the @replies and similarly claimed that Twitter provides a multi-conversational and collaboration platform that entails diverse types of communication, although they also concluded that it did not effectively support communication threading (Riemer & Richter, 2010). As such, these three layers work differently and yet are interrelated. Therefore, it is crucial for researchers to understand the practical and behavioural implications of the features as to how these layers can serve a particular community, and capture greater perspective on its social and communicative processes.

Kaplan and Haenlein (2011) have discussed important characteristics that Twitter possess. Firstly, the Twitter character of length limitation has shaped the way users communicate, as well as on how they spend minimal time generating and consuming content. It has therefore increased possibilities to support new communication and modes of relationship through 'ambient awareness'. This phrase describes how the platform enables people to continuously and actively stay in touch and connect in a friendlier and more open manner, rather than normally being constrained by physical space. This is rooted from the fact that flexibility of the platform allows ease of accessibility to people, and convenience (Reichelt, 2007). In addition, Twitter may serve as a platform for online 'exhibitionism' and 'voyeurism' (Kaplan & Haenlein, 2011). In this context, exhibitionism stands for the activity of user that willingly sharing private information such as personal information, their feelings or thoughts, private photos, current activities and location to the online communities with no doubt or wariness that their details will be identified by their audiences. Online voyeurism is the act wherein other users gain excitement by observing the private actions or of another user, particularly private videos or images, links of internet resources and other's people information (Kaplan & Haenlein, 2011). Twitter users will keep updating both types of audiences including categories such as active contributors and 'lurkers' with no commitment to provide any feedback or act on any comments received (Kaplan & Haenlein, 2010). Statistical evidence shows that, with regard to Twitter users, 90 percent of the total accounts are passive observers or 'lurkers' and only 10 percent are really active members generating over 90% of the tweets (Ross et al., 2011). It also suggests that Twitter is strongly associated as an information source, a way to keep up with information others publish, more than a way to connect to publish your viewpoint.

Twitter offers unique functionality compared to other microblogs or online communication platforms, such as email, instant messenger and social networking platforms. It has a mixture of key elements drawn from blogging (Boyd et al., 2010) and social networking sites (Boyd & Ellison, 2007). It is similar to weblogs, where a 'blogger' writes personal expressions or thoughts on issues and comments on others' blogs (Dijck, 2012; Ebner & Schiefner, 2008), however, Twitter is restricted in length. Twitter also enables users to tweet or write short posts in someone's individual tweet or Twitter stream in the form of a brief statement. Because of this, Twitter is considered as a platform that is open for constant public discourse (Ebner, Lienhardt, et al., 2010). This is in contrast to Facebook, which is best known for its use to support personal social networks (Ellison et al., 2011). Twitter can be characterised similar to traditional mediated communication such as phone conversation but it is more textual than oral, and it supports interaction between and among many individuals at the same time. It also allows a way for status updates to function like an SMS but not limited to particular personal contact in the phone memory. Additionally, it provides news sharing like websites but the update alerts can be directed to user through mobile devices.

Primarily, Twitter.com is a website for users to interact on. However, there are numbers of third party software which support users to interact with Twitter content in different ways, such organisers are Tweetdeck (www.tweetdeck.com), which has been previously discussed and HootSuite (http://hootsuite.com), another web-based tool used for managing multiple social media accounts. Tweets can also be posted through other services, such as Really Simple Syndication (RSS), instant messaging, Short Message Service (SMS), email, blogs or other social networking platforms such as Facebook (Jansen, Zhang et al., 2009).

2.4.2 Studies of Twitter Use

Current studies of Twitter may show different results if compared to earlier ones. However, the quality of earlier studies is questionable. For example, a study by Gao et al. (2012) on research literature of microblogging in educational settings between 2008-2011 has indicated some issues of inconsistencies in data reported, as well as lack of statistical information that create concerns about the reliability of early studies. In their analysis, it is highlighted that only one out of 21 studies was experimental, the rest adopting a simplistic descriptive approach. Coverage was patchy because only one was done in school setting while 18 were in higher education. Another factor contributing to earlier studies being misleading if applied to the present was the small number of users participating on Twitter and lack of user awareness of Twitter potential and its features in the early years (Ebner & Schiefner, 2008). However, it is noticeable that the usage of Twitter has changed significantly now due to the fact that more people across the world are engaged in it (Murthy, 2013; R. Rogers, 2014).

Twitter, clearly has social, political and cultural effects, which prompt researchers to broaden the understanding of the platform. Its study transcends such diverse disciplines such as computer science, education, journalism, linguistics, medicine and health, geography, political science, sociology, and many others. Specifically, some of the research foci include best practices of Twitter in business and enterprise (Günther, Riehle, & Schöndienst, 2009; J. Kietzmann et al., 2011; Riemer & Richter, 2010; Zhao, Rosson, Matthews, & Moran, 2011); education (Carpenter & Krutka, 2014; Grosseck & Holotescu, 2011; Rinaldo et al., 2011); linguistic (Gillen & Merchant, 2013); social activism (Galer-Unti, 2009; Lotan, Graeff, & Ananny, 2011); political campaigns (Cetina, 2009; Henneberg, 2009) and political movement in 'Arab spring' (Warf, 2011); broadcast journalism (Vis, 2013); reporting emergency situations and natural disasters (Chatfield, Scholl, & Brajawidagda, 2013; Tamura & Fukuda, 2011; Vieweg, Hughes, Starbird, & Palen, 2010); mediated health community (Hawn, 2009); libraries (Cohen, 2007); government (Wigand, 2010); medicine (Micieli & Micieli, 2012); geography (Mislove, Lehmann, Ahn, Onnela, & Rosenquist, 2011; Takhteyev, Gruzd, & Wellman, 2012) and many others.

Studies have also attempted to examine the social connections that Twitter can create globally through the reciprocal networks of users. The interaction and 'connectedness' built among users in social networks has now reshaped fundamentally how people network, receive and transfer information (Murthy, 2013). The massive take-up of Twitter has formed new areas to study for example in self-production, the language of people use and power relations in social networks (Murthy, 2013). Another aspect fuelling interest from practitioners and scholars in studying Twitter has been in relation to 'big data' analytics. The richness of Twitter's content has brought about a revolution in how information can be retrieved, analysed and managed (Boyd & Crawford, 2012; R. Rogers, 2014). Raw data about the use of Twitter can be extracted using the API, and it can support decision making especially among businesses such as for market research (R. Rogers, 2014). Content analysis has ranged over the personal, social and towards serious business and scientific messages content (Holmberg & Thelwall, 2014; Naaman et al., 2010; Pear Analytics, 2009; Priem & Costello, 2010; Zhao & Rosson, 2009).

In brief, studying Twitter has changed from how it was conducted in its early years. The data generated creates more opportunities and challenges to scholars in that a Twitter analytics can be considered in a number of dimensions: conceptual, ethical and theoretical, methods of approaching it, social-technical view of it, and several of uses and practices (K. Weller et al., 2014).

2.4.3 Twitter from a research perspective

Most published research on microblogging focuses on Twitter. And the amount of research on Twitter is massively increasing through the years. Twitter has primarily become the object of research in a number of different contexts. The majority of studies include descriptions and analyses of Twitter users (Honeycutt & Herring, 2009; Huang, Thornton, & Efthimiadis, 2010; Takhteyev et al., 2012; Vieweg et al., 2010) and its use in the corporate context (Günther et al., 2009; Riemer & Richter, 2010; Zhao et al., 2011); while studies in educational setting are focused on Twitter as an instructional tool (Grosseck & Holotescu, 2011; Junco et al., 2011; Lowe & Laffey, 2011) and scholars' practices (Kieslinger et al., 2011; Veletsianos & Kimmons, 2012c; Veletsianos, 2011). A considerable amount of literature has been published providing clear evidence of how and why people use Twitter and their motivations for adopting it (Blake & Agarwal, 2010; Günther et al., 2009; Java et al., 2007; Kieslinger et al., 2011; Naaman et al., 2010; Zhao & Rosson, 2009).

Java et al. (2007) examined Twitter's topological and physical properties as a social network and the diverse types of user motivations and behaviours. The analysis focused on the structure of microblogging communities in order to determine how and why people use Twitter. They reported that the people who most participated in Twitter are using it for daily chats, dialogs, to disseminate materials/URLs, and to broadcast news (Java et al., 2007). In addition, these authors also provided revealing statistical data on Twitter use and identified three types of user approach on Twitter, including activities related to searching information, sharing information and socialising (Java et al., 2007). Other studies attempted to create categorisations of the range of textual meaning, as well as examining sentiments analysis of the tweets (Blake & Agarwal, 2010; Naaman et al., 2010). Humphreys and Gill (2013) contend that Twitter practices are similar to traditional handwritten diaries where people can record their activities or daily thoughts. The main difference, however, is that technological advancements enable microblog users to either keep their writing private or share it socially (e.g. to friends and followers).

The potential benefits of microblogging to organisations and their employees has also been the subject of some researches. Böhringer and Richter (2009) are among the microblogging pioneer that developed their own microblogging system in organisational settings and discuss the subject of 'enterprise microblogging' (EMB) extensively. Similar work on EMB was carried out by Riemer and Richter (2010), in which they conducted a genre analysis of blog posts and concluded that there was a significant difference between the use of microblogging in corporate and public spheres. The results showed that EMB is more structured in terms of communication, as it is specific and highly focus, creating awareness of work information for colleagues and to helping to organise team assignments.

Using a qualitative approach, Zhao and Rosson (2009) examined the meaning of microblogging for informal conversation in the working environment. The authors illustrated that workers commonly use Twitter for their personal and relational benefits, as much as for posting regular updates on their personal activities with their mutual contacts. This also includes accessing of real-time information. However, they also identified a few concerns, such as information security and the lack of boundaries between personal and work information. Günther et al. (2009) studied the adoption of microblogging in organisational contexts found that usage could be influenced by four different factors: conversational benefits, privacy issues, awareness regarding signal-to-noise ratios[1] and codification practices.

[1] False or irrelevant data in a conversation or exchange in online discussion forums and other online communities, for example, along with off-topic posts and spam are regarded as "noise" that interferes with the "signal" of appropriate discussion.

2.5 Twitter in academia

Research on Twitter in the higher education context has not been left entirely untouched. A number of empirical studies have been carried out on the uses and effects of integrating Twitter into higher education. Researchers believe that the idea of using Twitter in pedagogy is to provide opportunities for social learning, to promote and prolong interactive communication between instructors and students, to enhance students' engagement and learning, to form new ways of collaboration, to aid in knowledge creation, and to develop social connections (Dunlap & Lowenthal, 2009; Ebner, Beham, et al., 2010; Gao et al., 2012; Junco et al., 2011).

Conceptually, the character of Twitter invites use within a constructivist notion of the teacher as a facilitator rather than instructor/disseminator of knowledge (Greenhow & Gleason, 2014). Furthermore, Twitter seems to align to the way that constructivist learning emphasises the need for students to be involved in participatory modes of learning. Learners should be placed in socially rich environments to explore knowledge domains with their peers and instructors (Vygotsky, 1978). Through social exploration, thinking and reflection, students will be able to re-construct and synthesise knowledge (Kliebard, 1992). In this way, they can reorganise their own tacit knowledge and internalise new ideas as part of the learning process (Borau, Ullrich, Feng, & Shen, 2009; Dijck, 2012; Ebner, Lienhardt, et al., 2010; Ravenscroft, 2011).

Several researchers have found that Twitter foster engagement philosophies (Chickering & Gamson, 1987) when this tool was incorporated into learning activities, which led students to participate at a higher level than they would normally have done (Ebner, Lienhardt, et al., 2010). In addition, Twitter helps students improve their learning by keeping them to become an active learner via connectedness in the classroom community, within or beyond the classroom. In here, support connectivity involves learning through creation and maintenance of linkages and networks (Greenhow & Gleason, 2014; Siemens, 2005, 2014). Dewey (1964) as cited in (Miettinen, 2000), in his theory of experiential learning, argues that a continuous interactive exchange of idea is needed to facilitate active learning among students. When applied in the contemporary times, this exchange of idea and process of learning could be potentially strengthened through Twitter.

Twitter also seems to have features that would align with pedagogical ideas such as Community of Practice (CoP) wherein this practice commences out from an initiative from an individual beginner (Lave & Wenger, 1991). The student's skills and knowledge is enhanced through activities and a process of meaning negotiation. Learning is, then, a process assisted by socially interacting and collectively engaging with a group to define a practice (Lave & Wenger, 1991). Twitter can be seen to encompass a sort of learning that transcends restrictions of classroom settings in ways consistent with the theory. In this perspective, learning transpires in a specific and highly independent communal setting. Twitter has potential to facilitate communities of practice through enabling knowledge that embedded in the collective community (e.g. scholars or students) to be developed, shared and collaborate via exchange of ideas, discussions, and expertise on particular subjects (Lave & Wenger, 1991).

The popularity of Twitter has also penetrated academia by being considered as a new microblogging site that specifically targets scholars. Nonetheless, other platforms are also being used as a complement to this application. In addition to Twitter, another microblogging site being used by scholars is the Science Feed (http://sciencefeed.com). It is a microblogging tool designed for scientists and scholars in the science fields (Nuthall, 2010; Fenner, 2010) as cited in (Gruzd & Staves, 2011). This is an example of how scholars are not only using existing platforms, such as Twitter, but are also being creative in adopting and developing new social network sites to fit their needs. Taking from socio-technical systems, Twitter is a social-construct where this artefact is being appropriated and co-created by its users. Here, the group or community on Twitter influences and shapes the technology over time to meet their needs, which these applications were never anticipated by its developers (Halavais, 2013; Lamb & Kling, 2003).

Researchers are working to capture the experiences of scholars participating on this social platform (Kieslinger & Ebner, 2011; Veletsianos, 2011). It has been shown that scientists primarily use the platform for conversation and widespread sharing of information (Kieslinger et al., 2011). Moreover, some of the popular uses of Twitter include scientific and non-scientific discussions, research dissemination and announcement of current events at conferences and seminars (Ebner, Beham, et al., 2010; Ross et al., 2011). Another extensive use of Twitter exemplified by scholars is in the promotion of their own research, the work of their colleagues and connecting with peers in a local and global scale (Letierce et al., 2010; Veletsianos, 2011). Studies have also found Twitter is one of the dominant microblogging tool in academic research workflow (Rowlands et al., 2011). These are among promising usage of Twitter in the academic environment and context that is further discussed in later section of this research.

With the various uses of Twitter among academics, this section presents a summary of the evidence through a thematic discussion. It is arranged to present studies on the rate of adoption of Twitter followed by studies of its general application and then of more specific uses.

2.5.1 Twitter adoption-rate

The increased presence of social media in higher education has made important calls for educators to engage, communicate and teach students in new ways possible (Greenhow & Gleason, 2014; Selwyn, 2012). Among many other social media applications, Twitter is one of the most well-known microblogging services significantly being used by academics in HE (Gerber, 2012; Lupton, 2014; Magna, 2010). A poll run by London School of Economics in 2011 suggested that academics are enthusiastically exploring Twitter with a positive growth of over 500 users. Through an international online survey to which 711 academics responded, Lupton (2014) investigated social media use for academic work. She found that Twitter was voted as the most valuable social media for professional work. As a result, it was found that 90% of the academics use Twitter for professional purposes, while 83% recognise its usefulness. This puts it ahead of the 50% who use Academic.edu, 40% Facebook and over 30% personal blogs. In another, mixed-method study, it was highlighted that US researchers were more likely to engage and communicate on Twitter than UK researchers and scientists (Nicholas et al., 2013). In connection to this high rate of engagement among UK users, Lupton (2014) found that UK scholars are more engaged on Twitter as compared to any other social media that they use. These results show an interesting perspective in relation to geographical situation and the use of Twitter among academics. Although the data may not be comparable, due to the sample size and methodological differences, it can still be viewed as a promising use of Twitter in the academics population. It suggests that the number of academics taking up on Twitter will increase (Nicholas et al., 2013) and with a consequent potential impact on scholars' communication and networking activity.

While some researchers have claimed that there has been a massive increase in the popularity of Twitter across the academic community, a number of other studies have suggested a contradictory view, that academics adopting Twitter is still in its infancy. Quantitative studies investigating the use of Twitter by academics suggest that there is still a minority take up of Twitter among scholars (ratio 1:40 scholars) and that the majority who do use it, do so for social purposes (60% of scholars who tweet) rather than for professional matters (Gerber, 2012; Ponte & Simon, 2011; Priem, Costello, & Dzuba, 2011). Ponte and Simon (2011) also found in a survey of 349 European scholars that the highest proportion of social media users employed Twitter (18%), showing that it is one of the least popular social media applications when compared to Facebook or LinkedIn, which is contrary to the results obtained from the other studies previously mentioned. Rowlands et al. (2011) indicated that Twitter is less popular among 2000 surveyed scholars compared to other social media tools, garnering a mere 9.2% of respondents who stated that they used Twitter in their research. The majority were scientists.

A larger survey by Pearson (2013) on American Faculty's use of social media reported a different pattern of usage of social media (between years 2012-2013). In here, it shows that the overall use of Twitter and other social media for professional purposes remained below that of personal use, although there was an increased used by professionals in 2013. The results exhibited a significant rise in the use of Twitter for teaching purposes, yet it was behind other social media, such as Facebook, Blogs LinkedIn and Wikis. Similarly, Tenopir and Volentine (2013) conducted a survey in six HE institutions in the UK with 2,117 academic staff and found that about 5% of the respondents used social media like Twitter for work-related purposes. However, the frequency of using it is not as high as the authors expected. Likewise, they concluded that it does not replace traditional media or resources, but rather use it as a complementary tool. A study based on semi-structured interviews with scholars in Information Science revealed that Twitter was not in the top five social media in use. Findings indicated that Twitter is a recent arrival, thus, pointed to the low adoption rate among scholars in the study (Gruzd et al., 2012).

Recently, Fransman (2013) conducted a large study on academic literacy practices on Twitter of British academics through macro-lens analysis of three different methodological grounds (metric analysis, survey, ethnography). Her survey found a small amount of academic use of Twitter (29%) at less than a third of her sample group and that those who did use it were using other digital media as well. The outcome distinguished academics' Twitter usage based on personal motivations (joined because peers were also on Twitter) on the one hand, and those based on the university agenda (cultivating digital scholarship and forming better networking) on the other. In essence, while awareness on Twitter is prevalent among members of the research community, a large gap still exists between awareness and the actual use (Nicholas et al., 2013).

These studies show a comparative lack of Twitter use for scholarly pursuits, although some researchers have claimed to have adopted. It is also apparent that there are no clear figures to indicate the actual population of academics who use Twitter globally. This raises concerns as to whether academics are moving towards an era of digital and open source scholarship (M. Weller, 2011). This movement encourages academics to communicate research across disciplines, using digital technology to enhance teaching, and allowing academics to engage more with people outside the academic realm (Greenhow & Gleason, 2014; Greenhow, 2009; Pearce et al., 2010; Scanlon, 2014; Veletsianos & Kimmons, 2012a; M. Weller, 2011).

2.5.2 Twitter practices

To date, studies investigating the use of Twitter among academics are still scarce. There is very little literature that reveals how academics use Twitter. One key study is that by Veletsianos (2011) wherein a content analysis was conducted to demonstrate what academics actually did on Twitter. The ethnographic dataset of 4,500 tweets from 45 higher education academics revealed seven main themes that reflect academics' main activities on Twitter. These uses are summarised in table 2.3 below. From the analysis, it can be concluded that the academic use of Twitter is a complex activity. This is due to the mix of identities used in the network, multiple interactions and shared interests, variety of updates, and social interaction with multiple audiences through Twitter.

Another key author is Lupton (2014) who provides a recent overview on social media used by scholars, and found that Twitter led the use among other social media. The study identified Twitter to be used in professional work in the categories in the table 2.3 below. Her study also highlighted the main features of Twitter as valued by users. In here, Twitter is perceived as global and immediate, entailing rapid speed of communication in real-time. This way of communicating contributes to the responsiveness of the platform seen through a continuous stream of messages and interactions, therefore winning over academics more than other social media tools.

Table 2.3 below presents a comparative summary of Twitter uses from the two authors (Veletsianos and Lupton) discussed above. Figure 1-4 show the intersection of uses between both studies and 5-7 display the different categories identified in Veletsianos (2011).

Table 2-3: Key themes academics use Twitter/social media adapted from Veletsianos (2011) and Lupton (2014)

<table>
<tr><th></th><th colspan="2">Twitter Uses</th></tr>
<tr><td>Authors</td><td>Veletsianos (2011) - Twitter</td><td>Lupton (2014) - Social media & Twitter</td></tr>
<tr><td>Topic</td><td>Higher education scholar's participation and practices on Twitter</td><td>'Feeling Better Connected': Academics' Use of Social Media</td></tr>
<tr><td>Methods</td><td>Content analysis</td><td>Survey research</td></tr>
<tr><td>Sample</td><td>45 academics (PhD holder)</td><td>711 scholars (academics, postgraduate students)</td></tr>
<tr><td>1</td><td>Sharing information, resources, and media relating to their professional practice</td><td rowspan="2">Promoting openness and the sharing of information (research and teaching)</td></tr>
<tr><td>2</td><td>Sharing information about their classroom and their students</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Networking and make connections with others</td><td>Connecting and establishing networks</td></tr>
<tr><td>Support (academic and emotional)</td></tr>
<tr><td>4</td><td>Digital identity and impression management</td><td>Self-promotion through publicising research</td></tr>
<tr><td>5</td><td>Requesting assistance from and offered suggestions to others</td><td></td></tr>
<tr><td>6</td><td>Living public lives</td><td></td></tr>
<tr><td>7</td><td>Highlighted their participation in online networks other than Twitter</td><td></td></tr>
</table>

In consensus with Lupton (2014), Weller (2011) recognised that Twitter is an interdisciplinary bridge that can be used not just to amplify practice but also to transform scholarly endeavours through informal communication, professional engagement, knowledge update and sharing, wider networking and developing community and work collaboration amongst the widest audience possible. Nicholas et al. (2011) mentioned that Twitter is among the significant social media tools that begin to impact in the seven phases of academic research lifecycle. Accordingly, the phases where Twitter social media become increasingly embedded, as mentioned by Nicholas et al. (2011), include processes on a) identification of research opportunities, b) establishment of collaborators and collaborations, c) support acquisition, d) literature review, e) collection of research data, f) analysis of research data, g) dissemination of findings, and h) research process management. Furthermore, they revealed that disseminating research results is considered as the most useful application for Twitter among the seven phases.

Veletsianos (2013), through his auto-ethnographic study, claimed that scholars sharing in social networks (e.g. asking help/advice to review a manuscript for a journal, sharing research ideas) significantly have embraced the notion of 'gift economy' and preserve academic sharing practice that is typically portrayed in educational philosophy. From this viewpoint, sharing activity is apparent as social good rather than marketable commodity (Veletsianos, 2013; Lupton, 2014). This sharing ethos reflects the democratised and participatory principles asserted in the design of the Twitter platform itself (Jenkins, Ford, & Green, 2013).

Another researcher reports how she discovered Twitter as a digital tool to keep up with academic developments (Lemon, 2014). Lemon (2014) shared her narrative of being an early career academic looking to balance her life as an individual and academic. She found tweeting to have advantages and embarked on new working habits to support the delivery of academic practice effectively, e.g. being an 'open scholar' (Weller, 2011). This is reflected through engaging with people, sharing research, and inventing new teaching exercises, while being connected with students. While Lemon discusses her experience from an individual perspective, balancing the use of Twitter for academic purposes and pleasure, Lupton (2014) indicated that academics negotiate social media use in a context in which many feel that there are increasing time pressures in their work.

"Online self-presentation and participation in networked interactions has become a feature of academic *contemporary life"* (Stewart, 2013, p. 3). Veletsianos and Kimmons (2012c) discussed that academics maintain a digital presence on Twitter to promote scholarly activities and work. This activity, however, correlates to users' activity of managing and presenting their self-online. Marwick and Boyd (2011) claimed that Twitter resonates with Goffman's theory of 'self-presentation' where people construct and reconstruct their identity and practice through learning, interacting, engaging and collaborating with other people of 'shared, mutual and joint community'. Identity performances on Twitter is continuous through strategies of using their social skills to maintain self-images and 'authentic' or 'true-self' in the communities that encourage social norms as well as negotiating power differentials and conflictual (Veletsianos, 2013). In here, the concept of

‘impression management’ develops through habitual monitoring of other people’s response when they present themselves based on the identity that the individual wants to publicly project (Marwick & Boyd, 2011) to be socially accepted by the community (Veletsianos & Kimmons, 2012c). In negotiating identity on Twitter, Veletsianos (2013) states that, academics maintain equilibrium of its social sharing and ‘phatic communication’ with keeping some information private in order to maintain their professionalism status. This author suggested that Twitter is shaping scholarly identities that challenge their behavioural norms as academics. They do not only try to project a good academic reputation, but also their sociability as a complementary function as projected through Twitter. This supports the point of Lupton (2014) when he states that scholars seemed to adapt this tool for their professional ecosystem.

In another perspective, Kieslinger et al. (2011) conducted an online ethnography study on a tweet corpus, investigating the behavioural activity of a group of scientists that used microblogging. The findings suggest that scientists mainly used Twitter for directed communication between peers, broadcasting events information and sharing research work and information. Their results also indicated different behaviour at different stages of the career. Likewise, more senior staff would be more likely to disseminate information; while early career academics communicated a lot with peers. Lupton (2014), in contrast, found no real differences in use based on seniority. Another recent study suggested that Twitter is an outlet for communication and dissemination that researchers trust, based on their trusted personal learning network and colleagues (Nicholas et al., 2013). The study also suggests that Twitter provides more relevant content which is very important and may not be found by normal searching (Nicholas et al., 2013). It is indicated that various types of information gained were directed by colleagues were able to enhance these scholars’ awareness and knowledge of a particular research.

Twitter activity among scholars is still quite limited and its application is not consistent across all academic disciplines and fields (Holmberg & Thelwall, 2014; Mahrt, Weller, & Peters, 2014). For example, Letierce et al. (2010) demonstrate how Twitter adoption has become popular among the members of the Web Semantics Researcher Community for the communication of scientific or academic information while establishing pool of networks through Twitter. This view is supported by Holmberg & Thelwall (2014) who conducted a mixed-methods study on a large sample of tweets (59,742) by confirming that academics from five scientific disciplines (astrophysics, biochemistry, digital humanities, economics and history of science) predominantly use Twitter for conversation (sharing opinions, talking science or commenting on science facts with colleagues) at 38% more tweets than other disciplines. Nonetheless, in a broader analysis of all disciplines, the conversation thread includes a vague scientific communication; with a mix of user status updates about one's daily activities (i.e. what they do or where they were). Unlike Letierce et al. (2010), other researchers similarly argue that Twitter was not solely used to communicate scientific information, which also suggests Twitter is for mixed use, both personal and professional (Holmberg & Thelwall, 2014). Veletsianos (2011) and Veletsianos (2013) discussed that social networks is mainly designed for social interaction. Thus, scholars tend to engage in both, non-professional and professional activity as part of forming their self-presentation. They deliberately reveal different dimensions of their lives as these social matters are entangled and intricate in individuals and becoming an aspect to influence reputation in the community (B. Stewart, 2015).

2.5.3 Twitter for specific uses

A small number of studies on academics use of Twitter have been published investigating specific uses, including those for conferences, citation and teaching.

2.5.3.1 Conferences

Early studies examined Twitter use at academic events. Conferences are one of the most important platforms for researchers to communicate and share their research to the academic community while expanding their network. Twitter is shown to promote these activities by broadcasting academics messages within and beyond conferences. Because of its ability to communicate and share links or information in real-time, Twitter has been claimed to be an essential communication tool to be explored and used during conferences (Ross et al., 2011). Similarly, scholars are frequently using Twitter to communicate with their peers and promote work of their own or of their peers. These activities that benefit the user and their connections have made Twitter as one of the top three services in broadcasting information, in addition to its communication speed and simplicity (Letierce et al., 2010). The use of Twitter as a backchannel for discussions, expanding new contacts and updating scientific information in conferences has encouraged academics to start using the platform. This is based from the result of a survey showing 92% of mainly European researchers set up a Twitter account during a scientific conference (Letierce et al., 2010). It is also evident through an analysis of tweet hashtag that academics are more likely to engage in Twitter at a conference than in everyday use (Kieslinger et al., 2011; Ross et al., 2011). Ross et al. (2011) further identified establishing an individual online presence through participation at conferences, and writing notes to update knowledge were among the most prevalent activities at conferences, as well as building and maintaining professional networks through engaging in discussions before, during or even after attending the event.

When used as a backchannel, Twitter is also able to make another medium for communication and collaboration related to the topics presented and to establish a dialogue in different locations at the same time (Ebner, Beham, et al., 2010; Reinhardt et al., 2009; Ross et al., 2011; K. Weller & Puschmann, 2011). It is also reported that communication on Twitter happens in asynchronous and intermittent dialogues rather than in solitary conversations, and multiple interactions integrated by hashtags with a few specific names as identification of the conference and academic community background (Holmberg & Thelwall, 2014; Letierce et al., 2010; Ross et al., 2011). This could be seen as a paradoxical view because of the simultaneous occurrence of positive uses and negative effects of using Twitter. In particular, the use of Twitter has developed as another way to promote a conference in relation to its venue, activity and research content whilst enabling contact with outside colleagues and the wider research community. However, some issues related to the use of Twitter in conferences suggest the need for more interaction, collaboration and input between the audience and the speaker.

2.5.3.2 Citations

Several other studies have linked Twitter with higher academic citations and scholarly impact also called as 'altmetrics' (Holmberg & Thelwall, 2014; Priem & Costello, 2010; M Terras, 2012; MM Terras, 2012; K. Weller, Dröge, & Puschmann, 2011; Zahedi, Costas, & Wouters, 2014). For example, Priem and Costello (2010) in their small scale study of 28 academics' Twitter datasets, investigated how academics cite on Twitter, and the results suggested it has scholarly impact and later predicted to supplement the traditional scientific publications. It was concluded that using Twitter as a nuanced metric of scholarly communication may augment future tenure or academic career promotion (Priem & Costello, 2010). Their findings point out that scholars often use Twitter for citations in either indirect or direct links, with 6% of Tweets being Twitter citations and more than half being directly linked to peer-reviewed articles. They also revealed a greater speed of Twitter citations than traditional academics citation practices, with 15% referring to articles on the same day and 40% one week after publication.

In the same way, Terras (2012) conducted an experiment on the impact of Tweeting for her publication dissemination. She found a significant difference before and after she blogged and tweeted her research paper. That is, within 24 hours of blogging and tweeting there was on average of seventy downloads of each of her papers, compared when no blogging and tweeting was done as against to when only one or two papers were downloaded, with a ratio of 70:1/2. Besides, she claimed that tweeting had positively increased the number of audience visits and reading of her blogposts. Other studies have addressed similar matters relating to increase in visit and readership. Eysenbach (2011), for example, suggested that tweets can aid in the prediction of article citations within the first 3 days of its publication and dissemination in Twitter. Lemon (2014) claimed her research paper gained 136 downloads within two days of being published, while other researchers concluded that academic tweeting had a positive effect on citations (Priem & Costello, 2010; Shuai, Pepe, & Bollen, 2012).

In a study which analysed scholarly communication tweets, it was found that only a fraction of all tweets were like citations, in the sense of linking to an academic article (Holmberg & Thelwall, 2014). They argue that, although Twitter is considered by many researchers to be an important tool in relation to their scholarly communication and research circulation, it is not frequently used to share information about scientific publications as similarly stated in a study by K. Weller et al. (2011). A large study examining scholar's digital behaviour on social media was carried out by Nicholas et al. (2013) and found a low level of trust for citing content broadcast or communicated social tool include Twitter, unless linked to a traditional peer-reviewed source. However, there is less interest in sharing or disseminating work on Twitter, as scholars believed it has little impact on metrics evaluation because of its difference from the authority being held by traditional peer review and journals. These results are, however, contradicted by Priem and Costello (2010) who claimed that Twitter citations could still be considered as a legitimate channel in determining scholarly impact despite the fact that it is very different from traditional tools. General descriptions of citation practices on Twitter were performed via sharing information, research and resources or pointing to other social media presence (e.g. Academics.edu, LinkedIn, Blog) (Kieslinger & Ebner, 2011; Lupton, 2014; Veletsianos, 2011). However, in these cases the use of URL links for citations is not explicitly necessitated.

Nonetheless, considering all of this evidence, it is worth recognising that academics use Twitter as another means of actively promoting access to their own research or helping to endorse other colleagues' work to a broader audience in a quick and immediate way. Prior research has indicated, citing internet website as sources has been accepted as a scholarly practice (Kirkup, 2010), and academic tweeting constructs another significant form of citation and supplements existing traditional citation methods. Nicholas et al. (2013) in his study has similarly pointed that UK scholars in social sciences mainly value social tools for possibilities to increase their work citations. In essence, academics are more likely to use Twitter as a complimentary to research dissemination, this activity also may seem to pushing boundaries for new metrics of impact influence, which in turn may bring some big implications for publishers, librarians the policies makers.

2.5.3.3 Teaching

A substantial body of research has been conducted to gain greater understanding of the impact diverse potential uses of microblogging have in formal higher education settings. There has been a particular focus on Twitter for supporting learning activities as well as in shaping how learning, motivation, outcomes and assessment could become more efficient and effective. According to Grosseck and Holotescu (2008), Twitter can provide considerable advantages for educational use. These include a range of elements: creating a classroom community, project management, promoting collaboration, assessing opinion, promoting collaborative conferences, sharing research, creating a virtual classroom, enhancing learning experiences, building personal learning networks, and acting as a reference or resource tool. The authors tend to see Twitter as an extension or supplement to the classroom learning (Grosseck & Holotescu, 2011). Other studies have also suggested that Twitter can provide significant contributions to cultivating technology-enhanced learning (Costa & Beham, 2008; Kassens-Noor, 2012); and advancing mobile learning (Ebner, Lienhardt, et al., 2010; Ebner & Schiefner, 2008).

Hannay and Fretwell (2011) and Faroughi (2011) argue that universities and colleges today enthusiastically integrate Web 2.0 technologies/social media into the education curriculum and this activity may have effects for academic practice. For example, students may well expect communication with faculty members to be undertaken online, via microblogging tools such as Twitter, or social networking tools like Facebook or other similar web-based applications. Likewise, in terms of graduate employment, today's companies will presume their recruits, to be extremely competent in the use of social media applications (Foroughi, 2011). With this demand, academics are often encouraged by higher educational institutions to use social media tools to equip future students with social media skills. However, this is not an easy task for academics as argued by Prensky

(2001). In here, he stated that digitally native students are more technologically literate and more highly exposed to technological applications than academics who were not exposed to technology. As such, these new students are creating a new environment of learning in which they are more engaged, one which is collective, faster, flexible and creative, through the use of social media applications (Selwyn, 2012).

As academics look for ways to engage and motivate students, social media are becoming a viable supplement to the traditional learning environment (Ebner, Lienhardt, et al., 2010). Educators have tested microblogging tools, especially Twitter, in their learning exercises. Through such experiments, students can be taught how to interact and engage with the tool efficiently (Ebner & Schiefner, 2008; Holotescu & Grosseck, 2008; Junco et al., 2011). Several academics have explored how to use Twitter in the classroom and Parry (2008) has revealed 13 good practices of how Twitter can be utilised effectively during class. Twitter has been introduced as part of classroom syllabus, where students can take part in collaborative work, such as practising project management activities i.e. planning and decision making on real-world assignments through discussions with colleagues. At the institutional level, universities and colleges are taking a number of initiatives in integrating microblogging tools. This is due to their help in providing support and infrastructure to the faculty and classroom.

The flexibility and usability of Twitter communication features has been seen as a powerful opportunity in educational environments to develop pedagogical approaches. A very large range of potential applications of Twitter to learning and teaching can be imagined. These applications include teacher/student information transmission; collaboration and discussion (inside and outside the classroom); encouraging student engagement; and developing online learning communities. In the next section these benefits will be discussed further in order to, explain how this medium is used, and its pedagogical success, as measured by the reflections of academics, and at times, student feedback.

Several studies have shown that Twitter can be used both during lessons and out of classes. Specifically, it can enable instant responses in lectures, allow for the sharing of resources, as well as having the capability to be employed in collaborative learning contexts (Elavsky, Mislan, & Elavsky, 2011; Kassens-Noor, 2012; Lowe & Laffey, 2011; Sullivan, 2012). However, not all studies have found positive effects to have occurred. For example, G. Junco et al. (2013) found that there are no significant effects when using Twitter to collaborate in classroom learning. Through experiments in classrooms, Twitter has been assessed as a potential platform for supporting increased student engagement, improved learning, and developing enjoyment and communication.

Twitter has been found by a number of studies to increase student engagement when used in a large lecture theatre situation, with sizeable student participation and where it involved increased dialogue between individuals (Rankin, 2009; Tyma, 2011). However, this result is contradicted by a mixed-methods study carried out by Elavsky et al. (2011), where students reported that the use of Twitter in large classrooms had a positive impact on learning experiences, yet a minimal number of students were actually actively tweeting. Lin et al. (2013), analysed students' use of Twitter and results show high scores for students' enjoyment. However, they seldom used features such as 'retweet' or 'reply'. Lowe and Laffey (2011) indicated that Twitter offers opportunities for sustained student–content, student–student, and student-instructor engagement. Similarly, Junco et al. (2011) undertook a study in a classroom for a semester, involving an experimental group of students using Twitter and a control group, and found that the experimental group significantly improved their Grade Point Average (GPA) through greater engagement with Twitter. They concluded that Twitter was a useful instructional tool that increased connectedness and fostered active participation in learning. Following their investigation, the authors conducted similar studies assessing engagement and academic performance (grades) using two different social network platforms, Twitter and Ning, and found that Twitter encourages continuous interaction among students which led students to engage with the learning content and produced better grades compared to the other group (Ning) (Junco et al., 2012). In some classrooms in China, Twitter has been seen as a potential instructional tool, despite the limited Internet access to Twitter. Sullivan and Schneiders (2012) reported that it created closeness among students and an understanding of the subject.

In another study Wakefield and Warren (2011) found that students saw Twitter as an effective tool in class discussion. The creation of an interactive environment also apparently created a social learning community. Cochrane (2010, p. 3) said that internet-linked mechanisms like Twitter can *"…facilitate learning experiences that bridge time and distance"* and allow global student collaboration. Cochrane illustrates how Twitter was used to enable interaction between students and lecturers in New Zealand and Ireland. Similarly, Lowe and Laffey's (2011) in their study in a postgraduate marketing course found that Twitter enhanced the learning outcomes by generating a collaborative working atmosphere among the students. This finding is also comparable to a study carried by

Lomicka and Lord (2012) whereby U.S. students taking a French class were required to exchange tweets virtually with French native speakers and this activity significantly shown positive impact. Results from the study found the students developed a community of learning, involving a creative collaboration through sharing and reflection on content.

In a mixed-methods study, Rinaldo et al. (2011) showed that Twitter increased students' learning through networking with real business professionals in the online community during a marketing course. Students gained practical experience by discussing business processes, such as customers' responses to certain types of product and services marketing using social media. In a similar study, Dunlap and Lowenthal (2009) reported that, using Twitter in the classroom provided students with opportunities to (1) network with outside professionals; and (2) gain experience in a community of professionals. Twitter appeared to catalyse connections more quickly than classroom discussions.

Twitter has been found to influence information sharing among students. A study by Holotescu and Grosseck (2009) indicated that students can use this mechanism to discuss particular themes, convey ideas about particular subjects, and ask questions. Sharing class materials and giving inputs/ideas, or supporting each other in assignment tasks invited students to social dialogue and collaboration (Dunlap & Lowenthal, 2009; Perifanou, 2009). Ebner and Shiefner (2008) identified that students' decisions to participating in microblogging platforms is based on the desire to connect with the online-learning community and share information and update news among them.

Overall, Twitter is perceived to support positive learning experiences and increase understanding of learning content through active communication and participation in online courses (Kop, 2011). A few other studies have found that Twitter is useful for the following reasons: (1) It helps students in information sharing activities, developing social connections and updating personal status; (2) Students learn and improve grammar through corrective feedback from instructors; (3) It enhances online presence and learning outcomes; (4) Students are able to retrieve information, and discuss and exchange ideas related to course content in real-time; and (5) It enables the sharing academics events and class assignments (Dunlap & Lowenthal, 2009; Ebner, Lienhardt, et al., 2010; Hattem, 2012; Lowe & Laffey, 2011; Perifanou, 2009).

Some educators have suggested that "mobile pedagogy" (mobile learning) is a new approach for learning in higher education, and Twitter could contribute to this. In relation, Holotescu and Grosseck (2009) developed a social software application named *cirip.eu* to be downloaded onto mobile phones and linked into an online course. Analysis of results from the experiment showed that through the experience of mobile learning, students were able to extend their communication and participation for their learning activities within groups and between individuals in an informal manner rather than as formal learning. Another study also found that Twitter was useful for mobile communication where there was a physical distance between students and the instructor (Al-Khalifa, 2008). It can be concluded from these studies that Twitter can be used effectively, if used as a complement with a sound pedagogic model.

Some examples from other research found the use of Twitter enhanced the process of reflective thinking. Wright (2010) conducted a case study in a teaching course and found that, through the sharing of ideas and exchange of dialogue on Twitter, knowledge creation among students was supported. Further, the limitation of 140-characters encouraged the students to construct the content in a precise and meaningful way. Another study by S Blessing, J Blessing, and Fleck (2012) investigated the impact of Twitter on understanding a course concept and results show the use of Twitter can be an effective way of signalling and reminding to students who are out of class to increase their memorisation of important concepts.

2.5.4 The risks and concerns about Twitter for academics practice

A lot of the literature has identified particular ways how social media is used in higher education. However, the risk of using Twitter for academics is still understudied. A few studies have suggested possible reasons why resistance to using Twitter among academics exists, such as that engaging in microblogging consumes much time, there is no professional recognition in relation to scholarship and their concerns of harming reputation (Bader et al., 2012 as cited in K. Weller et al., 2014). However, in a study based on semi-structured interviews, Gruzd et al. (2012) had one respondent who identified security issues on Twitter, specifically a situation where the individual account was hacked and created inappropriate spam. Nonetheless it did not create damage on the reputation as the use was monitored by the user, hence, the problem was anticipated and resolved. It was suggested however that responding to the issue of privacy could minimise the risk when engaging in Twitter. Some authors discussed how Twitter becomes a flat network with multiple of audiences (e.g. friends, colleagues, professionals), which makes it hard to separate individuals' identities. This difficulty sometimes create issues of privacy and conflict of identities (Lupton, 2014; Marwick & Boyd, 2011; Veletsianos, 2011). Likewise, Twitter use at conferences could pose some drawbacks relating to the availability of facilities like the availability of an internet connection, presence of inappropriate comments by participants and other users, assurance that proper hashtags are used, dissemination of the conference and related hashtags to right audience, and the audience being distracted and losing attention because of tweeting rather than listening to presentations (Letierce et al., 2010; Mahrt et al., 2014; McCarthy, 2005).

With limited findings on Twitter use in teaching contexts, some authors have raised questions about Twitter's educational relevance (Kieslinger et al., 2011; Tess, 2013; Veletsianos et al., 2013). A few studies have reported some concerns in relation to the use of Twitter in educational settings. Though microblogging is becoming more popular, studies suggest that Twitter is still in 'assimilation mode'. In comparative terms Twitter was being abandoned by scholars in HE due to initial challenges of unfamiliarity, leading to a reluctance to use it (Lenhart, Purcell, Smith, & Zickuhr, 2010; Lowe & Laffey, 2011; Rinaldo et al., 2011). It has also been argued that users' potential response rates when use microblogging may be fairly limited. Studies have found that students were not always actively engaged with and did not regularly respond to the instructor's tweets (Holotescu & Grosseck, 2008; Lowe & Laffey, 2011). Although Twitter claims to support online communication and sharing of information, the massive quantities of content also lead to 'information overload' (Ebner, Lienhardt, et al., 2010). Studies also describe how 'over-monitoring' Twitter can create distraction and time-wasting due to longer time being spent on reading less useful information, or constant interaction without directed purpose (Holotescu & Grosseck, 2008; Rinaldo et al., 2011). Additionally, some students may post 'cynical' or inappropriate tweets that are not relevant to the subject and this can bring no educational benefit and researchers expressed concerns that it creates poor writing skills (Dunlap & Lowenthal, 2009). Further, in one study Twitter was found to develop social presence addiction (Grosseck & Holotescu, 2011).

2.6 Research gaps and challenges

After discussing the concerns of using Twitter, the studies reviewed earlier demonstrated that Twitter may hold a promise for academia. Moreover, this section discusses the gaps and how the research study will be of importance in addressing these gaps.

Collectively, the review above outlines how Twitter could be used in supporting academics' work. It has sought to provide a summary of current understanding of how social media and Twitter in particular are being used in the scholarly environment. Prior literature has concentrated on aspects of Twitter use in academics' activities, statistical analysis on their tweeting behaviour, types of posting, discourse analysis, publishing patterns, self-reported study, and the effects of Twitter to academia, which are all valuable insights. For instance, researchers investigating the use of microblogging by academics' in their communities concluded that Twitter can benefit academics in various ways: as a platform for scholarly communication, research dissemination and citations, establishment of contacts and network, and development of professional learning networks (PLN) that enable academics to virtually learn and collaborate from practitioners around the world (Letierce et al., 2010; Lupton, 2014; Nicholas et al., 2013; Pearce et al., 2010; Priem & Costello, 2010; Rowlands et al., 2011; Veletsianos, 2011, 2013) In addition, Twitter can also help to establish scholars' profiles and expertise via digital presence (Veletsianos et al., 2013; Veletsianos, 2011). Meanwhile, a number of studies have reported on students' learning experiences with microblogging and social media (Dunlap & Lowenthal, 2009; Greenhow & Robelia, 2009; Junco et al., 2011; Rinaldo et al., 2011; Selwyn, 2009, 2012). Accordingly, the authors also suggested that academics use Twitter based on their educational roles, tasks and responsibilities.

However, to date, research investigating academics in HE practicing microblogging is still scarce, making this research worthwhile from both a theoretical and practical perspective. What has not been done is explore in-depth the process of adoption, patterns of use across different platforms. This is partly because the methods used have been focused on content of posting or via surveys. While this gives generalizable results, it does not get at the fine detail of experiences of use. There also is a sense the qualitative research proposed here can explore more underlying factors driving its use, and avoid simple technological determinism.

Although previous studies have pointed out a significant growth of Twitter use among academics (Lupton, 2014; Magna, 2010), it is understood that the population of academics who use Twitter is still a minority. Some results from studies may provide useful implications regarding microblogging use in the higher education environment; nevertheless a host of questions remain in the literature, that is: what factors influencing academics' use and adopt Twitter in higher education?

Taking a wider view, Nicholas and Rowlands (2011) and Nicholas et al. (2013) argue that many factors may play such roles in adopting social media tools and rejected age to contribute to early adopter of the technology. They claimed other significance contributions, for instance individual's passion in exploring and adopting technology that co-exist with their philosophical beliefs, culture and social norms. These authors point to other motivations including peer influence and the increase growth of collaborative and interdisciplinary research making social media tools useful, as it is economical, free and an effective medium for communication among researchers (Nicholas et al., 2010). Technological savviness and digital experiences could be another aspect (Foroughi, 2011). In addition, technological affordances were identified to influence social media used. Specifically, one study found that researchers who adopt social media have greater used on mobile technologies (e.g. smartphone and iPad) compared to the non-users (Nicholas et al., 2010). While these claims seem reasonable in general, they may oversimplify and do not acknowledge factors that shape the adoption of particular tools.

Several authors have suggested that critical examination be done in relation to the narratives that govern the academic work and lives; the corporate and political agendas that exist; the rise and demands of working in university environments; the pressure for knowledge transfer and sharing through research; forming and maintaining network in disciplinary arrays; engagement and interaction; student retention and recruitment; challenges in educational technology; and transformation of the digital university (Lemon, 2014; Lupton, 2014; Minocha et al., 2011; Selwyn, 2012; Veletsianos & Kimmons, 2012a; Veletsianos, 2013; M. Weller, 2011) . These arguments suggest which future inquiries need to be carried out.

Veletsianos and Kimmons (2012a) claimed social networks such as Twitter may offer many possibilities to academic profession. As such, it may fundamentally change scholarly views on how they were expected to report and serve their community and how they could perform professional practice particularly in influencing their research and community outreach, building networks and shaping career development. Nonetheless, this claim is still debatable as a lack of research undertaken to understand further how this tool has really change the working culture in academia or does academic are voluntary and desirably adopt this social tools in nourishing their needs or whether there are other underlying concerns (Lupton, 2014; Veletsianos, 2013).

From a deeper perspective on microblogging practice, two studies (Lupton, 2014; Veletsianos, 2011) have demonstrated the uses of Twitter by academics in higher education for professional work, thus far. Veletsianos has defined many Twitter uses and scholars' prevailing activities on Twitter, but may have missed some evidence due to his data comprising tweets. However, some of the gaps found in Veletsianos include the lack of understanding of other messages and reason on why academics conduct such behaviour on Twitter, as well as the academics' motives and the process of adoption and integration of Twitter into their academic and social lives. On the other hand, Lupton establishes that most Twitter use overlap with Veletsianos' results, because she has a lot of responses through a large survey. Still, her study relates to an overall use showing a lack in emphasis specifically on Twitter. However, this phenomenon could not be studied by mere survey-questionnaire type of research because there are many underlying features of the phenomena such as the motives and experiences of academics in relation to Twitter use. In short, neither study really provides details or explanations of the various aspects of Twitter use by academics. Hence, this present study attempts to address such gaps.

Theoretically, the arguments above provide a useful springboard and positioning for this research. It is believes that the way microblogging is used and experienced by academic is poorly understood and inadequately researched. Previous literature on academic use microblogging described is lack of questioning on the reasons *why* and *how* academics use and adopt Twitter. To answer these, it is important to identify the underlying motives for such adoption; understanding what process of adoption involves; what their practices on Twitter are; what their patterns of using Twitter; how Twitter fit into their scholarly routine (e.g. when and where they tweeting - location, time) and understanding the details of the affordances and type of technologies use to accommodate their Twitter activity and what the implications of its use may be for an academic.

The aforementioned questions are among the key issues that are addressed in this present study. In particular, it is done in order to gain a better understanding of how such social media technology is becoming meaningful in academic life. To discover the positive features of Twitter in relation to its use in scholarship (M. Weller, 2011), further research to investigate the nature of Twitter is needed. To address this concern, this research focuses on the individual's experience of using Twitter, enlightening at a detailed level how academics come to Twitter, engage with it and develop their practice on it. Moreover, it also emphasises on how the use of Twitter shapes academic practice and how it continues to evolve their identities as scholars. An in-depth study will concentrate on conducting interviews and reflective talks with members from the target group (academics in higher education). This approach will enable a better understanding of the contextual embedding of Twitter, its purpose and value for the individual and the specific academic community.

Thus far, quantitative studies involving large datasets dominate the current research on microblogging practices (Kieslinger & Ebner, 2011). Applying quantitative methods to the study of microblogging, however, could create issues in relation to the results. These issues may include the presence of a very generalised data; a lack of detailed measurements of individual activity; being biased in terms of gender, discipline, age or academic level; or having a low in survey response because academics refuse to using the web system (Mahrt et al., 2014). Several researchers have suggested conducting exploratory studies to confirm the validity of the different methodological approaches available. For example, evaluation of behavioural pattern of scholars on microblogging platforms is an interesting area to study that could help explain in detail the representative's actions and practice at certain events or occasions (Lupton, 2014; Mahrt et al., 2014; Priem & Costello, 2010; Veletsianos, 2011). Taken into consideration, qualitative investigation is a significant approach to fully understanding how and why academics use Twitter in scholarly communication.

This study may be valuable in painting a richer and holistic picture of academic activities on microblogging platform. It produces the notion of a relationship between academic practice and microblogging. It also attempts to enhance a better understanding of academics' values, the degrees to which their activities align with values that characterize academic institutions and the culture surrounding online academic practice, and how it may change scholarship. On a theoretical basis, this study augments previous insights into the social, political and cultural factors that influence technology use. It further contributes to the socio-technical study that considers human, social and organisational factors, and the social system that enacts the application of a technology, as well as technical factors in the design of the technology.

In conclusion, this chapter on literature review explores previous research on social media and Twitter in higher education. It discussed the notion of Twitter, with studies showed interest in exploring Twitter, and the current concerns that are relevant for further exploration in the study. The key findings in different studies are the core reasons for choosing this social media tool as the object for the study. It was also chosen because of its popular use among academics (Letierce et al., 2010; Veletsianos, 2011), and its interesting characteristics related to flexibility and ease of communication that could potentially support academics' practice. Equally, this has generated query in relation to the key aspects of this generic tool offered for scholarship that is directed to the popular appropriation over the on-the-shelf products (Nicholas et al., 2010).

Finally, this current knowledge has provided useful insights and led towards a direction of inquiring how academic can use Twitter for scholarly purposes as well as the affordances and drawbacks between scholarship and digital environment. Thus, using the different qualitative lens may provide better understanding academics participation in microblogging, in particular in the use of Twitter. The methodology used for research inquiry is discussed in the following chapter.

Chapter 3 : Research methodology

3.1 Introduction

This chapter is devoted to the choice of research methodology, the emergent research design, as well as the methods adopted as bounded by the research problem chosen. It introduces the philosophical assumptions, research methods, methods of data collection and data analysis strategies adopted at different stages of the study. For this study qualitative methods were chosen and it takes constructivism as an ontological view, and an interpretivist paradigm as its epistemological basis. In-depth interviews provide the primary data and complementary data from observation are used to enrich this material. A thematic analysis was selected for data analysis. In addition, the chapter outlines the strategies employed for establishing rigour and trustworthiness.

3.2 Choice of methodology for this study

A preliminary consideration is made by the researcher prior to making decisions in developing a research inquiry. Firstly, the researcher's position is important, including the researcher's background and personal interests that are inherent and situates them in the research inquiry. A researcher is a "multicultural subject" (Denzin & Lincoln, 2011) and in as an effect, history, traditions and concepts of self, ethics, and politics are viewed by the research as preliminary points to start the process of inquiry (Creswell, 2013). The researcher has an individual history of using technology, combined with her education experiences, which grounded her in the Information Science field, and thus led her to build this research interest.

Secondly, the stance comes from reviewing the literature. The researcher fully reviewed the topic of microblogging, from a broader view to a narrower focus more directly related to the topic. After identifying the deficiencies or gaps in the literature; such as knowledge and methodological gaps, it was then made clear that this particular 'social phenomenon' required significant exploration. This in turn informed the research questions asked.

The following section 3.3 offers a detailed description of the broad philosophical assumptions that framed the methodological design for this study. In addition, the key characteristics of interpretive study that are relevant to the research were highlighted.

3.3 Research philosophy

Philosophy refers to the *"abstract ideas and beliefs that inform our research"* (Creswell, 2013, p. 16). Four main philosophical, namely, ontology, epistemology, axiology and methodological concern are relevant to the conduct of research. These differ between the main research paradigms and refer to how the social world will be understood and studied (Creswell, 2013; Denzin & Lincoln, 2011). Philosophical assumptions are firstly thought through by a researcher prior to developing knowledge and the nature of that knowledge (Lewis, Thornhill, & Saunders, 2007). Knowledge is defined as (1) *"information about awareness of something"; and* (2) *an understanding of a matter, fact, issue, etc"* (Matthews & Ross, 2010, p. 20). Research paradigms are constellations of common beliefs, shared values, and techniques agreed among the scientific community on how research should be understood and addressed (Kuhn, 2012). This includes philosophical assumptions about the nature of the social world and social research and what are acceptable ways of studying social phenomenon.

Understanding and recognising the different philosophical stances is important to undertaking research. Creswell (2009) indicated research philosophy shapes how a researcher will formulate a research problem and research questions and how the researcher searches for ways to answer those research questions. Crotty (2003) suggested that philosophy 1) offers researchers the concepts to critically assess methodological choices; 2) helps formulate a logical and operational method; and 3) promotes thinking creatively in adopting methods related to research context. The positioning of this research in relation to ontological, epistemological and methodological perspectives are discussed in the following sections.

3.2.1 Ontological assumptions

Ontology is the *"nature of reality"* (Creswell, 2013, p. 21) and is concerned with *"the way social world or social phenomenon or entities are viewed"* (p. 21) by the researcher. Social phenomenon may be made up of social objects of *"any groups of actors, ethnic groups, group of institutions, social situations, and social behaviours"* (Matthews & Ross, 2010, p. 24). There are many ways to view the social world and to obtain knowledge of it. Different perspectives may tell different stories (Mason, 2002). This view depends on some factors including the researcher's beliefs about the social world, and how phenomena can be understood, the purposes of research, the environment to be studied and how the researcher positions themselves. Thus, the researcher must select a particular stance for their study before being able to claim the knowledge of a social phenomenon.

In ontology, there are two main stances, namely objectivism and constructivism. When a social phenomenon and its underlying meanings are known to possess externality, this is referred to as objectivism (Bryman, 2012). Objectivist researchers believe that there is "one true and correct reality" that can be measured scientifically. In other words, in studying the social world, the entities and structure together with their properties and relations can be represented theoretically or/and using abstract symbols that can be mapped onto the researcher's thought. The researcher's role is to reproduce exact knowledge or a 'mirror the nature of reality' (Jonassen & Davidson, 1995, p. 9).

In contrast, constructivism is the belief that social and physical worlds are subjective and exist dependant on human action (Baroudi & Orlikowski, 1990). In this view research is concerned with how *"an individual seeks to understand the world in which they live and work"* (Creswell, 2009, p. 8). This implies that the researcher as part of the social world themselves attempts to construct and reconstruct ideas of phenomenon in the social world through a process of interaction and reflection. This involves having social interaction with a human community of social actors, and exploring their *"historical and cultural"* background to generate a meaning (explicit knowledge) from subjective interpretation. This meaning is reflective of how others (actors) view the social world (Creswell, 2009, p. 8). It is negotiated in relation to and influenced by the actors' personal, social and historical norms. In creating knowledge, this approach takes holistic view, involves complexity and a wide-ranging view. Rather than initiating theory and objectives deductively, it requires the researcher to work inductively in developing patterns or frameworks of meaning (Matthews & Ross, 2010).

According to Jonassen and Davidson (1995, p. 10) constructivism holds the assumption that "*knowledge is a function of how an individual creates meaning from his or her experiences".* It adopts the assumption that knowledge as an essential component of the meaning-making process based on an individual's experiences (Jonassen et al., 1995) and is 'devolved, accessible and co-constructed' [in a way] that embodies human experience (e.g. opinions, values). In other words, meaning is based on understanding that comes through the process of learning that involves social negotiations; and the outcome is the reflection and articulation of the individual's practice in the real-world (Jonassen et al., 1995). These different dimensions of knowledge can be combined as a collective agreement and synthesis to represent the whole picture or story of a social phenomenon where they participated (Dede, 2009; Greenhow & Gleason, 2014, p. 395). Given this view, this study thus takes a constructivist stance. The researcher was specifically interested in understanding factors which influence academics' adoption and use of Twitter in higher education. Ontologically, the researcher believes that the meaning of academics' use of Twitter is grounded in their thoughts and is constructed based on how they conceive their activity of using Twitter. This meaning is somewhat unique and different, based upon their experiences and participation in the microblogging phenomenon. In principle, their mind is the main instrument in interpreting their experience of using Twitter. This interpretation defines the actual realities or the social phenomena of microblogging use.

In other words, the researcher has not intended to objectively describe the way academics use Twitter. Rather the study assumes beliefs exist as 'multiple truths', being both complimentary and contradictory. Further, different truths may co-exist: for instance, different academics may interact on Twitter for different academic or personal benefits, depending on their objectives and goals of participation. Also, some academics may adopt Twitter based on diverse intentions, such as personal motivation, while some may be driven by colleagues or institutional pressures.

Therefore, objectivism is not suitable for this study as its philosophical assumptions view the knowledge of the real world as an independent, governed by external realism and disembodied from human experiences. Thus, this stance opposed to the researcher's belief about the microblogging phenomenon that the meaning of the real world are shared and socially-constructed through human beliefs and understanding.

3.2.2 Epistemological assumptions

Epistemology is *'theory of knowledge'* the theory of *"how we know things"* (Matthews & Ross, 2010, p. 18) or *'criteria for constructing and evaluating knowledge'* (Baroudi & Orlikowski 1990, p. 8). This explains how social phenomenon can be understood. In the research context, this explains how a researcher will conduct particular approaches via gathering appropriate information and thus be able to explain the nature of the social world.

For epistemology, positivism and interpretivism are the two major research paradigms that are most highlighted in social studies. The positivist usually associated with the use of quantitative approach while the interpretivism commonly promotes qualitative approach (Creswell, 2013). Matthews and Ross (2010, p. 27) assert that positivism is "*knowledge of* *a social phenomenon…based on what can be observed and recorded rather than subjective understandings".* Accordingly, a subjective approach to understanding is rejected. This approach is usually taken by natural scientists who advocate objectivist ontological positions. Positivists present the social world through capturing particular sets of facts and numbers that can be replicated, and ignore human thoughts (Walsham, 1995). They hold a deterministic belief of an effect or outcome which is determined by the causes that influence the results (Creswell, 2009). Positivism tends to use hypotheses, to test a theory or law that is believed to have general applicability, but has to be tested, refined and confirmed in order to understand the social world (Creswell, 2009). Positivist studies tend to use quantitative research, and employ methods such as questionnaires and experiments to produce evidence based on numeric measures of direct observation (Creswell, 2013).

In contrast, interpretivism is concerned with the understanding and interpretation of human actions and social phenomena through subjective means (Matthews & Ross, 2010). It acknowledges the legitimacy of human subjectivity and understanding of social 'reality', which is naturally linked to a constructivist view that the knowledge of a natural social phenomenon is derived from interpretations and meanings of social actors. As Baroudi and Orlikowski (1990, p. 14) elucidate ontologically, interpretivist researchers on information systems assume that social relations, organisations, and the division of labour are part of the social world and are not 'given' facts. Instead, the social world is seen to have been shaped by people through interconnected actions and interactions. Explicitly, it explains that 'organisation', 'social systems' or 'social actors' cannot be detached or extricated or even be measured objectively, as they were all in strongly intricate 'social relations' and only this social reality can be interpreted.

Accordingly, an interpretivist will try to understand facts and events by accessing the meanings given by individuals or the society (Baroudi & Orlikowski, 1990) to generate the knowledge of socially constructed meaning, e.g. *"language, consciousness, shared values and instruments"* (Myers, 1997, p. 5) via a suitable methodology to yield a theoretical or textual account of the context of practice (Orlikowski & Baroudi, 1991; Walsham, 1995). In essence, exploring human existence, reconstructing and understanding it to avoid distorting its nature and using this understanding as a building block in theorising is the core essence of interpretivism (Goldkuhl, 2012, p. 6). Accordingly, this is done by working with the subjective meanings in the social world (Goldkuhl, 2012).

Following the constructivist assumptions adopted for this study, epistemologically the interpretivism paradigm is used in building theoretical knowledge of '*how* and *why*' academics use Twitter in a higher education context. Through this account, the researcher tries to obtain an understanding of the phenomenon through the multiple perspectives of the academics and their norms and meanings in relation to using Twitter. This is achieved by getting as close as possible to them to collect their diverse views and interpret the subjective and intersubjective meanings involved (Yin, 2009). In taking this stance and in order to access and understand reality, various socially-constructed facts like consciousness, language and shared meanings are to be explored. Thus reality is considered to be only constructed by society. Furthermore, the interpretive approach does not present a predefined independent and dependent variables but rather concentrates mainly on sense-making done by humans as the situation emerges (Myers, 1997).

Positivism is not suited to examining the area of this research as it uses hypotheses, sets of questions and pre-given theories where human behaviour is governed by law-like principles that may limit understanding of the meaning of a situation or restrict the uncovering of underlying reasons, as well as realising the complexities of a phenomenon (Levy, 2006). Adopting the interpretivism paradigm, it views that the social world as mediated by human agency and their meaning of the social world. In other words, the meaning of the microblogging phenomenon is presented through both, the academics interpretations/experiences and the researcher understanding of the social world. Facts and values of this microblogging activity are not independent and the result is inevitably influenced by researchers' values and perspectives. Therefore, considering this stance, it is unlikely to take a positivist approach for this study.

3.2.3 Axiology

Axiology links to the researcher role in expressing the value of research (Creswell, 2013). The values of the researcher affect how the study is conducted and also the findings of a study. In positivism, the social world is independent and the researcher has no impact on it. Thus, facts and the researcher values are distinct and it is a value-free inquiry. In an interpretive study, the researcher is bound into the research context, thus their involvement is seen as an important practice in presenting research value corresponding with the participants' subjectivity (Creswell, 2013). A researcher could never be 'outside' of the subject matter and it is impossible to make judgements on value-neutral stance (Orlikowski & Baroudi, 1991). Accordingly, by being attached into the field of study, the researcher will have some effect thus it is vital to explicate their positioning in inquiring about the knowledge as well as acknowledging and emphasising the value, upfront judgement and biases (e.g. personal, cultural and historical) or *'value-laden nature'* in gathering the information (Denzin & Lincoln, 1998b).

3.2.4 Methodological assumptions

Methodology is the scientific method including strategies and approaches to scientific inquiry in acquiring knowledge (Baroudi & Orlikowski, 1990; Creswell, 2009). It is a set of guiding principles that a researcher has adopted during research in discovering answers. Kerlinger (1986, p. 279) refers to methodology as:

"a plan, structure and strategy of investigation so conceived as to obtain answers to research questions or problems. The plan is the complete scheme of the programme of the research. It includes an outline of what the investigator will do from writing the hypothesis and their operational implications to the final analysis of data."

It also reflects the choices made by a researcher in identifying suitable models, study cases, data gathering methods, data analysis, as well as planning and implementing a study (Silverman, 2006) in delivering valid empirical evidence. In other words, research methodology is a detailed plan of how a researcher will perform in a study, including selecting the philosophical approach; systematic procedural and methods in data collection; the sampling and resourcing aspect of the study; the techniques used for data analysis; and the best approach to communicating the findings (N. King & Horrocks, 2010). These actions mirror the perspectives of the research aim and inquiry, and obtain answers *'validly, empirically, accurately, and economically'* (Kumar, 2014, p. 122). Correspondingly, each component of the research should be accompanied with justification and supported from the literature.

3.4 Research methods

3.4.1 Quantitative research

The quantitative research approach is based on testing a theory on a large sample of randomly gathered participants. This sample normally seeks to generalise the findings to a wider population in order to explain a phenomenon by statistical means. Quantitative research is described by the term 'positivism' and rests on an objectivist conception of social reality, a formal systematic process with numerical data findings (Bryman, 2008). Quantitative approaches apply deductive reasoning generated from current conceptual ideas to theorising the relationships and proposed statistical results of the study (Bryman, 2008). The detailed information provided in quantitative studies requires further replication for verification (Kumar, 2014). This contrasts with the qualitative approach, where researchers are directed through concepts, ideas, perceptions or feeling about the topic or cohort to be studied. Generalisation in qualitative study is often challenged since 'you cannot make generalisations from results when the sample is not statistically representative of the whole population in question' (Falk & John, 2006, p. 1). However, through the researcher constant reflection and the thick descriptions of qualitative data, this may possibly present a naturalistic generalisation of a similar group/small population in a research context.

Quantitative approaches often use questionnaires as a main data collection instrument to explore the subjects' opinions. The main benefit of the quantitative approach is that the results can be generalized for the whole population of study. However, this approach is also constrained by informant accuracy and recall limitations as well as the inconvenience of completing a questionnaire. This task could be both intrusive and time-consuming.

Given the nature of the research project, the quantitative method is not well-suited because the approach puts constraints on what the researcher is interested in investigating in depth. Data from quantitative analysis is less rich, and less of the information needed from participants can be provided. For instance, if using survey, the question is established before data collection to reflect the research priorities as this approach is a predetermine concepts that usually come with hypotheses. Therefore, it will limit the researcher options to explore into other facets or views of activities of academics using Twitter. These deeper insights can effective achieved through individual interviews. Further other quantitative methods are designed specifically to explore a specific aim of research. For example, social network analysis (SNA) is largely applied to studying social connections, patterns and behavioural of Twitter user (Honeycutt & Herring, 2009; Java et al., 2007). Given the focus of this study, SNA is not a suitable method for this study.

Nevertheless, in the pilot-study a survey questionnaire was employed (see Section 3.6.1 Pilot-study). The use of survey is to complement and confirm the qualitative results (semi-structured interviews) and enhance the reliability of the findings through adding numerical information (Bryman, 2008).

3.4.2 Qualitative research

The general aim of qualitative research is to address the underlying causes of an action or phenomenon. As a consequence, it intends to generate ideas, explain and develop arguments rather than offering mere descriptions (Maxwell, 1996; Miles & Huberman, 1994; Mason, 2002). Creswell (2013) describes qualitative research as a theory-generating approach, rooted primarily in inductive inquiry and that is a ground-up rather than bottom-down. In particular, it points a process of exploration and discovery of meaning and insights in order to understand general patterns based on the results or gathered data. In view of this, this type of research tends to be open, thus the research questions may sometimes shift during the process (Kumar, 2014). Thus, there is a degree of overlap between the design and data collection methods and initially this will be modified accordingly to meet the new inquiry (Creswell, 2013). Kumar (2014, p. 132) similarly argued that a qualitative study is hard to replicate and almost impossible because of its nature as a 'do-it-yourself' process rather than an 'off-the-shelf' process. It emphasises the researchers' creativity and pragmatic thinking in reconstructing the design to ensure it meets the research aim. This method involves interaction between different elements of its design structure. The researcher will lay out her own understandings, beliefs and theoretical perspectives about the phenomena being investigated through being part of the process (Miles & Huberman, 1994).

The main strength of this approach is its ability to straightforwardly access actual events and actions happening in the society (Silverman, 2006) and makes this derived reality visible through an interpretation that is naturalistic. The social world is represented through multiple forms of data, including field notes, memos, interviews, photographs, series of conversations and recordings (Creswell, 2009). As such it focuses on specific people or situations, with an emphasis on text rather than figures (Maxwell, 1996). An interesting feature of qualitative studies are the understanding they generate of naturalistic processes, which involves ordinary events in natural settings that can lead to variable outcomes that surveys or experimental research often fail to acknowledge (Maxwell, 1996; Miles & Huberman, 1994).

Creswell (2009, p. 175-176) outlines eight characteristics of qualitative research: (1) Natural setting: it takes place in the field or site of the participants and the experience being studied; (2) The researcher is the key instrument: primarily working on data gathering and analysis themselves; (3) Multiple methods: it utilizes many different sources of data; (4) Complex reasoning: it analyses the resulting data using inductive and deductive logic, going from the detailed data to build patterns and categories to overarching abstract themes. Nonetheless, the researchers will go back and forth to finalise the comprehensive themes and thus use deductive thinking that is built during the process to constantly check and reflect on the emergent themes; (5) Participant meanings: it focuses on the multiple perspectives held by participants of any given context or issues before a researcher can provide the meaning of the phenomenon; (6) Emergent design: it evolves in design as the study progresses; (7) Reflexivity: it reflects how a researcher positions themselves in the research, including how they explore, learn, understand and convey what they have obtained from the study; (8) Holistic account: it employs a theoretical lens, and/or interprets the expansive perspectives brought about by the experiences of participants, and assigns meanings for this experiences to form a general picture to explain a social phenomenon. It also 'secures rich descriptions' where the researcher believes these to be highly valuable (Denzin & Lincoln, 1998, p. 11).

Following the paradigm of interpretivism, the study therefore adopts a qualitative/naturalistic methodological approach, as this is deemed most suitable, given that the focus of the study is to understand, explore, discover and capture contextual details and nuances in descriptions and explain the situations, feelings, attitudes, and beliefs, etc. of a small population of academics (Kumar, 2014). Qualitative methodology commonly follows a principle which involves development of a conceptual representation used to generate theory from empirical data (Levy, 2006), thus, it follows that inductive as opposed to the deductive reasoning, as found in quantitative research.

3.4.2.1 Interpretivist approach

There are a variety of traditions and/or strategies for qualitative inquiry. Among the common approaches adopted in qualitative research are Ethnography, Phenomenology, Biography, Grounded Theory, Case Study, Interpretivist, Conversation/Discourse Analysis (Creswell, 1998; Denzin & Lincoln, 1998a; Mason, 2002; Merriam, 1988; Miles & Huberman, 1994; Morse, 1994; Moustakas, 1994; Strauss & Corbin, 1990). Mason (2002, p. 54) argued that a decision to employ a qualitative strategy depends on many issues, such as the research questions and the 'changing context', along with the strategies chosen. This decision-making process is considered as an active course of action in aligning the chosen strategy with a certain position or a specific doctrine rather than a passive one. This implies that a qualitative method ought to be flexible, in order to make the research activities fluid and not too constrained. Nonetheless, a blueprint is helpful to frame a plan, including philosophical assumptions, to help the researcher critically determine the choice of research design.

The table below distinguishes the different choices in qualitative inquiry and summarises reasons why each approach is not suitable for the research study.

Table 3-1: The different choices of qualitative inquiry

Qualitative approaches	Data collection instruments	Aim of the inquiry and reasons not to adopt
Ethnographic fieldwork	Direct observation, extensive fieldwork, in-depth interviews, taking field notes	➢ This approach involves examining a specific cultural, racial, gender, or behavioural of a group in a community. X The current study centres on understanding academics' perspectives about their participation and practice of a social media tool-Twitter, thus the information can be gathered using interviews rather require the researcher to be in the field. X If the researcher would consider conducting participant observation, she may deal with difficulties of gaining access to research participants. For example, dealing with academic's diary and privacy of workplace for observation.
Online-Ethnography	Internet observation, record in notes	➢ This approach is focusing on culture and behaviour in online communities and discovering the usage patterns of users in virtual environments. It requires prolonged engagement and deep immersion into the environment. ➢ Useful to grasp how a tool like Twitter works and how people communicate in this environment. X Unable to understand and explain the concept of why academics actually behave in such ways. X Challenge with the temporality of data on Twitter. This may require the researcher to accumulate the overall history of past data (Tweet) to understand the context better.

Auto-ethnography	Investigator interact with participants, Internet observation, record in notes	➢ This approach involves self-experimentation where the researcher tries to experience themselves the online tool such as Twitter. The researcher also interacts with other user in the microblogging platform and describes from her/his own understanding and perspectives about the activities perform by a group within virtual communities where she/him involved in. X The study aim is exploring academics' perspectives about their Twitter use, thus this approach is not appropriate for the study. X Likely to be very influenced by character of individual undertaking the study.
Case study	Interviews, focus-groups	➢ This approach focuses on individual cases within specific bounded system. ➢ The nature of research questions of 'how' and 'why' that concentrates on what can be identified in one particular case. The results lack generalizability as it is only seeks to understand the context of the bounded study. X This method is not fit to current study as this study applies on understanding groups of academics that use Twitter in HE, where the findings can be used to provide general view to similar settings.
Discourse analysis	Text, documents, audio recording, online data	➢ This approach centres on studying the language use in conversation. (semiotics/linguistic analysis) X Given the research inquiry, the current study is not into studying language at this level.
Grounded theory (GT)	In depth interviews, focus groups, observation, documents	➢ Provides a systematic and rigorous inductive approach to theory. development of a phenomenon ➢ It focus on discovering the social processes in particular settings. ➢ Its aim is to uncover the contextual factors that influence or affect behaviour of individual or groups in a setting. X The current study does not aim at generating or discovering a

		theory/conceptual model of academics using Twitter, however it attempts to provide details description of an overall idea on the microblogging phenomenon.
Action research	Focus groups, in depth interviews	➢ Action research aims at studying at existing practices and explores any issues faced. Focus to provide practical solutions through a collaborative effort between the researcher and the participants in the context of study. X The current study does not attempt to improve the research context but to understand and describe Twitter based on academics' perspectives and may provide suggestions.
Key:	➢ Research focus X Reason not suitable with current study	

For this study, an interpretive methodology was chosen as the qualitative strategy for the research inquiry (Mason, 2002; Miles & Huberman, 1994). This research is considered as interpretive because of its aim to understand the meaning academics give to the adoption and use microblogging and their understanding of the phenomenon they interact with (Twitter). Essentially, the topic of research and phenomenon of study is relatively new and understudied. Since this is a new phenomenon and involves environments that are not well understood, an interpretive and exploratory approach is deemed most suitable (Creswell, 2009; Klein & Myers, 1999; Walsham, 1995; Yin, 1994). The variables influencing academics use of Twitter in higher education are not yet well-established and hypothesised. Researchers have barely examined the adoption and use of Twitter and findings are still emerging. Therefore, adopting a qualitative-interpretive approach is appropriate to understanding the process of social media appropriation and user activities, by engaging with academics involved in Twitter use in higher education.

Research that are thoroughly conceptualized and implemented can extend the boundaries of knowledge without taking a positivist approach (Levy, 2006). Thus, a qualitative approach takes a holistic approach to viewing a phenomenon, and provides richer and more in-depth explanation of academics' use of Twitter. It emphasises details of the process and activities involved in academics' use Twitter, as well as influential factors, rather than cause-and-effect descriptions. As most previous studies of this subject have used a quantitative method and lacked qualitative investigation (Kieslinger et al., 2011;

Lupton, 2014; Veletsianos, 2011), this approach enables the researcher to provide more comprehensive results and a valid analysis of the phenomenon. (For further discussion of this issue, see Section 3.4.2.3)

In parallel with this approach, the researcher needed to work closely with the participants to capture the 'insider view' (Blaikie, 2000) of individual interpretations, perceptions, collective understandings, rational processes and social means, as the main data source. This approach fits with using in-depth semi-structured interviews as the instrument. In addition, 'texts' or 'objects' are other possible sources for enlightening the interpretivist understanding from individual descriptions, and enables the researcher to articulate how the activities constitute individual or collective meanings in their lives (Mason, 2002). In other words, the researcher interacted with the academics, asking about the participants' different activities on Twitter, such as how they used it, why they used it and how these experiences of using Twitter fit in with their academic routines. Further sources, such as observation/remarks during interviews and online (Twitter) were also used to support the interpretation (See 3.5.2-Complementary methods).

3.4.2.2 Five principles of interpretive approach of this study

This study reflects Creswell's (2009) outline of characteristics of qualitative research, except for multiple methods. However, it has complementary data to support the process of understanding academics' Twitter activities. Therefore, the study design is summarised in five keys principles of an interpretive approach, including: (1) an emergent and flexible study design; (2) the use of qualitative methods; (3) data collection and strategies for recruiting research participants; (4) inductive inquiry in the data collection and data analysis processes; and (5) knowledge that is a construct of social 'reality' (Creswell, 2013).

1. Emergent design

This study had an emergent design, as explained further in the research journey in Chapter 1, Section 1.3. This presents how the changing elements involved in the study included changing the research questions and reshaping the research design after the pilot-study (see Section 3.6.1). The study employed flexibility in design, which means that it was open for modification, such as continuously revising the initial stage until the main study was carried out, as the data was collected and analysed.

2. Qualitative method

The study mainly used qualitative methods for the collection and analysis of data. Interviews were used as the primary method of gathering data, with the use of other complementary sources in support. This is the opposite to a positivist approach, which mainly uses a large-scale survey or experiment on the phenomenon of study.

3. Strategies for recruiting research participants

Following the qualitative method thus the sampling chosen for this study is purposive sampling rather than non-purposive random sampling often used in quantitative studies. This sampling strategy represents how the study focuses on the complexity of the phenomenon investigated by recruiting a small group rather than a large population, which is usually done in order to make generalisation possible. In addition, this sampling is useful for acknowledging different human interpretations and views of a social phenomenon.

4. Inductive inquiry in the data collection and data analysis processes

Using a qualitative method, this study employs inductive reasoning in the data collection process (e.g. gathering the data from interviews and asking open-ended questions), and comparative inductive and deductive approaches for data analysis (i.e. it analyses data using thematic analysis to identify key categories or themes). Uses of pre-defined hypotheses or testing a theory for validity are, hence, avoided in this study.

5. The study examines the knowledge that is socially constructed of social 'reality'

The epistemology of this study assumes that knowledge is socially created through collaboration between the participants and the researcher (Walsham, 2006); it focuses on the participants' perspectives for the analysis. The interviews were carried out in order to build knowledge from the participants' views and experiences of their 'reality'.

3.4.2.3 Rationale for adopting a qualitative approach

Given the research problem, the aim and research questions of the study, as formulated in Chapter 1 (Section 1.2) through identifying a research gap after critically assessing a number of published studies on microblogging by academics (Chapter 2) and considering the potential research paradigms as discussed earlier in this chapter, the researcher has chosen to adopt a qualitative approach. This is appropriate to try to interact in depth with the complex phenomena under investigation. It helps to capture a detailed view from the 'inside', before making interpretations grounded in a particular setting (Miles & Huberman, 1994)(Miles & Huberman, 1994). Creswell (1998) stated that qualitative research is a methodological process of data collection and a way of understanding the meaning of a specific situation, where a broad and holistic approach is taken to study certain social phenomena (N. King & Horrocks, 2010). Miles and Huberman (1994) emphasised that qualitative data are rich, offer 'thick descriptions' and provide in-depth explanations of the recognizable native contexts. It is important to justify why the researcher has chosen to employ qualitative methods in conducting this research. The points below summarise the underlying principles that support the researcher's decision in adopting this approach.

(1) Using a qualitative method enables the researcher to look closer and understand what people actually do with Twitter: why they choose to use it; what makes them use it; and how their use of technology is situated in a social context, time and place (Marwick, 2013). Adopting a qualitative approach will enable the researcher to uncover the diversity of a group's activities on the microblogging platform; users' social norms and practised beliefs; and the appropriate systems to cater for users' concerns about technology (Bruns & Burgess, 2011; Gershon, 2010). A qualitative method, such as in-depth interviews, enables the researcher to examine an individual's technological practice in detail, identifying different types of social media communication, and determining certain types of people's behaviour on a particular online platform and the power relations of users in the digital world (Marwick, 2013).

(2) Most previous studies of Twitter have used a quantitative approach so there is a gap in the literature in terms of qualitative studies. Previous studies on the use of Twitter among scholars have often used quantitative-based approaches to analyse the patterns of Twitter use. According to Buettner (2013), only 3 out of 17 studies of Twitter in teaching and learning used qualitative methods, while the others adopted a quantitative approach. A similar study by Gao et al. (2012) analysed research on microblogging in higher education and results showed that 16 out of 21 studies used a quantitative approach. The literature also indicates that fewer studies focus on scholars' motivations for using Twitter (Alderton et al., 2011; Veletsianos, 2011) and these studies lack in-depth interviews. As such, it was thought that it would be fruitful to examine motivations for use of Twitter, using the interpretive mode to provide another interesting perspective (Veletsianos, 2011).

(3) A qualitative approach enables the researcher to supplement and complement findings of quantitative studies previously conducted on the topic and attempt to explain connections between causal theories and models that could explain the phenomenon (Creswell, 2013; Marwick, 2013). The sequence of development includes detailed phases and progressions that the academics went through, including; what academics experienced with Twitter; how they started to use it; the adoption process; why they choose Twitter; how they responded with Twitter; what their behaviours were when using Twitter. The researcher attempts to provide rich and explicit explanations of the complex phenomenon of microblogging practice by academics, where previous studies lacked adequate details on the multifaceted phenomenon that the researcher examined. This knowledge can only be revealed through in-depth interviews. Through the use of qualitative interviews and supplementing them with complemented data from (1) digital observation on Twitter and (2) interview observation (*face-to-face*), enriched results can be seen to be developed in this study.

(4) The choice of research methodology depends on the nature of the research inquiry (Creswell, 1998). The qualitative method is useful in answering research questions of the 'how' and 'why' type. The focus of the study is on describing what is happening in the present setting and why the phenomenon took place. A qualitative method is appropriate to answering such research questions. Thomas (2006) explained that an inductive, structured method benefits the researcher by enabling them to develop a comprehensive and considered understanding of the phenomenon examined, and to develop a systematic method of generating themes from the raw data. Additionally, the inquiry required interactions with social actors (human) where quantitative method does not fit the situation. It is hard to measure people's rich discussions and explanations via statistical analysis. Furthermore, a quantitative approach may 'bury' and overlook the uniqueness of each individual participating in the study. Thus a qualitative approach is simply a better fit for this study.

(5) The research seeks to explore phenomena, study individuals and collect data in their natural settings. This means that the researcher aspires to investigate situations in detail and thus needs to gain access to the research context. This naturalistic approach enables the researcher obtain an in-depth understanding of each individual academic use of microblogging. In addition, the researcher was interested in studying the microblogging phenomenon through conceptualisation, not through theoretically grounded calculations or statistical inference. The aim was to develop a theoretical framework rather than

testing an existing theory or verifying a hypothesis; and to be able to explain the study from the participants' perspectives, rather than through causal explanations. Therefore, the researcher generated the type of rich material that qualitative studies produce. This data collection process required gathering materials from multiple resources (e.g. the academic participants' opinions and explanations of their Twitter use, and observing their prompt use of Twitter, i.e. using mobile devices or computers at their workplace and observing their natural activities on Twitter). From this stance, it is clear that a quantitative approach is not suitable for this study.

(6) Finally, one of the research aims is to empower each of the academics to tell their own 'microblogging story' (Creswell, 2009), and 'to listen to their voice, and minimise the power relationships that often exist between a researcher and the participants in a study' (Creswell, 2013, p. 48). This includes the narrative of their use of Twitter and the reasons why they use it and how this practice has developed since it started. The power relationship may be shown through corroboration between the researcher and participants in clarifying and confirming the researchers' interpretation of the ideas or concepts constructed during the data collection process (Creswell, 1998). In accordance with a constructivist and interpretivist view, the researcher is required to be a listener and to be able to represent the different intepretations of participants with regards to the phenomenon under investigation (Creswell, 2013). In order to do this the researcher needs to get close to the participants and carry out detailed interviews (Creswell, 2009; Miles & Huberman, 1994). Therefore, conducting in-depth interviews is the most suitable qualitative approach and the main method used to collect this empirical data.

3.5 Methods of data collection

Data collection is an important procedure in generating systematic and substantiated research findings. Through using multiple methods it will strengthen the research process in structured way, validity and reliability of results from the different technique use (Hartley, 2004). Therefore, it is important to ensure the methods involve during the process of data collection meet the standard procedures of qualitative inquiry for ensuring research rigour (Creswell, 2013). Collection and interpretation of data directly contributes to the research analysis phase as well as in the theory formulation (Bryman & Burgess, 1994). The research method stages are illustrated in Figure 3-1 below:

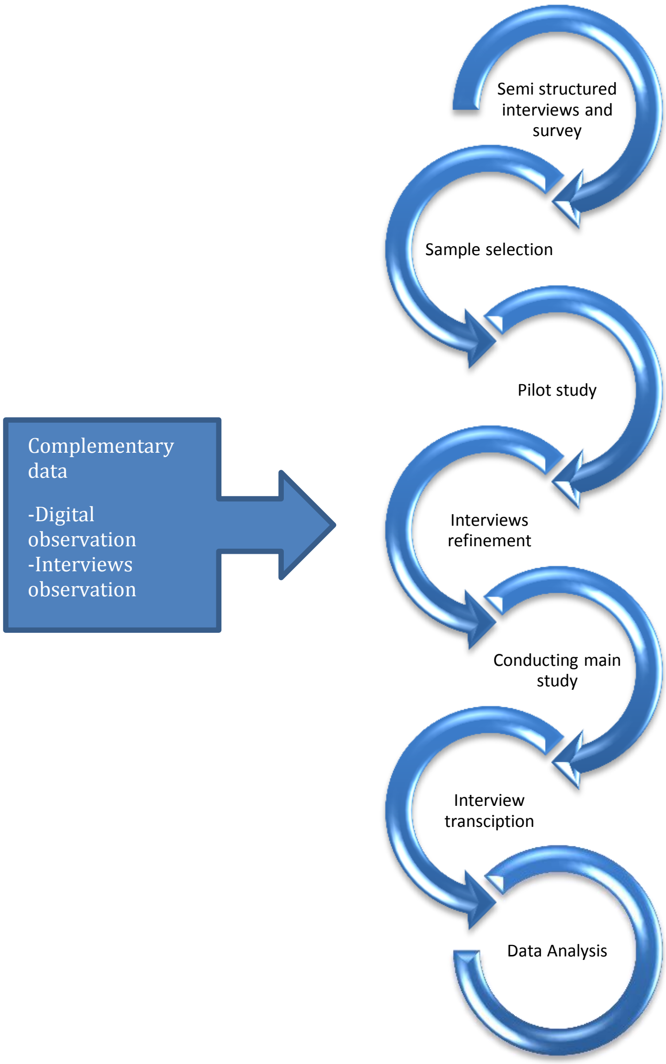


Figure 3-1: The data collection methods

This section describes and seeks to justify the methods and procedures of data collection used in the study. There are several elements which influence the data collection methods, including:

1. The availability of resources and convenience of access to the research site and geographical proximity.
2. Considering the sensitivity of the nature of participants' (academics) workplace; thus it is more suitable to conduct interviews than participant observation.
3. The approach is suitable in answering the research questions. As the study entails an emergent and flexible design, it develops and tends to refine the research questions, and collaborates with other sources which are significant to support the researcher's view and interpretation.

4. The holistic approach used to collect information generated rich descriptions and understanding of the context under study and assisted in exploring a variety of aspects of issues and views of what shaped academics' participation on and use of Twitter. Specifically, holistic approach is a process-oriented where the researcher consistently reflects on her choices of research, topic of interest, philosophical assumptions, and methodological options to the final results presentation as interrelated.

Consistent with the qualitative approach, the study used in-depth interviews as the main source of empirical data. In addition, other complementary methods were employed to a lesser degree; including initial observation on Twitter and witnessing how participants used Twitter during interviews to generate familiarity about the context of study.

3.5.1 Interviews

In qualitative research, interviews are considered as a prime approach to data collection. One of the main reasons for conducting interviews is to identify themes based on interviewee descriptions and explanations in order to fully recognize these perspectives (N. King & Horrocks, 2010). Interviews are particularly useful when the researcher is interested in the perspective of participants and how they see the world. Thus, knowledge of the subject interest can be achieved through a series of social communications between interviewer and interviewee (Kvale & Brinkmann, 2009).

Interviews are employed as the main approach for this study, chiefly because of the nature of the research questions of the study, where the researcher's aim is to examine how and why this phenomenon happens from the human perspective, in respect of experiences and behaviours in a complex social situation (N. King & Horrocks, 2010). The use of in-depth interviews is congruent with the interpretive nature of this research (Creswell, 2013; Kumar, 2014; Kvale, 2007) in which the knowledge is seen as socially constructed via conversations between the interviewer and interviewee. Epistemologically, interviews *"give access to the manifold of local narratives embodied in storytelling and opens for a discourse and negotiation of meaning of the lived world"* (Kvale, 2007, p. 21).

Conducting in-depth interviews with a group of academics in their settings offers the participants (academics) the opportunity to explain explicitly their fundamental opinions and meaning of their use of Twitter and to explain their activities rather measuring their experiences with facts and figures (N. King & Horrocks, 2010). Interviewing participants face-to-face enables researchers to investigate and discover how participants actually act on Twitter; what communication strategies are adopted and what devices they prefer to use to access the microblogging platform. This approach may provide an in-depth and range of results; an effective way to receive detailed answers about how people view and use technology in their daily routine; and how they explain their social practice (Marwick, 2013). Using this method allows the researcher to become an 'insider' to comprehend participants and their field of surroundings, recognise what the participants know and receive first-hand information (Creswell, 2013, p. 20). In principle, these approach decrease the gap or *"objective separateness"* between the researcher and the research context in an informal setting (Guba, Lincoln, Denzin, & Lincoln, 1998, p. 94).

Forms of interviews vary based on the subject matter or research problem, research aims, respondents, and interviewer's approach and research skills (Kvale & Brinkmann, 2009). It follows that no standard procedures and rules can be prescribed for conducting research interviews in a general sense. Nonetheless, to ensure consistency of conduct during interviews, the researcher has followed logical sequences in interviewing the participants for this research by following Creswell's (2009) suggestions on the interviewing process as follows:

1. Define the research question that needs to be answered by the participants that explores the adoption and use of Twitter by academics in higher education. One of the three forms of interviews can be adopted including structured, semi-structured and unstructured (Bryman, 2008). Specifically, semi-structured interview, which is guided by open-ended questions, was chosen for this study because it offers an open, flexible and spontaneous process of conversation, which will allow new ideas raised by the participants to be included in the analysis. In contrast to structured interviews, this method constructs its theoretical findings through analysing the raw data generated from the interaction (Kumar, 2014). Thus, it enabled the researcher to discover emerging themes related to the adoption and use of microblogging by academics in higher education.
2. Identify suitable participants for answering the research questions through purposeful sampling techniques (Miles & Huberman, 1994).
3. Determine the type of interview that is feasible and the most useful in answering the research questions. This study chose a face-to-face, one-to-one interview method. This approach is significant due to its accessibility and the fact that it provided a chance for the researcher to have more opportunity to build rapport and confidence between both

(interviewer and interviewee) that brought greater understanding of the context and accurate information.

4. Follow proper recording procedures, including identifying the adequate instrument to record the selective sample of academics interviewed. The researcher used an audio mic-recorder and a phone recorder as a backup for later transcribing and documenting the content of the interviews.
5. Establish an interview protocol guide which includes the following: an introduction of the research project; prompts to collect participants' demographic information; and a set of interview questions, including a note to ask for participants to recommend other potential candidates to be interviewed, and if they had any further suggestions that might be significant for consideration in the study.
6. Determine the location for interviews convenient for both the interviewer and interviewee. The researcher collaborated with the interviewee in identifying a place where to do the interview, at the most convenient time for the interviewee. This was done to encourage the respondents to speak without restraint. For safety and accessibility reasons, all interviewees were met inside the university campus.
7. In the meeting the first action was to ask permission from the participant through offering them an information sheet and information consent form to read and complete. The researcher briefly described the purpose of the interview and the approximate time needed to conduct the interview. In addition, the researcher informed the participant of the possibly of repeating the interview if more clarity and information were needed. The researcher also offered to provide a copy of the results to the participant when the study was published.
8. During the interview session, the researcher tried to be a good listener, be respectful, and avoid interrupting the interviewee when answering the questions to ensure the flow of response and to achieve the key storyline, and therefore complete the interview within the time limits. The communication was recorded fully in the mic-recorder, the researcher only writing down notes when necessary, in order to give full attention during the session and be efficient in handling questions.
9. The interview questions and the procedures were refined during the pilot-study stage. The pilot study was valuable for collecting the research background, modifying research instruments, reframing questions, and practising the research procedure (Yin, 2009). The pilot study stage is discussed in detail in Section 3.6.1.

Undeniably, there are pros and cons associated to the interview technique for conducting research. One advantage is its enabling character and the ability to encourage free and honest responses about the interview's thoughts, as well as in describing and reasoning about their actions (Alvesson, 2002). Moreover, interviews also allow participants to present a full spectrum of description of their life story and experiences. Another benefit is that it narrows the gap between the researcher and the population of participants that thus yields better information.

On the other hand, interviewing is seen to consume more time than the quantitative survey process, as the number of interviews required to generate sufficient data is large, and the scale of the data requires much time and effort in transcribing and analysing and interview transcripts as well as other data sets (N. King & Horrocks, 2010). But similar to a quantitative methodology, qualitative data analysis has been revolutionised with the creation and use of computer programmes to aid researchers in organising, studying and analysing data (N. King & Horrocks, 2010). However, this form of application provides a little bit in analysis, but relatively limited impact in terms of the relative strength of this form of data in relation to others available.

Besides individual interviews, there are several other methods in collecting data for Twitter research. The table below summarised the overall strengths and weaknesses in employing such methods.

Table 3-2: The strengths and weaknesses of data collection methods to study Twitter

Methods	Strength	Weaknesses
Semi-structured Interviews (face-to-face)	• In-depth interviews for each individual offer more details in covering the area of focus • Capture participants' internal meaning - opinions, attitudes, feelings and behaviours • Fairly informal interviews produce more natural conversation • High in validity and reliability if follow a proper standard interviews protocol	• Time consuming • Limit sample size • The researcher may create personal bias through own interpretation • Can be low in perceived anonymity
Interviews on Twitter	• Quick response if tweet directly to participant • Time and cost saving • The researcher can reach target groups in broad populations in shorter time	• Hardly representative • May create bias of sample where the participants recruited are the followers of the researcher's Twitter account

		• Difficult to obtain in-depth information • May be deal with fake account • Questions tweeted to multiple participants in the timeline may get lost in the stream (noise of information)
Focus groups	• A collective sharing and discussion in a group of a specific topic • Suitable to explore concepts, ideas on particular issues • Greater insights from dynamic views • Useful for limited resources e.g. time, funding, people	• Interruption of conversation among members during session • May be dominated by one or two participants thus less equal in information received • Not all participants provide views equally • May be difficult to facilitate the discussions within the group session • May be hard to organise group meeting due to participant availability
Observation	• Extensive observation in the field allows the researcher to experience the nature of the situation • May provide a real sense of what is happening in a setting • Provides reliable information through seeing the actual situation or behaviour of participants in case participants unwilling to tell verbally • Common technique used to verify information from individual interviews	• Influence/change participants' behaviour as they are aware of being observed thus it may not act naturally • May gather unimportant information • The researcher may overlook or miss anything important while taking field notes • The researcher may make own value statements or misconstrue the setting observed • Data analysis maybe time consuming • May be difficult to gain access to observe in the setting/workplace
Questionnaires	• Open ended questionnaires may provide details of information from participants' views and own words • Good approach to elicit	• Must be kept concise • May receive low response rate if send questionnaires via email/mail • Participants may not understand the questions,

	information from participants and confirmation of main data • Quick response • Useful for time, cost and space constraints • -Offers generalisability	thus may provide different answers or not response at all • Less depth of information
Experiments	• The researcher is actively involved in planning the activities, change intervention, control the experiment settings • Focuses on a problem, specific context and is future centred • Offers at improvement/enhancement on specific context • Involved collaboration	• Findings are limited to application in the research context and could not be generalise to a larger population • Less natural as it is a controlled activity • Time consuming
Content analysis (Twitter data)	• May identify pattern behaviours/activity of participants • Captures sentiments of participants through Tweet posting • May provide accurate facts through percentages for different types of activities • Creates a codebook that can be apply for future study	• Lack of in-depth explanation from participants of why performing such activities/behaviour • Less meaning/static view than interaction perspectives • Coding the text can be a complex process such as issue in defining meaning of words or informal language use that have spelling, grammatical or syntax error, • Analysis challenges with tweet consist multimedia content and hyperlinks • Time consuming

Interview questions were designed following Patton (2002) to explore participants' opinions, feelings, attitudes, values, knowledge and awareness, beliefs and background that enable responses and reflections on the issues and help the researcher to achieve the aim and answer research questions. The questions were organised in five sections: (1) academic background (2) Twitter use, (3) Twitter in learning (4) technology awareness/experiences and (5) general information. Details of the interview questions are available in Appendix E.

In the study, a basic set of interview questions was developed for the pilot study. However it was refined and enhanced in accordance with the research questions that were delineated for the purpose of the main study. Specifically, the aim of the pilot study was to focus on academics' use of microblogging for teaching, thus the structure of the interviews questions was developed according to inquiry. However, through reflection on the pilot study outcomes, the research questions and the interview questions were improved. That is, some of the questions were altered to give a new focus on the broader use of Twitter.

3.5.2 Complementary methods

There were three methods of data collection used in this study to supplement the main interviews discussed. In particular, digital observations on Twitter and observation during interviews were two approaches that were used. In addition, a survey was used during the pilot study; however, this method was detached in the final stage of study. The researcher believes that qualitative data collection would involve an innovative approach, thus having to study Twitter, an object of a technology, the researcher wanted to include creativity during the inquiry. Accordingly, Creswell (2013) argued that given the technological trends of email, text messages and growth of social media, these new sources have challenged the traditional qualitative sources. Nonetheless, the author suggests considering these emerging data sources as another typical form of multiple sources information.

Using data triangulation gives the researcher the ability to interpret content in a meaningful way to fulfil the qualitative approach goals and to give a much richer picture of the research study. As such, this approach creates new lines of thinking by the emergence of fresh perspectives and contradictions. It represents a form of cross-checking, and so increases the validity based on the academics' interviews, given that there is the possibly of inconsistencies between what academics report, and to promote clarification and understanding on the physical and virtual Twitter activities (e.g. digital observations and observation during interviews). The explanation and rationale of the methods are described below.

3.5.2.1 Digital observation on Twitter

Digital observation assisted the researcher in trying to gain a general understanding of the phenomenon being studied. At the beginning of the research, the researcher joined Twitter because it was important for her to experience how the tool was used first hand.

This was essential in order to explore potential uses of the tool and to be fully immersed in the field. As an effect of this involvement, the researcher's reflections and experiences helped her in comprehending the meaning and contexts of the platform's use. This also enabled a deeper understanding of how the academic as participants in this research used Twitter. In addition, the researcher used her technical skills in interpreting the atmosphere on Twitter through watching and reading the ephemeral streamlines of tweets and also in herself constructing tweets to communicate with potential participants. Ethical issues in online data collection were increasingly raised and particularly those related to participants' privacy concerns, authenticity or trust in the data (Nicholas et al., 2010). Twitter is a large, open and public space that is 'uncontrollable' and not in a bounded space such as other platforms e.g. bulletin boards, forums, chatrooms. Thus it raises huge challenges in terms of studying the content as well as the ethical concerns around it (Marwick, 2013). Corresponding to this issue, the researcher is being responsive and taking an appropriate approach so as not to reveal any of the participants' information on the Twitter platform, or highlight that they were participating in the research study through tweet communication.

During the data collection stage, the researcher conducted online observation, which was done after completing interviews with the academics. Twitter profiles of the academics were observed to understand their online activity and to verify the interpretations given by the academics about their Twitter use. This provided the researcher with useful understanding through paying close attention to the academics' communication and discussions with groups of people and behaviours in relation to specific activities on Twitter. Digital observation provided a greater understanding of the actual microblogging phenomenon through observing how the academics tweeted their activities and helped flesh out participants' meanings about their activities on Twitter (Marwick, 2013). This method complements the interviews conducted as a primary data gathering technique by enabling a further and deeper exploration of issues and checking the consistency and validity of the academics' interview responses. Nonetheless, this method did not count as full digital ethnography; as it is not a case study with a specific period of observation or focused on a particular subject to be examined (e.g. tagging hashtags in communication, identifying sources URL links to engage people in particular subjects, tracking network followers or following, and sentiment of tweets (Bruns & Burgess, 2011; Honeycutt & Herring, 2009). Further, this is not considered data triangulation; as it was only apply to increase the understanding of the scenario better.

3.5.2.2 Interview observation (face-to-face)

The researcher gathered in the field information on how the academics interviewed actually used Twitter. During the interviews, the researcher had chances to observe directly academic Twitter practice in their settings (workplace) elicited through open questions. Academics willingly shared their practice and displayed examples of their activities (e.g. how they communicate on Twitter, devices used, browsing technique, content strategies and their approach to following and being a follower). This method is a type of data where interviewees depict an object to the researcher and describing how it functions (Creswell, 2013). This technique opened up opportunities to explore the nature of microblogging practice among the academics, and to understand the detailed usage of the social networking tool, to recognise any restrictions or concerns regarding its use in either personal or professional aspects. Observation adds an extra quality to what can be conveyed to the reader through descriptions that represent a 'real' experience, feel, and understanding related to the observed setting (Patton, 2002).

In addition, the researcher also took part in academic activities with Twitter and gained opportunities to be involved in the interaction between academics through Twitter. As such, during an interview with an academic, this participant showed the researcher how she managed her Twitter account by walking the researcher through her single tweets. This academic revealed how she constructs relevant tweets and sends them directly to her colleagues. She also explains details the people she reciprocates and her awareness of her follower, her browsing approach in reading information on Twitter timeline. In addition, another academic discussed his preferences on tweeting through his smartphones than a desktop computer and thus demonstrated to the researcher how he performs the activity. This experience afforded the researcher the chance to learn directly how these academics communicated and sustained their network with their colleagues on Twitter. It also allows observing on how they managed their Twitter account on the different devices they used. This type of approach encourages capturing the incidents of storytelling spontaneously as in a narrative approach (Creswell, 2013). This participation provided valuable insights for the researcher by providing evidence through external behaviours of participants (Patton, 2002).

3.6 Data collection procedure

This section offers a description of the logic of the research procedure. It is important to offer this description as it explains how the researcher explored the research context, recruited suitable research participants, and obtained the research data via the right instrument.

This research consisted of two main phases: Phase 1, pilot study; Phase 2, main study. Together, these two phases attempted to give answers to the research questions. In line with the interpretive mode of this research, these phases are interrelated and influenced each other; in other words, the findings of Phase 1 shaped the focus and content of Phase 2. Therefore, there is always a possibility of change in these phases, since the process is emergent (Creswell, 2009). Phase 1 focused on the academics' practice of microblogging in teaching and the students' learning experiences when integrating Twitter in the classroom. The second phase investigated in-depth the diversity of microblogging used by academics, including patterns of adoption and usage and underlying causes that shaped why and how they used Twitter. Figure 3-2 shows the two phases of the research.

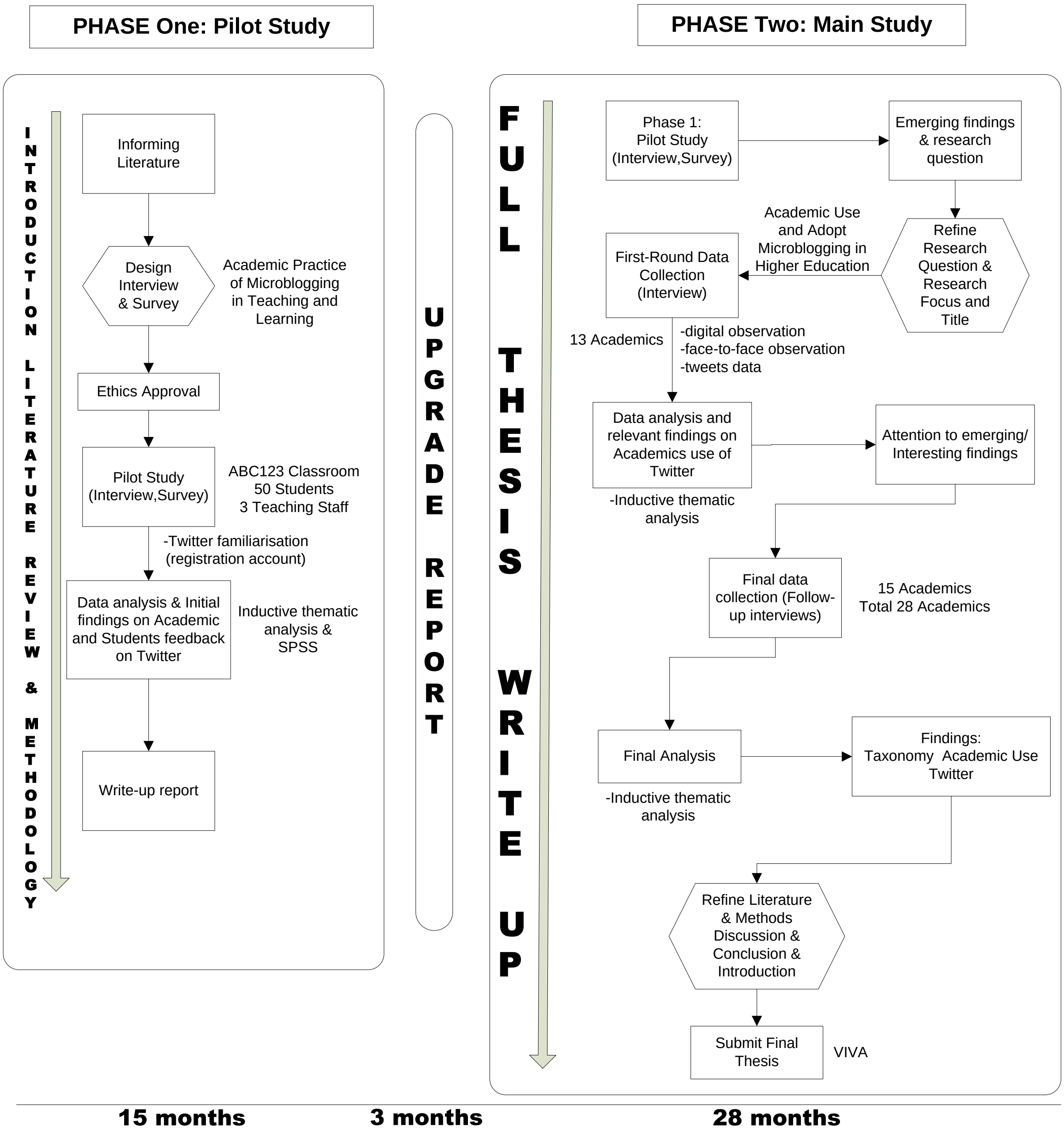


Figure 3-2: Phases of the study

3.6.1 Phase 1: Pilot study

A pilot study is to initially examine the feasibility of methods, procedures and the research design as a whole with the objective to use the initial results for a large scale study (Everitt, 2006) further explains that pilot study. The main aim of a pilot-study or 'vanguard trial' is to access, and later on verify, if the research design proposed for a certain study is feasible, reliable and valid, and if the research questions are properly defined before investing any effort embarking on the large-scale study (Thabane et al., 2010). In this research, the pilot study aimed was to test whether this was the right research question and to trial research instruments. In accordance with this, the pilot study thus aims to answer the research questions. This pilot study was conducted with the following purposes:

1) To conduct an investigation into an initial research problem, as discussed in Section 1.3 and relevant areas of the study discussed in the literature review (Chapter 2).
2) To collect some initial data on the use of Twitter for teaching and learning in order to support the understanding of the different practices of Twitter by academics in the learning context more clearly.
3) To help focus the research study. The outcome of this pilot study would help to inform the literature required for the main study and help refine the main study's research aim, questions and objectives.
4) To determine a suitable choice of research methodology for the main study by being able to reconnoitre, reflect and finalise over the pilot outcome.

To address this research aim, a Twitter experiment was conducted in the ABC 123 classroom, a technology related course in the Information School, UoS. This activity was held during the spring term, between February and April 2012 (a 4-week period). It employed a qualitative method consisting of interviews with academic staff and a survey of students (a complimentary technique to interviews), see Appendices J and K. Prior to conducting the pilot study, the researcher gained ethical approval after being reviewed by the Information School Research Ethics Committee. The details of the pilot study are presented in Appendix H. It was conducted over a period of 18 eighteen months (including three months assigned to writing a report).

3.6.1.1 Sampling in the pilot phase

According to Patton (2002, p. 224), "there are no rules for sample size in qualitative inquiry". In the pilot study, initial identification and recruitment of participants was based on purposeful selection of academics involved on Twitter for learning purposes. The pilot sample included one member of academic staff and two tutors (postgraduates) in the Information School at UoS. These academics were invited to participate because they were faculty members of the researcher's school. Thus the recruitment process was convenient as well as cost- and time-effective. Students were invited to participate via this academic in a lecture. An undergraduate student cohort (N=50) out of 65 students enrolled in the ABC 123 course in the same department was recruited.

3.6.1.2 Results

This section presents the findings from the pilot-study. It appeared from the interviews that tutors valued using Twitter for a range of different academic pursuits, including student learning needs. The initial themes developed included: (1) academic use: (a) conversations (updating status activity); (b) sharing information (thoughts, interests and resources); and (c) retrieving updated information/knowledge in real-time; and (2) pedagogical use: (d) sustaining interaction, asking/responding to questions; (e) developing awareness and learning from course-mates/sharing; (f) supporting informal learning and (g) networking opportunities and learning from professionals. Similarly, the risks associated with using Twitter were established; time-issues, the privacy of the user, distraction, facilities, access to Twitter and training support were all explored.

Results from student surveys indicated that students felt increased engagement and connection with the tutors that resulted in better learning experiences, but that they somehow felt less connected to colleagues. They thought that Twitter was useful for information searching, sharing and gathering information, discussions with colleagues about class assignments and receiving instant feedback and promoting a learning community. Nevertheless, they also felt that a lack of familiarity in using Twitter and the lack of participation from group mates reduced its value. The findings were consistent the results of prior microblogging studies, especially those focused on learning settings, while highlighting recommendations such as providing proper guiding principles to students for using Twitter in the classroom.

This pilot study achieved its aim of answering the initial research inquiry and of providing useful understanding with regards to the microblogging phenomenon under study. In principle, this piloting study is concerned with research development and the feasibility of the study. Through assessment and reflection of the outcome in the pilot stage, the researcher decided that the study was feasible to continue, but required modifications in the design and protocol which took account of the following:

1. Redefine a new research aim and questions that focus on exploring academics' use of Twitter in a wider context.

2. Reshape the research design, research procedure and sampling for the main study. An interpretive mode of qualitative method (interviews) was seen be the most appropriate method in relation to the revised research focus and its pertinent objectives.
3. Restate new research ethics consent information and reapply to the Research Ethics Committee.
4. Reformulate interview questions and exclude questions no longer relevant (i.e. the survey).

In addition it was a useful exercise and provided various experiences for the researcher before commencing on the main study. The skills gained in research developed the researcher in a way that it helped in increasing the motivation to continue exploring and understanding the phenomenon being investigated.

Among the lessons learnt were the following:

- The importance of building rapport and gaining access to research participants.
- The value of practising the key interview guidelines and procedures (Creswell, 1998) before the main study.
- Learning about the most effective ways of conducting interviews, such as asking questions clearly and ensuring that the participants fully understand all questions asked and are available to answer; and apply appropriate approaches to clarify any confusion and achieve clarity of response.
- Learn to time interview length.
- Gain initial insights of the phenomenon under study and potential areas for the main study exploration.

3.6.2 Phase 2: Main study

The main study aimed to answer the whole research inquiry. The following activities were carried out to achieve the aims of the study:

1) To redefine the interview guidelines and modify the research focus and questions based on the emerging findings in the pilot study.
2) To plan a schedule for main data collection. Two different stages of data collection were designed and conducted; a first round of data collection involved semi-structured interview with 13 academics. This stage aims to get insights and view

from the participants, and give the researcher an opportunity to re-evaluate and refine the approach. The second round of data collection involved semi-structured interviews with 15 academic participants. At this stage a follow-up interview was considered and a decision on whether to conduct further interviews or to stop was made.

3) To undertake an in-depth literature review as the study has engaged in a new broader focus.
4) To develop a final understanding of the research phenomenon under investigation.

3.6.2.1 Locating individual participant and site

Prior to conducting the main study the researcher needed to locate individual participant and the research site. Identifying the key respondents is important to obtain the required information. Accordingly, a site to access people is another important decision in order to ensure the suitability of the entree research. It was decided to recruit a group of academics' that worked at The University of Sheffield, United Kingdom, (UoS) to share individual 'stories' on their Twitter practice. The reason for the researcher choosing one particular institution was to focus in-depth on a specific group of academics in their own settings, which also limited any external variables that may influences the results. Having one research site would also provide better understanding on the culture and management of the university. In addition, the researcher was familiar with the institution's systems as she was a student of the university thus this will enhance the process in recruiting the participants. This also overcomes the issue of limited funding to travel and time constraints.

3.6.2.2 Gaining permission access

In conjunction with this, the researcher re-submitted a second application with amended research questions, a set of interview questions and procedures to the Information School Research Ethics committee for their approval. This ethical procedure is discussed in detail in Section 3.6.3. Subsequently, the researcher emailed the potential participants (with attached information sheet and consent letter) with a request to be interviewed. Once she had received written permission from the academics; the researcher then began to prepare the interview schedule.

3.6.2.3 Sampling

Qualitative sampling is a theory-driven activity and normally researchers will work with small-sized groups that are bounded in their context, and studied in-depth (Miles & Huberman, 2010). There are two types of sampling: (1) probability and (2) non-probability. In probability sampling, also known as random selection, the process in recruiting participants will assure that each group member in that population will have an equal chance to be selected for sampling purposes as a representative of the wider population (Cohen et al. 2007). On the other hand, non-probability sampling is a purposive method where a particular data sample will be deliberately chosen to describe a specific group of a larger population, but does not offer generalizability (Cohen, Manion, & Morrison, 2007; Silverman, 2009). This technique is used when not being able to have sufficient interviewees to represent a wider population and the greater complexity of the analysis making it much less clear what variables would be. According to Bryman and Burgess (1994), the recruitment process related to sampling of respondents is fundamental in the success and validity of the research because of its implications towards collection and analysis of data. Because of this crux, analytical and pragmatic skills are required, particularly in making decisions to recruit target participants of a sample chosen, and generally, in formulating parameters for the populations intended to be included in this study (Eisenhardt, 2012; Silverman, 2009). Because the main study had shifted its focus, the criteria of selection changed which to focusing on academics (lecturer) only. As stated by (Creswell, 2013) the sampling can change during the course of research.

The main study used non-probability or purposeful sampling (Cohen et al., 2007; Creswell, 2013) for its sampling strategy, and recruited academics from a similar background (e.g. lecturer, employed in the university) that were actively engaged with Twitter. This sampling strategy is considered to be appropriate for a qualitative study that involves an in-depth interpretation of a complex social phenomenon (Creswell, 1998). In the case of Twitter use among academics, this strategy has the potential to unfold the nature of participants' significant experiences when they used Twitter and why they initially participated in this platform. Sampling and recruiting academic participants' is a continuous and evolving process, thus in this study recruitment occurred at several stages during the course of the research (Miles & Huberman, 2010). Four types of sampling conditions were used for the main study: (1) criterion sampling; (2) snowball sampling; (3) recruitment on Twitter; and (4) recruitment emails.

Criterion sampling was used together with snowball sampling to identify and recruit further academics that used microblogging. Criterion sampling is a strategy of selecting participants on the basis of some predetermined criterion (Patton, 2002). For this study, the researcher decided to set specific requirements in recruiting participants for quality assurance (Creswell, 2013), as indicated below:

(1) They are academics that work at the University of Sheffield, UK;

(2) They have Twitter account/s and use them for professional purposes;

(3) They microblog regularly, meaning that they send a minimum of one tweet per week, within a minimum period of a one year from when they registered on Twitter (Java et al. 2007; Veletsianos, 2011).

The academics selected were in various stages of their microblogging involvement, and used microblogging in different ways. These users had a wide range of usage of Twitter posts, from 200 up to more than 1,000 tweets. The academics were selected from multiple disciplines in order to give a range of views on the significance and influence of microblogging practices in different disciplines, and/or how microblogging may be applied in different ways in this area. As the research inquiry was to understand how academics use Twitter, using one institution as a research site supported understanding the environment in one particular institution.

Snowball sampling or 'chain sampling' is a technique primarily used in qualitative, interpretive studies and is a non-probability method of recruiting research participants (Atkinson & Flint, 2001; Creswell, 2013). This approach to sampling is where the researcher makes initial contact with key informants or groups of people that are the subject of the study, who in turn point to other relevant subjects and help the researcher to establish contact with others (Bryman, 2012). This procedure is advantageous in enabling the researcher to develop better opportunities to gather more recruits (Atkinson & Flint, 2001). Apart from helping researchers to find hidden participants within the chosen group, this approach is also known to be efficient and effective for certain studies and to reduce the researcher's time and costs (Atkinson & Flint, 2001). This approach is also relevant when trying to conduct a small number of interviews where the researcher could not collect a sample to cover the whole population being studied.

Corresponding to this sampling approach, it is important to make note that this study faced difficulties in finding and recruiting participants in the early stages. The researcher conducted an observation on Twitter (between May to November 2012) in an attempt to identify any potential participants for the study. However, there were few academics found using Twitter. This is consistent with the literature that suggests that at that time the adoption of Twitter by academics was still at the infancy stage (Gerber, 2012; Ponte & Simon, 2011; Priem et al., 2011; Seaman & Tinti-Kane, 2013). Therefore, snowball sampling was used for discovery of participants and assisted the researcher to expand the sample.

In operational terms, recruitment on Twitter and email recruitment involved selecting key informants involved by manually searching on Twitter and identifying whether academics were from The University of Sheffield, then reading through their Twitter profile to see whether they met the research criterion. Searching activities were conducted in various stages, including:

- Following the University of Sheffield's Twitter account (@Sheffuni) and academic departments' Twitter accounts. The researcher browsed the accounts of the followers list and used the links to identify academics that followed the university or department's Twitter account.
- The researcher took a role, interacting with some of the academics on the microblogging platform through initiating tweets and communicating with them openly or via DM (direct message, when the academics preferred to talk in private), asked about their interest in participating in the study and requested their contact email for further correspondence. This generated rapport prior to the interviews. This action, however, avoids exposing the participants' information to the public, recognising ethical considerations.
- In addition, the researcher browsed the sample of academics' followers and following lists on Twitter. This involved searching for other academics connected to them, in the same university (based on their Twitter profile). A formal email was then sent directly through information obtained from the department's website. The email sent to the potential participants included introducing them to the project's objectives, an invitation to participate, and information about the research ethics and procedures that ensured the anonymity and confidentiality of their personal data.

- In addition, emails were sent to administrators (e.g. learning technologist) in different departments in order to broaden the search and maximise participants' representativeness.

Demographic background of participants in the main study

Within the criteria defined above, the researcher managed to recruit 28 academics from the five main faculties in the UoS, consisting of 12 female academics and 16 male academics. The academic age group ranged from 20-50+ years old, with ten informants between 40-49 years old, the largest age group contributor for the study, followed by eight participants who were aged 30-39 years, seven aged 50 and above and three aged 20-29 years.

It is important to note that there was no intention to undertake a comparative study of academics by department, gender, age group or level of academic career. Rather, the study is focusing on exploring an emergent phenomenon that were commonly experienced across the academics. Although it was considered whether demographic factors shaped academics' Twitter behaviour, however, there were no significant differences have been found through the analysis. Also, during the year when the investigation was carried out in 2012, it was found that not many academics used Twitter and the researcher encountered difficulty in recruiting participants. In fact, this concern has been raised in previous studies where there was a low adoption of Twitter among scholars in Europe and US (Gruzd & Staves, 2011; Nicholas & Rowlands, 2011; Tenopir et al., 2013)

The majority group of participants were recruited from the Faculty of Social Sciences (FSS) and Art and Humanities (FAH). There were two reasons for this. Firstly, the existing atmosphere in a department, where it is identified that a particular department (FAH) had a very large number of active academics on Twitter compared to other departments. Following observation and analysis, these academics were mostly familiar with different social network tools and used social media applications for individual or teaching purposes. These academics connected and communicated with each other on Twitter on a professional and/or social basis and thus were part of a community that had developed on Twitter. Secondly, the researcher gathered that the department had a learning technologist that coordinated and strongly supported the department's activity in teaching using social media. This good relationship among academics and positive departmental support, such as providing essential training and facilities, could be reasons contributing to the high numbers of academics using Twitter in the department. Nonetheless, the researcher believed that the nature of the academic discipline was not strongly tied to the high numbers of academics using Twitter. In fact, past literature (Kieslinger & Ebner, 2011; Letierce et al., 2010; Priem & Costello, 2010; Ross et al., 2011) have claimed a mix of disciplinary populations use Twitter.

Full details and categories of the faculties and academic participants, including demographic information, are summarised in the tables below.

Table 3-3: Faculties and codes

No	Faculty	Code	Number of academics
1	Science	FOS	3
2	Medicine, Dentistry and Health	FMDH	2
3	Engineering	FOE	1
4	Social Sciences	FSS	11
5	Arts and Humanities	FAH	11

Table 3-4: Participant information

Participant	Faculty	Academic status	Gender	Age	Code
1	FDMH	Professor	Male	40-49	[1P-FMDH-28]
2	FAH	Lecturer	Female	30-39	[2L-FAH-28]
3	FOS	Professor	Male	40-49	[3P-FOS-28]
4	FAH	Lecturer	Female	30-39	[4L-FAH-28]
5	FAH	Lecturer	Female	30-39	[5L-FAH-28]
6	FAH	Lecturer	Male	30-39	[6L-FAH-28]
7	FSS	Senior Lecturer	Female	40-49	[7SL-FSS-28]
8	FSS	Research Fellow	Male	30-39	[8RF-FSS-28]
9	FSS	Professor	Male	40-49	[9P-FSS-28]
10	FSS	University Teacher	Male	50+	[10UT-FSS-28]
11	FAH	Lecturer	Male	20-29	[11L-FAH-28]
12	FOE	Fellow Researcher	Female	40-49	[12FR-FOE-28]
13	FAH	University Teacher	Male	20-29	[13UT-FAH-28]
14	FAH	Senior Lecturer	Female	40-49	[14SL-FAH-28]
15	FSS	Professor	Female	50+	[15P-FSS-28]
16	FAH	Lecturer	Female	20-29	[16L-FAH-28]

17	FSS	Professor	Female	50+	[17P-FSS-28]
18	FAH	Fellow Researcher	Male	30-39	[18FR-FAH-28]
19	FSS	Senior Lecturer	Male	30-39	[19SL-FSS-28]
20	FOS	Professor	Male	40-49	[20P-FOS-28]
21	FOS	Professor	Male	50+	[21P-FOS-28]
22	FAH	Senior Lecturer	Male	40-49	[22SL-FAH-28]
23	FSS	University Teacher	Male	50+	[23UT-FSS-28]
24	FSS	Lecturer	Female	30-39	[24L-FSS-28]
25	FDMH	Lecturer	Female	40-49	[25SL-FMDH-28]
26	FAH	Professor	Female	50+	[26P-FAH-28]
27	FSS	Professor	Male	50+	[27P-FSS-28]
28	FSS	Senior Lecturer	Male	40-49	[28SL-FSS-28]

Table 3-5: Participants' age groups

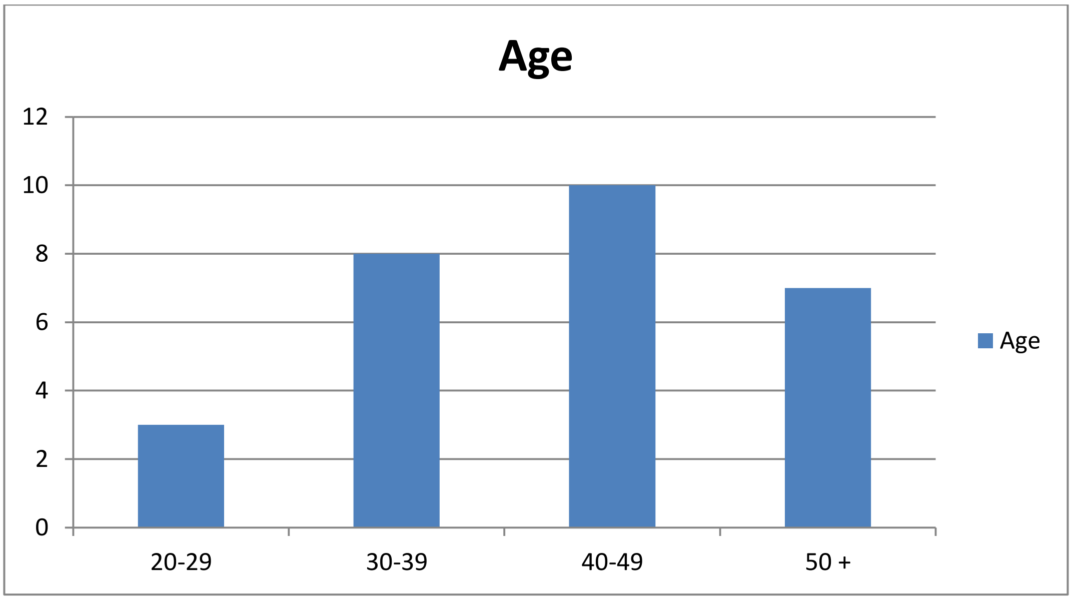
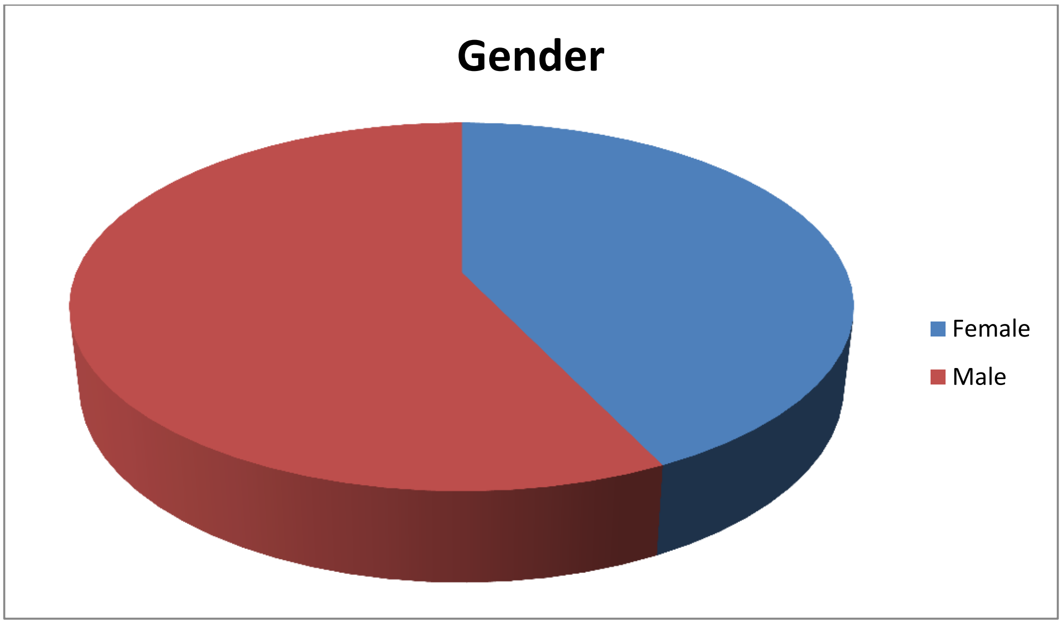


Table 3-6: Participants' gender



3.6.2.4 Conducting the interviews

The empirical data collection through interviews occurred in two phases, with a first round of 13 held between 20th of December 2012 and 15th February 2013. Prior to the interview, the researcher prepared for the interview, as follows:

- She arranged a meeting schedule in order to obtain the participants' agreement to participate in the study;
- She contacted the interviewees via email a day before the meeting to confirm the time and place, including an information sheet and consent form. The interviews were carried out within the university premises for accessibility and convenience; essentially a space that was quiet, with few distractions. However, most interviews were conducted in the participants' offices.
- By printing out copies of the interview package:
    - A copy of the interview guide (see Appendix E)
    - A copy of the information sheet (see Appendix C)
    - Two copies of the consent form (for interviewer and interviewee) (see Appendix D).
- A notebook to write down any important notes during the interview.
- Prepared audio-recording tapes - two recorders (mic-recorders) and an I-phone as a backup.
- Carried an authority card (student card) to produce when necessary.

The researcher conducted the interviews following Creswell's (2013) guidelines, as stated in Section 3.5.1. On the day of the interview, the researcher usually sent an informal tweet as a reminder to the participants an hour before the meeting stated *"Hello, as planned I will see you at (time)" or "Hello, see you at your office!"* a deliberately unadorned message that offers no indication that research is about to take place to protect participants' anonymity and privacy.

The researcher ensured she was on time and often arrived 20 minutes early at the meeting location. On the first meeting, the first action was to introduce herself and briefly describe the research project and highlight how critical the participant's role would be in contributing to the study. The researcher invited the participant to review the information sheet again and offered help if they wanted to clarify any issues. The researcher described briefly the purpose of the interview, e.g. what information was needed and how it would be recorded, including measureable steps to protect their privacy and anonymity, including where the data would be stored and how it would be analysed. Accordingly, the researcher informed the participants that their Twitter space would be observed from time to time and their tweet postings collected for analysis. Options were given to withdraw or stop the interview at any time. Then the consent form was handed out for written permission and, once agreed, both interviewer and interviewee signed.

Prior to starting the interview, the researcher set the recorder close to the participant. During the interview, the researcher occasionally wrote down notes that seemed to be key points of the discussion. Nonetheless, most of the time the researcher paid genuine interest and attention to the participants' answers, listening to their stories carefully and allowing the participants to tell their stories of experiences and perceptions of Twitter. The interviews were guided based on the interview protocol prepared earlier. The researcher tried to avoid interruptions through only asking for specific information or explanations when the participants stopped speaking. This offered a flowing conversation and opened up more ideas and useful information through the participants' conversation. The open-ended questions generated an informal dialogue and discussions and participants seemed comfortable and excited to share more information about their Twitter practice. In adding variations to elucidate knowledge and evidence resources, the researcher planned questions that led them to show some physical examples of how they used Twitter. Often, however, the participants would voluntarily show their activity in managing Twitter (e.g. inviting the researcher to look at their phone or computer screen and show instances of activity) (see Section 3.5.2.). At the end of interview the researcher offered the participants the chance to add any suggestions and asked if they could be contacted again if necessary, and finally thanked them for taking part.

After completing the first round of interviews, the researcher evaluated information gathered, reflected on the procedures undertaken and made any necessary changes to improve the process. New categories were found that the researcher had not considered during the formulation of the research questions and thus used this information to generate more ideas, pooled with those gleaned from the literature review that has helped to draw initial conceptions about how academics use Twitter. The full process of transcribing the interviews was completed in July 2013; nonetheless, the researcher often transcribed manually the recordings immediately after the interviews had been completed. This effort was useful since it was still fresh in researcher's thought and enabled an initial conceptualisation of the research; identifying any emerging issues and refining questions for the following interviews. . As argued by Braun and Clarke (2006), thorough transcriptions of audio data collected in the field highly require and demand substantial combination of time and effort. However, transcription of gathered audio data is a notable means to help researchers in trying to become familiar with their data and be closely working and connecting with it (Creswell, 2013).

After the researcher was reassured that it is viable to proceed, a second-round of interviews with 15 academics was conducted from 29th of April until 11th July 2013. In total, the interviews ranged in duration from 45 minutes to 2 hours and 10 minutes, with 28 academics participants. The decision to stop recruiting participants for interviews was made when the researcher had reached theoretical saturation in the data analysis. In other words, the additional data did not extend the coding frame or challenge any new ideas to the research inquiry. For interview studies, through applying constant comparison approach in data analysis, generally the adequate sample to reach its theoretical saturation is after 20-60 interviews (Hancock, 2006).

In the course of the interviews, the researcher did five follow-up interviews because of the following reasons: 1) participants provided comprehensive and extensive answers and sessions sometimes took over one hour and sometimes needed to be stopped because the participants had other commitments. In consequence, the researcher set another interview date to complete the questions; and 2) some participants were keen to talk and share more about their Twitter activity and invited the researcher to revisit them. The researcher perceived this as an opportunity to obtain and discuss in more depth Twitter use and the discussion was recorded as a source of data. At this point the researcher tended to treat this as informal conversation, thus employing less-structured interviews and prompting answers from participants. This additional meeting brought attention to a range of issues related to participants' activity on Twitter that the researcher found useful. Adopting this strategy may invite the criticism of allowing potential drift in the focus the research (Creswell, 2013). However, the researcher remained mindful and ensured that interviews addressed the key aspect of the inquiry and centred on the relevance issues of the research.

Overall, the process of conducting interviews for this study was without problems mainly because the participants' backgrounds as academics meant they were well aware of research procedures. In fact, these participants gave immense support, good rapport and cooperation, which helped the data collection to run smoothly and in a friendly atmosphere. Furthermore, these participants showed an excitement and enthusiasm when sharing stories and experiences of Twitter use. Accordingly, the researcher tried to ensure that interviews were conducted following the protocol and ethical guidelines. In short, it was exciting and valuable for the researcher. Apart from obtaining invaluable information on the subject of research, it brought more experience from a series of in-depth interviews with academics of backgrounds, gender, age and seniority, and from different disciplinary areas that enhanced the researcher's social and communication skills in conducting interviews.

3.6.3 Ethical principles

Ethical issues or 'code of conduct' are an important aspect in conducting a research study, especially when dealing with humans as research subjects, and so this needs to be addressed early to ensure the participants' confidentiality and rights (D. King & Kimble, 2004; Kvale, 2008). Kumar (2014, p. 283) emphasised the risks of unethical behaviour/conduct in research by highlighting the possibility of harm inflicted to participants, confidentiality breaches, improper use of information, and introduction of bias in the research process. Also, Wellington (2000, p. 57) offers a guideline from the eight ethical principles to be followed when conducting research. This includes the appropriate seeking of permission or free prior knowledge and informed consent, full disclosure of the nature and purpose of the resarch , fair, respectful and honest treatment, confidentiality and anonymity at every phase of the research, including publication, and so forth.

Therefore, as this research involved humans to obtain their opinions, perceptions and experiences ethical approval was required from the University of Sheffield before the research activities could be carried out. The research followed guidelines set by the Information School of The University of Sheffield. These procedures include submitting a University Research Ethics Application Form, a Research Information Sheet (informing the participants of the research's aim and objectives, the reason why they have been selected and what their rights are as participants in the research) and Participant Consent (an official agreement on the participant's willingness to take part in the research study), and the document 'Questionnaires (the interview guide)' (see Appendix B, C, D, E, ,I, J, K for the ethics documentation). The purpose of submitting the research ethics documentation is to ascertain the 'security, human rights and protection, formality and well-being of participants' (Kvale, 2008).

As part of the ethical procedures, prior to commencing the research, the Participant Information Sheet and the Consent Form were distributed to the participants. The researcher would inform the participants clearly of the research purposes, conveyed that they would not be misled regarding the nature of the study, and discussed issues relating to the participant's privacy, withdrawal from the research, and data storage and safety. During the data collection process, the researcher was attentive to any issues and sensitivity of participants when gathering the data. At the end of the research study, a summary brief of findings was given to all participants via email, notifying them of the results of the research with regards to the use of microblogging. When reporting the findings, codes were used to ensure the anonymity of participants. The generated codes include the prearranged number of participants, academic status, the faculty which they represented and total participants. The table below shows an example of how the participants' details were recorded in the study.

Table 3-7: Examples of participant codes

Participants	Academic Status	Faculty	Faculty code	Code (out of 28 participants)
1	Professor	Science	FOS	1P-FOS-28
2	Senior Lecturer	Medicine, Dentistry and Health	FMDH	2SL-FMDH-28
3	Lecturer	Engineering	FOE	3L-FOE-28
4	University Teacher	Social Sciences	FSS	4UT-FSS-28
5	Fellow Researcher	Arts and Humanities	FAH	5FR-FAH-28

3.7 Data analysis strategy

This section describes the procedure followed in analysing the interview data. Analysis was carried out for both phases, the pilot study and the main study. Data analysis is the process of filtering and organising collected research data (i.e. transcripts of interviews or text data in documents, photographs) for examination and later conducting a series of coding processes and merging of codes to develop meaningful themes. Qualitative data analysis involves a process of revising and 'choreographing' in order to meet the aims and objectives of the inquiry, which is a custom-built rather than off-the-shelf process (Miles & Huberman, 1994). The researcher often commits to a process of "learning by doing" (Dey, 1995, p. 6) in which the interpretation of results is based on "insight, intuition and impression" (Dey, 1995, p. 78). Commonly, at the end of this process, the final findings are presented in a narrative representing the social reality revealed by the data (Creswell, 2013). The thematic analysis technique as defined by Braun and Clarke (2006) was employed in this particular study.

3.8 Thematic analysis

Thematic analysis is a technique commonly used in interpretive studies and has been claimed to be a "foundational method for qualitative analysis" (Boyatzis, 1998; Braun & Clarke, 2006, p. 78). Thematic analysis is a technique that concentrates on "ascertaining, examining, categorising, and reporting data patterns" resulting from the data, and is a common approach to qualitative data analysis (Braun & Clarke, 2006; Miles & Huberman, 1994). This form of analysis helps organise the detail of a rich dataset, highlighting what is common and where there are differences among the interviewees, and generating themes that describe the meaning of the data.

Identifying themes is an important aspect of the analysis, since it offers an explanatory narrative about the phenomenon being investigated. Themes can be identified using two kinds of approach: inductive (data driven), in which understanding is built without relation to the existing literature in the early stages of the process; and deductive (theory driven), that requires researchers to engage with the literature prior to commencing analysis (Braun & Clarke, 2006). For this study, an inductive approach was used in the analysis for generating knowledge, thus eliminating any used of theories in the research process. This process is *"a process of coding the data without trying to fit it into a pre-existing coding frame"* (Braun & Clarke, 2006, p. 83). This means that it will pay less attention to any existing themes or categories in the literature. The reasons for adopting this method is due to: (1) the interest in addressing the research questions which basically informed the data analysis approach; (2) this approach is more suitable for qualitative study that use a small-scale study; (3) the context of the study which is understanding academic participation in microblogging thus this research is more concerned in exploring the participants' different perceptions and opinions of their involvement rather than generalising opinions based on predetermine issues. This is a bottom-up approach, where it moves from the specific issues to a broader focus (Trochim, 2006). This means that the researcher observed the patterns in the data before generating the whole results/theory.

Thematic analysis is a feasible approach in analysing a diverse range of research materials. Braun and Clarke (2013) indicated four advantages of it as an analytic method: 1) it enables the researcher to work with a broad range of research questions that are derived from people's experiences, representation and construction of a specific phenomenon in a specific context; 2) it can be used in analysing varied data types; 3) it is effective with data sets that are large or small, and 4) it can enable production of an analysis that is data- or theory driven.

Broadly speaking, thematic analysis has no unique formula for analysing data or providing guidelines for generating transcriptions for analysis, and thus far no common agreement by researchers on a specific way to do thematic analysis has been achieved (Braun & Clark, 2006). *"Different styles of thematic analysis can be conducted, each with their own distinctive procedures"* (N. King & Horrocks, 2010, p. 149). This flexibility of analysis has put qualitative data into doubt because it does not have an explicit epistemology, as well as there being no specific tools available to generate the results (Attride-Stirling, 2001). Nevertheless, in generating a meaningful interpretation for qualitative analysis, where the data needs to be understood comprehensively and examined in detail in a methodological manner, thematic analysis is considered to be a systematic and logical approach that is recognised by social science researchers and commonly adopted in many qualitative studies (Attride-Stirling, 2001; Boyatzis, 1998; Braun & Clarke, 2006).

3.8.1 Rationale for employing thematic analysis in this study

There are several reasons why the researcher selected thematic analysis over any analytical technique for this study:

1. Data Interpretation - Following the philosophical assumptions, research inquiry and research paradigm chosen for this study, thematic analysis was suitable because the research mainly relied on participants' interpretations, feelings, visions and behaviours in the context of study (Braun & Clarke, 2006; Crawford, Brown, & Majomi, 2008). In particular, the study sought to interpret the meaning shared by the participants, generated patterns/ revealed key themes in concert with their use and adoption of Twitter.

2. Deductive and inductive approaches - Thematic analysis is attuned to be used in both inquiries (Frith & Gleeson, 2004). Thus, this approach is well-suited to the strategy of data inquiry where the researcher employs complex reasoning in relation to both inductive and deductive analytical processes. The inductive approach begins with detailed content then moves to a broader level of generalisation and in the end generate theories or a conceptual framework (Bryman, 2008; Miles & Huberman, 1994; Myers, 1997). The pattern of results can

in this process emerge without any theoretical influences grounded in the data (Neuman, 2003, p. 51). However, this process can be constantly compared to the developed codes and themes deductively starting with the existing literature, until it reaches a final consensus. The process is important to ensure the relationship between the data and the constructed themes and to be coherent with regards to participants' explanations (Patton, 1990).

3. Data collection and Analysis in two different phases – Thematic analysis is very similar to Grounded Theory (GT); however according to Braun and Clarke (2006) in GT the process of data analysis runs parallel with the data collection in order to generate theories which then, though further analysis, are grounded in it (Strauss & Corbin, 1990). In contrast, thematic analysis, allows data to be collected and analysed at different stages (Braun & Clarke, 2006). Following this, a research procedure that entails different series of data collection makes thematic analysis compatible with this method. This analysis affords the researcher opportunities to identify and measure the nuances or emerging categories that may occur at the beginning and end of the data gathering period, which helps strengthen the data interpretation (Miles & Huberman, 1994).

4. Coding and categorising – Thematic analysis displays the raw data through a classification according to its similarities and contrasts (Miles & Huberman, 1994). Thus, this analysis is particularly useful for this study in answering the research questions through generating logical relationships of categories that reflect the factors that influenced the academics in this study to use Twitter, in an effective and structured way.

3.8.2 Coding Procedure

Braun and Clarke's (2006) thematic analysis strategy consists of a six-step course: data familiarisation, generation of initial codes, searching for themes and reviewing, naming themes and reporting findings. A rigorous transcription or a verbatim transcript is made to capture each interview word by word. Transcription is undertaken to present and arrange the data for the process of analysis and importantly retains all the information the researcher requires for analysis. For the purpose of analysis, a computer program-QSR NVivo was used for systematically analysing the data and organising codes. All the interview transcripts were initially imported into this software package (see Section 3.8.2.5 and Appendix F).

3.8.2.1 Familiarisation with the data

The first step is for the researcher to immerse themselves in the data (Braun & Clarke, 2006). When transcribing the recording, the researcher listens carefully to the participants' voice in the interview and tries to 'get into their shoes' in order to understand meanings from the information given. Then the researcher engages through reading and re-reading the interview transcripts to get a sense of the holistic picture about the interview and generate some key points highlighted by the participants before the process of fragmenting the data during coding. The researcher notes down potential emerging themes and the conceptual ideas in a memo to ensure the theme is not forgotten and can be brought in during data analysis.

3.8.2.2 Generation of initial codes

Prior to the analysis, the researcher already had a basic knowledge of some established themes uncovered in the preceding literature relevant to the research subject, and the pilot-study outcomes produced preliminary themes. These materials gave the researcher some ideas for potential codes. Codes represent a description of some of the information gathered (Miles & Huberman, 1994). The process then began with manual coding or 'open coding', where key words/ideas or codes are created and coded in the NVivo software. Open coding is used to observe and examine similarities and differences between specific codes, in order to develop code patterns. Strauss and Corbin (1998) emphasised that this process is important to capture key ideas or statements in the transcripts by labelling specific excerpts or statements made by the respondent. This process allows the 'data to speak for itself', in other words the generation of code emerges from the participants' meaning (what they said), and this approach seeks to avoid imposing any bias introduced by knowledge from findings of previous research.

In the first stage of analysis, three interviews were selected and 223 codes were generated. The researcher then revised all the codes and refined their names, inadvertent repetition was deleted, overlapping codes were then clustered, and this process was continuously undertaken during the coding process. The refined number of codes was 124. When the researcher added the following transcripts, new codes emerged and when the final transcript was completed, 497 codes had been created. The process of refinement and merging of code was continuous and finally produced the number of 137 codes for 28 interview transcripts. Inductive and deductive coding was performed simultaneously in establishing the coding framework (Creswell, 2013). Even though it is a rudimentary stage, however the process is analytical as it captures the sentiment and conceptual ideas of the data, hence a rigorous approach and detailed attention was vital.

3.8.2.3 Searching and reviewing for themes

Clarke and Braun (2013) emphasise that a theme should be coherent and meaningful representing a pattern in the data that is related to answering the research question at hand. After identifying themes or patterns, merging of some relevant 'basic codes' is undertaken. This is followed by a categorisation of such codes into sets to generate more meanings. For this research, throughout the coding process, many concepts were seen to be related, hence, a reclassification and reorganisation of the categories and related subcategories were done using the hierarchical tree structure of N-Vivo. A constant comparison and iterative interaction and reflection of the categories was carried out at several levels to identify relationships with other categories and reveal core initial themes. This approach [constant comparison] is a process where it combines the group of coding categories of the common questions and compares it simultaneously to identify any different perspectives of the issues (Dye, Schatz, Rosenberg, & Coleman, 2000). This is to ensure those categories merged are meaningful and address the research inquiry (Strauss & Corbin, 1998). This is an important step in the coding process to guarantee the reliability and consistency of the generated themes related to the questions posed (Strauss & Corbin, 1998). The comparison process was repeated several times until data saturation is reached (Glaser & Strauss, 1967). Data saturation happens when there is no new emerges data that can be added into a category or develop a new group. Basically, the researcher will empirically believe that the data is saturated when she found similar instances to the groups and also as she goes through comparing all other categories over and over again.

At this stage, the final themes were established in a broad sense; the process confirmed no new categories needed to be developed. These recognized themes were critically analysed to determine if there was a common ground across the study. Codes from the existing literature were applied to compare and evaluate the final themes for confirmation of the findings. The final emerging themes are summarised through networking the categories and identifying some of the independent codes that are substantial as unique themes.

These organised emergent themes facilitated a greater understanding of the body of data and enabled the researcher to draw conclusions from the results.

3.8.2.4 Naming themes and reporting findings

A full summary of the principal themes that effectively provide insights to the research inquiry is presented. Five main themes were defined namely: 1) the characteristics of Twitter users; (2) motives for academics' use of Twitter; (3) the patterns of adoption; (4) the range of Twitter use; (5) temporal and behavioural patterns of Twitter use and (6) academic concerns over using Twitter. The relevant key literature was used in facilitating the development and discussion of final themes. This was done to situate an appropriate theoretical perspective in effectively describing the concepts being studied. Chapters 4, 5 and 6 are a presentation of the overall findings, whilst the broader theoretical view of the study is discussed in Chapter 7.

3.8.2.5 QSR NVivo

The software package called NVivo was employed to assist in the process of coding the qualitative data (Bazeley & Jackson, 2013) NVivo helps *"analyse, manage, and shape, qualitative data"* (Creswell, 2007, p. 167). This software tool is useful in conducting searches and operates quickly to retrieve results across large amounts of text. It also displays codes and categories graphically, as well as providing links to research notes while coding. This software tool helps the researcher to work efficiently with their research data, including: (1) organising their data and documents; (2) locating material easily, (3) providing security for database storage; (4) facilitating in-depth complex coding schemes and sophistication of analysis; (5) encouraging the researcher to see and feel their data closely; and (6) helping to map and visualise the relationship of their data (Creswell, 2013). On the other hand, this software does not work as an interpretive tool for qualitative data (D. King & Kimble, 2004). Thus, it is important to emphasise that the application of NVivo in this study was to assist the researcher in the process of storing, gathering and organising the transcription material and it was the researcher's responsibility to bring her own understanding to the research data and articulate the meanings in the most analytical and coherent way relevant to the research questions.

3.9 Research quality

At the end of a research study, a researcher might ask "did we get the story right?", (Stake, 1995, p. 107). In qualitative research, there is no consensus regarding what is 'right' because the story represents multiple views of realities (Creswell, 2009). Qualitative research usually aims to gain an understanding about social phenomenon hence in defining the knowledge; a researcher must deal directly with humans and spend extensive hours in their settings to capture the meaning of the situation. To ensure the result is accurate and the report resonates with the participants' information, a researcher has to clarify through multi or polyvocal validation strategies (Creswell, 2009). A different set of criteria have been established and applied in evaluating the standard quality of qualitative research, compared to the more familiar criteria well established in quantitative research.

Mason (2002, p. 38) has argued that the 'scientific criteriology' or the established measures of "validity, generalizability and reliability" customarily adopted by positivists in assessing research rigour and quality are irrelevant to qualitative and naturalistic approaches. In the same way, Seale (1999, p. 8) reflected that "qualitative research is a craft skill" as it works in manner that is flexible and undergoes certain evolution based on the focus of the research. This type of research also enables a researcher to creatively and innovative apply different techniques in conjunction to research validation, which does not necessarily need to be linked inextricably to informed philosophical or paradigm positions. Patton (2002, p. 433) emphasised that straightforward assessment of reliability and validity of qualitative research, as well as an absolute guide in measuring such do not really exist as yet. However, a researcher should employ full methodical of fairness to adequately communicate and represent the processed data and its meanings (Patton, 2002). In other words, in acknowledging research findings, it is important for the researcher to ensure it meets some quality criteria and show evidence that it is 'valid' and 'reliable' research (Creswell, 1998; Mason, 2002; Miles, 2004).

Validity and reliability are important concepts used in research to scrutinise research quality (Kumar, 2014). Thus, the instruments used in obtaining the information are critical as they influence the researcher in coming to general conclusions. The concepts of validity and reliability are relatively well-understood for positivists in quantitative studies. However, these concepts can be used to provide guidelines for accessing qualitative study (Seale, 1999). Validity denotes a situation where *"the findings of a study are in accordance with what the researcher has designed it to find out"* (Kumar, 2014, p. 218). This implies the effectiveness of research methods in examining what it was intended to do. Creswell (2013, p. 244) stated that validity in qualitative research is *"distinct from quantitative terms, employs postmodern and interpretive perspectives, considers validation as unimportant, combines or synthesizes in many perspectives, and visualises it metaphorically* *as a crystal".* In validating qualitative research, Creswell and Miller (2000, p. 126) have suggested nine strategies used, namely: "*1) prolonged engagement and persistent observation; 2) data triangulation; 3) peer reviews or debriefing; 4) negative case analysis; 5) clarifying researcher bias; 6) member checking; 7) rich thick descriptions; 8) researcher reflexivity; and 9) external audits"* and summarised that a researcher needs to engage with a minimum of two of the listed approaches in terms of 'safeguarding' research quality.

Reliability can be conceptualised in different ways in qualitative research (Silverman, 2006). Kumar (2014, p. 218) conveys reliability as largely concerned with the "consistency in its findings when used repeatedly" (Kumar 2014, p. 218). In other words, the idea behind reliability is that findings of research can be repeatedly use using a same experiment and produce the same results, which basically it generate a valid hypothesis that can be replicated for future study. Reliability is an important notion for positivists in investigating traditional nature and scientific inquiry. However, qualitative researchers argue that the same conditions cannot be reproduced in complex contexts, so reproducibility is not possible (Strauss & Corbin, 1998). For qualitative research, reliability refers to illustrating how, when demonstrating the research, the researcher has not mishandled or misinterpreted the data or used less rigour in recording or carrying out the analysis. In addressing this issue, a researcher could enhance reliability through outlining the research in a transparent way, such as presenting a record of a detailed chronology of the research procedures, including the appropriate measurements taken in gathering and handling the data, analysing data systematically and ensuring that interpretations reflect the participants' views (Mason, 2002).

3.9.1 Validity and reliability strategies for this research (Trustworthiness)

Guba and Lincoln (1981) as cited in (Morse, Barrett, Mayan, Olson, & Spiers, 2002, p. 3) describe that in order to ensure a research to be considered as meaningful, it must provide its "consistency", "applicability", "truth value" and "neutrality" where this concept is referred to knowledge within quantitative inquiry. These authors argued that different research paradigms are different in nature thus for naturalistic study it requires specific approach to evaluate it rigorously. Guba and Lincoln (1985) suggested the four key criteria of the constructivism paradigm, or called "trustworthiness" that are equivalent to the validity and reliability in quantitative research, as in the table below:

Table 3-8: Criteria for judging research

Quantitative research	Alternative for qualitative research
Internal validity	Credibility
External validity	Transferability
Reliability	Dependability
Objectivity	Conformability

In accordance with Guba and Lincoln (1985), Creswell (1998) Creswell and Miller (2000), the researcher employed different strategies to establish the reliability and validity of this research by framing the notions of credibility, transferability, dependability and conformability of the data and the whole research process. Within credibility criteria there are specific methodologies of verification in which this study has adopted namely (1) audit trail; (2) adoption of well-established method in qualitative inquiry; (3) data triangulation; (4) debriefing sessions; (5) peer review; (6) member checking; (7) ensure honesty of participants when contributing data; (8) thick description of the phenomenon under study; (9) examination of previous research findings and (10) reflexivity. The researcher adopted these as validation strategies because this criterion has been established and adopted by many qualitative researchers as fundamental standards to assess a qualitative study (Morse et al., 2002; Shenton, 2004). As according to Morse, Barrett, Mayan, Olson, & Spiers (2002, p. 5), qualitative study is an 'iterative' process, thus to ensure a research quality, the researcher has the position to constantly move back and forth re-check all the procedures involved from the designing to implementation in order *"to identify when to continue, stop or modify the research process in order to achieve reliability and validity and ensure rigor"* and before confirming on the research findings.

3.9.1.1 Credibility

Credibility of a research is important in order to establish its trustworthiness and authenticity (Lincoln & Guba, 1985). This study has used the following key criteria to validate the research.

1. Audit trail: The audit trail is important in establishing the credibility of a piece of research. According to Rice and Ezzy (2000, p. 36), effective maintenance and accurate reporting of an audit trail pertaining to the methodological and analytic decisions made in the whole research process opens up a possibility of assess the significance of the study and its outcomes from an external point of view (Lincoln & Guba, 1985). The six audit trail categories that could help the researcher in this process include: raw data, data reduction and analysis notes, data reconstruction and synthesis products, process notes, materials pertinent to the researcher's intentions and dispositions, and lastly, tool development.

In this study, systematic organisation of every document used for the purpose of research (e.g. ethical approval, information consent, participant information sheet, interviews questionnaires, interview transcripts, reflexive notes) was maintained to form of audit trail. This was done to ensure transparency of the research process, especially when it will be reported to other people within and outside the university. In addition, a record on the following was maintained: weekly meetings and regular instances of supervision, stage analysis reports, email communications related to ethical applications and approval, vital information about the participants, and the correspondences with them. In addition, soft copies of instruments used for data collection, data analysis and report writing were stored and compiled as explicit evidences of research credibility. All the documents and recording is anonymised and labelled accordingly to protect the participant's privacy which is part of the research ethics and protocol. All the interview transcripts and recordings were kept in both hard and soft copy by having the recordings printed and kept in file documents and on an audio player. The data were managed in the NVivo databases to facilitate creating, linking and hierarchically managing the research concepts derived for this study. This enabled an interpretation of the evidence to begin early on. The researcher kept a diary of research ideas and activities, reflections and discussions from meetings with her supervisor, and recorded important key and relevant information gathered in the course of the research study. All the material data were kept and sealed in a drawer in the researcher's office.

2. Adoption of well-established method in qualitative inquiry: Yin (1994) stated that a correct procedural methodology needs to be incorporated to produce a good research. In validating the credibility of this study, well-established methods used in qualitative studies generally and in the information sciences was applied. Hence, an interpretive methodology is adopted for this study. In addition, this thesis as a research report provides transparency regarding the data collection methods, sampling strategy and data analysis, as described in the previous section. This systematic procedure is central to enhancing the rigour of the research and to measure whether the validity of data collection and data analysis techniques met scholarly requirements (Shenton 2004, p. 2).

3. Data triangulation: In this case, although the study purely used interviews as the main method, however complementary data were used as another form of triangulation

(Shenton, 2004). As indicated in Section 3.5.2, this supporting data provided opportunities for the researcher to understand more fully the nature of academic Twitter activity, confirming the details supplied by these academics, and shedding light on the behaviour of the academics when using Twitter. In addition, this study employed a wide demographic range of markers (academic status, age, gender) that may represent triangulation via data sources. The viewpoint of different individuals is a strength where distinct characteristics could be compared, corroborated and verified against others to construct the holistic picture of the inquiry (Shenton, 2004).

4. Debriefing sessions: Such sessions were frequently conducted between the researcher and her supervisor during data collection and analysis processes. During these meetings, the researcher constantly checked with her supervisor on the procedures required in order to ensure the rigour of work and follow the code of conduct. During the data analysis stage, the researcher discussed and showed evidence of the analysis to cross-check with her supervisor on the emerging themes found. The process of clarification and verification of the abstract themes was constantly evaluated and finalised with the agreement of both researcher and supervisor. The meetings were also another sounding board to test out developing ideas and interpretations of findings. It also assisted the researcher to anticipate issues, such as her personal interest, biases and investments, as well as ensuring the researcher remained honest with herself (Creswell, 2009).

5. Peer review: This approach is carried out through peer and colleagues reviews on presentations at conferences in regards to the research and publications through double blind peer review (see Appendix A). From these sessions the researcher gained invaluable input and feedback and widened her views on the different strategies used in the methodology, conceptual frameworks and initial findings. Such collaborative sessions offered opportunities to refine the research process and analyses. In fact, through sharing questions, it challenged the researcher's philosophical assumptions and required her to defend her arguments on her research work, to elucidate and communicate the research with clarity and be well-versed in knowledge on the study phenomenon prior to the final stage of thesis submission. Nonetheless, the researcher kept in her mind the ethical obligations in sharing her intellectual work.

6. Member checking: This is concerned with analysis and verification of particular patterns that emerge during the data collection process by asking participants if they agree with interpretations. In this study, the researcher constantly sought clarification through asking the participants about concepts that developed during interviews and to explain their reasons for such views, in order to develop a formative understanding of contextual meanings (Shenton, 2004).

7. Ensure honesty of participants when contributing data: For this approach the researcher gave options for participants to withdraw from the study if they were not keen to participate, without requiring them to disclose the reasons. This ensured that the respondents' willingness to participate was genuine and they were not 'forced' to engage in the study. Accordingly, the participants knew that the study was conducted to explore and understand the nature their use of Twitter, thus, they are generally aware that their engagement would lean towards contribution of their ideas and talking freely about what they experienced. The researcher was committed to building a rapport with the participants to achieve this aim.

8. Thick description of the phenomenon under study: This study promotes credibility through its rich descriptions that provide detailed accounts of the research context which gives the reader a deeper sense of the phenomenon. *"…Without this insight, it is difficult for the reader of the final account to determine the extent to which the overall findings ring true"* (Shenton, 2004, p. 69). Thus following to the research inquiry, the findings has describes an in-depth the trajectory of academics' use of Twitter. These include episodes of Twitter adoption, the initial driver to use Twitter, the different uses of Twitter, the pattern of using Twitter as well as the worries around its application. The researcher tries to illustrate the phenomenon under study to an extent where the reader can understand what is actually happening in the situation.

9. Examination of previous research findings: Silverman (2006) considered the key criterion of assessing the qualitative study is the ability to discuss the results and compare and evaluate them in relation to prior studies in the field. Thus, the findings of this study are comparable and congruent with previous research, as discussed in Chapter 7.

10. Reflexivity: Denzin (1994, p. 500) states that in qualitative research 'nothing speaks for itself', and the 'knowledge that cannot be separated from the knower' (Steedman, 1991, p. 53) as cited in Alvesson & Sköldberg (2000, p. 1), therefore the researcher's task is to interpret and present the constructed knowledge of the social phenomenon based on her understanding of the participants' views and explanations without being biased. In this study, being close to the participants during the interview process, meant it was possible for the researcher to use her own powers of empathy and judgement in interpreting what was said. However, a researcher using this approach may guide the participants' to certain answers during the interviews process or/and put forward her/his own experiences as a social media user, which may influence the participant. Therefore, it is important for the researcher to be mindful of this threat. The researcher tried to reflect her interpretation continuously with her pre-understandings and experiences of the phenomena under investigation, until she was able to identify answers which satisfied her initial inquiry. The researcher also attempted to be responsible, through delivering rich and "thick descriptions" of results of the context under study, to account for the plausibility of the results (Merriam, 1995). In addition, she consciously limited her involvement when interviewing participants, so as not to lead them to answer according to her prior knowledge, but rather let them speak freely.

Besides giving a rationale in positioning the research study, she has justified the most adequate method used for the study, described the process of analysis, the best approach taken in communicating and presenting the interpretation of the results. She kept a reflexive diary and notes to record all the activities and process involved in the decisions making for conducting the research for example her reflections on the events happen throughout the research study also her discussions with her supervisor in guiding the research.

3.9.1.2 Transferability

Transferability is concerned with the possibility of generalising the application of the research findings or replicating it to another setting (Merriam, 2009). Shenton (2004) argued that a qualitative study usually involves a specific project with a small scale group of participants, and thus it is not possible to generalise the findings to a wider population. However, in a contrasting stance, (Stake, 1995) believed that while each qualitative case is unique, it may represent a specific population of group; hence the prospect of transferability is possible. This study has developed a framework for understanding the academics' use and adoption of Twitter in higher education. It offers significant implications that this knowledge can be reflected on and considered over in other fields of study, in particular within a similar boundary. It could be considered to be fairly typical and the results might well be mirrored within similar research institutions (e.g. Russell Group universities) that have a similar environment. Further, a wide range of interviewees (i.e. of different gender, age, research disciplines, academic level of seniority) were involved in this study representing the typical range of experiences in academia.

3.9.1.3 Dependability

In qualitative research, dependability is related to the concept of reliability and is concerned with whether similar results would be gained if a single phenomenon would be observed twice (Trochim, 2007). Given the changing and complex nature of the phenomena examined in qualitative research it is difficult to establish reliability. Alternatively, a researcher may report a comprehensive research process that could be replicated by future researchers in order 'to ascertain the level of dependability' (Kumar 2014, p. 219). If the research design is seen as highly dependable as defined, it may be considered as a prototype which could be replicated to the similar forthcoming study (Shenton, 2004). Corresponding to this, the researcher has provided methodological descriptions, which are presented in an in-depth manner, with the aim of allowing repeatability of the whole research procedure. The 'dependability' of each aspect in the processes has been stated in this chapter as follows:

- Define the research design and procedural implementation of the research phenomenon under investigation. This includes the philosophical beliefs and assumptions, research paradigm, research methods and data gathering chosen for this study and how this plan was executed.
- Describe the logic and give accurate details of the step-by-step operational procedures undertaken in the data collection phase, such as the types of instruments used, the samples and sampling strategy, ethical conduct and styles of analysis used to extract and interpret the results.
- Provide evaluation and reflection of the effectiveness and value of the process of inquiry through discussing research validity and reliability in the research quality.

3.9.1.4 Conformability

If the research process and the findings can be confirmed by other researchers through objective evaluation or corroboration, the study is said to have conformability (Trochim, 2007). One example in this study is that it did not use any triangulation methods but employed complimentary data sources to illuminate the participants' views on the nature of the phenomenon through observation on Twitter during the interviews and by taking notes. Apart from this, the overall justification for the research procedure, stated in the validity, reliability and transferability section, afford the conformability of the research.

3.10 Reflection on the study

A potential criticism of this study is related to being prejudiced in explaining the benefits of using Twitter from an optimistic viewpoint of a community that uses technology and tends to judge things from a particular perspective; or whose views may be influenced by the researcher's view, interest and familiarity. This study recognises this issue but tried to set a balance for the study through adopting a number of strategies to avoid any such queries on lack of research trustworthiness or rigour. This is achieved through posing a set of questions that allowed the academics to provide rich views of their Twitter use, including replies on values and concerns about using Twitter. The researcher was sensitive in directing the questions and avoided pursuing or leading the session towards pro-Twitter thinking, constantly working to make these academics comfortable about discussing their views on using Twitter openly and freely. Even when it was necessary to put forward an ambiguous or relevant issue, the researcher followed up with subsequent conversations until the discussion imposed a theoretical vocabulary. Through the discussion, it is noticeable that these academics found profound nuances of Twitter in their responses and showed enjoyment and enthusiasm during the interview thus possibly rejecting any bias preconception.

3.11 Summary of chapter

This chapter provided an overview of the research design, data collection and data analysis approach employed in order to answer the research questions of the study. The justification for selecting the given methodology for this research is vital in explaining the processes of generating the research findings. The chapter first defined the two phases of the study. The first phase (pilot-stage) informed the structure of the second phase of the study. This emergent design encouraged new ideas to enable the researcher to make definite decisions on the possible research design, such as how to refine the research questions, what data collection method or methods to employ, how data would be selected and analysed and what theoretical lens would be most relevant to the study. The chapter presented in detail the arguments for two different research methods, qualitative and quantitative, and elaborated the reasons for choosing to undertake a qualitative study as the prime method. The use of interviews as the main approach, alongside other complementary sources was used, in order to build a rich picture of the topic being studied. The criteria used to evaluate the study are important; therefore a complimentary source for data analysis was of substantial benefit for increasing validity and reliability while offering the researcher opportunities to look at different dimensions of academic microblogging participation. Research ethics is one of the important issues in research studies, as it invariably involves humans as research subjects. Thus, legal authorisation from research participants is needed. Research ethics should be addressed, and ethical requirements approval from the researcher's institution must be obtained prior to conducting the research study. The approach to data collection and data analysis for the study were discussed. Suitable techniques used to develop the knowledge in understanding of the social phenomena were justified. To ensure the research was of a good quality, specific strategies were applied including credibility, transferability, confirmability and dependability to ensure consistency and strength of this qualitative research. Reports of the research the activities provide transparency and adequacy in conducting the research, which seek to show that the intended research inquiry was delivered systematically according to the scientific procedural. Following this, the results of data interpretation is presented in the subsequent findings Chapters 4, 5 and 6.

Chapter 4 : Drivers and trajectory for using Twitter

> *"I can sit on this office and not leave for the whole day, because I have a lot to do; whereas with Twitter I can reach 800 people around the world in 30 seconds. I can't do that with email, I can't do that in a public lecture, I can't do that in the paper I have written, so it's an immediate way of touching lots of people, and I think, as an academic, we have a duty to have a dialogue and connect with people, and it's just another tool to do that." [1P-FMDH-28]*

4.1 Introduction

This chapter describes the findings based on the interviews with 28 academics from the University of Sheffield. This chapter begins with the identification of common attributes shared by users of Twitter described in this study. It is followed by an exploration of key drivers that led academics to use Twitter in their scholarly undertakings. Finally, it reveals the different stages adoption of Twitter as an academic platform.

4.2 Attributes of Twitter users

This section presents the characteristics of academics using Twitter. It is highlighted that the diverse backgrounds of the academics involved in this study, suggesting that demographic factors such as age group, discipline or gender are not a major contributory factor associated with using Twitter. The interview data suggested that there are two themes emerging related to key Twitter user attributes, that they seem themselves as: (1) early adopters of technology; and (2) technological savvy.

4.2.1 Early adopters of technology

The analysis revealed that a majority of academics perceive themselves as 'early adopters' of Twitter. Twenty out of twenty eight participants reported that they were initially aware and sign-up to Twitter between 2007-2011. This is evidenced by their approach when adopting new technology, particularly, Twitter, by trying it very soon after its launch. Everett Rogers (2003) argues that this action is a normal occurrence when innovation process occurs. According to Rogers' theory of 'Diffusion of Innovation', specifically the innovation adoption lifecycle framework, there are five types of adopter in a social system: *innovators, early adopters, early majority, late majority* and *laggards.* If the result of this present study is placed in the framework, it can be seen that majority of the respondents are considered early adopters of Twitter. 'Early adopters' are identified as individuals or groups of people who adopt technology quite early after the technology is replaced or released. As a support to this finding, when asked about the time the academics joined Twitter, many of them said they were among early users:

> *" I started to use Twitter in 2007, I think, very early" [11L-FAH-28]*

> *"Oh, me, would have been about 2007/2008, I think. [9P-FSS-28]*

These academics signed up on Twitter soon after when it was launched in 2006. They felt that they were some of the early individuals to jump in on the Twitter 'bandwagon', when many others were possibly not yet aware of this social platform or even considering whether to use it. As one academic said:

> *"When I first started using it, not many of my friends were using Twitter" [12FR-FOE-28]*

Another academic explicitly showed that he was fascinated by technology and became an early adopter of any other innovations. As he stated:

> *"Actually I am an early adopter of most technology. I like technology" [19SL-FSS-28]*

Furthermore, these academics are considered to be persistent about trying new innovations with the aim to stay ahead with other members of the community. They often wanted to be seen as leaders or pioneers if they become part of the early adopters, as suggested here:

> *"I have done quite a lot of work with Google Apps since we launched them in the university, and people often describe me... as a pioneer of Google apps because I just go off and do things." [13UT-FAH-28]*

Some academics also identified themselves as individuals that take their own initiative and voluntarily adopt certain technologies, but not without some hesitations and reservations. They have considered some aspects of the technology first by trying out before eventually joining Twitter. These considerations include the benefit of use and the return on their investment such as time and effort. Nevertheless, they are positive about using it. This just shows that early adopters often have a motive and strategy when they decide to use a technology. They can also be seen as enthusiastic people who are eager to try out the latest ideas. They take risks with alacrity, adopting and dropping it if the technology does not fit their purpose and needs. One of the respondents illustrated this finding when she stated:

> *"I've always been experimenting with it so I was the first person in the department that used MOLE, which, you know, I started, but everybody else was completely resistant and I thought well, "I'll have a go' and I used it quite successfully." [17P-FSS-28]*

> *"I love technology, I like apps and I have very much used it. You know, I don't build things but I do like finding things... that worked well, so, yes I like MOLE and I like Twitter and Facebook... in a little bit of a academic way; I like Mendeley.com, you know, the online bibliographical site, and [I use] that is increasingly. I think it is a good way of sharing references and discovering references and things like that, like say, if I just got some news sort of time management getting things done and kind of system there, but they are all very kind of end-user apps I guess... But, you know, I do like the prospect of discovering new ways of using things and I did just get the iPad, and now that I am able to just take notes in the meeting on the iPad and then I can put them to kind of the shared space... immediately... where it is used to be me taking things and losing them, you know, not passing them back to her. Now actually we just kind of shared, as I love the Dropbox very much, so it's quite a powerful tool for kind of sharing and developing projects, something like that. So yes, I don't do anything very fancy. I think Dropbox is a very important tool for academics... 'cause you can see easily, sort of, to share space and edit a volume with some people at this moment; or papers can be very easy to drop into it and keep a track of everything kind of between users things, going through revision and stuff like that, so yes, I do like to try new thing, but if things don't work then you stop using those. "[14SL-FAH-28]*

This academic above expressed how she was optimistic and open to adopting different types of recent technologies such as social media, learning management system, mobile technologies in the market that seemed beneficial, especially in strategically managing busy academic tasks.

Besides their openness to technological applications, these academics also developed a degree of independence, such as the aforementioned characteristic of 'standing out from the crowd' as a result of their early adoption. In addition, they considered themselves to be 'opinion leaders' particularly in ways in which they are able to bring in new information and ideas, and disseminate them to wider audiences with shared interests. By being able to do this, they were able to influence other people's decisions or thoughts by spreading positive or negative messages, through word-of-mouth about the innovation (Song, Chi, Hino, & Tseng, 2007), as shown here:

> *"As I said earlier, I've been at several different institutions and I've made it a habit of convincing friends to join Twitter because then I can keep in touch with them and it's much more immediate... So I've convinced colleagues to join and I use it as a way of keeping in touch with colleagues at other institutions." [4L-FAH-28]*

As can be seen, the respondent, being an early adopter, presents herself as a person who is highly 'influential', and encouraging other people to try out and use the same technology. The early adopter will confirm their use of the technology and provide reflection on this innovation. And if she felt that it really helped her based on her needs, she will encourage others to adopt technologies that show significant value and high levels of satisfaction, and she can do it because of the first-hand information and experience she has as an early adopter.

On the other hand, it was found that not all academics in this study adopted Twitter at an early time as the others above. A few of the academics interviewed can be categorised in the 'early majority' group with regards to adopting Twitter. This group were very careful in making their choice of whether or not to use Twitter and will only confirm their participation after having received positive endorsements. They are not too sceptical in using new technology because they can tolerate changes. They are not the first group of people to adopt technology, but not the last one to join either. Some members of this group began to adopt Twitter through personal awareness (e.g. reading, observation) of the social platform, as well as through interaction with, and eventually influence from, close friends or colleagues about Twitter's reliability and usefulness.

> *"I read about it, someone sent me a link, so I just decided to join in." [3P-FOS-28]*

"I think the reason I started using it was because colleagues have talked about it as a good way of getting access to information from a work point of view and keeping up with what is going on in the field. So that is why I think I started using it initially." [22SL-FAH-28]

4.2.2 Technologically savvy

Being 'tech-savvy' is the second common attribute that emerged from this study. This term defines people that often embrace and are skilled with the latest information and communication technology, wherein they adapt to it quickly and start to use it in a regular basis. These kind of people are particularly adept in using either old or new software applications, mobile technologies and social media. Most academics in this study (25 out of 28 participants) claimed that they were aware of the latest technological developments and liked to be at the cutting edge. They described themselves as being experts in using several technology applications. As one of the academics expressed:

"My colleagues keep saying to me 'how do you get time?' I don't find it a time-consuming thing 'cause you have yourself, sort of, if I use Google chrome browser so you got more window opens with your Twitter account and another window opens with the emails and then you know I just sort of interchange all the time." [25SL-FMDH-28]

The quotation above shows that this academic can be described as having advanced IT skills compared to her colleagues. She considered herself to be 'IT literate' due to her ability to manage the use of multiple web-based services and social networks, when others are not able to do it. Another academic showed his practical ability in assisting others on Twitter use based on his experience and knowledge as to the jargon and techniques essential for users:

"On Twitter, yes, occasionally yes, people said that they didn't understand #hashtags and I tried to tell them how to use it…" [1P-FMDH-28]

Because of the characteristic of technology to facilitate efficiency in communication and ways of life, some have adopted technology in the different facets of their academic life. Below are some of the ways in which the academics describe their use of the different types of software applications for teaching activities while demonstrating their skills and experiences as tech-savvy individuals:

"I like to use technology in the classroom. I teach in the collaboratories in the IC, you know, the ones with all the digital technology, and we sometimes use the technology in the classroom and sometimes don't." [4L-FAH-28]

"I mainly use PowerPoint (in teaching). I've tried using Prezi, though it was a lot of effort and I've used quite a lot of videos and that kind of thing in the past, and I began doing work on a computer animation, so my first stuff was kind of more interactive than it is now." [9P-FSS-28]

"I use Google sites in teaching '(name)' and our third-year module which is linked to '(name)'. I used to use uSpace, which is a University application (…). I use a lot of MOLE and things like that (...). We have a Facebook group for our students to organise on for '(name)' and the '(name)' module (…)" [11L-FAH-28]

It is concluded that these academics like technology. They also perceived themselves to be familiar with technology in terms of functionality and use, and they could therefore easily adapt to new innovations. They also use various types of Web technologies and mobile devices regularly in their routine activities, as they are also seen to be embedded in their daily lives.

For this study, the researcher found that the two categories – being early adopters and being tech-savvy –are commonly shared by the academics. However, these categorisations cannot be said to be generalisable to all Twitter users as more evidence are required to support the claim because the responses were generally geared towards the discussion of technology adoption. Nevertheless, these attributes are presented to suggest certain criteria that may have contributed to the degree of Twitter adoption among academics which is also discussed in the study, as well as personal traits that possibly affect their Twitter use. Clearly, most academics see themselves as 'early adopters' of the technology and, because of this, they are usually seen as a 'leader' that could influence people to follow their steps. Also they use digital technologies heavily and they have wide experience in utilising it for personal and professional purposes. The following section discusses the immediate factors that influence academics' decision to adopt Twitter.

4.3 Immediate drivers to adopt Twitter

This section discusses in detail the immediate influences that support academics' decisions to start using Twitter. As seen through the analysis of data, these drivers can be regarded as extrinsic and intrinsic motivators for adopting Twitter. Thematic analysis of the interview results shows the following drivers are considered instrumental academics' journey on Twitter, including: academic interconnections, academic duties (research, teaching, disciplines, and administration), public engagement and building online profile. The analysis identified seven diverse elements that encouraged participation from extrinsic and intrinsic factors. Extrinsic factors include (1) academic practices and (2) social influences, while Intrinsic factors are (2) the need for a digital profile; (4) need for news and information source; (5) following social media trends; (6) personal interest and (7) beliefs about technology. The details of each element are described in the following section.

4.3.1 Academic practices

As one of the extrinsic factors, academic practice is considered here to externally influence the respondents to use Twitter. Academic practice in this context refers to academic roles and duties being carried out by a member of an institution of higher education. Generally, these include research, teaching, administration activities, research disciplines, and other public engagement that customarily contribute to knowledge and information generation and dissemination. It was identified that increasing demands and challenges experienced in the academic profession have resulted in the need to find effective alternative in managing core activities. In this study, almost all (22 out of 28 participants) revealed that they use Twitter to explore ways to support some of their duties and tasks, such as dissemination and communication of research work; enhancement of teaching practice; engage in disciplines practice and management of administrative roles.

4.3.1.1 Research

Besides teaching, research is one of the most important things that an academic must fulfil to really feel they an academic. Research is a core practice for any academic particularly in research led institutions. Hence, academics in The University of Sheffield have explored some means to maximize research-related activities. In this study, it was identified from the analysis that some of the academics started to adopt Twitter due to a rising pressure to communicate and share the value of their research findings to the wider academic and non-academic community. Other prompts include communicating of research projects, promoting research activities, and searching for conferences and researches that may be connected with their discipline and interests.

1. Sharing research

Sharing or communicating research is a key practice in the culture of academia. Thus, it is quite unsurprising that some academics expressed their initial idea to adopt Twitter based on an interest to share research findings. They feel the need to share relevant information to the research community and found Twitter as an effective outlet to support the idea. This quote offers one example:

> *"Well, it was a [discipline] policy thing which got me this started! I have been interested in Science Policy for a long time, particularly UK funding, the agencies, 5-6 years and the funding agency which funds my own area and part of [discipline]…and so I felt kind to have a web page basically of passing information onto my community that I thought that was interesting and relevant. And so that was quite a lot of interactions people going to that but is much people have to go to website to find something else, […] I feel that it is much better, much more immediate is because the news of information on Twitter, is if you are following certain person then you haven't got then to go to the website to get information it's all coming to you so if you want to have that more immediate sense, so actually I kind of like them. I like the immediacy of Twitter. It tends to be able distribute information that I think it is interesting…"* [20P-FOS-28]

The professor narrating his experience had a funded research by the government and felt the importance of sharing the outcome and contribution of his research to his funder and public. It appears that this professor creatively used Twitter as another means to be transparent in updating his sponsor on the progress of his undertaking. Accordingly, Twitter's features and an ability to rapidly spread information or posts like a virus in public networks seemed to prompt his decision to adopt Twitter. He sees that the platform is suited to his aim which offers less effort for people to seek for information than by visiting other websites because there are practically billions of users in the Twitter network.

2. Research Project results

Getting engaged in a research task makes an academic feel the need and importance of sharing the outcome of the activity to stakeholders and to the general public. In one instance, a respondent stated that while discussing a concern about a project being undertaken by him with colleagues at a local school, the idea to adopt Twitter came to mind. The academic narrated that:

> *"The reason I got into twitter was that I was doing a project with the (School of X), academic RS and JH, they are both on twitter by the way… so I was sitting in a school, a primary school, I had a project funded by the AHRC called 'TAS' and the project was with English Education and in a School, and I was also with poet called Mr. X, and at the same time I realized that the project had a lot to say to the government… So I said to Mr. X, "What we are going to do? We have a finding that we want to communicate with the government but they won't listen" and he said "use Twitter" because he said people will follow your ideas. So I started to tweet from the school […]"* [15P-FSS-28]

These people thought that using Twitter could offer a better approach in communicating their research projects across communities and organisations. With colleagues who were already on Twitter, it seems easy for this academic to be persuaded to sign up and create a Twitter account. They were driven by a strong reason to work in partnership in terms of organising and communicating their research activities.

3. Publication Promotion

A few others believed in signing up on Twitter could help them to publicise their publications to the outside community. As showed in the example:

> *"I started to use Twitter when my book was coming out in America and my American publisher asked me if I used it, when we were talking about the marketing for the book, she said, "Do you have a website? Do you use Twitter?" and I thought, 'OK, I'll have a go at using Twitter because I think it would be...They think it would be helpful in promoting the book and it probably is, you know, useful to get a sense for how it works anyway and what is, you know, what might be being said about me and my book by other*

people on Twitter'. So immediately, it was to do a kind of weird, sort of promotional work for the book and then I just carried on with it and use it for a much wider range of things now than just initially the book stuff." [5L-FAH-28]

This academic started experimenting with Twitter for her book promotion after being asked to do so by her book publisher. They both seem to agree that Twitter could mediate as another way or tool in marketing strategy as another form of a 'word-of-mouth' to circulate the information. This could also serve as a venue for receiving and giving feedback about the work being publicised. Similarly, it shows that Twitter can serve as another web-based service platform that offers people a means to introduce their new products to a global market and potential readers. At the beginning, she adopted Twitter with uncertainty and seeing it as an unnatural commercial platform. However she expressed later that she made good progress with it by exploring diverse ways of using it. This may imply that through some period of exposure and use, she began adapting with Twitter and adopting for commercial use.

4. Conference activity

In addition to communication and sharing of research, Twitter has also been increasingly used in conferences, often acting as a 'backchannel' for the academics to communicate about their research work and to share information about an event through 'live tweeting' during the conference to participating and non-participating audiences (Ross et al., 2011). The use of Twitter at academic conferences offers some academics an interesting atmosphere and new perspectives on both the conference experience and Twitter mechanisms. One professor commented how his initial doubts about Twitter changed when he attended a conference and has been involved in Twitter while at it:

"Well, I knew Twitter was there because I watched television programmes that would say hashtags #bbcqt and I was thinking 'what the heck is this all about?' I went to a few events (conferences) where people were tweeting and I thought 'oh gosh this is really interesting, I want to learn how to do this', so' because I am a scientist' I had to work out a way of beginning, so I decided to tweet on the 1st of January 2011, and have a start date and on the second of January, when I was at the conference, so on the 1st of January I tweeted 'I am going to a conference'. On the second of January I was at a conference and I tweeted about the conference and then by the fifth of January, I

tweeted about things I had read I thought were interesting, like papers, and it is just slowly developed from there". [1P-FMDH-28]

The professor became aware of Twitter through a program he saw in the media, which at first did not appeal to him and displayed 'scepticism' by having an initial reaction that says *'what the heck is this all about?'*. However, he had a positive experience when he attended a conference where he was impressed with the practical use of Twitter, and this inspired him to make a strategic plan to be involved in it by sharing his experiences while in the conference. He strongly emphasised his role as a *'scientist'*, which suggest that it is important for his profession to actively communicate and engage more closely with the society and professionals, and Twitter seems to be a promising tool to support this duty. He practised his initial tweet at some conferences and increasingly developed an approach that for him has become a very important part of his career. Accordingly, he was able to effectively share academic resources through the platform. This also suggests that academics gradually expand their use of Twitter once they feel comfortable with participation. Similarly one academic shared a similar experience as quoted below:

> *"I kind of got into it because I went into a conference where Twitter was being used [...] And there was a hashtag and I was curious about what was going on there and I saw a twitter wall which had some interesting comments on, so for a while I used that quite passively and just used it to kind of watch and observe what was going on rather than participate in it. And then I sort of started to see that actually it might be useful to participate in it and I thought of a few things people had said, so I kind of got into this through conferencing..."* [13UT-FAH-28]

This academic was enthused by the practicality of Twitter at an academic conference he attended which encouraged him to take his first step in joining Twitter. He was curious and interested to understand how Twitter works and so he began as a 'lurker', to find examples to follow before deciding to participate. To complete the process, he began to comprehend its value after learning from others through observation and with colleagues' suggestions.

One academic described how he began to register on Twitter for streamlining a research event held in the faculty for current students and alumni. The idea of interacting and exchanging research ideas and information for the 'mini conference' with current and former students in a virtual experience has produced a demand and led him to create a private Twitter account to monitor the activity. In a similar context, Twitter has become a choice for students and faculty members to coordinate and connect with each other. This is triggered by the pressure on academics to try to make multiple uses of the same content related to teaching, research and outreach for discussion, all in one place. Twitter helps here by coordinating and connecting with multiple audiences as narrated below:

> "*It was in a teaching context and it was basically that we were...holding a symposium in the school. We wanted to video-stream that event so that people that weren't in the school could watch it and that was largely because there was demand from some students and former students for us to do that and in order to participate in that, it seemed necessary to have my own Twitter feed, so all could watch, listen and participate. So I first set up my Twitter account in association with that and then, not long after, I think we set up the School of Architecture Twitter feed as well which I run, so yeah, they both came along and I've...and so quite quickly I was kind of being very clear about what was information that should go in the University Twitter feed and what should go in the personal one and what overlap there might be."* [23UT-FSS-28]

5. Involvement in social media research

There are an increasing number of scholars from various academic disciplines that show interest in researching social media and its uses. Therefore, it is unsurprising that it can be seen in this study that academics are also discussing the use and effects of social media and technologies in various ways relating to the use of Twitter. One academic interviewed was involved in using Twitter in order for him to conduct his research study. As he commented:

> *"Because of research, because I'm starting to do research involving research on the use of social media and ICT's in claiming citizenship in parts of Africa. So if I'm starting to work on that as a research topic; I'm starting to learn more about it… I started to do research about it."* [8RF-FSS-28]

4.3.1.2 Teaching (Collaborative initiative)

Research and teaching are two intertwining functions and aspects of academic life that need to be working with each other. Hence, it was seen in this study that Twitter can also be used in teaching in addition to research-related activities. One academic explained that her participation on Twitter was led by a collaborative effort to conduct class activities using social media. She indicated the idea was to enhance teaching practices through sharing of academic information with students, thus, influencing her to adopt Twitter for her work. As she commented:

> *"I met a colleague who was running the third-year core module about uses of history which is all about public history and the communication of history to the public so, for example, thinking about history in the news, history as it's used by politicians, history in the media, all of that kind of thing (…) Twitter was something I'd thought about using before but never actually used it because I was using digital media for teaching and things so I just haven't really got into social media. So I used digital resources but not social media resources. So what we thought we might do for that module was revamp the module, trying to make it more... I guess you'd say 'relevant' to the real world, so rather than thinking about theories about public history, think about how it's actually being done, and we decided to set up a Twitter feed where we could tweet news stories relevant to it. So reviews of history films or examples of politicians using history or that kind of thing. So I joined Twitter because we set up this Twitter feed and then I got interested in it after that. So we had an official account but then we also had individual accounts."* [4L-FAH-28]

The academic above was planning to enhance a new class syllabus using social media and felt that Twitter was deemed suitable. By maintaining that the subject she is teaching is relevant to real world practice, she decided to make use of Twitter as their lessons such 'communication', 'news' ,'media' coincide with the concepts of Twitter as a social media. They used Twitter as a medium to feed students with relevant academic information and course materials and to encourage students to use Twitter with purpose, which is to learn and explore how this subject is being communicated by user in online. Another factor that seems to trigger her participation is her long-term experience and skill in using other 'digital media' for teaching. Because she is already adept in using digital media as a tool for teaching she was further encouraged to explore other social media applications for such purpose. In addition, a colleague support encouraged her used. Based on her positive experience in using Twitter in a specific classroom activity, she was driven to create her own individual account.

4.3.1.3 Research discipline

In addition to the perceived effects of Twitter and other technologies on individual research and teaching efforts, some academics in this study also found that their discipline had a strong relationship with exploring technology. This relationship is seen in terms of the ways in which using relevant technology practically can help enhance ones understanding about the meaning of a specific research discipline. For instance, an academic discussed that she adopted Twitter in teaching because some of the courses that she teaches are strongly connected with the application of digital technologies, thus:

> *"Social media is one of the main thing that I teach about so because we do lots of work in analysis and social media so effectively you know a lot of stuff is working with social media, so for example practical stuff would be them using social media to do things. I think I certainly with Twitter I felt the need partly because of the field that I work in you know to be up to date with this thing."* [12FR-FOE-28]

In this digital era, to be engaged and connected with current activities in a research field is an advance and significant strategy to stay informed. Therefore, being able to access updated information in the quickest way makes one academic feel that Twitter is the best medium to gain a wider view about the disciplines, especially for her and her students:

> *"I think the topic was that, where social media is very valuable is, the stuff that has kind off it caught awareness or has it links to things that are going on now so I guess one of my main interest is Medical Law and Ethics and you know you can't look at the news without having idea on Medical Law and Medical Ethics story going on…You know everyday something new I think that's connecting to the outside world, kind of introduce reality and real situation into you know practical application you know the areas is changing so frequently and the development of science so naturally you need to have your finger on the bottom, you need to know what's going on for, you know for teaching, and for research."* [24L-FSS-28]

In another instance, a young academic felt that a strong relation between her research area in terms of the theoretical concepts in literature and the possible application of these theories on the interaction going on in Twitter:

"My job title's Lecturer in Nineteenth-Century Literature. So my research, sort of area, is late Victorian life writing, so autobiographies and biographies. So, I'm quite interested in representation of lives which is why I find Twitter quite interesting as well because it's people representing their lives." [2L-FAH-28]

4.3.1.4 Management and administration role

Academics also discussed how their managerial roles affected their decision to consider adopting Twitter. A few other academics explained their circumstances having a lead role in an organisation felt the need to find an effective and efficient way to reach particular groups that they could work closely with, and so they chose Twitter as a platform for this. These roles are indicated in the excerpts below:

"(…) I am in the role of Director of External engagement, I kind of felt that I needed to be on Twitter in that role." [14SL-FAH-28]

"I made the decision that I had various things that I used Twitter for. I used Twitter because I am a Director of Research Exchange Art in the Social Science Faculty, so it is about community research, communities and research partnerships." [15P-FSS-28]

"The reason for doing it (adopt Twitter) was that I am currently a President of an International Organisation and there is a federation of language teacher associations […] [27P-FSS-28]

The three academics above held socially responsible academic posts that demand engagement with students, other scholars, local societies and government bodies (e.g. schools, charities, agencies) and the international community in delivering their institutional goals. It seems that they continuously seek for strategic tools to support them in working effectively. These academics associated their influential role with Twitter, as they believed that Twitter could complement part of their communication duties in academia.

In contrast, holding an ICT specialist post in the department may be seen as an influencing factor for an academic to adopt digital technologies such as Twitter in everyday tasks. As an ICT specialist, specifically social media coordinator, it is important to explore various means to carry out her job description and title:

> *"I'm the department's social media coordinator. Originally I was put in charge of running the blog and it grew. Though my title is technically just on the list, it says' social media'. I've added the 'coordinator'. I don't really have a title. Social media king, I don't know. So I'm kind of coordinating the department's social media strategy..."* [4L-FAH-28]

4.3.2 Social influences

Social influence, in this context, defines the behaviour of academics to adopt Twitter when it is caused by other external influencer such as local peers or students, as well as institutional services such as the faculty or department. Here, the academic is not necessarily driven by the use and benefit derived from using Twitter, but their participation is based on how these social influences have been attracted them to open Twitter accounts. In the data, 17 out of 28 participants stated that they were encouraged to use Twitter based on the 3 different types of social influences as discussed below.

4.3.2.1 Peer-pressure

A few academics (2 out of 28 academics) specified peer-pressure as one reason for being on Twitter. In this context use was driven by interest to be in the same group of colleagues or those having similar practice or field:

> *"I can't quite tell you when; it will be a couple years ago, maybe three years ago and it was peer pressure, so (name) who is the Pro-Vice Chancellor for Research tweets, (name) who is a friend of mine and a Professor in Cambridge who tweets, and a couple of others and then I did quite a bit of radio work, so all the people from the Infinite Monkey Cage all tweeted and so I just got sucked into it. I kind of joined in. Basically (name) uses it to advertise her blog and then (name) and (name) from The Infinite Monkey cage radio program they use it, I mean (name) just uses it kind of, just a stream of nonsense. And all of the people in the Science Communication, Science Policy area they all tweet, so I just kind of join in."* [3P-FOS-28]

The academic above is a professor and holds a high position in the university. In a way, he felt some pressure to join Twitter and eventually engaged in it because of the fact that many of his colleagues who hold high positions and those in the same disciplines. In addition, even his close friends that he worked with are on Twitter, hence feeling pressure to join in. It appears that he did not want to be 'left out', especially because he held a good position and worked part-time in a media-related field which made him create his own Twitter profile. It can be seen that his decision was solely based on the idea of peer acceptance if he joined them on Twitter.

4.3.2.2 Influence of others

In addition to the influence of close friends and colleagues as a social influence, the abundance of positive discourses shared by colleagues, students or close members of the institution about Twitter and its benefits also contributed to this pressure to join in. Four out of twenty eight academics mentioned that they became aware of Twitter by people's recommendation. As one academic revealed:

> *"One of our former students who left 4-5 years ago, discovered Twitter and that must be in 2009, he left here and went to work for sky news, a big broadcast organisation and he discovered that this was really, good way of getting information out there. It was only a couple of days he rang me up and said look you really ought to give this a chance, you got to try it. So he made me, talk me through opening an account and so I did, and I thought what would I got to say, and it just so happen that I got a book contract around that time. So I thought, well I tweet I got a book contract so I did, about have an hour later I got to tweet back from somebody at London School of Economics saying, who I didn't know, perfect strange well I knew of, saying 'Oh you might find this report really interesting and I thought 'Wow that's amazing! And you started to think I can see how this can be useful."* [17P-FSS-28]

This academic was mainly persuaded by her former student, who claimed he found success using Twitter by describing the benefits of it in relation to media work and broadcasting information. She was, then, convinced by the idea and made her attempts on Twitter, which turned out to be an encouraging experience.

Another academic discussed how she was influenced by her colleagues:

> *"I think the reason I started using it was because colleagues has talked about it as a good way of getting access to information from a work point of view*

and keeping up with what is going on in the field. So that is why I think I started using it initially." [12FR-FOE-28]

Clearly, the academic above was interested with the idea of keeping updated with information in her academic discipline. It seems she accepted the suggestions based on colleagues who found the value of use. This shows the power of peers' influence in opening up a Twitter account.

One academic described how the idea of using Twitter was encouraged by his partner (an academic) who uses Twitter for professional use. Because they were in the same career path, she could see herself applying and replicating the use of Twitter in similar way and perceived it to be beneficial for both of them:

"My partner uses it quite a lot I don't think he uses it in the same way that I do he a poet, so he use it kind of try to promote different events or to promote books or to network with other poet he doesn't use it very much in his teaching although all of his students follow him of course, out of curious. Yes I think it was probably because of my partner using it." [16L-FAH-28]

4.3.2.3 Encouragement through department initiative

As seen in the previous discussions, joining Twitter was made in conjunction under the influence of peers, colleagues and partners. However, it was also apparent that departmental support, i.e. academic and administration staff, also influenced the use of social media, albeit varied between faculties and departments. A group of academics (11 out of 28 participants) in the same department discussed a consistent idea of increasing social media initiatives to encourage staff and students in their department to use it. As one commented:

"Well, the [department] has its own Twitter account […] we often retweet each other or I talk with colleagues on twitter about various things, I think as well the school is kind of favourable to the idea that we use Twitter, [because] a lot of people do use it." [16L-FAH-28]

Academics further indicated that the department contracted a learning technology specialist to support the social media activities of the staff and students. This indicated the seriousness of the department in integrating social media in their academic activities:

"We got a learning and teaching IT person dedicated in the School and he does help with setting up social media for the classroom and does know full of help, provides lots of support to academics across the school." [11L-FAH-28]

"I think [name] is writing department social media policy [...] in fact [name] and I am running a social media academic online identity workshop for [disciplines] postgraduate students." [4L-FAH-28]

She continued to say that there were a large number of social media users in her department, thus, she felt encouraged to use Twitter visibly, partly because of colleagues and superiors also use it:

"There are quite a lot people are on in English, particularly, are on Twitter and they're all quite active. So it's great. I never feel like it's something I'm doing surreptitiously or naughty (laughs)... Some of them are very senior. Our Head of School is on Twitter, so it must be OK." [2L-FAH-28]

These statements show that the department was taking a serious step to embrace social media use through cultivating awareness and that this motivated their staff in using Twitter. This shows that influence does not just come from other individuals, but also through a collective ways.

4.3.3 The need for a digital profile

A majority of the academics (20 out of 28 participants) agreed on the importance of creating a digital profile for any group of individuals nowadays, and this action includes them as professionals living in the digital age. One academic immediately joined Twitter after she was shown the benefits of creating online presence at a professional development course for early career academics. This workshop provided an important perspective for young academics like her regarding the value of using the web and social media for their career progression. She expressed the view that establishing oneself as an academic is important, and this can be done by being 'searchable' and reachable by journalists and professionals through a 'media profile'. This step is deemed helpful for career advancement, as she said:

"As a new academic you know that having a media profile and being open to talking with... the media is really important...and one of the things they're

> *saying is that, if you want to have any contacts or media connection, you need to be findable, you need to be on the first page on Google when somebody types... so and they said blogging and tweeting, you know, doing all about research which get you to be visible, so I spent time doing that…"* [24L-FSS-28]

Through her statement, it is shown that having a digital profile may help new academics to increase visibility of their academic biography including their publications, research projects and academic interests. Increasing visibility is important for academics for professional and personal development; one effective and efficient way to do this is through Twitter and other social media networks.

One unique narrative from this study presents an instance illustrating Twitter involvement of an academic, who even hired a publisher to run his Twitter account to be updated in the social media world. This academic emphasised that external pressures encouraged him to have a digital presence:

> *"Twitter's like the outside presentation […] it's just necessary. It's very hard to be not on Twitter now and it's rude...People ask you, 'Could you tweet something?' and if you say, 'I can't because I'm not on Twitter', they get upset, whereas I can say I can but I actually ask her (publisher) to do it and she does it, so yeah!"*

His explanations suggest that it is important for a career-oriented person like him to have an online presence on Twitter to meet people's expectations. Hence, he subscribed to it and enhanced his online presence by hiring someone to manage it even without physically being involved in it in order to satisfy expectations and presence.

The statement "*I want to be on it but I don't want to spend any time doing it!,"* indicated his interest in having a digital profile but he finds that quite hard for him to balance it with other academic commitments. This explains the reason why he used a liaison to complement academic presence online and offline:

> *"I can tweet it now but it reduces how much I actually have to do if I do it this way and it stops me becoming involved in that kind of thing [other duty]. So for me it works this way."* [9P-FSS-28]

4.3.4 Need for news and information sources

Based on previous research, it has been recognised that Twitter is one of the popular social media services that provides diverse types of information. In the data, 12 out of 28 academics mentioned that one of the main reasons they adopt Twitter is as an information resource. For example, the rich amount of information it contains made one academic join Twitter, specifically because of his interest in reading political matters being discussed online. In fact, this act exhibit intrinsic motivation for joining Twitter, as he commented:

> *"I joined it because there was clearly lots of stuff going on surrounding the general election that was happening via Twitter and I'm quite interested in politics and I got a Facebook profile as well but that obviously is kind of a bit more self-selecting in terms of the range of views that are represented on there, which is fine. I don't mind having my own views being reflected back at me, that's absolutely fine. Twitter, I think, is something different so I initially joined it just as another social network tool, just to get a little bit more information and to see what was happening in the political sort of arena. So that's when I started to use it and I hadn't intended to use it for work. I used it very much like Facebook. In fact I linked it to my Facebook profile for a little bit."* [6L-FAH-28]

His adoption through "*join[ing]… just as another social network tool"* clearly shows his steps in 'following latest social media trends', which most academics in this study similarly noted [see Section 4.3.5]. His statement concludes that Twitter and *Facebook* have different facilities in terms of information shared. In this view, Twitter is seen to be more of a public platform with a high volume of information, while Facebook is limited to a private communication space and its network is constrained by people that are mutually connected. These two differing features are seen to be restricting Facebook's information sharing, while Twitter seems to have more benefits in terms of broadcasting. Nonetheless, he comments on them together to show that both applications could support his needs by sharing information from Twitter to his Facebook audiences.

4.3.5 Following social media trends

The majority of academics (25 out of 28 academics) in this study have had experience being involved in using social media platforms *(i.e. Blog, Facebook, LinkedIn, etc.),* and were able to explore different innovations and uses. These are based on series of development and through adjustment of those adoptions based on their needs. One example shows the series of methods of adoption followed by one academic in adopting Twitter as a social media choice:

> *"Well I first signed up to Twitter I think round about 2008, 2009. It was just towards the end of my PhD. I was writing up...I'd been on Facebook for years, and I was a bit of a late adopter though of Facebook. Most of my friends had Facebook before I did[…]I did sign up to Google Plus but then nothing really happened with Google Plus and I didn't use it and no-one else seemed to be using it […] I do blog and ...that came after Twitter for me. So I was on Facebook first, then started Twitter…and then blogging came a bit later... now I see them intimately connected. Whenever I write something on the blog I tweet about it and start conversations on Twitter about it, yeah. But it went in that order: Facebook, Twitter, blog. So I don't know if that's normal or typical, I don't know."* [2L-FAH-28]

The academic above discussed her episodes of engagement on a few different social media platform based on availability and her experiences in using it. She pointed out the close connection between her Twitter and Blog use, and how these two platforms supported each other's purpose. She described herself as a follower when using certain social media platform like Facebook after she was aware of colleagues joining it, while dropping Google Plus because she did not find any value and connections among people that she knew.

4.3.6 Personal interest

In addition to the benefits that academics derive from using Twitter and other web technologies, one academic indicated that her own personal interest in exploring web technologies came from her own curiosity. Academics encountered the initial feeling of inquisitiveness when they begin to be aware of something they heard or read about or were exposed to, and observed something that caught their imagination, which attracted them to explore the technology further. As one academic said:

> *"So I might have read it in the paper […] It's probably something about Twitter in the Guardian and then I became aware of it […] and I thought well, "Let's see what this Twitter..." and then I looked at Twitter without registering and it seemed quite interesting and then I tried to...I registered and used it and thought, Yeah."*

She described her personal motivation to try Twitter because of a combination of other factors such as her claim to be an advanced adopter of technology applications compared to colleagues. Additionally, this advancement is also connected with the desire to be updated in following social media trends and communicating her experiences. As she commented:

> "*I'm always the one ahead [using technology] in relation to my colleagues*" [...] *In the same way, that when I became aware of Facebook, I signed up to see what it was like or LinkedIn, to see what it was like. I was just curious to see what all the fuss was about with Twitter."* [7SL-FSS-28]

This above statement suggests that the academic has characteristics as an early adopter as discussed in Section 4.2, which is also associated with her curiosity.

4.3.7 Beliefs about technology

Technology seems to be embedded in most academics lives today. When discussing technology use in general, academics are often seen to be familiar with the use of technologies and all responded (28 out of 28 participants) that they have used a lot of technological applications either for personal or academic purposes. They perceive that technology is considered to be effective in supporting academic work in terms of delivering and disseminating academic resources:

> *"Oh, that's (technology) really important! Well, I mean, it enhances and enables us to do lots, and get access to more resources than you would otherwise be able to get, and you can also disseminate, share materials much more effectively than you would imagine and it makes life very efficient..."* [26P-FAH-28]

> *"I'm pretty open to it and I have used it a lot. I mean, we assess a lot of our modules through online learning environments but using, virtual learning environments rather"* [11L-FAH-28]

> *"I think technology's increasingly important. I just think because of the access to archives, access to Google, books, archive.org. All of these things do make my life significantly easier than it would be if I had to physically go and consult all of these books every time I needed them. So yeah, the technology has certainly changed the way that we do History a lot."* [4L-FAH-28]

These excerpts reveal that academics have positive attitudes towards technology. Thus, this principle may possibly have motivated academics in this study to take on Twitter as their choice in communicating relevant academic information. This attitude can be related to past experiences with other software applications, as well as their own initiative and departmental demand for staff in using digital technology applications and social media (e.g. Social media, MOLE). In return, these experiences, attitudes, and initiatives influence their decision to adopt social media for academic work.

4.3.8 Summary

These findings explored the initial drive for academics to initiate and maintain interest in joining Twitter. It can be summarised, then, that there are significance variables influencing the intention of academics to adopt Twitter. Consequently, these variables are mostly interlinked and interconnected to each other. Academic practices that include research, teaching and management are among the main functions of the respondents that indicate influence to adopt the Twitter platform. Nonetheless, other elements such as own perceptions and social influences play such role to support their decision. It is revealed that academics take the initiative, whether from individual of partnership factor, to utilise Twitter for their academic work. This effort suggests that academics attempt to explore technologies such as Twitter to discover its uses and whether it can be valuable for their everyday endeavours.

4.4 Process of joining Twitter

After presenting the attributes of Twitter users and the drivers of joining the network, this section explores the general process of adopting Twitter according to interviewees' descriptions. The common behaviour experienced by academics was to view the Twitter streamline, investigating its potential, and progressively changing and adapting their participation level and practices. These academics did not formulate any strategy to adopt Twitter, rather, their trajectory of involvement seemed to be based on a series of trials and experiences through which they gradually were persuaded of its value based on experience. Academics expressed mixed feelings towards Twitter with statements such as 'interested' 'excited', 'curious', 'sceptical', 'dubious', and 'strategic', with some joining because of a particular agenda or influences from derived from other factors as discussed in previous section 4.3. In contrast, others were joining without clear aims but just to explore. Often they started out by being rather ambivalent or sceptical, followed by being 'lurker', conducting tests, and finally making a decision to adopt and continue its use.

4.4.1 Initial Scepticism about Twitter

Being sceptical was a feeling expressed by some of the academics (13 out of 28 participants) both before and after they subscribed Twitter. This referred mainly to academics who are having feelings of doubt or uncertainty about how they could use Twitter effectively. A number of examples of doubtful feeling were identified, as follows: a lack of understanding regarding its use and potential; concerns about what to expect from their participation; a fear about how to deal with different users in the Twitter community; and lack of trust in the security and privacy of the service. These areas of concern, among other factors, led them to be sceptical about using Twitter and the variety of tactics required to handle it. Even though some had registered during the early stages of Twitter, it still took some time for them to fully grasp the functions and services that this platform offers because of diverse interpretations about its uses:

> *"Well, I started on Twitter maybe three years ago and I was very sceptical at first because in the early stages of Twitter there was that perception that it was all about people showing off. You know, you remember the classic reference to Stephen Fry being stuck in a lift. That made it sound very narcissistic and egocentric. You know, who on earth would be interested in somebody wittering on about what they're doing hour by hour?"* [10UT-FSS-28]

This academic, despite having been a Twitter member for quite some time, was not very keen to get involved because of some negative perceptions regarding the issue of "showing off" that he saw from particular individuals on Twitter. He was reluctant to use it as he perceived that the kind of person who uses Twitter is quite a show off. Thus, he didn't want to be classed in that way. Moreover, this participation is affected by his judgement on how people could use the service in a more effective way.

Another academic felt disinclined to use Twitter because of his lack of understanding of how it worked. He assumed that it was used by others to share personal information, and he felt that this seemed to be uninteresting and trivial for him. Because of this, he thought that it would not fit his needs as an academic. He further stated that:

"It was interesting actually because I kind of resisted using Twitter for a long time because I thought that I didn't quite understand how it worked, and I didn't really get what Twitter was about, but then I kind of took a harder look at what people

were posting and I kind of thought I don't want to know what somebody is having for their dinner, it doesn't matter to me, you know, that somebody is walking their dog, I just don't need to know that (...)" [13UT-FAH-28]

As similarly noted by another academic:

> *"I was very sceptical, why should I be on Twitter? Why should I use this platform that most of people thought or would just say 'Oh I am really tired, oh we can have a cup of coffee now!' and all that sorts of stuff. Which is kind of Facebook had always been."* [17P-FSS-28]

The academic above highlighted her resistance to adopting twitter because of the perception or a common idea of using social network platform for socialising purposes and discussion of personal interest.

4.4.2 'Lurking'

The feeling of uncertainty on the status of innovations or a person's lack of confidence in making useful contributions lead some potential adopters to observe the experience of others before joining Twitter. This act is called 'lurking', which refers to the act of joining an online group and observing what goes on without actively contributing in the network (Nonnecke & Preece, 1999). A large number of academics interviewed in this study (23 out of 28 participants) admitted that they were behaving as 'lurkers' during initial participation in Twitter. This may be the result of scepticism or a lack of capability in using the platform. One academic felt negative about using Twitter for quite a while before eventually engaging fully in the network:

> *"I started the account quite a few years ago, three or four years ago, but then didn't use it for a long time because, to be honest, it took me a while... to quite work out what the point was. I looked at it and I watched it for a bit and I was like, 'I don't really understand what this is adding to my life in any way."* [18FR-FAH-28]

One academic declined to contribute in the discussions during the initial stage of his participation but showed interest in reading information shared by others afterwards. So, theoretically, her activity can be associated with characteristics of being a 'free-loader' or free-rider as commonly term in Internet context. This type of online user gathers information from others but does not give any inputs in return (Muller, Shami, Millen, & Feinberg, 2010, p. 1) This behaviour was seen in some academics, stating that:

> *"I saw a Twitter wall. It had some interesting comments on it, so for a while I used that quite passively and just used it kind of to watch and observe what was going on, rather than participating in it."* [13UT-FAH-28]

> *"So when I started using it I used it very much only from a consumer point of view, and so it was only reading data on it and not really posting."* [12FR-FOE-28]

The act of being a passive observer is part of the common behaviour of users in online communities. In here, these users position themselves as 'lurkers' by watching and witnessing other people's activities but not reacting directly by tweeting. This action is due to insecurity, being inexperienced and wishing to gather more information before fully involving himself in the network (Nonnecke & Preece, 1999).

4.4.3 'Trial and error'

'Experimenting' was a phrase used by most of the academics (24 out of 28 participants) when describing joining Twitter and immersing themselves in technologies. In order to position and adapt oneself on the microblogging platform, the stage of experimentation helps people to gather information about the environment, its functions and the ways to act and behave within the network. Academics claimed to have vague aims in their Twitter use and revealed that they used 'trial and error' in the process of developing their participation. By engaging in this process, academics began to develop practical ideas about how to use it properly in process. One academic described her series of attempts to use Twitter as follows:

> *"I didn't probably know how to use twitter… Anyway, I had two goes, the first time I used it I had no idea. That was like 2009 or something; I couldn't do this and then I gave up, it just didn't work. A colleague told me about it so then I thought 'Ok, I will try this'. And then, I don't know, there was a technical problem and I thought… 'I can't be bothered to fix it'. So then I started again… probably in 2011…, and I thought, well it's kind of useful because we started to think about social media in the school and I kind of*

used Facebook and it was a way to find out about things that are going on in the field as well as picking up news and that sort of thing…" [26P-FAH-28]

This academic encountered difficulties during her first trial of Twitter, as she could not see its value at first; and when her Twitter account malfunctioned, it "led her to give up" for a long time. However, she changed her mind and started to use it properly with support from her department social media initiatives, as highlighted in Section 4.3.2.3. This immersion was coupled with her previous social media experience such as the use of Facebook. It seems that academics tended to relate their Twitter use with their previous social media adoption [see section 4.3.5]. This may suggest that familiarity with other social media has led a user to explore new tools. Further, it would seem that some academics try to adopt Twitter on their own initiative, but serious use of the network was only because of influence of other people.

Another academic reported experimenting and observing other people's activity, [lurking] with the platform in order to explore its potential use before fully immersing themselves and fully adopting Twitter, as shown below:

"When I first signed up to Twitter, I didn't use my name… I had an 'at' name which was 'X', my initials, but it wasn't my name because I was very suspicious and dubious of Twitter. I didn't know what it was; I didn't know how it worked […] I didn't feel any pressure to use it at all because no-one I knew was on it actually and I wasn't really using it properly. I wasn't tweeting, I was following a few people... because I was just kind of putting the feelers out. What is this? What's it all about? […] It was probably after I finished my PhD and I had signed up to a teaching qualification in e-learning and we were using online discussion forums and it was in those sessions where we were talking about online teaching that I became a little bit more open-minded about what Twitter could be useful for. So I renamed myself on Twitter with my proper name and then started actually tweeting regularly. As I became more confident with it, as soon as I put my proper name to the handle, then I think I became a bit more self-conscious about what I was saying. And then, when I became more active in using it and when I began to think more critically about its potential uses in academia, particularly as an early careers researcher. Then I started to feel a bit more pressure, particularly as it became more popular with early career researchers as well. There's this community of early careers researchers on there who are talking

about their research. I think there is a little bit of um... not, maybe a sort of undertone of peer pressure between early... and this is early career academics, rather than those who are in established posts, I think, to promote their activities, to promote their work, which is why, and I don't actually have any problem with self-promotion. I think if done in the right way, it can still be very collegial and it can be about sharing. […]Yeah, it makes me a little bit self-conscious about it. I don't feel pressured to tweet. I enjoy doing it: I do enjoy doing it, yeah." [2L-FAH-28]

The academic stated that her participation on Twitter was about 'putting the feelers out', meaning to thoroughly test the features and environment of Twitter before taking further steps. She did not use her real name during this 'test period' and created a 'fake identity' to remain anonymous due to privacy concerns. Her distrustful feelings towards Twitter gradually changed once she started to receive information and gained a clearer understanding of its value from online learning class she attended. This process established the legitimacy of Twitter for her and not to worry about privacy concerns as she saw that it is already being used as an educational platform. She became more serious in her Twitter activity when a few colleagues joined in. This shows that online participation can be influenced by the full awareness of its benefits and use, as well as the participation of people partaking on the platform. A user becomes more confident when they see members in the same community who are familiar to them. Once she confirmed her membership and started to use her real name, she became mindful of her tweeting activity as she also considered this as an act to protect her 'academic status'. She developed a slight feeling of 'peer-pressure' in the community which is made up of young academics like her, so she had started to follow the lead. She described how most people would have issues with 'self-promotion' or 'showing off', but she turns it around and presents it as legitimate, and even altruistic. Her initial worries were later replaced by enjoyment once she gained understanding of the process and its use. Nevertheless, she still seemed to show ambivalence about using Twitter.

A professor described how his perception about Twitter to be just another social networking platform, which changed when he started to observe and eventually tested it. He immediately identified that Twitter could feed information to people with minimal effort and in the fastest way possible:

"I was aware of it but I didn't think it was for me, until I took a look at them and then maybe it is for me because I like the fact that if I put out something

new item on my web page to do with [discipline] policy is it relies on people think oh yes I think I need to go and look at that where is with Twitter if they following on the Twitter feed, they will then have that information immediately not after relying and have to go and spent time to go and take a look. So that is what I like about it." [20P-FOS-28]

It was also identified that support from the Twitter community was another key factor influencing his aims. He was confident using it due to positive response from people that quickly become engage with science research website that he created and integrated it with Twitter.

"When I start Twitter, I put a little link of webpage say if you want to have an immediate updates try this. And soon, a few thousand people go to the websites, and so with a fraction of those uses Twitter switch to the Twitter feeds."[20P-FOS-28]

On the other hand, one respondent of the study who is a professor decided to withdraw from Twitter. He discussed reasons to quit mainly because of his worries of tweeting inappropriate language and facing issues with time:

"I never really started. I started for a couple of days but the problem with tweeting is you've got to be very careful about what it is you tweet...to stop myself getting in trouble. It would be very easy to tweet something which was illegal, like slander or libel, saying something bad about somebody. Tweeting's the same as publishing so you need to be careful about it and it's almost too easy but it's mainly because I think academics should think more carefully about what they're writing and Twitter it's just too instant […] it's also to save time, well the problem is that people start emailing you directly if you do Twitter, so you start getting people and they want you to follow them and you know, you could end up wasting an hour a day of time…and then you get requests to join people's friend groups or Gmail Plus, GooglePlus groups or LinkedIn things, all kinds of stuff…I mean I currently probably spend between an hour and two hours a day dealing with immediate emails and other things...because one problem of being an academic is they put your email address up, so you get lots of spam and other things… so that's wasting enough time already, you know, before doing anything else." [9P-FSS-28]

He explored Twitter for a short time and immediately found issues about its use. He indicated Twitter's lack of communication features. This is because of its mechanism that only allows a small number of characters that tends to draw people to send tweet quickly, and possibly use inappropriate language that may create disagreement. In this way, he strongly felt that it was important for people in the academic profession to be vigilant. He emphasised another issue of receiving a chain of invitations to join other social media groups and the problem in managing electronic communication loads. This description may imply that this academic has tight academic routines that gave him the overwhelming feeling to manage his communication messages. This issue led him to reduce the current problem by discontinuing using Twitter.

4.4.4 Developing participation for professional use

Some of the academics used a similar phase of an interval or pause after signing up to Twitter. This phase included moving from being a non-active to an active user. Similar reasons for them being less involved were identified in previous sections including feeling sceptical, lacking knowledge in fully utilising Twitter, trying to adjust with its use, technical and features issues, security concerns, and community influences. Thus, the next step in their pattern involved the transition from inactivity to full involvement. That is, once the academics were able to recognise the type of activity that they intend to carry out on Twitter and found value of using it, their practices switched from non-active to active use. They also found an aim of using and decided to develop a professional membership on Twitter. Twenty seven out of twenty eight participants reported that they started to develop their Twitter use:

> *"I first started using it, I don't actually really remember to be honest but I know for the first couple of years I didn't use it very much, although I had an account and then probably about three years ago I started using it more actively (…), I mean, I didn't use Twitter for any kind of personal stuff until more recently, but now I have started using it additionally for work based stuff, more out of personal interest. So that changed my use of it […] I started using it actively to push information as well and share stuff, and I use it a lot more now because of more people use it now than when I first started using it; not many of my friends were using it then, so I was following kind of technical things and, things to do with work; but lots of my colleagues and lots of people I knew wouldn't use it, so it was only useful in the sense of*

finding out very general types of information rather than, you know, who is doing what in my field very specifically." [12FR-FOE-28]

The academic who narrated the above experience had a 'long gap' with Twitter before becoming an active user. She described how her limited approach to Twitter at the outset was mainly influenced by the limited number of colleagues in her area of interest who were on Twitter. However, her involvement increased when more of her colleagues joined. Her statement suggests that social connections with people, such as friends, aid them to further engage in Twitter. She further explored the platform and tried to add to her current use of sharing social interest with posting academic materials. This shows that users become more active in the network once they have developed firm practices on Twitter.

Other academic discussed that he initially started to use Twitter for social involvement but later developed participation for professional purposes.

> *"So I didn't start using it as an academic, you know, I started using it as a PhD student following very few people that were on it and yeah, I guess I never would have...I think initially I thought, you know, it could be quite useful to use in teaching but very few people used it so...I used it very much as a social...It's always been for me a social tool primarily and not a work tool. So I've used it for such a long time. I think had I started using it in 2010, while doing lots of teaching, while being a professional full-time academic, 2011, then maybe I would have had a different approach and attitude to it I think.*" [11L-FAH-28]

He signed up on Twitter in an earlier period while there were less people adopting it to imply that he is an early adopter. Although he was interested in using it for teaching, the idea did not materialise because of the barriers relating to the number of people using it. Because he saw that there are less people in his personal network who joined Twitter, it became a factor to discourage him to explore Twitter for learning. However, his approach was reformed once he became an academic. This seems to suggest that the users' position, i.e. holding a 'professional career' or being a 'student', may also shape their interest in relation to their use of Twitter.

As discussed in earlier Section 4.3.5, some academics started Twitter by following the sequences of social media innovation. Most academics in the study separated their used of

Facebook and Twitter, and viewed these two platforms as very different types of tool. For example, one academic initially integrated Twitter with a Facebook account and deciding to detach them by categorising Twitter for professional use and Facebook for personal one.

> *"About six months later I completely changed the way in which I used it so if you went back to my early tweets you'd see politics and stuff that was related to Facebook and now I use it pretty much exclusively for work because I use Facebook for friends and for the sort of personal social life and I use Twitter as my work account and I have completely separated them now so Facebook's my sort of social life and Twitter is my work life."* [6L-FAH-28]

4.4.5 Summary

In essence, the process of adopting Twitter is complex. It is not a direct application as described in the various instances in this thesis, and likewise, it is not seen as a single event. The decision to adopt may happen as a one-time event, but the routes that academics go through in adopting Twitter do not take place in a vacuum. Academics encounter diverse ways of transition through the course as described. This trajectory includes awareness, scepticism, observation, experimentation and decision. Adopting Twitter involves other prompting internal and external factors such as awareness, social influences, characteristics of Twitter, academic cognitive and emotional factors, and belief, as well as perception and attitudes towards Twitter. These factors develop over time, which in turn influence decision. It takes a little while for these academics to find their 'voice' in Twitter. The model in figure 4-1 shows a typical process of Twitter adoption of academics in this study. However, this is not a prescriptive model, which means academics could experience their Twitter adoption at different stages between phases 1 to 3. For example, someone might remain a lurker, or return to lurking after a period of trial and error involvement.

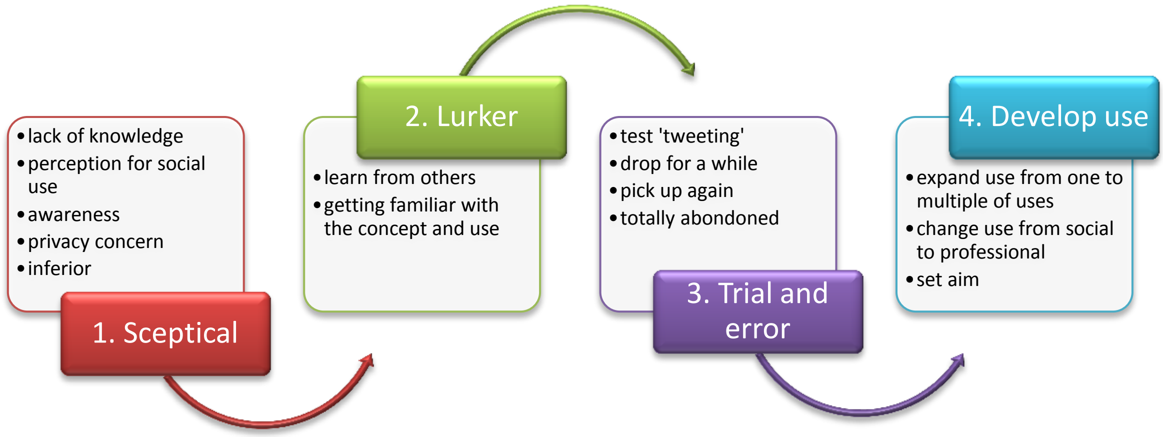


Figure 4-1: Stages of joining Twitter

4.5 Overall summary

This chapter provides an analysis of the immediate factors that influence academics to adopt Twitter in their professional life in academia. It reveals two common attributes of academics that use Twitter, namely perceived of being early adopters of technology and technological savvy. In particular, it attempts to conceptualise users' perceptions of the drivers that trigger them to start, maintain, participate, or use the network. Seven elements were identified as the key reasons to support academics intention to adopt Twitter. These factors may be driven by internal or external factors or from both. These drivers led academics to be involved in four different complex stages in adopting Twitter. This chapter covers the three stages of adopting Twitter by the academics in this study, the following chapter 5 addresses the final phase 4 (develop use).

Chapter 5 : Academic use of Twitter

5.1 Introduction

Chapter 4 has described the trajectory of Twitter use by academics. The presence of the contextual drivers prompts academics to develop their use of Twitter. It is identified that academics in this study did not have a solitary purpose for using Twitter; rather, a complex set of usages was seen. The uses are as follows: (1) Communication; (2) Dissemination (3) Pedagogical activities; (4) Building and maintaining networks; (5) Forming a digital identity; (6) Micro-breaks; (7) Information seeking and gathering; (8) Learning and (9) Coordinating or amplifying other social media and website uses. This chapter discusses details of each of the uses. Table 5-1 below summarises the emergent themes for this chapter.

Academic use of Twitter		
	Key themes	**Sub-themes**
1	**Communication**	• Give and receive support (academic and social)
		• Collaboration work
		• Public engagement
		• Civic engagement
2	**Dissemination**	• Sharing academic information, work and activities
		• Academic publishing (publications; conference; presentations; engagement)
		• Publicising activities, outreach events and services to students
3	**Pedagogical activities**	• Continues discussion and collaborative learning
		• Information and resource sharing
		• Revision
		• Training social media skills through engaging in real world activity
		• Academic report assessment
4	**Building relationships and maintaining networks**	
5	**Forming a digital identity**	• Projecting a certain type of identity
		• Self-Promotion
		• Academic diary

6	**Micro-breaks**	• Mind therapy • Discharging feelings and seeking comfort through tweeting • Filling a gap with information and recreational content
7	**Information seeking and gathering**	
8	**Learning**	
9	**Coordination or amplifying other social media and website uses**	

Table 5-1 Uses of Twitter

5.2 Communication

Communication is an important concept in relation to how academics use Twitter. In this study, it refers to transmission of information through posting a message on the Twitter space to communicate thoughts or feelings, exchange ideas in discussions (academic and social), ask questions and reply on research-related work matters. This type of communication is distinct from traditional media such as the telephone or radio, because interaction can happen between two or more persons that interact in asynchronous: where users tweet actively and interactively with other people; or where a communication is characterized by the absence of a prompt response from people in their network (Cochrane & Bateman, 2010). Almost all academics in this study (26 out of 28 participants) pointed out that Twitter is supplementary to existing communication mechanisms that they are currently using. One academic explained that,

> *"It adds to it; it reduces to some extent some of my email communication I have, but I don't think it really changes the way that I do things, it just adds to an extra dimension to them."* [13UT-FAH-28]

The statement above shows that while Twitter could be recognized as a tool that is essential in maintaining efficiency in aspects of communication, it does not imply a radical change in the way communication works for the academic. Nonetheless, Twitter is seen to complement other communication and information dissemination practices.

Further analysis of qualitative data revealed that the informal communication being practiced on Twitter by most academics allows them to bypass the typical formal nature of academic language and promotes better ways to connect. As one participant commented:

> *"Good way of informalising academic discourse, which can be alienating and yeah, sort of overly formal and too much really, sometimes, and Twitter can humanise what can be a very robotic process I think, which academic discourse can sometimes be. You know, purposely misleading or...well, not purposely misleading, but purposely dense, and because [of] the concise nature of Twitter and because of its instantaneous nature I think it can be a necessarily loosening of that which is potentially quite progressive."* [11L-FAH-28]

Here, Twitter is seen to exude an atmosphere that is more encouraging than the traditional formality present in academic discourse. With Twitter as a platform for academic discussion, participants are able to share ideas and raise issues in a more informal way that could be easier to understand without the stiffness present in formal academic discourse.

5.2.1 Give and receive support (academic and social)

Several academics stated that communications on Twitter often gave them social as well as academic support, which they found to be particularly important to their academic career. The support given and received is seen to be helping to boost motivation among the academics. One academic gave an example of this:

> *"Some guys in London had commented and asked a question and I replied, and then somebody else… in Harvard joined in, and we had this conversation and… I think it went on for about half an hour or so… about genetic testing and whether people should be able to make decisions about it. It was really cool! By the time I got to work I was all enthusiastic about research and ideas and thinking about things and in fact it inspired me to write a book about the experiences and ideas that came out of these discussions…"* [24L-FSS-28]

One academic interviewed in this study stated that she occasionally received academic support by getting work feedback from the community of people having similar practice of *"getting book reviews or getting a conference review".* She said joining the community on Twitter made her feel more 'connected' with people in her discipline and, thus, demonstrated presence in her area of expertise by sharing that on Twitter, "*you are kind of visible to the community around what you study."* [16L-FAH-28]

Activities such as asking questions, as well as responding and taking part in discussions with new acquaintances on Twitter have inspired one academic to acquire and share new knowledge during the discussion. This discussion with the group of people having similar interests and field of expertise gives academics a warm support that they would not be able to obtain from formal academic discourses.

Another professor discussed how he felt about Twitter's way of offering transparency to measure his performance through receiving support from students, despite not having received any formal feedback from students outside the virtual world. He narrated:

> *"So I am one of the 12 finalists, what they call inspirational... […] I don't know who nominated me, but I tweeted 2 or 3 days ago, I am one of the 12 finalists, do you want to vote for me? Here's the link and last night I had a student that I lectured to in a class of 300, and I gave the lecture three or four months ago, she tweeted I just voted for [academic name] on Inspiration and Co. And she hashtags the course name so I knew what course it was, so I thought oh my goodness, I haven't even in my mind, thought that student in that class would have voted for me. So, I thank her on Twitter and I said thanks very much for voting for me because it is the polite thing to do, and then she tweeted back. I am going to get the others on the [course name] to vote for you as well. So, there's no academic merit in that exchange, but again I think it helps build up relationship that you are a member of academic staff who is interested in the students, and likewise they will be showing an interest in me, in a way. I didn't ask them to do it but it was a route way by telling me that they wanted to support what I have done for them in some way and that's kind of nice, because actually in the university and alright this is going to sound like criticism and I suppose it is, I get very little feedback about my teaching. I don't know whether I do it well, I don't know whether I do it right, I don't know whether the students appreciate it because nobody ever tells me. […] in 20 years I have never had any feedback apart from one course that we had in this building and I only know the feedback because [of] the secretary who does it.."* [1P-FMDH-28]

The statement above clearly illustrates how Twitter establishes a connection between academics and students through interaction – informal and formal – that they would not receive normally because of the barrier of 'formality' in the relationship between teachers and students. This is a support that academics need more to increase visibility with regard to their academic roles.

As a response, academics also described instances of sending a short informal message to students as a means of expressing support and continuing engagement with them. As one respondent mentioned:

> "*I tweeted last night, 'Good luck to everyone sitting their exam. Tomorrow I'll be thinking of you', and I am thinking of them and one replied, 'Oh, thanks', so there's been dialogue about it*" [2L-FAH-28].

This way of interaction between students and academics is helpful in order to maintain an easy going relationship that is characterised by social and educational discussions, in and out of the classroom.

Some academics also provided direct support that they give and receive such as knowledge sharing and assistance to colleagues working on similar fields of expertise, even if they are not formally acquainted with each other, as shown in the following example:

> *"I advise people quite regularly kind of informally who are writing articles about Mesoamerica and things like that and they often come to me via Twitter so [name], who's the historian who's on TV. He had an article in the Guardian about the Maya thing and he asked me to proofread it and I met him on Twitter. Well, he tweeted me and said, "Would you mind proofreading this article for me to check I'm not making any howling mistakes?" because he's really an Ancient Historian, not a Mayan specialist."* [4L-FAH-28]

It is illustrated by the above statements that Twitter could aid in extending support from various stakeholders in disseminating information, maintaining close communication and fostering collaboration. There are many possibilities uncovered in the Twitter use of academics in relation to academic and social support, and these can be sustained by effective interaction and communication.

5.2.2 Collaboration work

As mentioned above, Twitter helps in fostering collaboration among academics and other experts in the field. In fact, one professor decided to use Twitter in a private and unique way which he feels is peculiar to him. This academic used the platform to communicate for the purpose of work collaboration with a colleague from other place. Specifically, the collaboration is in the form of writing and producing a book. While, this manner of extending communication to initiate collaboration is comparable to a communication that happens via email, Twitter was seen as another dimension, as he mentioned:

> *"I first used Twitter in a very strange way, when it first appeared, to try to write a book with somebody. The idea was that we were going to tweet things to each other and slowly write a book, so I had a Twitter account with only one follower and that was completely private. That was my friend (name) up in Glasgow, and this was years ago before 2008."* [9P-FSS-28]

Some of the academics also described how they used Twitter as a platform to discuss research activities that led to cross-disciplinary working practices among their colleagues and other researchers. An example includes discussing funded research projects:

> *"It's a project called '[Name]' and it was funded by the Arts Humanities Research Council, involving me, [Dr H], [Dr J] and a lot of artists and poets and community members so the project title was '[Name]' which is the idea of language being protected but also about valuing language. And the project team was cross-departmental and across the university community and Twitter meant that you could create a community 'cause you could tweet about it, so we have got a [research name] project now and I just tweeted [W] and [D] and that's the whole point: a new project opportunity arises and, Twitter is a quite a good place to talk about it, and I have got a project on community of music which is also starting and I'm following the musicians in Sheffield, so it's a way of bringing together community, university partnership..."* [15P-FSS-28]

This academic positively discussed how she found Twitter to be useful for collaboration activity. She indicated that Twitter is seen as a 'connective tool' that supports teamwork, not only with their academic colleagues but also with other members of the community. This collaboration is also seen to help in the growth of a community organisation essential to have a cooperative environment.

Another example of a collaboration effort was shown by one academic through his engagement in team research with a distant colleague from a different institution, particularly in managing a virtual class via Twitter. This collaboration also opened up opportunity for her to make use of his expertise and offer feedback. In here, she mentioned the process:

> *"So he actually helped me with the class for the first hour, which was really cool, it was lovely, yea, it's a bit of a niche subject area and it's not many people who really know about it so it's quite [unusual], he does researching in restitution so it was quite nice to get you know somebody who's keen as well…"* [28SL-FSS-28]

5.2.3 Public engagement

Collaboration, participation and communication handled through Twitter extend beyond the classroom and departmental activities. It also enabled public engagement. One way of doing this was by engaging with the public to share relevant information regarding academic expertise. One professor described how he got involved in an interview with a group of pupils at a distant location:

> *"One thing I did which is quite interesting was I took part in a Twitter interview with the group [of] kids from a school in London called [school name]. And this kind of, there must have been 20 tweets that day them asking me questions, me answering and the whole thing was done on Twitter."* [3P-FOS-28]

The excerpt above shows that Twitter enables a new form of interviewing method without involving a face-to-face meeting, or even voice-based interviewing, which seems to reduce time and effort.

In another instance, one professor described the relationship between his Twitter use and his responsibility to communicate openly with particular groups in the community. Here he used Twitter as another outlet to effectively interact with the members of the community:

> *"Because I have a public profile so I am in the press and on the television, and talking about my subject in quite a major way, here is the data for the University media activity [shows report to the interviewer], so I am responsible for 8% of the university media activity. So I spent a lot of time talking to people about what I do and I just felt Twitter was another way to*

try to do that. I wanted to talk to the public but I also wanted to try to engage with students a little bit better…" [21P-FOS-28]

Public engagement and dissemination of information directed towards the community and various stakeholders are essential components of academic involvement. Ensuring effectiveness of these elements could be attained through the use of Twitter.

5.2.4 Civic engagement

In relation to communication, collaboration and public engagement, it was also seen in this study that academics use Twitter for having social conversations with their audience on certain topics that are not necessarily inherently academic in nature. As mentioned in this quote:

> *"There was an article in the Sheffield local paper about this Man of Steel statue that they want to build which I think is absolutely dreadful. I think it's terrible, an embarrassing, awful piece of public art, really terrible, and so I tweeted something about that and that created a lot of responses and back and forth and mainly like a lot of support that people there were agreeing with me because obviously my followers are more likely to agree with me. That had quite a big ripple effect, not that it changed the course of action because I think this is still going ahead […]"*

Asked further about how she felt about the social conversation that happened, she replied:

> *"It was still quite nice to see how you connect with other people."* [7SL-FSS-28]

This shows that academics are inclined to throw out opinions and open discussion with the public as they feel empowered when they gain support from Twitter followers that share common thoughts with them.

A few academics mentioned that they occasionally use Twitter to communicate problems or complain about specific events that made them feel dissatisfied on a situation. As one professor said:

> *"Well there was a problem with the WiFi on East Midlands Trains and I couldn't get onto the WiFi. Every time I went on the train, it never worked,*

> *for months, it never worked, so I tweeted, you know, "Come on, East Midlands Trains, get your WiFi sorted. I'm fed up." And the guy, the Managing Director, emailed me and then on my next train journey, they put an engineer on the train to sort out my WiFi problem. He felt that communicating the problem with the services they provided within the organisation is quite useful, e.g. marketing complaints, because on Twitter this type of business organisation has customers following them on Twitter and if they failed to perform it will affect their business".*

Interestingly, this professor believed that the issue was heard and resolved immediately because of his academic status, or as he had put it: *'Because of who I am.'* Twitter, thus, becomes a platform for social commentary or even a complaint desk. In relation to this, he also indicated the certain environment in the social network that Twitter can offer that is different from Facebook:

> *"You won't ... get that response on Facebook I don't think - to show that Twitter is an open sharing feature that allows everybody to see what is in there."* [1P-FMDH-28]

5.3 Dissemination

Dissemination is a common Twitter use undertaken by all of the academics in this study. This activity can be seen as part of the communication concept; however, it differs in terms of the specific activities. In particular, these activities predominantly include sharing or broadcasting of information updates via their own writing or Internet sources. This includes activities which are related to a research they have conducted, teaching matters and materials that could be of interest to other educators, or promotion of public events or colleagues' work. There are striking results found where academics shared information on Twitter purposely to generate research impact. This use was the commonest use among the interviewees as discussed in Section 5.3.2.

5.3.1 Sharing academic information, work and activities

As a networking platform, Twitter also becomes a community goes along with the concept of a globally interconnected world. One interviewee said that he had created an official Twitter group profile for an organisation that he is leading, with the aim to manage activities relevant to the group's advocacy and promote specific activities. He designed

Twitter to act as a virtual community space and for bridging between international members, i.e. in Australia, the United States, and other countries throughout the world. It was used to give support through the distribution of academic information and materials relevant to the discipline and the cause. Moreover, Twitter was also used as a platform for communication, i.e. asking questions and responding, exchanging ideas and supporting each other's work, between its members. The academic said that:

> *"So it is kind of disseminating…it is about helping national organisations to share information with one another, 'cause I find [organisation's name] directions help people share problems solutions, expertise, knowledge, etc."*

In relation to disseminating the group's messages with its members and non-members, he described their mode of communication that they previously used, which was email. According to him, email offered less interaction and sharing, while in contrast, Twitter gives a certain level of openness and public space offered that eased the development of the network. He indicated that this active passing of information facilitated through Twitter is important for the organisation's administration to gain members' interest, especially in engaging and developing the community and its members who share common interests and goals.

> *"It is because all the communication in the past has always been by email to an association office and then it depends on whether that association sends things out, some do and some don't. But on the other hand there is no way of having direct access to the teachers in the classroom so the Twitter allows that…I can build this up slowly; if the association tweets the stuff then very often the teachers will follow. If the association doesn't tweet than it just missing how things build up and people just slowly see it."*

He further commented that using Twitter not only supports information dissemination to the group in general but also the act of 'retweeting' about an organisation helps increase its visibility across the globe and over the internet. This is illustrated in the following statement:

> *"I think language teachers in the UK are a lot more aware that the national [organisation] is a member of the International federation. So it's kind of to increase visibility with that but I mean I did it myself more as a means of and getting used to it and people may know me but they may not know the*

federation so sometimes people may follow me and then I can sort of retweet things from the federation and they will see and becoming interested too. But I think in England certainly 10 years ago people, generally teachers, wanted known that this Federation existed in England and I think it is much more still there are many teachers that don't even know that there is a National association or other international learning organisations. Teachers sometimes don't associate with this, but for those that do they are aware of the national associations; they would be much more aware now that they are member of the big international federation." [27P-FSS-28]

The statement clearly illustrates that Twitter helps in the expansion of networks and the possibility of being seen by other organisations or institutions regardless if you personally know people behind the other organisations. Similarly, personal networks could also help in spreading information about an organisation by tweeting and retweeting information shared with other users.

In relation to dissemination of academic work, some academics indicated that they mostly shared their research work through retweeting links to their publications. Thus:

"I tweet when I have paper published…" [1P-FMDH-28]

"I have a new journal article out, I'll tweet a link to it!" [8RF-FSS-28]

This act extended to retweeting colleagues' work to show support and increase their visibility and impact. This use is not only for among academics and educators, but is becoming important for students as well. As one respondent claimed, sharing useful resources through Twitter, additionally contributes to supporting students' learning. One academic described the process of extending learning and dissemination to students as follows:

"I use it for dissemination of my own sort of work and things related to that, so, for example, there is a story in my area of sexuality and ageing… in the newspaper this morning about some carrier in London that appointed a sex champion for nurses to try to breakdown the taboos about sexuality in nursing… so I tweeted about this. So I use it to disseminate not only my own research but new stories or other people's research in my area. But I also I think it is a fantastic learning resource for students 'cause other people are

doing the same academic, professional work in similar areas and I think you can learn about." [25SL-FMDH-28]

In addition to the connection built by Twitter between individuals, organisations, institutions and students, research dissemination is usually seen between academics in a particular discipline. As narrated in the following statement, Twitter and other social media networks encouraged one academic to disseminate research resources among their colleagues to connect with people who have the same field of interest.

> *"A lot of the people that I sort of follow are Modernists because I am a Modernist Scholar and a lot of people who work on [research name] on a particular period use digital humanities a lot and in terms of looking at manuscripts using databases as an archive so there is a lot of sharing resources that goes on Twitter but also on email and Facebook and things like that."* [16L-FAH-28]

To effectively disseminate information notice boards are used in professional and academic organisations. In a more modern approach, Twitter is conveniently seen to emulate the nature of notice boards. As one academic stated, *"Twitter is like a notice board, you put something up and then you leave it!"* said a professor, describing his method of dissemination. He elaborated it by mentioning that:

> *"With Twitter it is exactly the same as me going out of my office and putting the notice on my notice board. If you want to read it, read it; if you don't, don't. It's not there for a reason. It is just another extension of it. I am going to give a lecture we will say [name] at the end of March and… I have got the whole production team to go and we are going to have a debate afterwards. And I will tweet, 'come and join us… on 7pm on the 22nd of March'. So [name], I don't really care whether the people read it or not and I don't care whether they turn up or not. It is just the same as putting a post on a lamp post. I want 200 people to turn up but I don't care whether it is the Twitter users or the people that read about it in the newspaper or on the university's website. On Twitter, you don't get the feedback, maybe if there was a 'like' button… I would care more."* [1P-FMDH-28]

This professor describes how Twitter works like a 'billboard' in sharing information and announcement of events that could be of interest to other people. He claimed that Twitter is an additional broadcasting medium, which is nonetheless comparable to other existing broadcast media services. As a consequence, however, he doesn't have any expectations on receiving feedback, and suggested this feeling may be influenced by Twitter's different features from Facebook, where Facebook will notify their users through the 'like' button, but not on Twitter. That could also imply that Twitter creates less anticipation of a response from users, where the information is sent out and received but not responded to. This instance clearly illustrates the use of Twitter in a purely academic purpose rather than a social one or a mixed use of professional and social talk.

On a similar theme, one academic showed evidence of how she used Twitter as a platform to promote awareness of research project news:

> *"My Twitter feed is a way of signalling stuff… We are about to get a big bid, and… I signalled that I know I am going to get it, in my Twitter feed, even though I haven't yet officially got it. Where it's a bit dodgy but it's the way of saying actually this is going to happen… to my partners because they are in the community and they need to know this is going to happen, be positive, so also community partners, so my community partners in Sheffield Museum had links with the Wakefield gallery site; a really high profile but I needed to signal that it was really happening through Twitter."*

This academic used the term 'signal' to refer to conveying information on current status or announcing updates to other observers and specific audiences in an open mode. She also reports the status of her work to the funder of their research project:

> *"My funders, I have got a couple of people following me on Twitter who are involved in the Arts Humanities Research Council, connected to the communities programme which is funding my research. And they can see what I am doing, so they can see that I am busy, and I am doing lots of work for them, you know really lots of work and this project, 'name' with the AHRC policy project quite making meaning differently… but that's quite high profile, it's for the government, DCRG, and… we are under quite a lot of pressure but we keep tweeting that we are doing it so they know we are busy…. Yes, a way of monitoring a project and I am happy about to that because I like them. The person who follows me, [name], is actually like a colleague and a friend, she is a nice person but she is the line manager for the*

project as well. So she is following my, so sometimes you can see she is seeing that I am doing the project..." [15P-FSS-28]

Because of the open interaction and diverse networking that Twitter offers, this academic felt the obligation to provide information to her sponsors and colleagues on their collaborative activity as a way to allow transparency in her research activities. This action is a way for her to demonstrate her seriousness and sincerity about her job. By projecting this transparency and character, she is able to let people know about her works although no direct contact is made with peers, the academic community, and her funding agencies. By effectively disseminating research and publications on Twitter, academics are able to receive feedback, albeit indirect, from the wider academic sphere.

5.3.2 Academic publishing (publications; conference; presentations; engagement)

Academics working in higher education institutions are almost always expected to fulfil the function of doing research and teaching. However, it is not enough to only do these but to embody these things by building a reputation. As all academics know, this reputation is earned through years of engagement in journal publication, conference presentations, research presentation, and collaborative engagements. Because of this, it was discerned from the interviews that there is a strong pressure from the institution with regards to scientific publishing and communicating research to the wider public. This pressure is strongly connected to the process of earning reputation.

Higher education institutions and ranking bodies mostly prefer high-impact journals as the main platform for disseminating research. In addition, research papers are considered to have high scholarship if presented in academic conferences. However, some academics find it hard to access such avenues because of the rigorous process and cost entailed in it. Because of the pressures surrounding this complex dynamics of maintaining research impact, other academics are looking for other venues to be visibly fulfilling the requirement to disseminate results. Thus, in finding a solution some academics chosen an alternative route which by promoting their research (e.g. writing articles, blogs) to the academic community via Twitter. Significantly, most of those who use Twitter in this was as a medium to support their academic progress fall under the category of 'early career researchers' (7 out of 28 participants).

One young academic commented that her main motivation to use Twitter is connected with the statement above, stating that:

> *"To be honest, one of the reasons to use Twitter is impact. As you know all this stuff about the impact of research excellence…so if there's something I want to be able to demonstrate dissemination then I would probably put it out though HootSuite so I then have the report saying this is how many people, this is the proportion from this country, from other countries... So if, and for my own information, so if I tweet something back, an article I've written or whatever, but also for the purposes of impact and tracking impact. […] There's an obvious kind of profile building potential of Twitter and the idea of… establishing yourself as a person who tweets interesting things, means probably that people are more likely to engage with your books or your articles or your blog posts and that sort of thing, so it does help to increase the public reach of what I'm writing…"*

Furthermore, she discussed the importance of disseminating and broadcasting her academic research to a wider audience as part of her goal of meeting the UK Higher Education Research Excellence Framework (REF)[2] .

> *"There is all this pressure to measure the impact of academic research and your departments are required to submit a certain number of case studies on the impact of particular pieces of research. It's therefore important for the department to be able to say, 'Yes, we can identify how far this person's research has been disseminated publicly' so from that point of view, in terms of professional life, this stuff generally demonstrates a kind of broad dissemination of research and work connected to your research beyond just the university academic environment. It's really important… I think it's important that a proportion of academics do this. I mean kind of the way that the rules work is that you have to... each department... so when you have the REF, each department has to submit a certain number of impact case studies explaining the impact of its research in the wider world outside of academia..."*

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[2] **"Research Excellence Framework (REF)":** refers to the Research Excellence Framework, is the new system for assessing the quality of research in UK higher education institutions (http://www.ref.ac.uk).

This excerpt shows the importance of academics being able to demonstrate their research dissemination and make sure that their work is 'publicised' beyond their university or circle. Hence, she used Twitter to build reputation through it. As defined by the LSE Impact Blog (2011), *"Impact is usually demonstrated by pointing to a record of the active consultation, consideration, citation, discussion, referencing or use of a piece of research or some form of 'digital footprint' (e.g. by looking at how often other people cite different pieces of research in their own work)".* In the process, she addressed concerns on the importance of the REF; because one of the essential criteria in this framework is that academics are required to publish quality research and be recognised internationally. Thus, in her case, she is trying to gain influence for her work through distributing her publications globally and so hits targeted audiences/scholars as a means to encourage scholars to cite her work and show the impact level of public engagement on her work. She, then, managed her Twitter account using third party clients that helped her to track and monitor her research visibility in order to reach this target. Her level of digital literacy contributed to her advantage because she is quite advanced in her early adoption and use of different technology applications.

Besides the ubiquitous concern with impact among academics, these academics pointed out the demand for assessment of research outputs being disseminated in academic circles. In matter is pointed out because of disciplinary and methodological differences between fields of study affecting impact and the way they are disseminated. She highlighted different disciplines having a particular advantage to having impact. As such, she provides an example of the 'science' background, where this area of study works through creating innovative research based on experiments. Whereas, the significant contribution of this particular science is measured in instances when they deliver a product considered to be highly marketable. She believed that this requirement caused constraint and 'imbalance' as her work is more involved with producing monographs, writing columns/blogs and books rather than producing academic journal/scientific papers. As an effect, she perceives that communicating research ideas and findings can be critically and effectively done through Twitter. By doing such dissemination is still considered as a significant exercise particularly in order to show and maintain impact.

> *"You know all the pressure is on getting the research done and delivering it, I think, in Science obviously [...] I think three-quarters of the point is the research. You can show the impact of your research through a kind of commercial exploitation of the thing you've invented or the drug that you've*

developed or whatever it happens to be. In Arts and Humanities it's often less straightforward to demonstrate the impact of research because you're looking at something that's slightly less easy to pin down, so I think showing the public range of people, showing the numbers of people who might be looking at tweets, looking at websites and buying books and so on. That's all very important [...] and it doesn't matter how good the research is if you can't communicate it. Ninety-five per cent of...Obviously if you find Richard III in a car park then the discovery itself is enough but normally it's not actually about...The research is important. It's vital, but actually the thing the pressure's on in a way is how that...how you communicate that, how you get that out." [4L-FAH-28]

Similar comments were made by another early career academic:

"What is that to do with our research as well, and we research language and literature and culture. So it's easy to translate those...Well, it's not easy but it's...you know, if you do theatre, if you do music, books, etc. it's easy to find people who are interested, in the public, I think, and also how do you justify studying English in a HE landscape, in a Higher Education landscape where the market justifies everything? So it's easy in Engineering because, you know, they build buildings. They make sure buildings stay up and bridges stay up etc. How about poetry? Why is that useful? Why is poetry useful? Well, it's because people like it, right, and it says something to them about their lives, but we must communicate with the public or else it's not useful. Do you see? So there is a pressure to do this because of our discipline that you don't have in Information Studies because you can monetise your products. It's hard to monetise my research, so it's monetised by engagement." [18FR-FAH-28]

An experienced professor supported the above claims and highlighted the promising approach for young academics to use the Twitter platform to promote their research work. The value outcomes may support them in building their reputation if their future employer could be able to access their portfolio that shows their 'research impact' agenda.

"Moving forwards I think it probably will be quite important for some academics, especially early career academics at the moment, to have a managed profile that's on those kinds of things or promoting your own

research, for linking to the kind of impact agenda, whatever that may be, going forwards. If there's a measurement for our research to be accessible to non-academic audiences, then you'll be able to use social media for that." [8RF-FSS-28]

It is identified from this analysis that the current climate in higher education introduced a policy that is highly weighed towards publication and to wider audiences to show public engagement and potentially create impact, particularly in research-led universities, like Sheffield. While it seems to be important for university reputation and ranking status, it is equally important for the academics and their profile to show credibility in their field. As seen in the various statements made by the respondents in this study in relation to the discussion on research impact, academic reputation built from credibility and authority forms one of the most important criteria on which academics are assessed by their employers.

5.3.3 Publicising activities, outreach events and services to students

With the recent social media phenomenon, people and organisations are increasingly making use of the Twitter platform to market their products or services. Similarly, academics in this study began to use Twitter as a platform to promote and support the events happening in their department, administration, university and city.

One professor who held a public engagement position said that her activities mainly involved promoting the communities' work and that she engaged with local public events as a way to show support. She mentions:

"I tweet about [town name], because I do a lot of work in [town name] and a lot of people say [town name]… is very poor, but I say no it is brilliant, I love [town name]. So I am really positive about [town name] and […] I tweet that I am going to My Fair Lady on Saturday because I just want the Christmas tickets to be sold out because we need the money. Part of the reason is that we need people in Sheffield to spend money on the Arts, because Newcastle just cut the arts, so we have to avoid this."

This academic explicitly stated that Twitter is a tool for 'rebranding' such places through profile building via tweets. She also promoted her own activities within the institution, stating:

"*I try to support the centre here, the Centre [name], I support the Centre [name] and Research [name], which is the organisation that I work for, so I do Twitter to support organisations".*

She then highlighted the connection between her duties and her Twitter use:

"*Particularly the kind of work I do, which is community/university partnerships and also thinking about working across disciplines, 'cause I work across disciplines. So for me Twitter does a quite useful task; it also it connects me with what's going on in the city of Sheffield because we have the civic university."* [15P-FSS-28]

Another academic discussed how Twitter supports publicity campaigning for the university's public engagement activities for the improvement of the city:

"Festival of the Mind, here in the University, which I was involved in two projects, and the Festival of the Mind had lots of publicity and they were quite active on Twitter and they started interacting as well. They set up like a workshop desk where they were asking people to come up with ideas. So Twitter was very useful to tap into the Festival of the Mind publicity machine, because they tweeted @festivalofthemind and got retweeted and they got retweeted by the public." [7SL-FSS-28]

Similarly a professor mentioned that he used Twitter to promote his research filming collaboration:

"Well that was a film I helped make so I was involved. It wasn't a film I was going to see on a Saturday night for social reasons. It was a film that I'd helped make so I wanted to tweet the kind of event of showing the film, let people know it was going on and then getting questions or comments through the film." [1P-FMDH-28]

One academic with a managerial role stated that Twitter is used as a communication medium to conduct public relations activities such as broadcasting information on students' support activities and enrolment as well as academic news. The informal medium provided by Twitter helps students in inquiring about and receiving guidance from the administration in the quickest way possible.

"I do use Twitter for those roles as well ... I am the CLO for the [department name] which is the Career Liaison Officer, which means that if the Careers Department want me for anything like they want me to publicised anything then I will do that but also that if students want any help with their career either they come to their personal tutor or their personal tutor makes it directly to me, directs them to me so that I can advise them. I keep some leaflets at my office about careers and different options for students; also I support recruitment as well so I do Student Open Day and like that so I have been on to tweet about that too. So I think having this kind of informal communication helps and it just helps as well. I mean because obviously with my admission roles one of the things that I have the responsibility for is helping students to make the transition into the university. And I found it quite useful for that as well." [13UT-FAH-28]

5.4 Pedagogical activities

When academics were asked about using Twitter for teaching, more than half of academics (15 out of 28 participants) revealed that they used it as a supplementary or complementary mode to usual teaching methods. Moreover, they perceived it to have potential as an instructional tool to support teaching in HE. The activities mentioned include discussion of the learning topic both inside and outside classroom hours, class revision, sharing relevant module information, and providing training on social media skills for future employment. Some young academics took the opportunity to record their teaching methods as part of the teaching certificate assessment for new academics that have entered UK HE, or as a form of academic report assessment. These activities are further elaborated in this section.

5.4.1 Continues discussion and collaborative learning

A majority of academics stated that they used Twitter as an outlet to discuss the current topic they are engaged in within and beyond classroom hours to offer continuous support for student engagement and learning. One professor indicated that he preferred discussion with students over Twitter because its open features enabled all of his students to share their questions and view the response from others or from him in more transparent ways:

> *"If a student writes to me and asks me a question about the course I reply to that student. It would be much better than if they ask me on Twitter or some open source so that every other student can see the question and the answer. And that will be, you know, sharing it in that way will be better."* [3P-FOS-28]

He also stated that a further outcome of this activity was that it encouraged students to follow him on Twitter showing their interest to have further dialogue. This also incited interest from students to be involved in information-sharing with him.

Likewise, one academic decided to adopt Twitter to facilitate student engagement and build relationships with students because of concerns with subject difficulties among the learners:

> *"So, yeah, even if it's something which on paper is quite dry, and compulsory (subject name) can be extremely dry, depending on how you teach it… so I try to make things relevant and engage students and I guess that's why I started using Twitter to kind of get a bit closer to them."* [24L-FSS-28]

Twitter was also believed to be useful to support continuous learning by constantly 'feeding' information so that students could continuously engage with the subject or confidently join the discussion. As one participant commented:

> *"For instance, if I was reading the Guardian and there was an article which I thought, 'Oh, that would be really interesting to my students on that module', I could tweet, put a hashtag that was the module code and went, you know, "[course name] students, you'll love this Guardian article" and tweeted it… I think it's a great way of sharing. For instance, like I say, it's often when you're outside the classroom, when you're at home, when you're watching the telly, there'll be something you see that just makes you think, "Oh, that's like what we talked about in class that day", or there's a film coming out which is an adaptation of a book that we're studying. You'll have this moment of, "Oh, I must remember to tell them", or "I must remember to ask this", and then it goes and you never remember. So I think it's... Twitter… has great potential to capture those fleeting moments of relevance to a module that happens outside the classroom because in terms of face-to-face contact time, students in the Humanities have very few. The idea is that all the other*

hours they're furiously studying..., Of course they are, but it would be great to be able to extend that time virtually and capture those moments, where you have a question... that might be of relevance or interest and you tweet it...Not only do you share it with perhaps what you would hope to be an online community of people on the same module as you but also you archive it in a way. I suppose you archive that moment because you can go back through your tweets and see what was that Guardian article I thought was really good or what was that question I was thinking of? I think it does have real potential." [5L-FAH-28]

This interviewee saw the potential to provide support for students through continuously engaging and communicating with her students by supplementing the existing course module that they. This is also expanded beyond classroom hours in order to accommodate questions and interactions that the students were not able to raise during the class time. She perceived that Twitter provides an easy way of contacting students outside of class hours for sharing any updated information that is relevant to the course. She indicated that some of her classes involved few contact hours; thus, she could engage a discourse with her students beyond classroom learning by using Twitter. This also presents a positive effect by removing the students' feeling of being isolated especially in a formal pedagogical setting.

A similar case in point is that Twitter enhances engagement and communication between a lecturer and students. One academic commented:

> *"So you communicate more frequently. You communicate with students more frequently and longer than you would normally. So when you walk out of the lecture hall, that kind of ends your communication with them often but with Twitter it goes on for quite a while...it allow me to reach students after the lecture room, so after the lecture happens, I can throw into the twittersphere new papers and new research..."*[1P-FMDH-28]

Triggered by the ideas at conferences, [see Section 4.3.1.1: conference activity] an academic can not only sign up to their individual account on Twitter but can also incorporate concepts and their reflections from the conference into their classroom teaching. The concept of communication through Twitter in conferences, such as 'ask and respond' was seen as a potential benefit to some academics, which can be replicated in the learning context. It is perceived that using Twitter in classroom activities can allow students to actively and continuously interact with the lecturer when coordinating assignments during or beyond class times. As the academic said:

> *"[...] it occurred to me that it might be useful in the classroom for the same kind of purpose as I used it in the conferences, for students to be able to ask questions or to interact with each other and to try and to extend what goes on in the classroom to outside of the classroom, so the students will continue to sort of interact... in their own time when they do seminar preparation, for instance. So that is how I came to start using it and I just introduced it to one module and I used the module code as a hashtag and we just experimented with it."*

He further indicated that Twitter supports open communication where he could identify or monitor if students were discussing issues openly. In this way, he is not only given the opportunity to monitor participation but also a chance to provide assistance to them. As he related:

> *"Students just asking general questions and struggling with things, so having concerns about things that they tweet about and it means that you can help them and that you can do that in a way that you couldn't with email because they wouldn't email you to ask you about something but if they just post it generally and then not necessarily directing it to any one particular person then it means that you can help and support them in a more kind sort of subtle way."* [13UT-FAH-28]

By having open conversations with students on this open platform, one academic thought Twitter had value in collaborative learning:

> *"Yeah, it was, you see {academic points to his Twitter Timeline}. He came in later, with a different point, but you get the idea... you can just develop it... As I say, it's conversational. It's conversational learning and... it takes you beyond the lecture theatre and it's actually a more efficient use of time, I think, rather than trying to make all these points when we're all together in the room. Everybody gets bored. You know, you can do them in little bites over a longer period."* [10UT-FSS-28]

The excerpts above emphasise that knowledge construction develops through a series of simple conversations that lead to more complex discourses that are helpful pedagogically. With contributions and collaboration in relation to different thoughts about the class topic are derived through effective student participation and input from the public. Furthermore, this activity is valuable in providing increased time efficiency, freedom and space flexibility, where the discussion can occur continuously, at any time and in any location.

5.4.2 Information and resource sharing

Apart from the examples of pedagogical activities associated with using Twitter shown above, one professor described her positive experiences using Twitter for her class research module and how she found this social platform to be useful for handling and broadcasting academic information at student conferences.

> *"For third year undergraduates the dissertation module that I am running at the moment for the first time this semester, we used Twitter at the conference, so we had a conference straight after Easter in week eight, and it was kind of fun because we wanted student supervisors to attend the conference 'cause they all gave short presentations on their topics at a one day conference. And so we wanted to essentially broadcast the different things that students were doing and so during the conference, colleagues and myself would tweet what the presentation were about and that students could both pick up on, and we used the Sheffield English Twitter site as a way of disseminating information, and that was really good because lots of people picked up on it."* [26P-FAH-28]

This participant discussed the aim of encouraging lecturers to attend their students' research presentations. With colleagues' support, she enriched her approach to broadcast the information to a wider audience by tweeting and linking it to the department's website to broaden the scope of sharing. Additionally, this approach seemed helpful in disseminating students' work and ideas to those who were absent and unable to join the conference. Other students, academics and professionals from outside the institution can also still benefit through receiving academic information and possibly offering relevant academic feedback.

Another participant delivered team teaching using Twitter. This was done by creating a separate Twitter account that fed students with interesting facts about the lessons and related resources. The idea was to provide students with the 'freedom' to follow the class 'Twitter feeds' rather than just following their primary lecturer's Twitter account.

> *"So that one, [name], is specially there for teaching, so students can follow that one if they don't want to follow me or the other course convenor personally and they don't necessarily always like to follow us, so I'm told by colleagues, because then we can follow them back and they don't necessarily want to have their tutors following them back on Twitter, so often they don't follow us directly but they can then see the 'name' and feed… I streamed the Twitter feed with a particular hashtag. The hashtag was 'paths' because the course is called '[English department module name]'and the students would put 'paths' so the hashtag was 'paths' and I let them use it to ask questions if they wanted but they didn't use it very much for that. It was at the end of the first half of this semester, while we were sort of wrapping up the lectures."* [4L-FAH-28]

They incorporated a way to track 'hashtags' on Twitter posts for students to enable them to communicate ideas or resolve any queries about the module. The use of hashtags could benefit students when revising the class material by enabling them to retrieve other academic information in the trending or widely spreading tweets.

Similar to the team teaching mechanism described above, one academic expressed that she and colleagues managed an official Twitter account for their teaching module to spread information and topics to their students. They even broadcasted it through the department's blog which publicised it and at the same time opened up opportunities to widely share information and resources. She discussed the content they shared:

> *"It is stories in the newspapers about [name], TV programmes coming up about [name], new books that are coming out about [name], things that will sort of be useful resources for the students on that course. So, radio programmes, websites, perhaps tweeting. We have a '[Name]' Department blog that was launched just before Christmas so we kind of write things for that, tweets to that. I think Twitter fits quite well with that as a way of promoting what's on the departmental blog so there's quite a close relationship between Twitter and the blog which is definitely a work blog. So if I post things on that I then tweet the fact that they exist and that picks up."*

She further argued that the application of Twitter for widespread sharing of learning presents a value-added mechanism rather than a radical change. She expanded on this by saying:

> *"It hasn't revolutionised the way the course runs or anything… It's a complement to the teaching, rather than every time there's something you might like to look at, sending an email or putting it on a webpage..."*

Nonetheless, she distinguished Twitter as a superior tool because it is *'easy'* and '*a very convenient medium just to pass stuff on!".* She also claimed that their information broadcasting was a success because other public organisations had also begun to follow their postings on Twitter:

> *"…aren't solely students, it's followed by quite a few people who are interested in [name] and things."* [5L-FAH-28]

5.4.3 Revision

Twitter is also used by a few academics as a medium for class revision. One academic described how communication on Twitter was more open and flexible, as it offered 'many-to-many' communication in comparison to email, which was more closed and only allowed 'one-to-one' or 'one-to-many' interactions. This type of communication interviewees believed to be more time-efficient, allowing them to manage class revision and module reflection, discussions or collaboration. This is needed especially for a class with large number of students with various perspectives and information to share to others. One academic cited the productivity derived through the use of Twitter as opposed to the traditional medium of email:

> *"I have actually spent less time but worked more productively, so I could support the students during their revision through Twitter in a way that I couldn't do through email because it is a closed medium, means it is a one-to-one thing (communication), whereas Twitter is like one-to-many or many-to-many; it depends on how you view it."* [13UT-FAH-28]

A similar comment followed in relation to the use of Twitter in class revision:

> *"So we did it (revision) virtually, the entire thing was virtual, in the last week of summer term we had… in a reading week… so they didn't have any*

lectures, they just worked and revised, so we did this on Wednesday afternoons from 2-4pm or 1-3pm or something, so I got in two hours..." [24L-FSS-28]

5.4.4 Training social media skills through engaging in real world activity

The application of Twitter can also be incorporated practically into one's profession, as described by one participant:

> *"If you want to be a journalist you have to be able to know the way of handling information. So I was sold, you know immediately, you just think this is amazing. This is a really useful tool for people who want to be a journalist, who are trying things out, who are talking about things and more and more, myself and couple of colleagues in the department, started to explore how journalists were using Twitter. We are using it ourselves, to talk to people."*

She believed Twitter offers functions that fit into the discipline's objectives and, thus, introduced Twitter in her class in order for them to be engaged in real world activity using a virtual platform. She related that:

> *"One of the tools that we are increasingly using and encouraging students to use are social media tools, particularly Twitter, which has been adopted by journalists out there in the real world, both as a research tool and a publication tool. So we would kind of expect our students to be able to use social media… to find information in certain circumstances… how to handle information… how to access and value information, and so while they are here they will be publishing their own material via social media, on Twitter particularly."*

The academic who narrated above excerpt taught Twitter in her classroom to encourage and possibly enhance social media skills among students. This is practically important to students for future employment, especially in their field and generation where media tools prevail as means for seeking, managing and broadcasting information. This activity reflects the importance of this social media, which is increasingly complementing of the traditional media platforms.

In relation to this, she stated that support was given her colleague by initially introducing her to Twitter and integrating the platform into the class syllabus that she has been implementing for the last two years. She explained the importance of teaching Twitter in her department to help students develop their own Twitter strategy as part of being potential journalists. In here, she highlighted the value of the tool by emphasising that *"You just can't manage without it!"*

Likewise, she pointed out the strong relation between their discipline and Twitter:

> *"When they (students) do live news days, they use Twitter to push their journalism around the Web and Twitter is now just part of the journalistic publication cycle… Twitter is not just a teaching method but a journalistic platform."* [17P-FSS-28]

With the close connection between Twitter and the occupational function among journalists, another academic in the same department also encouraged his students to learn and engage practically by providing direct examples from 'real-world activity'. This is sustained that this process is important to impart a diverse learning approach to his students. He mentioned:

> *"I heard some really bad writing on the Radio 4 news bulletins this morning which was relevant to this NCTJ reporting hashtag because it's the kind of stuff I want students to analyse and improve. So I tweeted. It was a bit naughty and probably annoyed BBC Radio 4 but I tweeted the suggestion that some of the writing in that news bulletin could have been improved because they make basic mistakes and then I'm inviting students to consider that. So if I'm listening to the radio in the morning, I hear something which I think is relevant to all these conversations about journalism, and then I'll tweet in the morning."* [10UT-FSS-28]

Similar narrated by another academic in the engineering discipline:

> *"Social media is one of the main thing that I teach about… so because we do lots of work in analysis and social media so effectively you know a lot of stuff is working with social media, so for example practical stuff would be them (students) using social media to do things."* [12FR-FOE-28]

5.4.5 Academic report assessment

Twitter is also seen to benefit in the assessment of academic activities. One academic showed an example of how she strategically keeps her Twitter activity as a record to show her efforts for teaching innovation for the PgCert Learning and Teaching evaluation. As she stated:

> *"I kind of I kept them just partly because I am aware that I am doing my Cert the second part of my teaching qualification in September so I thought I might want to use it as some kind of evidence my teaching practice at some point so that is why I kept them […] there is just a kind of archive for me so that I can explain what I did and how the students responded I guess if I need to."* [16L-FAH-28]

Given the wide array of pedagogical Twitter uses among academics and its relation to the REF, the platform definitely leads to effective communication, collaboration and relationships. The following section explains further the use of Twitter in building relationships and maintaining networks.

5.5 Building relationships and maintaining networks

The majority of academics (25 out of 28 participants) described how the significant use of Twitter was related to connecting with and forming small or large groups of people who share common interests and goals. These networks were established and maintained to socialise with other people and enable individuals to keep in touch with other academics, professionals, students, ex-students and people outside academia. One academic described how she was inspired when she joined a few groups on Twitter:

> *"I had a very supportive kind of community of shared interests and I still follow mostly probably historians and journalists, writers, things like that, so it's a community of like-minded people."*

She indicated that she was encouraged to be involved in Twitter by the people she was linked to:

> *"I had very supportive, interesting interactions with all of these nice people who kind of then introduced me to other people and it made it feel like an actual community of people rather than just a receptive, you know,*

somewhere where people broadcast. It made it feel very interactive, so I think, by having a few people at the beginning who were very engaged with me, that changed the way that I interacted with it." [4L-FAH-28].

For this user, the supportive environment of the community served as an inspiration for her to join Twitter. This meant that she was comfortable in actively communicating and sharing updates and information while expanding her networks.

Another academic discussed the lack of facilities in finding sources related to her discipline and suggested there is only a small community of people in that area of expertise. She suggested that Twitter helped her to build a more extensive linkage by grouping her with people in her niche area for collaborative exchanges. This did not only show her the possibility of being visible in local academic circles but also internationally. As she said:

> *"There is not much access to medical data and my particular research interest is in genetic testing and the legalities and ethics surrounding genetics testing, so, as you might imagine, there are even fewer sources of data for this, really not many people are interested in this, and what Twitter does is connect me to… the 15 other people in the world who are interested in the same thing. There's no way that I could come to work and meet two other people who read the article and have ideas about it, and what Twitter does it just make the world smaller…"*[24L-FSS-28]

The benefits for academics joining a community on Twitter were discussed by one respondent by stating:

> *"Well I think it's very useful for keeping in touch with your colleagues and with people in your field and I think it helps you to feel like you're part of the community of practice… I think as a professional tool in terms of a researcher and in terms of somebody who is involved in a particular academic field… it's very useful because you get to understand what people are talking about, what people are thinking is important, what the debates are, what the problems are, you know, you get a heads up on that, in that sense, so I think it's very useful as a professional tool for feeling like you're part of a community of researchers."*

This academic said engagement in a '*virtual way'* is convenient:

> *"…without being as formal as an email or as sort of informal and personal as a phone call, it helps keep you connected to that community."* [6L-FAH-28]

He suggests that the community atmosphere on Twitter is more relaxed, casual and welcoming, similar to what have been stated by other respondents in this study.

Another academic believed that tweeting about her research collaboration with colleagues made her become more engaged with her work as well as with the community of people that participated in the project. She indicated that the use of Twitter shows the fascinating things happening to the project, which affirms her enthusiasm and anticipation for her work.

> *"I think I am more connected on my research project: so the people I am working with. Twitter helps me connect with everybody in the project really fast and it helps me connect and helps me think about the project. I think the project is a Twitter excitement about it.*" [15P-FSS-28]

Another academic felt Twitter had helped her in building contacts from a diverse range of academics at all levels, which she found particularly important at the early stage of her academic career:

> *"I think it's fantastic… I wish I could have been going to conferences where Twitter was around; that would have helped make those contacts because when you start your PhD and you're going to conferences, the likelihood is, for the first year of your PhD at least, you're going to not know many people at that conference and conferences can be awkward and everyone else seems to know each other and you don't feel like you fit in and it takes a bit of time to start to go to conferences and actually recognise faces and to be sociable; and I think Twitter's really changed that. The conference we had here last September… I had this experience where I met lots of people in the flesh that I knew online and it was just so collegial… Yeah, it felt like an interview, 'Hi, hi! It's you! It's me, yeah!' 'Can I get you a drink?' It was really nice."*

This respondent described how the relationships she built on Twitter brought a positive impact to her present career and possibly in her future endeavours. She credited this change when she became closer with other academicians and researchers especially when she met face-to-face with her Twitter followers during the conference. Building contacts in academia came naturally through Twitter as it was effortless and efficient. According to interviewees, Twitter saves time, involves less cost, and is more borderless compared to typical networking. Accordingly, the academic mentioned:

> *"I think it makes a real difference to that kind of network building, contact building, right at the beginning of your academic career but it can be a real hard slog because… you used to have to physically go to conferences to even begin to forge those friendships and connections but now you can do it online… In the comfort of your living room, in your pyjamas, you can be networking."* [2L-FAH-28]

Similarly, an academic explained how he developed networking through tweeting with other colleagues or being mentioned on Twitter, which indirectly made him visible and promoted him to other audiences:

> "*Say I have a colleague that works in another University in Architecture who I know quite well and I might go and visit and do reviews with them and things, because they retweet stuff and they might retweet me; you start to make connections with some of their colleagues you haven't met, and so I have made acquaintances that way before and there have been occasions where I've met people in the School and had to say, 'It's good to see you. We've talked on Twitter lots of times before but it's the first time I've actually met you', so yeah*." [23UT-FSS-28]

One academic who tweeted his class revision gave an example of how he managed to develop a network through his teaching activity:

> *"I can use this hashtag, [name], to bond a conversation and I've got over a thousand people following me purely because of this hashtag. At the weekend, I picked up a hundred extra followers in two days because academics and other universities were saying, "Hey, (name) is providing all this useful feedback on this exam… I picked up probably about eighty followers… purely because of this [name] hashtag which is why... I just decided to do it on a whim on Saturday. It seemed to be useful to a lot of people. They've joined in. They're following. They've encouraged other people to follow me.*"

The academic developed a hashtag name that was easily recognised by people in his field and for that reason it became useful in making him reachable by people who had similar interests in his field of expertise. With his good teaching inputs, people spread a positive 'word of mouth' about it and made him more outstanding in his discipline. He was pleased with his new networking experience as he elaborated:

> *"I think this is just a really interesting phenomenon… it enables us to engage with the world and with students, with fellow professionals and with powerful intellectual thinking in completely new ways. I think it's fascinating."* [10UT-FSS-28]

While network expansion has been mostly seen between the academics and other experts or field practitioners, Twitter also enabled one academic to sustain a relationship with his former students. This was through getting updates about the students' past achievements and supporting them by offering careers advice and connecting them with his professional networks of friends. The academic mentioned:

> *"I have got graduates following me now so it is a nice way to keep in touch with people who are students, who go on to do things related to their degree or completely different things… When students want to know about a particular career it is nice to be able to put them in touch with other people who were working in that kind of area to get information…"* [13UT-FAH-28]

Further responses as to the use of Twitter showed that networking through the platform can bring good prospects and raise one's career profile. As one academic described:

> *"It adds some brilliant opportunities, sent my way just through being on Twitter and engaging with other academics… This is an academic that is outside of my area… but we are both female academics. We… just sort of connected on that level and she got invited to something at the House of Lords which she didn't think would be suitable for her, so she forwarded it to me and said 'Can [academic name] go instead, it's more related to her area?' And I was like 'yes fine!' So last week I was down at the House of Lords and contributed to a companion of essays for international women's day and they launched it [there]… It's an opportunity that I would never have had otherwise."* [25SL-FMDH-28]

This respondent's comment suggests that a career match was made willingly to connect with the other person initially. Networking through Twitter also increased visibility in the discipline according to one of the academics interviewed in this study. She described the experience in the following statement:

> *"Yeah, I mean I have recently in the last few years I have been invited to do lots of things which I wouldn't have done. I wouldn't be so well known in my field, for example you know getting invited to talks and conferences and so on; the more you kind of put yourself out there the more people get to know you in there… So you know I had some really great opportunities because you know people have started to get know who I am in particular of various yes specialised fields and it is something you know you choose to do or not but I kind of going down that road, I tried to anyway which is great because it is…you know I think it has given me a lots of advantages not just in terms of career progression but also just to connect with others."* [12FR-FOE-28]

Another academic talked about career opportunities that could prospectively be gained because of the networks that she was able to establish with people she knew on Twitter.

> *"I think it makes the world smaller… so if I decide I want to visit a position in Harvard I could go… and I know somebody there because I have already talked to them on Twitter."*

She also pointed out the significance of keeping borderless long-term relationships on Twitter by stating:

> *"The other thing is that the people I am connected to are mostly at my level or a little bit further on, so we have all progressed in our careers at the same sort of stage... and so you, know, one day I will probably be a professor and all of these people will be as well, so I will be connected to professors around the country and around the world, and that is a really valuable thing to have."* [24L-FSS-28]

In another note, it is not only the student-teacher and same-level colleague relationship that are bridged through Twitter. The platform also helped to break down the level of senior/junior classifications as mentioned by a young academic:

"I tried just to tweet what I want, but am very conscious at times, there is for academics a kind of hierarchy on Twitter as well like if someone who I, we followed each other but he is a Professor and I think his work is amazing sometimes he tweets something interesting and I spent a little bit of time trying to work out what to say or what I should say or anything, it does depend very much on who is the person is I think, they can be a real world hierarchy in the digital world as well and you think can Oh my god can I actually say something to this person that I very much admire." [16L-FAH-28]

Further analysis would however show that the barrier is not completely broken, but only softened because the relationship and notion of seniority still exists. Hence, she maintains that she is being mindful of her tweeting due to her professional connection.

Building networks and maintaining collaboration is easier if two individuals are guided with confidence when interacting with one another. Twitter assists in cultivating smooth collaboration and confidence building through an effective communication mechanism. Twitter's characters limitation encourages one participant to stay in touch with colleagues in a quick way and with minimal effort and offers a direct chat to a person who is online such as on a phone interaction. This is unlike email where she has to spend time drafting a longer message, e.g. a letter:

"*That's the advantage of Twitter because I feel like I get overwhelmed by email for example. Too many emails and emails from friends and I feel like I have to...if they send me a long email, like I have to set aside the time to send a long...so then I delay sending a response of it and they end up waiting. Where if someone...we're on Twitter, you can just say "Hi, how are you?" or "Thanks for that" and it's very immediate, doesn't take a lot of time and it's also much more personal in a way because very often…most often I find you tweet with people who are online at the same time as you and that's one thing."* [28SL-FSS-28]

One professor supported the idea that the short conversations minimised the time and effort required to stay in touch and maintain the relationship:

"So Twitter kind of opens up my eyes a little bit to that level of interaction and I had a few tweets with ex-students, students who left and said I

remember you giving that lecture, so keep in touch with them, that's just nice. I don't want to send them a Christmas card, I don't want to go round for dinner, I don't want to know a great deal about them, but just a little hi, it is like the digital equivalent of walking through the park on my way home and somebody saying hello! Because you know they are there, hello, how are you?" [1P-FMDH-28]

As seen in this section, building and maintaining networks through Twitter involve some processes that could contribute to long-term effect to an academic's professional prospects. To summarise, network building entails support from other people or organisations, continuous engagement or collaborative efforts, expansion of contacts, and possibilities of opened up career opportunities. These could be attained through Twitter's effective communication features.

5.6 Forming a digital identity

Being an academic and having an online presence like presenting a dual identity of a real-life person and a virtual life. In sustaining a good academic reputation and maintaining professional status, academics take various steps to guard their private lives, such as limiting their posts to their activity with friends or family, and presenting professional communication and respectable behaviour in a way that suits their audiences. All of the academics interviewed use Twitter to construct a certain identity on Twitter while at the same time trying to enhance their digital profile. This projection of professional academic identity on Twitter is done via promoting themselves and sharing part of their academic routines.

Creating and promoting a Twitter profile is a premeditated idea done to deliberately enhance the visibility of their academic profile. This academic described the value of extending her profile online in order to be better known, develop new contacts from the media and professionals in similar disciplines and participate in collaboration opportunities. She mentioned:

> *"I've got to know people and hopefully more people know me and I know enough journalists and popular history people on Twitter, so hopefully, if the right kind of things come up, then I might get asked to do interesting things once in a while…"* She stated that Twitter was another tool for broadcasting herself: "*The thing is for me, it is kind of an extension of what I was doing*

already because before I was on Twitter, I already worked occasionally… for BBC History magazine, those sorts of things, so it is just an extension of that kind of public engagement, but it's nice though".

This shows how she used the media platform to present herself and establish links with other communities. She described her Twitter profile as being a '*reflection of actual personality'* but adding "*a slightly censored version of me… I don't swear on Twitter ever, not even mild swearing because I think it is for me a professional space as well as a personal one"* [4L-FAH-28] which showed her managing her reputation on Twitter, possibly due to her academic status. Clearly, this shows a concern among academics that they still delineate personal and professional profiles even though Twitter is seen by many as a social network.

A few of the respondents said that having a digital presence was essential or part of a 'list of things to do' for academics nowadays. One mentioned the sentiment that:

"*It's obligatory to have a digital identity, I think, full stop! There's no choice about that now!"*

This academic strongly expressed the need for them to open a Twitter account mainly because of their *'public-facing'* role. He also felt the need to be up-to-date with current social media trends and engage with people online to increase presence as academic. He stated that:

"You're odd if you don't have a Facebook account. It's part of being in the online community..." [18FR-FAH-28]

Another academic also noted the importance of a digital profile*, "because it is so accessible and people kind of expect you to have it"* [9P-FSS-28], conveying that the public may have valuable thoughts and could reach academics more easily. This tendency to stretch the reach will also enable other people to get to know the academics better through searching for their details on the web*.*

5.6.1 Projecting a certain type of identity

Projecting identity entails forming one. Constructing an 'identity' is another use shown by the academics when they adopt Twitter. This is done to establish an identity that represents them as an interesting individual, an influential and important professional and an intellectual person in their discipline. This identity that they aim to create involves the process of profile building that tries to distinguish themselves as belonging to the new emerging academic community as opposed to the 'traditional academic'. A 'traditional academic' is typically described by some of the academics as an academic sitting in an 'ivory tower', feeling like an 'elite' group separating themselves from communicating with the public due to their tendency to focus too much on their research work. However, Twitter is seen to remove this inclination and, in turn, gives academics the opportunity to be involved in an open discussion without being trapped in the pejorative notions of traditional academic identity.

One academic strongly indicated her dislike of the 'old academic' stereotype of an inactive person who is disengaged from the outside world. To her, being in an ivory tower sounds like an academician who is not working hard and also is having an easy life. She states that:

> *"It can be a bit behind closed doors, I don't like the phrase 'ivory tower' but that's the one that's used really often, isn't it? I don't feel like I'm in an ivory tower, that's why I don't like it. I feel like I work really hard (laughing)."* [2L-FAH-28]

Similarly, some of the academics interviewed in this study discussed the need to change public perceptions from the 'old academic' characteristics to the fresh identity of academics that should be perceived as more adventurous, multi-tasking actively with different academic activities, being friendly and open to engage and communicate with the public. As one interviewee mentioned:

> *"The old academic sat in an ivory tower in this room, and thought I might just read books… The new academic might have a meeting with Sheffield Museum; like tomorrow I am going up to do a film training day, which is in a community venue, and I might go to [School name] in Rotherham, and for the new academic who is engaged with communities, you need to communicate that because it is a new kind of identity"* [15P-FSS-28]

Academics also seem to construct a new identity with key characteristics that display them as contemporary academics on Twitter.

Almost all the academics talked about 'professionalism' as they discussed very generally the content they shared and how they wanted to project themselves online via Twitter as a 'professional academic' who is good and knowledgeable in their own field. A science professor said:

> *"So my Twitter name is [academic role and name], but yes I often link to, you know it is obvious if you look at my Twitter identity it is obvious University of Sheffield, you know it is all me, I only really use it for work things."* [3P-FOS-28]

Similar to the above, another academic said it was her '*self-conscious*' decision to maintain *'professionalism'* for her Twitter profile; nevertheless, she felt it is also useful to slightly mix it with an informal appearance to show oneself as having an authentic identity.

> *"My Twitter name is [name]… So I am on there as Dr. (name) so I suppose that is portraying a certain kind of academic, professional person... maybe even a slightly off-putting image, with my profile picture... featuring my PhD graduation... on the bench with my gown. I suppose what I really love about that picture is that it's me in an academic gown but it's me being silly. I think that's kind of what I'm going for on Twitter, that it's a way of talking about my work, so it is about me as an academic and it is about trying to get a new audience for my work, via promoting my blog but also I don't want people to be put off by the 'Dr.' I don't want people to be put off by the little bio of me that says I'm a lecturer at [place]. I don't want people to be, 'Oh well, that's not for me because that's clearly, you know, that's university, that's kind of stuff not for me.' So, by having this slightly ridiculous profile picture, which undermines the seriousness of the cap and gown, that's kind of what I want. So that's why a lot of my tweets are about what I'm doing, but also there will be the odd picture of my cat (laughing). There's usually a picture of my cat, you know, sitting on a pile of papers, not letting me do any work and that's kind of to humanise my persona…"* [2L-FAH-28]

The idea of including a photo of herself in a graduation gown and jumping off the bench illustrates her friendly, informal and fun character to create a positive impression for the audience when they look at her profile for the first time. Her strategy through this image and her personal tweets is to build a relationship with other people, by projecting a normal life like others, while still maintaining professional identity. The expectation, then, is to gain more followers who will be interested in reading about her work and foster a friendly disposition when interaction occurs.

One respondent said that she preferred to be identified as a professional academic who conducted *'interesting work practice'* through sharing valuable information relating to academic information and activities to other people in her network. This is possibly a product of her status as an academic who presents important activities to the public:

> *"I would like to be thought of as someone who provides useful information to other people…My goal, if you like, is to be a provider of interesting information for other people. That is mainly why I use Twitter, for knowledge sharing, and plus I use it, as I like people to think of me of as doing a lot of interesting work and so on because of the things I tweet about, the stuff that we are doing, then you know obviously that my goal is to want people to think they must be good."* [12FR-FOE-28]

Similarly, this academic was trying to shift people's perceptions about the life in academia today, which is different from the lifestyles of academics in previous decades, by sharing her activity on Twitter and displaying her full engagement. To demonstrate this, she mentioned:

> *"I can signal that I am going to [town name] and that actually makes academia look different, because I get quite frustrated with the way that academics are portrayed, and also they act as if that all the rest is the desk and books. But I think being an academic is to be socially engaged… in the community and Twitter gives me the ability to express that engagement, so I quite often… go out to [village name] and every time I tweet wherever I have been… because I think it is really important to tell people that's what you do, is a different way of being academic... People don't get why I am always out, but actually that's good."* [15P-FSS-28]

Most of the academics also mentioned the importance of displaying themselves as 'human' too to avoid misconceptions about academics being too serious and dreary. This is further demonstrated by sharing academic activities and intellectual thoughts. As one academic described the experience,

> *"It becomes very boring, I have written a paper on this, I'm on television now, I am giving a lecture, it becomes a very dry inhuman kind of experience."* [18FR-FAH-28]

Another academic added:

> *"You can't be this starchy, formal... If you're coming across as an academic who's overwhelmingly serious and analytical and uses a lot of big words and overblown concepts, you're not going to be successful in social media."* [10UT-FSS-28]

On a lighter note, a majority of academics shared similar ideas about the importance of sharing content that shows them as being 'entertaining', 'approachable', 'humorous', 'interesting', and 'polite'. This way, they attempt to show the balanced and normal life of an academic. One academic explained: *'So, I think once in a while just a little light-hearted tweet makes you appear as a person";* and situating a strategy by stating*:*

> *"I've realised that to engage effectively with people through Twitter, you do need a bit of personality and attitude I think, on Twitter. I try to put a bit of humour in it and sometimes I'll just be mischievous and provocative, just for the sake of it, just to try to prompt a reaction."* [28SL-FSS-28]

Other similar ideas were expressed in relation to projecting a more outgoing online presence:

> *"Sometimes I do jokey tweets, so this week we had a joke with English (all with English), about sending Jessop West to the moon… because, you know, the Engineers have put this new building up, so we set up that we need to send Jessop West away… so we posted joke tweets."* [15P-FSS-28]

> *"So yesterday I had a bad day at work, I went to a meeting and my trousers split and it was funny… I tweeted [about this]. I thought that it was quite a funny thing to happen; it's the sort of thing that makes you appear more human."* [23UT-FSS-28]

> *"The thing about moving house... I do sometimes use it to kind of say a public 'thank you'. I think sometimes it can be quite nice to use Twitter to give a public 'thank you' to somebody who's done you a favour..."* [5L-FAH-28]

> *"So yesterday I ran a marathon, so I tweeted about that…"* [22SL-FAH-28]

> *"Yes. I tweet something like 'my son and daughter and I went to the Eddie Izzard concert' and watching Eddie… was kind of fun*." [26P-FAH-28]

A few academics who used Twitter for teaching felt that bringing some 'personality' into their tweets was an effective approach in presenting academic life holistically while engaging with students. As one respondent mentioned:

> *"I think it is nice to build up like a kind of rapport with students so they can get to see you a little bit as a real person…"* [6L-FAH-28]

As further elaborated by one academic:

> *"It kind of presents a kind of picture which I thought might be quite useful. I thought it might be interesting for students to have that perception of what I'm doing presenting a kind of account of myself. I think one of the things that interest me about it is that students tend only to experience you in quite a limited context, if you know what I mean. So they kind of show up at your class and they may know almost nothing else about you. I mean intellectually, academically, they may know very little about you and they don't know what your research is and actually I think a lot of students in Britain aren't even conscious that their teachers do research or what that really means, you know."* [22SL-FAH-28]

However, most academics also suggested that sharing personal tweets should also have a serious edge. One professor described how he managed his posts on Twitter by giving an overview of what he observed in the profiles and tweets of his colleagues and networks.

> *"I have not done an analysis but I would suggest that 90 per cent are about my field with some about academia, like graduation; and a very small number about my chair, my pants, train journeys, plane journeys, baggage getting lost, but that's all personality building tweets. I think it gives a view of you and people have said to me 'oh gosh you lead a really exciting life because you are going up and down to London and you are on planes; you giving lectures; you are writing' so I think it helps build up this image, this persona. And it shows it's a little window into who I am as a person or as a professional."* [20P-FOS-28]

The concept of forming a new 'identity' was expressed by academics through building their self-image or self-brand in digital environments using the social media platform, Twitter:

> *"The idea of a kind of establishing yourself as a person who tweets interesting things, means probably that people are more likely then to engage with your books or your articles or your blog posts and that sort of thing, so it does help to increase the public reach of what I'm writing (…)"*[4L-FAH-28]

The academic above showed her conscious planning that led to the development of her identity as an academic that is characteristically exciting, communicating and sharing useful resources in her area of interest. She stated that the effect of doing this activity benefitted her to promote her research work and expand her engagement to a wider audience. To some academics, being able to present their identity through tweeting with a strategic purpose will make people trust them more in their field of practice. As one academic said:

> *"I have some patients follow me, people whom I have met in clinics, and one of the patients said to me a while ago, that they enjoyed reading my tweets, and it made them feel relaxed, because they felt that I was somebody who was at the top of my game."* [1P-FMDH-28]

5.6.2 Self-Promotion

After creating an identity which is potentially seen by millions of users over the Twittersphere, maintaining this identity is the next crucial step, especially for academics. Maintenance of identity is usually done through a process of self-promotion through profile upkeep and the nature of tweets delivered. In general terms, self-promotion is perceived as a part of forming an academic digital identity to enhance one's profile on Twitter. A few academics also said they tweeted to promote themselves, to show they were competent academic professionals and exhibit their expertise and depth of knowledge through various academic activities. These include socialising at seminars, connecting with the influential people, and publishing research work or other publications, among others.

One professor pointed out that it was his conscious decision to use Twitter to promote activities that he was involved in, mentioning that: *"Last night I went to a big dinner at the Science Museum, and tweeted a couple of things about it"*. He added: *"I often tweet good things about the university"* and showed his support to the institution he worked with. He said it was part of his duty as he called it a '*public relations activity'* and *'public engagement stuff that I do',* to associate himself with the important role he held in the university [senior role in the UoS]. With this, he is considered to be partly responsible for spreading information about the organisation and its activities to the public. He supplemented this by also tweeting about himself, adding: *"If I am going to be on the radio, I will tweet 'I am going to be on the radio'. If I am going to be on the television, I will tweet 'I am going to be on the television' (…)."* And when asked why he did this, he answered: *"For more people to watch, more people to notice, to tell their friends and followers, this little fat guy is going to be on the radio".* He marketed himself to the public by showing an interesting academic lifestyle similar to 'celebrities' and at the same time fulfilling his duties and responsibilities as an academic professional. He further suggested that he and his colleagues from different universities teamed up to support each other through 'advertising' their academic achievements and work activities:

> "*So he retweeted (his colleague) when the book was published, he retweeted that (colleague's name) was a Physics Professor at (University), and he has a radio show called (name) and I have been on that and so, during science week here, he came to Sheffield and we reversed, so rather than him interviewing me like he did on the radio, I interviewed him in Firth Hall, and so we had a kind of extended Twitter conversation about that."* [3P-FOS-28]

He clearly said that this act was '*a quid pro quo'* - implying a reciprocal or mutual exchange relationship. He talked about the positive impact that they felt over this activity through developing more followers and networks.

Another academic openly expressed his strategy: *"I use it for self-promotion. I'll be honest about it."* He discussed how he publicised himself and his department in competing for student recruitment, and strongly believed that it was a common approach by other academics today. This sentiment is reflected in the following statement:

> *"We're in a competitive environment. We're competing for students. I want the best students to come here and the best students are likely to be active on social media. They're likely to be curious, sceptical, mischievous people, you know, the people we want in (department name). So I want them to engage*

with me rather than with the next (discipline) academic, so yeah, I am promoting myself. I'm promoting myself, the department, (discipline), but then isn't that what most of us do most of the time?" [10UT-FSS-28]

This academic had the belief that the new generation of students are socially active and equipped with social media skills being part of the 21st century social world. This is seen by the academic to be an advantage for the institution and its personnel to adapt to the 'digital university' atmosphere, and Twitter is one of the tools for reaching potential students. In addition, her statement conveys that there is pressure arising from competition between higher education institutions in competing towards more student recruitment, which could be considered as a means of achieving financial income. Hence, being ahead of the competition implies institutional sustainability and global presence.

One academic focused on tweeting sources related to her disciplinary field and admitted her participation was mainly for *'promoting myself as a writer of history.'* She expressed the important idea of constructing a scholarly profile to boost her academic work:

> *"My Twitter account is about me as a historian and author having a kind of public profile as me, sort of marketing of me[…] It is about building a kind of identity for you as a named author so that people will be interested in buying your next book […] It is a bit of a profile building thing and so it's interesting for me but I think it does for me...It relates very much to research and promotion for what I do in terms of research as much as it does...more than it does for teaching I think."* [5L-FAH-28]

Another professor honestly revealed that he used somebody else's service (his book publisher's) to promote his publications and other related activities through an account under his name:

> *"I don't use Twitter to tweet things publicly although you'll see it under my name, that's not me. That's somebody else doing it but she's doing it as part of her job at a publisher where her job is to promote the books. So if I have a book, then she'll send tweets saying the book's available or there's a talk. I'm giving a talk about the book and so on. So the kind of thing... click on talks... there's a series of talks coming up and then before the talk she might tweet..."* [9P-FSS-28]

It is clear in the preceding statements that academics from any field admit that joining Twitter has positive effects towards the publicity of their work. However, one academic found herself feeling uneasy with the 'self-promoting' approach. She felt that most academics like her did not really have the skills to 'market' themselves and would use an implicit or 'humble' approach in directing certain information about them.

> *"I do try and tell other people about my research occasionally... People are interested but I think largely we're not very good at self-promotion, so we kind of say, you know, 'You might just perhaps be interested in this thing' rather than saying, 'I've got this new thing out'. It's 'Well, you may be, if you want, have a look at'... You know, it's quite tentative. Yeah, I'm very uncomfortable with self-promotion; I know we need to do it. You do a bit but I'm much less of a…They call it, pimping stuff you've got… meaning selling it around regularly."* [4L-FAH-28]

She seemed to point out that academics normally present the characteristic of being 'low profile' or 'modest' rather than boasting to the public when they become overly publicised in social networking sites such as Twitter. However, as mentioned above, self-promotion was seen by interviewees to have become one of the necessary aspects of being involved in the academic community.

5.6.3 Academic diary

It has been seen throughout this research that Twitter is used by academics for communication and dissemination of academic work to either target audiences or the wider public. However, one important finding shows that Twitter is also used by some interviewees for their own personal consumption by making it their academic diary. One academic set up Twitter as his personal reflection journal. He perceived his approach to be different to other academics who are commonly using it to share academic materials and work. He related:

> *"Basically I used it as a diary, to be honest… I think you'll find this is not the standard way people use it but I tend to just tweet what I'm doing in my job…it's more of a little sort of 'how academia works' type thing".*

He said this may look 'boring' or uninteresting to some audiences and show him to be 'self-centred', but he found this activity to be useful for recording his academic routines:

"In a way, I treat it as a personal thing and I actually find it very interesting to look back at my tweets and keep track of what I was doing. Things like when I'm writing a chapter, I tend to do a lot of, 'Another day on the chapter, making progress but not enough' […] My tweets are often quite personal reflections on academia...not on my personal life but on academia and my job as an academic and that is I suppose what I'm trying to convey through it, rather than...I think fundamentally there's enough people retweeting endless developments in the field, I mean I get cross at the people that simply retweet and retweet and retweet and copy and paste links to things they've seen and tweet...It's all sort of interesting...I've seen whole...I've seen people that seem to do nothing but that. They never sort of put anything of themselves in. I suppose I'm getting back to my original thing. It's never themselves." [19SL-FSS-28]

He criticised the broadcasting approach from other sources as showing less of one's own values or the pure authentic self. This could be perceived as an opposing view on the known manner of use of social networking platforms. Nonetheless, this academic makes use of the platform in a more personal and intimate way which is also interesting.

While academics who use Twitter as an online diary do not really intend to broadcast their personal life, but rather store personal reflections for their own interest, this is their way to make others understand the whole picture of the academic sphere. One academic stated that through recording multiple activities of an academic diary on Twitter, students could better understand the diversity of duties in an academic's routine:

"In a way I think of it more as a kind of...presenting an account of myself. I suppose one of the things that interest me about it is that students tend only to experience you in quite a limited context. So they kind of show up at your class and they may know almost nothing else about you. Now when I say know nothing else about you, I'm not talking about kind of personal life. I mean intellectually, academically, they may know very little about you and they don't know what your research is and actually I think a lot of students in Britain aren't even conscious that their teachers do research or what that really means, you know. So one of the things...Rather than sort of thinking, 'Oh, I must share this resource. I must send people to this site' or similar, it's often more about saying, 'This is what I'm doing. This is what's going on.' You know, this is the context of that class you have sort of once a week. So

that's how I often think of it. So I'll often post something about what I'm reading at the moment or the fact that I'm going to be talking...I'm going to, you know, a meeting to discuss this project or...and there might be a link or something but it's not so much about resource sharing as about kind of presenting a sort of more holistic description of me." [22SL-FAH-28]

Some academics have different ways to share their life routine. One subscribed to an approach to share most of their images to represent her list of activities for her audience interpretation:

> *"I'll share photos a lot actually so people can read whatever they want into my life."* [11L-FAH-28]

Academics also used Twitter to make a status update of their activities such as giving a presentation or attending events to share information with the interested audience as part of sharing and displaying their academic diary showing them as a person that has a social life and engages in social activities. One respondent mentioned:

> *"For example if I am giving a talk somewhere would it be in here, in Sheffield or in London or in the US then I might tweet about it, and someone who is on Twitter following me who is close to that place they might want to come up."* [20P-FOS-28]

A similar comment showed how one academic tried to illustrate that he is engaging in interesting academic routines and thus intentionally displays his location:

> *"I am away, I do, so if I am at a Conference in Portugal, so if I am at a Conference in Switzerland, I deliberately make sure that the location is switched on because I think that brings in a dimension to the tweet."* [1P-FMDH-28]

As seen from the excerpts above, academics tend to use Twitter as an academic diary but this is guided by either keeping it personal or maintaining a journal that is to be read by others. Nevertheless, the essential element in this type of use is the presence of self-reflection that they post on Twitter.

5.7 Micro-breaks

Micro-breaks emerged as a category of academics' Twitter use. It refers to using Twitter as a mechanism that supports users who become fatigued due to dealing with the task in hand and require having a short break from their work. Half of academics interviewed, (14 out of 28 participants), clearly used Twitter as a sort of psychological therapy and gain benefit from it. The activity may be just viewing information on the timeline or sending a tweet. According to the participants, there are different types of 'psychological relief': 1) mind therapy, which releases mental engagement stress; 2) discharging feelings and seeking comfort through tweeting; and 3) filling a gap with information and recreational content.

5.7.1 Mind therapy

In recent years, academics' activities have changed considerably, and work levels have increased, to include challenging tasks of managing bundles of activity such as research, teaching and administration. Thus, academics tend to take micro-breaks to relax. This usually happens when one consciously decides to have a time-out and look at Twitter. It is commonly said by most of the academics in this study that Twitter has advantageous features, such as providing interesting facts and is a fun information platform that people can browse within a short span of time. Because of this feature, users seem to experience it in comfortable and efficient manner. Twitter's short updates and headlines features fit well with the limited time needed to browse.

One academic described her working pattern, where her norms were to take a pause from work (e.g. such as writing activity on the computer), and browse Internet applications, such as email and social media, i.e. Twitter, to check updates. She said this type of short break helped her to re-energise her mind before continuing to do her work again:

> *"There was a period of time over the summer when I didn't have any Internet at home and I thought 'this would be wonderful. I'll get so much work done', and I... it was terrible, I couldn't concentrate because all that was facing me was my work with no prospect of that quick thirty-second break to check Twitter, check my emails and I just couldn't work… It's completely changed the way I work. It's kind of the knowledge that, in five minutes, I can just check Twitter…. That kind of escape from the Word document that I'm working on is what the Internet allows, social media allows."*

Her initial thoughts were that Internet technology was a sort of distraction from work, but she then discovered that having this little distraction was actually helpful in releasing her mental stress. Taking short breaks by browsing interesting matters over the internet through Twitter provides her relaxation needed after writing or having a saturated mind due to over-thinking. As clearly indicated, taking a quick break by accessing other information not related to the current task seemed a positive diversion for her. She argued the idea of a quick break does not affect her focus on work*:*

> *"No, no, I don't think it does at all. In fact, I think it helps because it gives me those little breathing spaces where I can just think. I mean, I can be scrolling through the Twitter feed but it's just giving me a quick break from that sentence that I'm trying to write, that para, that idea I'm trying to grapple with and while I'm having that break, I don't know, something's going on and it's working it out... Another thing, the equivalent thing that I do is that, if I'm really struggling with a paragraph, sentence and idea, I'll leave my office… [and] go and talk to someone… at reception or I'll just come down and check the post room. I just have to... You know what, if I can't work something out, if I can't write a sentence or understand what I think about an idea, I have to not look at it. I have to leave it and I think Twitter helps me in a very mini way to do that. I think it enhances my work. It enables me to keep going for longer because I don't feel like I'm just isolated with a piece of work that I'm wrestling with. I've got this kind of escape route that I can just take these mini-breaks with but also because the Internet is just on all the time now when I do my work, so many resources being online that, yeah, it's strange, I've never really thought about it…"* [2L-FAH-28]

Her statement suggests a micro-break on Twitter provides mental relaxation before switching to the next task. This activity seems to stimulate and give a more motivational focus to continue a task. Significantly, it is similar to taking a physical break or short exercise. On another note, she discussed the importance of being connected to the Internet due to the large resources available, thus related to the development of seeking information online.

Similarly another academic found using social media gives him an incentive before starting off with large assignments:

> “*I tend not to check Twitter straight away unless I’ve got loads of marking to do, in which case it’s straight to Twitter and do that for ten minutes and then think, ‘I’ve got to get this marking done’*, while continuing updating himself*: ‘then throughout the day I’ll probably keep appraised of what’s going on Twitter’.* He admitted that action was *‘a bit of break!’* as he needs a pause or interruption that can be equivalent to ‘mind refreshment’*: “Obviously, I’m trying to mark dissertations at the moment so I’m browsing things because I’m trying to distract myself as I get to the end of a difficult section and have a look at my social media….”* [6L-FAH-28]

5.7.2 Discharging feelings and seeking comfort through tweeting

One academic explained that whenever she had interesting thoughts to voice and could not find outlets to communicate them, Twitter seemed to make a space for a person to communicate beyond her immediate realm and felt she was being listened to by others. She explicitly said it’s a *‘release’,* especially when tweeting among the group of academic colleagues she associated with on Twitter and she mostly engaged in it during working hours. This shows that she had a comforting notion and felt it was more meaningful when someone responded to her tweets, receiving support for her work stress:

> “*I enjoy... Nine times out of ten, if I post something, I’ll get a reply, so it’s another way of having a conversation ‘cos you’ve seen our offices here in Jessop West, they’re little cells, and it’s a very collegial building, very friendly, but it’s nice to realise there’s a world outside the four walls of my little cell. And it is another way of talking to people and sharing things. I don’t think for a second that the world is fascinated when I tweet a hundred and forty characters about the weather. I’m sure they’re terribly bored by it but it’s... I think I tweet, not to be a voice crying out in the wilderness on its own but to... as a way of having conversations with people I couldn’t talk to in the corridor, although sometimes the people that reply are the people that are, you know, two offices down (laughs).”* [16L-FAH-28]

5.7.3 Filling a gap with information and recreational content

In relation to the comfort sought by turning into Twitter use, academics also see this moment to search for information and recreational content rather than just scroll up and down about things that don’t really matter for them as academics. Twitter fills the little breaks or 'time–outs' academics have within their routines. It seems that browsing for information or news is a practical thing to do when pausing from work. Academics often emphasise that they will browse Twitter when having a moment, or as commonly specified: *'When I've got five minutes free!'* This may be between work phases or before starting the next thing (e.g. before other meetings) at lunch, during a coffee break, or while waiting to travel. The activity in such cases is about filling the gap between other activities.

One professor described how his 'academic diary' was programmed daily, and hence his time restrictions did not allow for longer breaks. He made the point that, in the little gaps of his academic schedule, he still made an effort to check his email and Twitter for an update.

> *"I only ever do it in a little snatched moment, like, when you came in here someone else left, so if we finish early, and I get five minutes, I will check my email, then I might have a look at Twitter and maybe someone will be coming in at 11.30. That is how my day is. My diary is very regimented because you made your appointment with (PA's name), so my diary just looks like that. So if people finish early, then I might look at Twitter, if there is a little gap… so I am never on Twitter for more than 5 or 10 minutes at a time."*

He also admitted that checking Twitter has become his new routine during a break. He has switched his reading habits since finding Twitter:

> *"Previously in those 5 minute gaps I do this, (flipping the journals) you know I read the journals. So sometimes if I have 5 minutes I will… just open the journal up and read something and some reading has been displaced by Twitter."* [3P-FOS-28]

Nevertheless, not all academics agreed about this claim. One professor in this study (the only one in the study sample that dropped Twitter and used an agent to handle his account) still retained his traditional habit and stated that an adequate activity for not '*time-wasting between meetings and other things'* involves '*reading other people's books*'. As he compared himself to most other academics that claimed to look at Twitter when they had a short break he commented:

Yeah, it's old-fashioned, but I normally carry a book around with me and I read it." [9P-FSS-28]

Surfing information on Twitter during a little break was similar to entertaining oneself by updating stories and information because "*it doesn't require many thoughts!*" One academic explicitly said her favourite choice between gaps was to check Twitter:

"*And I don't really want to do anything that requires much mental engagement. I'll flick through and read things that seem interesting."* [24L-FSS-28]

Similarly, another academic added that*:*

"Even when if I am cooking dinner I might have a quick look... I just wanted to see what is going on". [26P-FAH-28]

Both quotations imply Twitter is perceived as a social space for mental relaxation while giving value to being updated by the latest information.

Corresponding by email is part of an academic's obligations, which requires much effort and is time-consuming; thus checking Twitter is a 'lightweight' activity suitable to temporary moments:

"You know one of my academic routines is, well, answering emails is a very big one, so in a sense and that's something that takes quite a lot of time. Twitter is perhaps less hard work than that so I probably would use... I have a look over lunch..., I get a short break and might look at it then... and it is interesting to read those sites as I have lunch..." [21P-FOS-28]

One person described it as an instant mental reaction during an inactive mode, just to explore the news without giving intense attention or purpose to what they actually wanted to browse for. He related:

"It's almost like twiddling your thumbs... It's kind of just an automatic thing you do [check on Twitter] when you're a little bit bored or you've got a moment or something... So I check it less when I'm busy or when I'm away from home and I don't have a computer, that kind of thing, but there's

nothing in it that draws me to check it as it were, because as I say, I'm not really interested in reading the feed that much."[19SL-FSS-28]

Some academics said that undertaking a short parallel browsing session on Twitter and other web services media (i.e. Facebook, Blog, News, or email) is treated as an 'entertainment' or 'leisure' activity that can help to overcome the state of boredom, a waiting period or when on a long journey.

> *"When I was getting in the bus, I mean I do it when I have a little bit of down time. I suppose what I do is I tend to, if I have sort of 15 or 20 minutes for some reason, when I am not really doing anything, I will do a quick round and I will have a check on Facebook and check on Twitter and read the Guardian website."* [14SL-FAH-28]

> *"If I am being driven somewhere, like I was yesterday or I'm on a train or sitting in an airport, you know I get five minutes, I will go on Twitter."* [23UT-FSS-28]

> *"If I'm on the iPhone, I check my email and then check Twitter and then probably check Sky News, all in one go, just because it's fairly quick."* [1P-FMDH-28]

One academic stated her tweeting activity increased when she started to commute on public transportation, to occupy the hour long journey gap:

> *"I guess… part of the reason may be that I started tweeting because I commute… 5 days a week… and it is a train journey for about an hour so what tends to happen is I read all my Twitter feeds and then I read the news and then I respond to my [feeds] on Twitter and probably post about the news. And that is kind of my hour's journey into work […] Well I get really bored on the train, it wakes me up and I see what is going on in all aspects of my life: you know email, Facebook, Twitter; all those things."* [16L-FAH-28]

The equivalent pattern of browsing on Twitter and other media sites (media, web and social networking) shows the strong ties between them, conceivably due to its functionality in offering different types of information to users (e.g. broadcasting news, update status, work update). The fact that Twitter is easily accessible on mobile phones suggests that technologies like smartphone devices have played a significant role in mainstreaming these practices.

Academic [16L-FAH-28] explained that they would use time efficiently and effectively through surfing for information:

> "*Yes, I don't want to waste time […] there is no such thing as dead time and Twitter, to some extent, fills that void.*"

One academic believed that browsing communication technologies (e.g. social media and email) during a short gap is a positive activity, especially when associated with work:

> *"On the bus, if I haven't got anything else to do that takes 20 minutes, I might check Facebook and email; I mean I never spend 20 minutes on Twitter; maybe 5 minutes and then on the bus… again looking at Facebook, Twitter and email and things, a bus ride is really useful for getting things done. So I can email and take care of things."* [28SL-FSS-28]

Despite the statements showing that Twitter is seen to have a positive effect in micro-breaks, some also see the utilisation of social networking sites and gadgets during micro-breaks in another perspective. In here, Twitter is seen as a double-edged sword because despite it being perceived as a place for a quick moment of pleasure, it also can lead to 'procrastination'. This is illustrated by one academic suggesting:

> *"Actually, it's a break. I don't see it as work and, to be honest with you… I see academics tweeting all the time and I think, you know, "That's great but how are you doing any work?" And that again, sounds quite conservative but I do think it can be quite a procrastination tool, I really do, or it can be a mechanism to enable people to procrastinate and actually, in academia, when you're writing a lot, you're kind of having to focus your mind and get into a certain way of working and I don't think looking at a stream of information, of short, concise information, sort of… disseminated information is going to be conducive to the kind of mind set that you need to get in to doing work. That's my personal opinion. It's how I work, so to be honest, I don't... It's not part of my academic routine. I look at it if I want a break, if nothing else."* [11L-FAH-28]

This academic believed that taking a break on Twitter can result in delaying their work (e.g. spending time browsing information) and may affect productivity rather than motivate people to progress their work. Nonetheless, because Twitter use is seen to be guided by people's experiences, behaviour and attitude, perspectives differ, and these matter in understanding the phenomenon.

5.8 Information seeking and gathering

Most academics interviewed (26 out of 28 participants) claimed that they went on Twitter to read relevant updates, and to search and gather academic materials that were shared by other individuals and organisations. They perceived Twitter as a new central hub of 'collective' news and a source of information in addition to the traditional information repositories, e.g. published articles or libraries. This is due to the fact that Twitter's way of linking useful information around the internet and into a microblogging platform is clearly easy and convenient for them to seek or gather information.

One professor valued Twitter: *"I think it provides me with more information."* He discussed how Twitter offers an easy access to academic links and specific research information through following professional bodies:

> *"Twitter is beneficial because I use it as a way of collecting information that I need…I do follow people who are going to provide information for me like journals, research councils, organizations such as the Welcome Trust, so I do follow people but I follow more organizations than individuals."*

He further added that by subscribing to targeted people, he can quickly share information to his followers or discuss the current issues publicly. This act seems a strategy to support him in developing his reputation by being ahead of others as he commented:

> *"I think it raises [my] profile, I also think it has benefits in that it delivers very accurate information or very targeted information to me about what I am interested in because of who I choose to follow, so I feel that it helps me maintain my, people call me an opinion leader, I have been described as that, there's various websites in the University that describe me as that. If you are going to be an opinion leader, you need to know what is happening, so in a very targeted way, I know what is going on in the newspapers in my subject, I know all the new research papers that are being published and Twitter delivers that in a very targeted way. Much more so than email and much*

quicker than surfing the web…I can get up to date news about my subject using Google news, but I have to type in keywords, with Twitter if I follow the right people it just arrives." [1P-FMDH-28]

The quotation shows that this academic is quite influential in his field. With his high profile, he felt it important to manage and sustain his status in his field of expertise through being proactive, particularly in communicating relevant research to the public. This is also significant because his way of presenting himself to the public showed that he is a competent academic based on his informative tweets and profile. As mentioned, the use of web and communication technologies seems to provision his objective.

Another professor who held a high position at the university stressed that information shared on Twitter that related to his discipline was very critical for updating his knowledge, to support his academic career and in part for university public relations. He mentioned:

"*I do find out things that are actually quite important because, you know, they are important to me, I mean they are not important to the rest of the world but the things that happen in the science policy development government are important to me."* [21P-FOS-28]

Twitter also allows people to minimise effort and time in seeking academic resources for dissemination to specific people in the organisation. One academic experienced this and he related:

"It provides access to a wide of range of articles and things that I do need for my work. I do a lot of work nationally on promoting Language Learning and International links through the federation and I don't have the time to search through journals and articles and the newspapers for articles on it, but very often they will appear on Twitter, so it is a way of finding articles that I can use to promote language learning." [27P-FSS-28]

One professor commented on how Twitter fitted into his routines in relation to browsing and reading journals. He said '*people often advertise their papers on Twitter*' showing that he was able to receive similar information to journals he read using Twitter instead, without losing any information. In fact, he talked about the value it brings, that is learning through expanding his knowledge. He said:

> "*I read this great article; it does broaden your reading because you end up reading things that you wouldn't otherwise have read.*" With this benefit, it has increased his interest on Twitter: *"Yes, I got a lot of information on Twitter and that's why I go back and look at it."* [3P-FOS-28]

The diversity and currency of the information on Twitter seems to outperform other online media services, as one academic said explicitly: *"That's probably the first place I see news and things since I started using Twitter…."*She favoured Twitter for updates over other web sources, and elaborated further:

> *"if there's a news story, I will go first to Twitter to find links about it because I know that all of the current stuff will just be there, rather than go through the Internet looking for it or go to BBC News, for example. Before I had Twitter I used to look at the BBC News website very regularly. Now I don't bother really unless... I'm going through a link that someone else has sent, so where I used to check it, now I just, you know, use links."* [4L-FAH-28]

This shows how Twitter enables easy information access and creation bonds between people and information, i.e. current affairs.

Another academic collected information relating to his social interests and usually shared it with his colleagues:

> *"Politics and football are kind of my hobbies outside of work: cricket, sport and politics, current affairs and culture, film, things like that. So I would follow people related to my interests. I would use it to share content with friends and things like that and to find content as well."*

He added that if he was interested in finding out information on sports news he would use a 'hashtag' (#) on Twitter to identify information about that 'event' or a particular football player's name. He appreciated the ease of using Twitter and had switched from receiving news from other weblogs to just Twitter:

> "*It sort of replaced blog aggregators that I was using to get news, as I used to use a lot of… things like that… So it's very much an information-gathering tool but through, in a similar way... in a less flippant way.*" [10UT-FSS-28]

Another key incentive for academics to use Twitter is the fact that it contains a range of current news and information, which are also supplied by Twitter's members. This shows that Twitter becomes a community of people sharing ideas, information or news that is not bound by space and time because everything is exchanged virtually in a short span of time. One academic showed her interest in Twitter as an information channel and for scholarly interest when she stated:

> *"So initially I use that (Twitter) as a kind of an instant source of news and I am also interested in Language and I'm interested in the History of Language but I am also interested in to an extent how people react to news and to events and to language and there is no field of language obviously on Twitter 'cause it is a medium and so it seems to me to be an interesting way of doing that and there is an accessing through Twitter, blogs or news item or videos or that kind of thing, so it seems to me to be a really a good way of both accessing material but also then disseminating and sharing it."* [26P-FAH-28]

Academics mostly valued how Twitter cultivated new trends in reading where news or information can be personalised to one's interest, based on who and what they followed, on one single platform. They commonly expressed themselves using adjectives like 'custom-made', and 'specialised' to express its features. Two academics spoke of similar benefits:

> "*The thing I really value about Twitter is the people I follow put up links to interesting stories and so I often click through from Twitter."* [26P-FAH-28]

> *"I suppose I found, I think, it was helpful because I was able to follow interesting people who drew my attention to important and interesting things that I might otherwise have missed, so in that sense, you know, it is a specialised news channel, isn't it?"* [21P-FOS-28]

They further stated that Twitter can also be useful for subscribing to and accessing relevant sources through a single channel:

> *"I think before Twitter there would have been quite a regular set of blogs that I would read; three or four or five blogs that I should have to check very*

> *regularly. I would now read things that came to me through Twitter… I would follow someone's blog that looked interesting and follow them…and rely on that Twitter account to tell me when they had written a blog...*"

One professor expressed how his routines had kept him busy, but that he still needed to update himself through reading:

> "*I don't have the time to search through journals and articles and the newspapers*" and said that Twitter helped him to filter unwanted news and direct him to specific information needed: "*What is nice about it is that it is almost like a custom-made magazine, isn't it… I don't have time to read newspapers!*" [27P-FSS-28] which is to suggest the different functionality Twitter offers compared to other media.

In this way, convenience is also offered by Twitter to its subscribers. This functionality is particularly useful for people who are interested in following a certain topic or news without being bothered by other information that they deem irrelevant.

On the other hand, simplicity of reading related to Twitter's feeding of information was also seen by some academics as valuable. One academic narrated:

> "*So I think it [Twitter] changed the way I access information in some ways… It changed my access to news, to development, it brought me in contact with perspectives that perhaps I wouldn't otherwise see, so in that sense I would say yes, it broadens the range of things that I read.*" [4L-FAH-28]

With the wide array of information floating around the World Wide Web, people need a way to conveniently sift through the information based on their needs and interests. It was seen that the platform, with its desirable features related to information seeking and gathering such as links, hashtags and filter, Twitter has made its way to the life and work of academics in this study.

5.9 Learning

From the interviews data, (13 out of 28 participants) it was discussed that academics can access various types of information provided on Twitter. Accordingly, Twitter also allows academics to draw out information from many discrete sources serendipitously. As one academic said,

> *"I wouldn't be necessarily finding (information) myself;"* because Twitter is seen as a powerful 'learning tool' by the majority of academics. [22SL-FAH-28]

One academic positively answered:

> *"I learn things constantly from Twitter! That's why I engage with it."* [10UT-FSS-28]

Academics discussed how they learned new information and interesting ideas (e.g. research developments in their disciplines, teaching activities, general updates) from Twitter through observing other people's posting activities:

> *"really it was from seeing what other people, other academics were doing, tweeting their own links, their own journal articles that are being published, linking tweets to new materials or relevant stuff or for classes and for tutorials and things and then gleaning ideas from what other people are doing."* [8RF-FSS-28]

This illustrates the process of learning by doing; that is, observing others and immersing themselves in Twitter in order to learn how to use and be in the network.

Some academics provided examples of how they used Twitter to learn (peer-to-peer learning):

> *"I started to follow somebody, another Law lecturer at Birmingham, and a couple of Law lecturers in Birmingham, and they were using Twitter for revision, discussion settings for their students, and I thought this sounds like a really interesting thing to do and so I got in touch and I watched their discussion to see how it went …their students really engaged with it there were some really good things so I thought actually, I was about to start teaching a compulsory subject; this is incredibly dry and the students hate it…and maybe I can build this in…"* [24L-FSS-28]

On the other hand, learning is not only limited on the way the academics learned about the use and benefits of Twitter. Learning, in another context, is also seen as a process of acquiring knowledge from peers or other members of one's network. One academic stated that she learned ideas for new teaching methods using Twitter for a subject she teaches that was uninteresting and problematic. Through observing one colleague at a different institution, whose background was similar to her disciplinary area, this academic felt she made a success by replicating his approach. Apparently, she made new contacts and received teaching support from this new colleague she found through Twitter.

Similarly, another academic explained how she learned about academic assignments via connecting with friends and academic colleagues across a broad geographical distance. She felt that, through observing and communicating with colleagues about their work, it contributed to some thoughts about her own teaching plan.

> *"I think I definitely learn more about all kinds of different projects, something like that, that people were doing and sometimes as well I can mention to the colleagues or friends in the States in my posts something that their students have done, so at the moment someone that I follow is planning a student exhibition on New Lacy and I have been following what he has been doing and that has been giving me some ideas about what I might do at some point with students whether I could do a project like that."* [16L-FAH-28].

This showed that she can enhance her academic skills through studying different countries' teaching systems, activities and experiences.

5.10 Coordination or amplifying other social media and website uses

Some of the academics (18 out of 28 participants) noted the usefulness of integrating Twitter with other social media sites or professional websites to supplement and publicise information from the official web and media links, i.e. department blogs or university/department/individual websites. Accordingly, academics indicated using Twitter to highlight individual participation on other websites and social media.

One academic considered as the front-runner for the departmental Twitter account, described how they managed the account to publicise and promote activities conducted by students in the department. The information disseminated through Twitter also included the achievements of former students, as well as news on festivals or ceremonies organised by students and faculty members. Significantly, the information shared on Twitter was used to support their departmental website, making them more visible to other Twitter users.

"The School… Twitter feed mainly announces things that are happening in the School, that is to say anything that the School's doing that's public, we will announce. The students organise a lecture every Thursday evening so they'll tweet, possibly two or three tweets over two or three days, telling people about it, possibly sending them a link to the website of the person and then perhaps reminding them on the day of the lecture. Our students do lots of reviews in the School where they put their work up and present to other students and to group tutors. Those events are public so we encourage people to come along to those. We announce our open days. We welcome people to our open days… If there are… particular anniversaries…[like] the day the Arts Tower was opened… we will announce those kind of things as well; and also, if any of our staff or students or even our alumni have done anything particular, so if they've won a competition those kinds of things, we will announce it. So it's a good supplement to the website and it's quite a useful pointer… to a particular article on the website, a news article or something… It helps to promote the School and to engage with students, reminding them of things that are happening..." [23UT-FSS-28]

As another participant similarly commented:

"That's what Twitter is for really, it was to promote that to give a constantly changing website, without having to go in there and do something. So at least with this Twitter feed there is always something. I mean the website itself is not being used much at the moment because I don't need… just really let it out to the world and I need to spend some time promoting that too but it is all kind of coming together; it is just the promotion of it." [27P-FSS-28]

"Twitter connecting to my sort … my science policy webpage, really it's just that […] I put a little link to the webpage saying if you want to have an immediate update try this. And soon the guy, a few thousand people go to the websites, and so a fraction of those who use Twitter switch to the Twitter feeds." [20P-FOS-28]

These excerpts above show that Twitter is valuable in complementing other online platforms through providing current and refreshing news.

In relation, Twitter also benefits academics by highlighting their presence on other social media sites or directing people to reach their webmail contact similar to having a 'business card':

> *"Twitter is a way of directing people to my blog."* [2L-FAH-28]

> *"I think Twitter is supporting the blog…so there is a case where journalists have asked me to write stuff because they read the stuff on my blog […] so I would say that it is sort of secondary, I don't think people come to me a great deal because of what I have put on Twitter but they have for my blog, and my blog has been supported by Twitter so that's what I say."* [21P-FOS-28]

> *"My blog is a link to my Twitter, so in my Twitter profile, you know it's got a link to a blog…"* [24L-FSS-28]

> *"I use it (Twitter,) I connected with my blog, sometimes with Linkedin […] my own personal website with the blog attached to it…So I can tweet my blog post."* [25SL-FMDH-28]

> *"Yes, occasionally people have said can I talk to you about something? And I say email me. And that is why on my profile there is a link to my homepage and email link."* [1P-FMDH-28]

The thoughts above are similar to what have been mentioned in relation to the complementary role of Twitter with other tools such as Facebook and email in terms of their communicative capabilities. It was further observed in this section that Twitter also complements other platforms that academics use as professionals such as LinkedIn and personal blogs.

5.11 Summary

This chapter shows that academics engaged with Twitter began to develop different sets of uses depending on their goal and aims that they want to achieve. Academics in this study mainly used Twitter to support their academic work, that is for communicating and sharing their research, teaching and administration work. These developing uses coincided with their main intention to adopt Twitter which was primarily for academic practices. Nonetheless, it was also seen that Twitter helps them in promoting themselves, maintaining networks, extending identity, information-seeking and recreational engagement, and widening social and professional connections. These activities, while not directly related to the development of one's career, are still considerably significant to maintain balance in attaining productivity and building capability related to academic work.

Chapter 6 : Patterns of Twitter Use and Concerns related to the use of Twitter

6.1 Introduction

In chapter 5, the different ways academics use Twitter were discussed. As a continuation of which, this current section outlines the relevant habits developed by academics in using Twitter. Seven patterns were identified: (1) Temporal patterns of use; (2) Tweeting activity; (3) Monitoring Twitter; (4) Following and being followed; (5) Storing information; (6) Management of multiple Twitter accounts and (7) Technology affordances in supporting Twitter use. These patterns are discussed below. This chapter also discusses concerns raised by the academics when using Twitter as presented in section 6.10.

6.2 Temporal patterns of use

Based on the interviews, certain activities pertaining to the use of Twitter in searching for information were identified. These activities can become habitual but logging on to Twitter is also at times a spontaneous and non-routine activity. As one academic indicated, his initiative to open and browse Twitter is driven by spontaneous circumstances as well as casual curiosity:

> *"I don't have a schedule but it kind of comes into my mind when I'm doing something else. Or maybe I see something on the news and I think, "Oh, I wonder what Twitter is saying about that", so it will prompt me to go and look or maybe I'm reading an email and I think, "Oh, I wonder if anybody's tweeted that" and I will go and look."* [1P-FMDH-28]

Patterns of information-searching activity by academics in Twitter were also driven by two things, time element and the parallelism or complementary use with other platforms. For instance, most academics shared about the experience of browsing Twitter early in the morning or late at night. There is also a pattern of frequent checking of their Twitter account as well as a practice of short browsing (e.g. 5-10 minutes). Parallel checking of Twitter with other communication media (e.g. other social media, email) are also seen from the responses of the academics in this study. These patterns or sub-themes are discussed below.

6.2.1 Browsing early in the morning

With habitual engagement with Twitter, some academics mentioned that it becomes automatic for them to browse the network even in the early morning. Twitter becomes a means for them to receive news early in the morning. As narrated by some academics:

> *"I tell you what I do, when I get up in the morning I will always, before I leave the house, I always look at Twitter, I always look at my timeline… You know what happens in the world and who is saying what. From the Twitter feed I follow BBC breaking news. If I want to get more information about that story I can follow them throughout the day; if I get time."* [17P-FSS-28]

> *"I look at it first the soonest I get out of bed on my phone but generally don't respond to anything then, I just look at it. Just see what is there."* [13UT-FAH-28]

The academics above indicated that the habit of opening Twitter serves as their first source of information before performing other daily routine. The accessibility of social media applications through mobile devices also seems to play a role in this pattern. Twitter can be quickly and conveniently accessed because it is used on a mobile device that is always at hand.

Some academics also described their habit of browsing tweets early in the morning is not only temporal but also affected by geographical factors. One reason why academics logged in early was because contacts were in other time zones so major developments had occurred over night. They wanted to catch up first thing in the morning. Some academics mentioned:

> *"I've got people I follow and people who follow me who are in the States and obviously I miss some of what they're tweeting about and they're tweeting in the afternoon because I'm not looking at it in the evening. But then I might look at them in the morning so I'll typically get up and then look at twelve hours' tweets over, you know, from seven o'clock so I'll be going back to...and I'll typically go back to the last tweet that I looked at the day before…"* [6L-FAH-28]

> *"In the morning I see what everyone has been doing as well partly because as I say you know I am friends with a lot of people in my field and that means*

there is always something going on overnight, you know I have colleagues who are I am interested in their work and tweet in Canada and the States, so Australia, so there is usually something that is going on overnight on my Twitter feed because of the different time zones and stuff." [16L-FAH-28]

These statements imply that academics frequently engage in Twitter activities at certain hours of the day because of their desire to keep up with information they might have missed. This is due to the platform's feature of real-time streaming, which constantly pushes out updates from people from different time zones. It can also be noticed, however, that their engagement is passive because they primarily use the platform for browsing but not having an active interaction with other people in their network.

6.2.2 Browsing at night

With Twitter's 24/7 online interactivity, some academics browse through it before they go to bed or late at night. This pattern of use exemplifies the interactive features of the Twitter stream which has updates every second. This feature also offers users the opportunity to participate in discussions unlike traditional broadcasting platforms, which only support one-way of communication. This feature encouraged people to become more engaged with Twitter. One academic revealed her use of Twitter and other social media late at night, particularly during her pregnancy:

> *"Yes, I browse Twitter in the middle of the night sometimes. One of the downside to being pregnant is you don't sleep through the night, so if I'm awake, you know, lying on the bed, I look at Facebook, look at Twitter... there's a whole community of people who are awake in the middle of the night."* [24L-FSS-28]

While the situation was based on a particular circumstance, it still shows that Twitter is being used by some to pass the time and view information to accompany them when they are still awake at night. Other academics discussed how they catch up with information updates on Twitter later in the day or after working hours. The academics shared these thoughts:

> *"If I am very busy then I will look at it again... like when I am at home kind of I sat and catch up on all twitter updates."* [12FR-FOE-28]

"When I go home, I look to see if there is anything I've missed. I might watch Newsnight, and if anybody is talking about it I might join in…. It has become one of the things, the same as the habit of reading a paper…Twitter is now one of the habits I have kind of built-up in my media consumption and my keeping an eye out for stuff my students would find useful." [17P-FSS-28]

This implies that though academics are usually occupied with their academic tasks, they still feel the need to immerse themselves with the latest information, particularly through Twitter. This immersion is seen through by browsing as well as in joining discussions of topics that are of interest to them. Here, it becomes the last part of their daily routine to check Twitter before their day ends.

6.2.3 Frequent checking in a day

Academics see Twitter as an additional media source to complement their reading habits. This habit involves constant checking of the network to seek news about the latest events to remain informed. Thus, most academics reported that they constantly log on to Twitter.

"I sometimes did [browse on Twitter] when I am in the toilet, or in the bath or waiting for a bus […] Twitter, I do half of dozen times a day." [1P-FMDH-28]

"I tend to just access it...I just look through it, at any one time. So over lunch or something like that, if I go outside or if I'm waiting for something, I might look on my Twitter and just look through it like that as a window into what's going on at that particular moment and I look at it in the evening, probably a little bit as well and in the morning, when I get up, see what's going on." [11L-FAH-28]

"So… I might check maybe once or twice during the day, depending on if there is a conference going on, and I will do it more often or if there is something I am really interested in that is happening then I will probably be there much more often." [17P-FSS-28]

Such practices by academics indicate that the pattern of their Twitter use is habitual and automatic. This is guided by their intention to find something interesting while doing something ordinary during the day. These habits gradually become embedded in their everyday routine.

6.2.4 Time limited browsing

In relation to temporal patterns in the use of Twitter, a majority of academics indicated that they would generally spend a minimum time scrolling and browsing Twitter. Meaning, some of them consciously set certain duration for their browsing in order to limit their engagement time and effort. However, the amount of time for this tends to increase, if something catches their attention. One academic mentioned:

> "*I probably look at it a few times a day so but I don't spent long at it usually, so maybe 5 minutes, usually 5 or so 5-10 minutes in the morning and again in the evening and then sometimes if I get interested in something you know than I will start following the stories and but yeah and then… I often check it a couple of times during the day."* [28SL-FSS-28]

Here their engagement depends on whether the tweets are personally interesting or relevant for them. If such is the case, then more intensive involvement and longer time is spent.

6.2.5 Parallel checking with other social media

In addition to the time element mentioned by the respondents, some academics also described their patterns of viewing Twitter being parallel to the way they use other online communication applications like e-mail, Facebook, and blogs. It is suggested that some aspects of these platforms have a strong correlation to the academic pattern of Twitter checking seen in the academics' online engagement. This parallelism was illustrated in one example where a professor developed a habit of checking Twitter because he liked to check his blog at the same time. This move has automatically encouraged him to check both simultaneously:

> *"I mean it is the kind of pattern I got used to from having a blog that, I mean Twitter have been attached to my blog very interactively; there have been lots of comments."* [21P-FOS-28]

Another professor showed that Twitter is used simultaneously with email and it has become a habit for them to engage in this activity. He stated:

"If I got time early in the morning I might look at Twitter cause I look at the email first thing, particularly if I am going do something else before coming in." [26P-FAH-28]

"In the morning, I will get up, wake up and in bed, I will usually check Facebook and my email and the news and Twitter … from my iPhone, yeah!" [2L-FAH-28]

One professor described his typical routine of coming to work and having a look at both his email and Twitter in the morning. Like other comments, he repeatedly looked at it during short breaks in his working day. He linked these two communication platforms together but stated that email was his priority. He further indicated that browsing at night to view tweets from colleagues at different time zones has occurred to him in a regular way. He said:

"Most likely I would probably take a look when I am coming to work; checking emails; checking what's going on Twitter probably, would be the two thing early in a day, depending on what sort of day it was, today I had a very busy schedule, so it might not be the first thing in the morning, probably the last thing, but maybe more often, if I have a less busy schedule. So in the same way I guess, like when I want to check my email, you know 4-5 times a day I probably… check on Twitter…, but if it comes down to it and I have 5 minutes between meetings, I look at email and do Twitter later on. So I guess a couple times in a working day and then maybe in the evening once or twice. I got more time in the evenings than day time. Yes, as I said to see what the Americans are saying and so the Californians, particularly the Californians are next away." [20P-FOS-28]

To summarise this pattern on the information-seeking activity of the academics, various sub-themes were seen from the Twitter use of the respondents. These include 1) browsing in the early morning, 2) browsing at night, 3) frequent checking of in a day, 4) time limited browsing and 5) parallel checking with other social media. This temporal pattern in relation to the use of Twitter among academics relates to other activities as discussed in this chapter.

6.3 Tweeting activity

Academics described that they sometimes tweet during searching and browsing for news or other information, or they just either passively follow their timeline. They indicated that they may post a tweet or retweet something they find interesting. However, involvement in a public discussion is only occasionally done. There are a few patterns revealed through the interviews; including early morning tweets, during work hours and during travels.

6.3.1 Tweeting early in the morning

As already mentioned, a majority of academics described that they typically browse Twitter early in the morning as part of their early routine news feed. Some also take this time to actively tweet in morning:

> *"So usually from about seven o' clock in the morning and I tweet for all sorts of reasons."* [10UT-FSS-28]

One academic described how she deliberately engages on Twitter early in the morning, particularly when most of her colleagues are online. She tries to take advantage of the platform by posting relevant tweets into her timeline or tweet to other colleagues. Her act seems to imply a strategy aimed at highlighting her presence on Twitter. She mentioned:

> *"Normally, if I'm going to do it, very often before work. I think that the time when a lot of people that I know are online is...Actually I did one of those, what's the word? You know you can get a report that tells you when your followers are online, that kind of thing that's free. I did that for the department feed and I did it for mine at the same time and my impression was that most of the people, you know...It's like between eight and nine in the morning when most people are at work, but not working, is when there are a lot of people around but actually it isn't...that wasn't the main time but that's I think when most of the people that I talk to on a regular basis are around and will pass stuff on and things like that. So I think between eight and nine there are a lot of people who are friends who are around."* [4L-FAH-28]

A few academics showed how the pattern of tweeting early in the morning is associated to their work activity.

> *"So, in the morning I get up about six and write on a book and I will go on twitter and I will probably tweet once"* [15P-FSS-28]

While this section presents a contrast to the discussion on early morning browsing as a passive activity, early morning tweeting is an active one but is done within limits set by the user, as seen above. Yet, a more active Twitter engagement is seen at other times of the day.

6.3.2 Tweeting during work hours

From the interviews, academics suggested that their Tweeting activity mostly occurs during work hours. These activities were described in detail by one respondent:

> *"When I have a kind of admin-type day, if I'm doing lots of bits, small things like emails, then I might well tweet in between, comment on things, retweet and so forth and when I see interesting tweets I just retweet them…it's sort of when it fits into what I'm doing with other things. Sometimes if I'm at the computer doing bits and pieces, like emailing or writing short messages or something that perhaps doesn't require lots and lots of focus and concentration on doing one thing then I probably kind of tweet in between that."* [5L-FAH-28]

A few other academics talked about setting their own rules or philosophy regarding tweeting. One professor strongly emphasised that he used Twitter only for purposes associated with his professional responsibilities, stating that:

> *"So I do Tweet in the office, I mean on my IPhone, my Ipad, or whatever but you know I, it's something that is definitely work associated […] It's something I do when I'm working, I don't surf at home looking at Twitter, so I do it in the office… Twitter stays in the work compartment of my life*." [3P-FOS-28]

Similarly, another academic reasoned that associating Twitter with work is due to the influence of the community of people mostly involving their colleagues who are on Twitter. The presence of this community and the individuals they know influence the academics to participate more.

> *"It's like an accompaniment to my everyday work and because I think of Twitter more as a work thing in a way, that I connect it with my academic, kind of online identity and things like that [...] I think because most of the people I follow are academic-related in some way that I associate it with work space and work time."* [2L-FAH-28]

The statements above imply that academics consider tweeting activity during working period to provide more opportunity for them to enrich relationship with their colleagues and with other academics outside the university. This is especially so when they see that everyone is online. This habit also allows the user to build profile in a convenient way through interaction and visibility of tweets.

It suggests that academics incorporate Twitter in their work routine, despite their tight work schedule. This is consistent with the 'micro-breaks' concept (see chapter 5) where academics highly engage on Twitter during work hours as part of stress reduction.

6.3.3 Tweeting during travels

Because of Twitter's use through mobile technologies, accessibility and mobility have been incorporated in the habit of participating in the platform. As a consequence, academics have developed a habit of tweeting during their travels, locally or to other places or cities.

> *"I do quite a lot of tweeting when I'm on the bus on the way home ..."* [24L-FSS-28]

> *"Maybe at the bus stop, I'll check it and maybe even do a tweet or respond, something like that, maybe something like, you know, "A busy day at work ahead" or something like that. Then on the bus, maybe two or three times [...] It is like a constant presence, you know…"* [19SL-FSS-28]

Despite Twitter's mobility, some constraints are still seen in relation to the tweeting activities of academics. They are more involved in Twitter activities when they experience a gap or layover on a trip or their journey is long enough that they get bored along the way. Still, this is only conducted provided that Internet facilities are available to support their online access:

"I've been tweeting on the train actually, going to London [...] There's Wi-Fi on quite a lot of trains now so sometimes it's Wi-Fi" [1P-FMDH-28]

One academic stated her tweeting activity increased when she started to commute with public transportation due to the long journey:

"I guess I tweet part the reason maybe that I started tweeting is because I commute, I commute a lot in 5 days a week and it is a train journey for about an hour so what tends to happen is I read all my twitter feeds and then I read the news and then I response to my on twitter and probably post about the news. And that is kind of my hour journey into work." [16L-FAH-28]

This academic explicitly discussed her tweeting that began with skimming the newsfeed and picking up some stories that caught her attention. Subsequently, she then shared these information by doing a retweet. This process became a habit especially during her regular hour-long journey to work.

6.4 Monitoring Twitter

In addition to the information-seeking and tweeting patterns of academics, it has also become a habit for them to frequently monitor Twitter timeline and other websites. They do this by leaving the application open on the desktop window and by relying on the notifications that push information on Twitter updates.

"It sounds awful but I would suggest that yet again it's probably there, as it were, ready to be checked if I need to or want to but as I say, in my defence, I'm not reading it, I'm not really reading it in an intensive kind of way. It's more that, you know... It's there. [..] It's on the browser, yeah. Also, Mac's got a programme. I think it's called Growl where it sort of appears up here when a tweet appears. It'll sort of appear up in the top so actually whilst I'm working, tweets will sort of flash at me and often I just ignore it but sometimes I just happen to see a sort of word in it. I think, "Oh, what was that" and I just have a look. So it's not a methodical scouring of Twitter, because I don't have the time or the inclination but, usually I find that I catch enough to stay interested... I do turn it off occasionally… when there's a lot coming all at once, I just think, 'That's bugging me now', but normally I just sort of have it in the corner, keeping me up-to-date, you know, just keeping

me interested.[...] I will have it open on the computer so I can, you know, some afternoons I will just have it there and I will just see it roll past. So my home page is BBC News, on my browser, but I could have it on a different tab, so it's kind of just there in the background sometimes. You know, and the computer gives you a little symbol if somebody 'retweets' you. That will prompt me to go and read Twitter." [19SL-FSS-28]

The alert feature of the programme feeds users with information without the user giving full attention to it. This supports the finding on the passive nature of participation when users only browse the news stream. However, the alert feature could also create a distraction if the user is being notified simultaneously through more than one application. The notification system in the platform makes people become entangled with Twitter by keeping their device alerts turned on. And because the users carry their mobile devices at all times, they could not help by glance repeatedly and tweet. As some respondents mentioned:

"Here are my notifications (pointing at his mobile) [...] I see a notification; I'll probably go and check it up here." [1P-FMDH-28]

"No, I don't check it. It will beep. The iPhone and the iPad will beep if there's any, you know, if somebody new follows me or if they mention me." [10UT-FSS-28]

Some of Twitter's features interrelate with each other and they interlaced with the user's other practices. This is especially true in the pattern relating to monitoring Tweets, either in a passive or active way. The passive way includes leaving the application open to monitor feeds, and their active engagement is seen when they decide to check out the received information in an in-depth manner.

6.5 Following and being followed

The approach to following-and-follower is a method on Twitter that is commonly used to build a network. This is done by supporting the user in retrieving information and increasing reputation as perceived in the network. Reputation is defined based on the number of followers and connections, which can be acquired by following people and being 'followed' by people. Academics in this study mentioned that they follow individuals, groups and professional bodies with diverse characteristics.

Some ground rules were discussed by few academics in relation to how they gained followers:

> *When I first started somebody said, somebody's ideas or somebody's suggestions is that you set yourself a goal of tweeting once a day and I supposed I did that at the beginning, I tweeted more I tended to tweet consistently at the beginning when I first started because it's a good way to get followers to build up sort of network…* [24L-FSS-28]

It is shown above that tweeting actively on Twitter will create a constant presence and help to create followers. Another academic described a similar experience, but emphasising how he responds to other users who are approaching him about his tweets:

> *"When I was building up a follower base at the beginning, it's more important that it's your name rather than someone else's and the headlines, and people notice you…I do tweet and retweet regularly. So sometimes I might read it and say my own thing but then say via so-and-so for the link, you know.* [4L-FAH-28]

Academics also discussed the role of the following-and-follower approach on Twitter as a strategy to support profile-building as well as widening the dissemination of one's publication. One academic mentioned that following people who followed her helps in this endeavour.

> *"I was encouraged to use the philosophy that in order to get your stuff more widely publish you have to start following people and so you basically you follow people in order to get the followers back and so I kind of going down like approach I don't really like it because I know that quite lots of what the other people tweet I am not interested in which means then I just have to kind of give favourites. So now I kind of started following people who I think are influential and potentially would follow me and pass on information, it's all part of this kind you know knowing the right people who is really important to our fields and if you want to progress your career you know a lots of it is knowing all about you know the right people and get it yourself known, know all kind of stuff which is something I work on lots of lots for years. You know sort of increasing your reputation and so actually using things like twitter and being interacting with people who are influential on*

Twitter is a really good way of getting yourself known so I started doing that more now. I mean you know the things is that people more likely to follow you if you are followed by you know the more people that followed you more likely other people are to follow you cause they see you got lots of followers in certain things 'Oh you must be someone really interesting! It is true I mean it's all incredibly challenging stuff but is I mean it is really true. And so it is kind of important in that sense to you know if you want to improve your reputation…" [12FR-FOE-28]

This academic stated how she initially used a method of following a large group of people in her field in order for them to show reciprocity. She also indicated that there is a higher possibility of her tweet link to be retweeted by followers and contacts in a wider network. If this is the case, then it can certainly help her to promote her work and visibility. Once she had established herself, she then changed approach to be selective by following key people. This is rooted from her general belief that having more followers on Twitter tends to be a key way people evaluate others on the platform.

While the academic above emphasises individual followers, another professor indicated that he was following professional bodies more than individuals. He deliberately chooses to develop more connections with 'journalists' as these people are significantly important for publicity.

My twitter ratio is I am following 115 people and I have nearly 800 followers so 8:1, so if I look at following, and it is more organisations, the few individuals that I do follow are hand picked individuals where I want to try and build the relationship and most of them are largely journalist. So I follow a number of journalists who I work with for various things over the course of the year and I follow their tweets to see what they are doing and look at their opinions but occasionally to have a dialog. Journalists are people I want to foster a relationship with [...] Journalists are all in London so I only see them two or three times a year, so if I follow them I can feel connected with them and if they say something that I want to comment on, I can comment on them, when they write stories...They do what I do, so they are using Twitter as their glue. So when they write a story, they put it on their profile and then I see it and I read it.

He also connects with people whom he has met personally or people whom he felt were valuable and interesting. Nonetheless, he indicated that he also occasionally develops other acquaintances especially when he retweets some of his colleague's or other people's posts. He mentioned:

> *"I have seen them tweet something and somebody retweeted, and I think oh that's quite interesting I might follow you. So that is like being introduced to a friend isn't? You meet somebody at party and somebody introduces you to them it's the same on Twitter, somebody retweets something and I like it, I more likely go back and follow them."* [1P-FMDH-28]

In contrast, one academic discussed her approach of maintaining an equal number of followers and the people that she is following. This is done to display that she does not have an egocentric personality and at the same time it also widens her connections both in individual and group levels. She maintained that:

> *"I have got 273 followers and…I am trying to keep the same number of followers as I follow, because I don't want to be too self-centred, because the problem with Twitter is you can't be thinking it is all about me, but I also like to find out about other people."* [15P-FSS-28]

One academic expressed doubt on the approach of building huge network through the following-and-follower approach because of the perception of a superficial relationship. This can create another problem related to the user's information management as a respondent mentioned:

> *"Some people will follow fifteen thousand people and then they get fifteen thousand followers. Well, what's the point? You can't follow fifteen thousand people. If all you're trying to do is build up a lot of followers then that's a good way of making yourself look important but if all you're doing is you're following somebody and they're following you back as a matter of courtesy, what's the point? I don't see how you can possibly filter fifteen thousand people's Twitter output."*

In order to respond to the concern, this academic deliberately set a particular number of people to be followed. This is done to maintain an effective way of reading important information and in the personalisation of the newsfeed. He stated that:

"I'm limited to two hundred so it forces you to be discriminating about what's coming in on that timeline." [10UT-FSS-28]

In summary, the pattern on following-and-follower approach in Twitter seeks to maintain some benefits as mentioned by academics. These include increased reputation, wider dissemination of research, reciprocity shared among diverse users and network-building. These happen based on how the academics give regard to the number of individuals or groups that they are following and they follow over the network.

6.6 Storing information

In addition to the pattern of information-seeking activity of the academics, information storage is also seen as a pattern in Twitter use. Here, relevant information from Twitter is stored by academics, which enable them to keep important links that may be helpful in their line of work. The information could be used for fulfilling their administrative roles or for their personal interests. This information-storing pattern could also extend to their tasks related to teaching appraisal, sharing of academic information or for personal updating of knowledge. They store information through retweeting links and favourites, or by using other applications connected with their Twitter profile.

One academic gave an example how she strategically keeps her Twitter activity as a record for the PGCert Learning and Teaching evaluation, stating that:

"I kind of I kept them just partly because I am aware that I am doing my Cert the second part of my teaching qualification in September so I thought I might want to use it as some kind of evidence my teaching practice at some point so that is why I kept them […] there is just kind of archive for me so that can explain what I did and how the students responded I guess if I need to." [16L-FAH-28]

Another academic described that she curates information from the class discussion using a third-party application and shared it into the university learning management system to add as a reading material for students' consumption. She related:

"So I Storify this thing and then you save it and you know put the links on MOLE so the students could look at it, and it's open access, so anybody can

see it, but then, so all I did for that is just collect the tweets and organised them into themes" [24L-FSS-28]

Another academic shared various ways he captured Tweets through an application available in different computing devices particularly used for storing information.

"If there is a particular Tweet then sometimes it depends as well where I am so if I am on a computer and I can easily copy and put it into some other kinds of format or documents or something then I can do that. On my tablet I have pocket the app pocket which is like, I don't know if you have seen it but it is a bit like drop box but basically when you are on a website and you can go into the menu of your browser or into the menu of Tweetdeck or whatever particular app you are using, to share and then pocket appears there and it basically puts into your pocket and then you can login to a pocket online and you can login into your tablets and you can log into your phone and you can just see all of the things that you have sent there. So if you want to remember something you should stick it into your pocket and it is there." [11L-FAH-28]

One way to store information in Twitter for further utilisation in other situations is through its favourite feature. Others stated that they use the favourite button on Twitter as a way to save interesting information for future reference:

I'll just read it there and then. I have favourite stuff so I could read it later... [11L-FAH-28]

I do favourite them but I as I said I tend to favourite things [...] so it is kind of building up a resources [13UT-FAH-28]

Aside from Twitter's features that aid in information-seeking it also helps in the storing of information. Such information is based on professional and personal interests of the academics. It is stored by linking Twitter to other applications and through the 'favourite' feature.

6.7 Managing activities in other Twitter accounts

Academics are also involved in managing multiple Twitter accounts for different scholarly purposes, related to the department, their research community, teaching, events or private use. This practice could be a collaborative effort or an individual activity. Some academics revealed that they are also using multiple Twitter accounts when posting tweets. Some acknowledged handling these additional accounts with a colleague. They manage up to four Twitter accounts, which include accounts for their personal, teaching (e.g. module), departmental and academic activities (e.g. conference, research project).

> *"I've got two accounts. I've got my account here and this is the conference account that I've got so this is all linguists. I've shared some tweets there for the registration for the conference that I'm running."* [6L-FAH-28]

> *"I have 3 accounts, I have mine and I have the federation and I have the European project."* [27P-FSS-28]

> *"One solely, that's my Mexican Studies that is technically joint with someone else but I'm the only one who ever really does it, @usesofhistory which I do with (colleague) and then the department one I'm on as well. So it's four."* [4L-FAH-28]

> *"I have one personal one and then I have access to the group one for work. So we have a GATE team account and then I have one as well for like one of my hobbies and because I manage like a sports team so we have also for that but only have one kind of personal account for myself."* [12FR-FOE-28]

> *"I have one that is related to the website all about Linguistics.com, I do have the departmental one, I tweet under the department account, and I have the all about Linguistics one which is related to the all about Linguistics.com website which the students build. I have my own personal one and then we did a fundraising event a few weeks ago with students and we had a Twitter account for that, so that's becoming a bit dormant now I am not using it really very much but it is still here. So at the moment I have four but I am actively using three of them."* [13UT-FAH-28]

When asking academics how they felt about managing more than one account, they tended to answer positively, for example:

> *"Occasionally it gets a [bit] frantic, but on the whole ok actually, I was worried I didn't do it for a long time because I was worried that I wouldn't cope and then it would be too much but actually it is not."*

The statement above indicates a feeling of fear in mismanaging multiple Twitter accounts at the outset. However, the respondent was able to prove that he can effectively manage multiple accounts and established the idea that the fear was only a misconception.

> *"So the Science communication course I tweet this morning because it was graduation but I haven't tweeted for a, four five days, it's a much slower level of tweets. The British Fertility Society is much slower, where mine is two or three times a day. So there's a different intensity."* [1P-FMDH-28]

The excerpt shows that the academic above allocated different priorities on information that he intends to tweet. Another academic mentioned a similar concern:

> *"I very rarely tweet from the other account anyway so it's not a problem."* [3P-FOS-28]

Another academic similarly discussed that having more than one account is quite practical. This is because of the fact that some contents are similar and they can be shared between accounts. This activity is seen as less tedious by the academic who shared the thought that:

> *"The conference account's just got a separate identity so I can just push the conference through that. My personal one, I can push different things through that but they're very closely related so I don't have a problem updating those at the same time."*

Here, it is clear that one account is to be used based on a certain purpose that is different from his personal account. He also indicated a clear awareness of the boundaries of information to be posted depending on the different accounts used. Thus, this separates the identity and purpose of each account. He explained this as follows:

> *"I know they are very different. The thing that I would put on [personal account] I wouldn't put on Sheffield [discipline name]. And the thing that Sheffield [discipline name] should tweet which [personal account] can retweet, but sounded better coming from Sheffield [discipline name]. You see what I mean. Because that is the departmental corporate account that is for telling our students, telling prospective students how great they are, to put it bluntly. Whereas my account [personal] is much more subtle. It is much more social, but there is a bit of crossover, but I am very clear in my mind which is which. I know a colleague at another university who has two accounts, quite*

a few people have two accounts and some journalist do [...], which is a combination of professional and personal accounts. So you will hear a bit about his dog every now and then. But he also has another account which is specifically the technews. And that's fine I think as long you are clear in your mind why do you have these two accounts, what are they for, I think the crucial question to answer when you are tipping your toe in this water, who am I and what it is for." [17P-FSS-28]

The statement above exemplifies the importance of distinguishing the purpose of each Twitter account. By having a clear delineation, one is able to strategically supply the right information based on the different followers with their different interests.

6.8 Technology affordances in supporting Twitter use

Technology use certainly plays an important role in facilitating use of Twitter. The convenience and access provided by mobile technologies also define how academics engage in the Twittersphere as seen in some of the abovementioned patterns. The details are discussed in the following subthemes.

6.8.1 Computing and mobile technologies

The innovation of online and mobile computing has significantly reconfigured the way people access, read and communicate information. Conversation has become more dynamic and interactive with the help of computing devices and social media. This trend was exemplified in this study, where computing and mobile technologies are seen to play a fundamental role in the proliferation of Twitter use among academics in relation to their professional and personal activities. A majority of academics discussed the increased levels of engagement they had with Twitter particularly when communicating from portable devices, such as smartphones, computer tablets or laptops. The presence of these devices offers them the chance to do their Twitter activities at any time.

"Well, it depends where I am, if I'm in my office it is probably on this machine and if I am nowhere I will be using my phone, so it depends, if I am at home probably on my Ipad" [28SL-FSS-28]

Significantly, the luxury of constant presence of internet brings about the adoption of devices and shapes activities related to regular accessing of Twitter. As one respondent said:

*"Anywhere I can get access to a 3G signal. At least most of the time, I've got a device with me that will connect me to the Internet somehow. I've got an iPad, I've got a PC here, a PC at home, an iPad that goes everywhere with me. I've got another iPad at home and I've got an iPhone, so most of the time I can tweet. […] if there's a 3G signal, I can do it. It only takes a second. That's the great thing about tweets. It doesn't take long." [*20P-FOS-28]

One academic further pointed out the value brought by new technology and how it has dramatically affected the way people deliver tasks*:*

"That is an incredibly powerful computer and you can carry it round [pointing his Ipad]. It's the size of a paperback novel. It goes everywhere with me. I can produce HD video and edit it and publish it on this. When I began as a [job name], I would need four people and a building to do these things, and a television transmitter. I can now do all these things from something the size of a paperback book. Now that is just an amazing change and the pace of change... as fast as we think we understand that well enough to teach it, everything will change again." [10UT-FSS-28]

It has also been mentioned by another respondent that the increasing growth of mobile devices and technologies has encouraged user transition and methods of accessing media applications.

"OK, when I started (using Twitter), for like the first eighteen months it was all on a desktop and then last May I got an iPhone and I started using that, sometimes as well and as of about a month ago I have an iPad mini that I used sometimes as well" [4L-FAH-28]

Similarly, the smartphone has shaped the way users engage with Twitter and generated a psychological effect regarding how people perform their tasks nowadays:

"Yeah, it must have changed completely the way I work because when I was an undergraduate, I don't even remember, you know, there wasn't Twitter. Obviously, the Internet existed but I didn't really use it because there was no smartphone... I certainly didn't have it at home as a student. There were no smartphones, so I wasn't connected to the Internet at all times as I am now.

So it's changed the way I concentrate, changed the way I think about my work."

Mobile devices' practical and 'handy' design encourages academics in frequently and quickly accessing Twitter. This is especially true when travelling as he mentioned:

"If I'm out and about on the tram, on the train, I'll check Twitter every now and then on my Blackberry" [2L-FAH-28]

Easy access on mobile devices has also led people to be active in tweeting and participation in Twitter. This phenomenon also shapes people's behaviour as they became attached to technology and its affordances. For example, the academics in this study were able to develop a sense of compulsion about updating themselves on current events through the online platform and tend to regularly check the application.

"I look at it first as soon as I get out of bed on my phone but generally don't respond to anything then, I just look at it; just see what is there." [24L-FSS-28]

However, despite the increased expediency of the smartphone, one professor explicitly stated that he prefers to Tweet using a desktop computer rather than a mobile device:

"*Well this is my Twitter line, I can do it on this, [typing on the mobile and tweeting); that's me up today [updates tweet]. How long is that? 20 seconds? It is quicker than going to this (pointing to his computer), logging in, putting in my password. Well, it's too much effort (browsing from computer) because it means me opening a browser and typing in Twitter. It's just easier on the phone because the app is there and so I will just scroll down, and this is going to sound terrible, You know I sometimes did it on the loo, you know my Ipad is next to the loo, so I sat in the loo pick up my Ipad read the news check a bit of email look at the tweets maybe reply put it down. And it shows it's a little shock windows to who I am as a person or as a professional so, how long did that takes? 30 seconds? What is 30 seconds at your life?"*

Similarly, he added that Twitter supports his administration activities:

"…with my iPad, I was able to chair and read the tweets at the same time so it brings people in, to the conference."

He indicated the significance of one's concentration can still be experienced when browsing Twitter from a mobile phone versus computer desktop. This is because of his perception that the mobile phone creates a more personalised feeling than with the use of a computer. This premise is based on his experience that interference could be experienced if multiple applications are open, which is quite distracting for him.

> *"I guess I like tweeting from my phone more because it does feel more kind of focused I guess in that app, that I sit and I read through what has been happening. It is like a newspaper almost where if I have it open on my computer, I have my work, my Facebook open, I have something else open… It feels different if you just have the app and that's all you can look at for a period of time."* [1P-FMDH-28]

6.8.2 Third party applications

Some of the academics said that they were using third-party applications to manage their Twitter use. This includes for managing multiple Twitter accounts, customising information, monitoring other users' activities and to obtain reports regarding their Twitter activity. As reported by one academic on the ease of using a social media management platform:

> *"Well, I use TweetDeck, I've got two accounts. I've got my account here and this is the conference account that I've got so this is all linguists. I've shared some tweets there for the registration for the conference that I'm running. It's difficult to switch between the two (from website) and I wanted to make sure I knew where I was tweeting."* [6L-FAH-28]

Another academic discussed his use of Tweetdeck, which he applies by setting the application like 'a newswire'. This is done by customising a few lists of streams of relevant and interesting topics or discussions. These tweets are chosen through the use of a 'hashtag' search or by focusing on 'particular individuals'. He found it useful as it enables him to connect with interesting people, in addition to the personalisation or customisation of the application.

> *"…following the conversations will bring me all sorts of interesting voices who are bonding around that particular conversation*." [10UT-FSS-28]

> *"I love Tweetdeck because with Tweetdeck you can have different colours and so I can have several searches running and it is very easy to set upon the other colour if there is an event or conferences or something, twice a year or 2-3 times a year there is quite a big kind of digital [discipline] conference called news rewired, and they very, you know the tweets that comes out just, so I have column running if I can't go and I can follow the conference. You know I can do pin and out while I'm doing something else, you know I can spend 10 minutes in my lunch break reading through the tweets and maybe archiving the links to go back and visit when I got bit more time. So it is really useful way of me keeping really up to date, with what thinking is in the industry, and then more or less immediately being able to form that out to my student."* [17P-FSS-28]

Similarly, another academic said the value of information customisation on Tweetdeck enables him to observe his peers' activities. Customisation of these third party applications enables him to review his own tweets. He elaborated:

> *"One thing I like about TweetDeck is it lets you create sort of personalised list, so a colleague of mine who's at Lincoln Law School – and I'm quite interested to see what he's doing – so I follow him personally and so sometimes I think, "Oh, I wonder what's going on there" and I look at that bit. For some reason, I like to keep a track of what I myself have put up because actually sometimes it's hard to see, I follow myself here to watch what I've put."* [19SL-FSS-28]

This management platform also offers users the ability to track and measure the reach of their tweets. This is especially helpful if the academics used Twitter in relation to spreading information about their publications to wider audiences. One respondent relates his use of another platform to complement Twitter:

> *"I used HootSuite because HootSuite is the only one that sends your reports. HootSuite will send you reports on your Twitter usage, saying how many people clicked through your links, where those people are from and that's free. So whenever I'm sending tweets about my own research, I always do it through HootSuite because then I actually find out how many people click through, how many people pass it on. You get free analysis from them,*

emailed once...If you want it all the time you have to pay. They'll send a report once a month for free." [4L-FAH-28]

In summary, the use of third party applications in parallel with Twitter depends on the motives of the user. In particular, Tweetdeck is used as a customisable newsfeed and a tool for managing multiple accounts; while HootSuite is predominantly associated to academic motive, specifically for broadcasting of posted research and its reporting function.

6.8.3 Setting up a boundary between computing and mobile devices

In relation to the discussion on changes brought about by technologies, especially of computers and smartphones, a few other academics have talked about separating the use of office computer and personal mobile device to access Twitter.

> *"I try to not look at it [Twitter] on the computer because, with a mobile device, you can just put the phone down, and a computer's for work. The iPad, a bit of both really, but the computer's for work. Phones, less for work, the two entities are quite discrete in my mind... One of the things I do is I just don't have the Twitter application running on there [pointing to her university desktop]. It's there and I can look at it if I want to, but I don't because I can just look at it on here [showing her mobile]."* [11L-FAH-28]

> *"It might be that I don't use the computer in my office very much because it feels more official when you tweet from the computer, like it is not very cool and it is very officey cause it definitely feels different when I tweet from my Apple Computer or from my phone then if I sat here. It looks more playful (if using the computer in the office)…Well if I am in my office I should be doing research, if I am on the train, or the tram or out and about then it is fine but if I am in this particular space I shouldn't be using Twitter as my general view, I will use it, as I say, after a teaching session, if I want to see what students has been saying and reply to them. I sort of have it open when I eat my lunch to see what they have been saying but that is the only time; really, I try to be good."* [16L-FAH-28]

These academics distinguished the role played by different devices in relation to their Twitter activities. They have a perception that mobile devices are used as a personal object; thus, it is more appropriate for personal or social use i.e. browsing social media. On the other hand, a desktop computer is perceived as an official appliance because of the fact that it was supplied by the employer; hence, should be used only for work purposes. If the computer is used for other non-working commitments within the workspace, they had a sense of guilt is felt. One academic [16L-FAH-28] highlighted the issue of work integrity and perceived that Twitter is only for informal activity. Thus, she made a self-imposed restriction to check Twitter only during her work breaks.

One academic further noted of the restrictions imposed by the institution with regard to the use of desktop computer at work. Because of this, he uses a personal laptop at work for the purpose of accessing Twitter. This move makes him feel less restrained and it gives him more freedom when using it for personal purposes. He stated:

> *"You'll note I don't have a University computer because the University's system is so restrictive and I can't install what I want or make it as I want so...this my home and my work computer [pointing to his laptop] and I just put it in my bag and take it with me all the time and usually that's sitting on the settee with me, to be honest, with Twitter on and with Facebook on. Not with work emails on because that's important."* [19SL-FSS-28]

In here, a detachment from work is seen wherein a boundary is set between his email and social media use is present. This implies that email is more formal and used only for work commitment, while social media is more for social use.

6.9 Summary

In this section, it was seen that academics have developed some common habits in relation to their use of Twitter for both professional and personal purposes. These habits include seven patterns namely, information-searching activity, active tweeting, monitoring, embedding the following-and-follower approach, using Twitter to store information, managing multiple Twitter accounts, and supporting Twitter use through various technologies and applications. The aforementioned activities show their behavioural and temporal patterns such as sharing interesting links or activities, posting comments, and searching for relevant or interesting information.

6.10 Concerns with using Twitter

This section moves on to present the concerns raised by the academics when using Twitter. Based from the analysis of the narratives or responses from academics that use Twitter, fourteen specific types of concerns were revealed, as follows: (1) Damaged reputation/status; (2) Psychological effects; (3) A perceived lack of professionalism; (4) Being attacked on Twitter; (5) A distraction from work; (6) Taking up time resources; (7) Information overload; (8) Extreme self-promotion; (9) Conflict of identity with multiple Twitter accounts; (10) Questions regarding information accuracy and credibility; (11) Privacy concerns; (12) Lack of interaction in order to build a Twitter community; (13) Communication breakdown due to lack of sophistication; and (14) Technicalities/feature constraints. These concerns are discussed below.

6.11 Damaged reputation/status

The majority of academics tried to manage their reputation by projecting a good professional academic image. Therefore, it is obvious that posting inappropriate content or performing negative behaviour would lead to damage of reputation or credibility. As the academics stated, their Twitter accounts are primarily for *'professional'* use.

In order to sustain this respectable image, the majority of the academics discussed being extra cautious when tweeting. They also try to avoid arguments. They do this by being cautious in articulating emotions when posting their opinions. Since Twitter is a 'public space', academics are fully aware that anything they share is for public consumption. One academic commented that:

> *"One of the best pieces of advice...I think is the old thing about…engage your brain before you open your mouth. Think before you tweet or, to take another old saying, tweet in haste, repent at leisure."* [10UT-FSS-28]

Academics expressed high regard to responsibility as professional members of the academe by appearing honourable and virtuous online. Thus, they felt they should act accordingly in order to maintain a good image that would represent their employer and themselves.

One academic explicitly stated:

> *"My university website is on my page' and 'I'm representing myself but I'm also sort of representing the University as well and I don't want to be posting things that could get me into trouble because of my relationship with the place that employs me so there is a constraint there."* [27P-FSS-28]

Similar sentiments were expressed by another academic:

> *"I try on Twitter… to ensure that I'm not going to be saying something that's going to be embarrassing to me or to the organisation."* [6L-FAH-28]

One professor said:

> *"I will be careful because people will judge what I say not just me as individual but, you know, my position at the university… That does constrain what I say on it."* [21P-FOS-28]

Academics were highly aware of various audiences following them on Twitter, which makes them more conscious about their posts.

> *"I am aware that colleagues are following or students might be following or that kind of thing so I do whenever I tweet, I tweet as an academic."* [26P-FAH-28]

> *"I'm aware of the fact that, you know, my Head of Department follows me and students follow me so I think about that before I post. "*[11L-FAH-28]

> *"Yeah, I think it adds to me being careful about what I post because I don't want, you know, senior colleagues to think bad of me. It's fair enough, I suppose, yeah, quite simply and that's maybe me just being hyper-paranoid about it but, you know, it's the way I feel."* [28SL-FSS-28]

These quotes above show that academics are clearly attentive to the need of behaving properly. It also entails a deep thinking on how to prevent tweeting anything that would be deemed inappropriate and that could harm their reputation as well as their institutions. As one remarked:

"We're on show, so we apply public standards of behaviour and manners in ethics and language." [25SL-FMDH-28]

Similar to those that talked about the importance of being mindful when tweeting, one academic specified the danger of tweeting opinions on certain issues. This would especially be problematic if the opinion is related to one's institution and could harm its image if misunderstood by the audience.

> *"So I'm very careful about tweeting opinions about my institution, for example. Some people feel... so Union members and things for example – I mean, I'm a Union member – but people have tweeted Union things before and I do feel that although I'm tweeting in a personal capacity that what I say there reflects on my institution. So that is not the place for me to criticize my institution... That said, maybe they just haven't done something I feel strongly enough about. Do you see what I'm getting at? So, for me, it would come down to what I would say in public, if I would be prepared to stand up in public and say I feel an institution I was a member of, not necessarily the University, but if I felt strongly that they had behaved in an immoral way or whatever it was and I would have been prepared to say that in public to their face, then I would put it on Twitter but otherwise I'm not going to put things out there and assume they won't notice, even if the likelihood is that they wouldn't… You just have to regard it as if the worst possible person to hear what you're saying can hear it and then you are probably OK but otherwise if you say anything you would be upset that somebody overheard then don't say it.*

Sometimes, she deliberately tweets to show her stand on a subject and she expects that her message would be heard by particular individuals. Nonetheless, this action seems to show a self-protective aspect. She is still cautious in communicating her opinions publicly with a critical yet indirect and unaggressive tone. She narrated:

> *"I tend to tweet stuff about gender equality and those kinds of things... I make a self-conscious attempt to be supportive and measured in discussion so if people say things – because sometimes people say things directly to you that are inflammatory or argumentative – and I always try to maintain a tone of debate rather than argument and that's very important in my profession as a historian to be able to debate… So I have had quite open*

discussions with people about quite controversial issues like, for example, corporal punishment in schools and the Human Rights Act, things like that, where people have disagreed quite vehemently with me but ordinarily I think they respond in the way you respond. Not always. Some people are just on there to be aggressive. So sometimes you say something and you get a kind of reaction from someone that is...They give a very emotive or... I think it's very important to be polite and respectful of people. I think I'm fairly acerbic, reasonably sharp as well sometimes with people, especially friends, but I wouldn't ever want to offend anybody." [4L-FAH-28]

She further conveyed that, as an academic, it is fairly reasonable to be engaged in a discussion about public issues related to her field and interests. Nonetheless, arguments and controversies are avoided as much as possible through restraint in any situation.

Another academic suggested that it was necessary to 'play safe' sometimes by not taking the risk of being engaged in an online debate. Although they are tempted sometimes, they still keep their cool. She explained this by saying:

"Sometimes but I find some arguments on Twitter to be pretty unedifying. Generally, online arguments can be really conceited and horrible and can reveal people and people say much nastier things because they have the safety of the computer screen, you know, and I try to avoid... even if I get very frustrated, I try to avoid getting into arguments… I mean I don't think it's appropriate. I mean I have to remember as well that it says [University's Name] on my Twitter handle so I don't say anything inappropriate and I think academics generally are prone to argument and debate and I actually find that, you know, an unedifying aspect of it. I don't like it, to be honest. I quite like observing arguments but I wouldn't want to get in them myself." [11L-FAH-28]

I know that one of my colleagues here – I don't quite know what his politics are – we've had some interesting arguments in the pub but he will retweet lots of stuff and comment on lots of stuff from across the political spectrum and it's a bit unnerving actually, that some of the things he retweets and some of the things he tweets about kind of...I'm not used to that sort of openness to a whole range of ideas but then that's part of his aim, I think, to *unsettle, I think in that sense but my retweets tend to be endorsements."* [6L-FAH-28]

For the academic profession, it is very important to keep away from sharing something personal such as negative emotions, anger, and disrespectful criticism toward another person or other academics. This is exemplified by one respondent saying:

> *"If I'm feeling bad one day, I'm not going to say, "I'm having a really bad day", just inviting people… I'm not going to talk about being recently bereaved or something like that, which happened to me recently. I wouldn't share that or say, "I'm really drunk" or something like that. I just don't think that's appropriate at all."* [22SL-FAH-28]

> *"I'm very conservative in the sense that I would never put anything like, "Had a really bad meeting" or "That student's really annoying me", but I mean... of course that's just common sense... I'm very careful about that sort of thing."* [19SL-FSS-28]

> *"I just kind of go no don't be critical and I do think a slight problem with Twitter is that you can't be kind of critical and you can't, you know, when you cross somebody you can't say… that person was so annoying because-that is going to be all over the whole university if you are not careful… I think in academia you do get criticism, I mean you do get reviewed, but often in quite a structured way through a process review and stuff where you… understand where it's going to come form so I do think that with social media you have to be careful not to be seen to be attacking somebody else out of blue…"* [14SL-FAH-28]

> *"So you've got to remember this is a public space so when I was providing feedback on students' writing, I made sure nowhere in any of that feedback was there a reference to any student, right, so it was all anonymised and often in a constructive spirit, right? If I were to name a student on Twitter and criticise their work, I think that would be unprofessional and unethical and I wouldn't expect them to do the same to me either."* [10UT-FSS-28]

In a normal scholarly environment, any debate of issues, topics is done in a formal way. This suggests that holding an academic profession requires a person to consistently present a good example to others and show high morality and should be able to handle conflicts professionally. A person with a high profile typically has a lot of followers and their activities are always being monitored. Thus, any communication posted on Twitter or any other platform on the internet will be seen and be judged by others.

6.12 Psychological effects of Twitter Use

While Twitter is seen to offer advantages for academics in terms of its communicative aspects, there are also some negative psychological effects attributed to Twitter use as described by the academics. These include the behavioural problem of Twitter addiction and the pressure to view the updates posted by colleagues.

6.12.1 Twitter addiction

Twitter offers a range of information and makes people connect easily; but somehow it can also cause an addiction as expressed by some academics. Addiction is observed when a person becomes 'compulsively or physiologically dependent' on something. Some academics discussed checking Twitter constantly and frequently sending tweets, in a compulsive way. Some statements from the academics exemplified this concern:

> *"Well, at the moment my Twitter is going a bit out of control, every morning I read a book between 6-7am… and then I get bored because it's early morning so I go on Twitter, and then I might tweet an idea, and I see my friend [name] from New York, she tweets very late at night so New York it's like midnight and here 6am, so nice, cause I'm like clocking [name], and then I will put something on Twitter and that will be most of the day, sometimes on the bus I'll check Twitter and sometimes on the way home in the bus I check Twitter… It's kind of a daily thing and I talk to one of my friends who is also on Twitter, and quite nice to tweets cause they are not there all the time, they are like one twice a day, I try to tweet once or twice a day, but not at weekends… unless I'm doing some work at weekend… Otherwise, I will get addicted."* [15P-FSS-28]

The academic above described how she engages in Twitter several times in a day by carrying out different practices, such as checking the network when she is 'writing a book', 'doing work' 'viewing friend's feeds', 'chatting with a friend', or 'browsing when travelling'. This shows that she had become attached and entangled with Twitter when doing academic-related activities. She indicated that she is aware of the change in her behaviour and confessed to a fear that she had become 'addicted' to Twitter. Nonetheless, she took initiative to control her Twitter use by pausing when there was no work commitment. Meaning, she combines tweeting with her daily academic work, but still tries to delineate the boundary and regulate use in order to avoid further addiction.

Some academics admit their experience of compulsion as an 'addiction', particularly on their use of mobile phones and Twitter. Constantly checking updates and feeling the need to be present online is seen as a bad habit or an illness or as being 'OCD' [Obsessive Compulsive Disorder] for some. As one academic reflected:

> *"I will admit, I am awful with my smartphone. I am one of these people that sort of automatically kind of get it out and a start checking things and it's almost a nervous habit […] I wake up in the morning and, of course, my phone is next to me, which is probably what usually happens. I normally don't check it until I'm out of the house because I normally just shove it in my pocket and then maybe at the bus stop, I'll check it and maybe even do a tweet or respond, something like that, maybe something like, "A busy day at work ahead" or something like that. Then on the bus, maybe two or three times, just... it's in my pocket again. I pick it up. It's there. It is like a constant presence, and it's not a good thing. That's not a good thing. It's almost slightly OCD... Genuinely, I think actually some of this stuff does promote OCD-type behaviour in people. They need to be connected all the time and I see it in myself and I don't like it and I try... why would it possibly make any difference knowing a new bit of information now, as opposed to in half an hour's time when I get to work?"* [19SL-FSS-28]

Some academics spoke about taking approach to control their becoming obsessive about the use of Twitter. They have done this because they admit that it could be a disturbance to their work and could affect how they spend or manage time. As narrated by one respondent:

> *"I think it has to be a bit disciplined, because I think it could take over if you are not careful. You know it is a bit addictive in that way. What is the latest thing, I must look at that picture. I mean it's an amazing distraction device… You know you, think somebody tweets something funny and you go 'arghh lets go spread that around'. I supposed there is no harm in that but you've*

got to be a bit disciplined with yourself and I can't be there all the time." [17P-FSS-28]

One academic felt stressed due the perception of a need to update and check on Twitter. He perceived that the platform's mechanism is similar to email in aspects of communication. The practice is seen to induce his compulsion in relation to updates. He stated:

> *"It became quite stressful because you know you don't see them after a few hours so I was worried that … I hadn't seen them. So I had this kind of email mentality, where… they build up and build up … and you are trying to keep on top of them. And I felt that I kind of had to do that with the Twitter so after two weeks I realised I was becoming completely compulsive about Twitter, trying to check and never lose anything and then obviously I mean I couldn't keep that up."* [27P-FSS-28]

A different explanation pertaining to the stress derived from constant engagement with social media applications was mentioned by another academic. He explained this by saying:

> *"In the morning, I will get up, wake up and… I will usually check Facebook and my email and the news and Twitter which is probably why I feel so stressed all the time… from my iPhone, yeah! Then I'll have my breakfast, typically, read the paper on my iPad, and then I'll go and wait for the bus and I'll check Facebook and Twitter, generally, at the bus stop and then I'll read the paper on the bus and I'll get in here and my computer will be on because it takes them ages to turn on, so I leave it on and then I'll use my computer then I'll check my email."*

It was indicated in the above statement that part of the daily exhaustion felt by the academic is related to his habitual Twitter use and attachment to technology. This created conflict which he internally saw as a struggle against himself, leading to reduced ability to disconnect from work. In here, he mentioned that:

> *"It's also related to my research, so in that respect, what I tend to do a lot and what most of my stuff retweet for mapping stuff, language stuff […] it looks like you're working, and you are working to an extent."*

This academic showed ambitious attitudes regarding work and job commitments which he tried maintaining by staying connected through frequent utilisation of communication technologies. This is an effort of the academic to be occupied with work when not in the office. However, this can also lead one away from the purpose of the work as narrated by one respondent:

> *"…because the aim is or should be, or it always was, to work, you know, go to work, do your work and come home and try and leave work at work and do things at home and I think the fact that my emails are pushed to my iPhone, the fact that Twitter is about work, and I check it a lot so it's kind of instinctive to check it, means that it's much more difficult to leave work at work but that's about discipline and that's about making sure you do that to a certain extent. So that's where the stress comes from because it's work."*

Though he criticized his use of Twitter, the academic remained paradoxical when admitting that he could not avoid using Twitter because of its usefulness and value. He explained this by stating that:

> *"Sometimes I do think that I don't want to be on Twitter because it makes me stressed but then I do feel like I'd miss out on a lot if I wasn't."* [6L-FAH-28].

This statement also indicates that academics are psychologically pressured to check Twitter, which also becomes like an addiction. These issues contribute to the academics' concerns about the behavioural effects of using Twitter, affecting their professional and personal lives.

6.12.2 Peer and social pressure

Some academics deemed that viewing Twitter has also led to an uncomfortable feeling or negativity in the form of peer pressure, annoyance, or anxiety. These feelings are especially felt when viewing some of their colleagues' tweets that are annoying for them. One academic explained this by giving examples:

> *"I think it is a bit dangerous on Twitter you know because I mean certainly there are some academics who kind of say… 'Oh you know it's a busy day today I'm trying to finish my chapter XYZ and write my proposal for this'… and you know what it is Saturday, stop telling me all the work you are doing on Saturday please. So I think, I suppose I'm a little bit cautious about*

posting… there is a bit of a danger that you sound a bit smug and you give other academics kind of a guilt attack. I think if you endlessly tweet about how wonderful and productive you are, and particularly for me at the weekend I have two small children I don't work on the weekend, so I particularly hate people who are working then…With Twitter you get such a diverse kind of audience, particularly students and the academics, it's sometimes a bit hard to decide what you tweet about them make sure you kind of look professional without… looking kind of smug and annoying and 'Well 5000 words this morning, gosh I'm looking forward to breakfast'… That does can make twitter a little bit anodyne you know when I did a little bit of work I have to use my best words… going 'oh great this, great that you know, great session with students great exhibition here, great meetings'… You never said 'God that meetings was a bit tedious' you can't say that…" [14SL-FAH-28]

"No, I tend not to look at it before I go to bed because it stresses me out, because it's mostly work and because there's a lot of people on there like 'Just leaving the office, eleven o'clock. Love my job.' It's like, well I left the office six hours ago. I also love my job but I also like being at home and cooking and eating and sleeping, you know, so... and it kind of stresses me out a bit when people are, you know, late at night, still working, still marking. I don't know if I feel guilty or I feel irritated that they're doing it or what, so I tend not to check it before I go to bed. I'll check Facebook in the evening but then that's a social thing, just like I go to the pub with my friends, you know, in the evening, that's fine, but I'll tend not to check Twitter before I go to bed, no, because it does wind me up a little bit. It makes me think about work a bit too much." [6L-FAH-28]

Nonetheless, academics indicated that they experienced a gap between their lifestyles and work style when compared with some their other colleagues. For instance, these academics might be constrained from doing similar tasks as other colleagues because of other commitments (i.e. family, dissimilar routines, etc). Reading tweet posts from colleagues about their achievements, work progress, and high satisfaction in working environments can be interpreted as an act of 'showing off' for some. As a result, some academics [6L-FAH-28] decide to avoid peer pressure to engage in Twitter by limiting exposure to certain times of the day.

In another note, it was indicated that academics somehow feel obliged to present their institution in the most favourable light. This feeling of obligation also poses as a different type of pressure among academics. One academic offered her idea on what other colleagues thought of her engagement on Twitter. She shared:

> *"I think some people don't follow me just because they think they don't want to know what I am up to because it's interfering with what they're thinking, maybe… so some people aren't' that interested which is fine."*

She also discussed the issue brought up by other academics [14SL-FAH-28] and [6L-FAH-28] in relation to peer pressure; however, she also tries to communicate her work as a means of sharing academic expertise to the public. She noticed that some colleagues avoided following her on Twitter and assumed that they might not be keen to know about her academic activities or that her activity could take the form of 'peer-pressure'. She added that she believed some colleagues might appreciate her work and some might see her as a 'threat' due to her active engagement in research projects. They could also perceive her as not being fully committed to her institution because of more involvements in broader networks. She explained it by stating that:

> *"The problem I got is, I've got too many projects…and the projects put people off they think 'she's a bit all over the place' so for me twitter expresses that but also some people don't really like that because they think you should be concentrating and you know she is not focusing on here, [Department Name], but focusing on Sheffield and the world…I think some people think it is great; some people think they are not really interested."* [15P-FSS-28]

Despite her positive experience in using Twitter, she also expressed an attitude of scepticism among some colleagues that may have misinterpreted her engagement on Twitter as lacking focus. She, however, defended her activity as part of a strategy to help publicise and build the reputation of her school.

6.13 A perceived lack of professionalism

While some academics discussed that Tweeting during a conference encourages information sharing beyond the event, it was also perceived as inappropriate and disrespectful by some. This is because of the perception that the action is displaying disrespect to the presenter. As one commented:

"I suppose I'm quite old-fashioned. When I'm speaking, either in a lecture or in a seminar or whatever, I don't want people on mobile phones. I think if I was to be on Twitter during this paper conference, I'd feel I was being disrespectful, not paying attention, tweeting something beneath me. It could look like I'm just bored and sending a text message to my fiancé saying, "What time's dinner?" or "What time are you coming home?" or "What time are you taking the dogs out?" whatever. So it's a personal thing that I don't like... yeah." [8RF-FSS-28]

The academic expressed dismay whenever he sees someone looking at their mobile device while an important lecture is being delivered.

6.14 Being attacked on Twitter

One of the problems of exposing one's personality in the social network is the vulnerability to being attacked by strangers in the virtual world. This could be through derogatory statements related to the academic's Twitter posts. These attacks through negative interactions could create conflict and leave a person feeling humiliated. One academic shared her experience:

"There was one guy this week who tweeted me and said that I must be a...was the phrase 'crappy teacher' or 'rubbish teacher', something like that "because all of your comments are so stupid" or something like this and I was like...and I must have said "What have I done to offend you?" and then I retweeted his tweet and I just put the word 'troll', question mark, in front of it and then he said, "See, you proved my point", and then, which was very nice, some of my students said to him, "She's not a crappy teacher at all. She's a very good teacher" and then he went away. So they did a far better job of getting rid of him than I ever could have but it was totally random." [4L-FAH-28]

The narrative quoted above shows how Twitter becomes an uncontrollable space where people are free to do various forms of 'online violence'. These include, but are not limited to, actions provoking intentional arguments, public humiliation and attacking someone's reputation. These attacks can have an impact on people's well-being if such debate is not managed in a prudent and calm manner. In the case of the academic above, she attempted to protect herself by keeping the argument at a minimum. Fortunately, other members in her network – her students – were able to help in stopping the conflict. This situation reflects the idea that reputation is also a subjective matter depending on how other people see someone from a certain point of view.

Following the quote above, another academic reflected how his colleague showed an inclination to instigating an argument on Twitter regarding a topic discussed with other colleagues. He related:

> *"I know that one of my colleagues here – I don't quite know what his politics are – we've had some interesting arguments in the pub but he will retweet lots of stuff and comment on lots of stuff from across the political spectrum and it's a bit unnerving actually, that some of the things he retweets and some of the things he tweets about kind of...I'm not used to that sort of openness to a whole range of ideas but then that's part of his aim, I think, to unsettle."* [6L-FAH-28]

This shows that conflicts could arise because of Twitter's open nature.

6.15 A distraction from work

Academics discussed the distraction they encountered with Twitter, particularly on the constant notification messages sent to them by Twitter that they receive through email and their mobile devices.

> *"I have disabled all the notifications, because it is just too distractive, you know if you have Tweetdeck up and you can have the notification. I follow too many people really. And every time the tweet comes into timeline it gets this 'bing'. It drives you bonkers. So I can't have that."* [10UT-FSS-28]

> *"I do use it from the twitter app. I tend to turn it off when I need to do something so it is probably on my screen now but if I sat down you know to write something then I turn it off cause I like to you know if I need to sit down and do something I will turn off twitter and I will turn off my email and so I don't get interrupted."* [21P-FOS-28]

> *"It's on the browser, yeah. Also, I've got... Mac's got a programme. I think it's called Growl where it sort of appears up here when a tweet appears. It's not happening at the moment but when one appears, it'll sort of appear up in the top so actually whilst I'm working tweets will sort of flash at me and often I*

just ignore it but sometimes I just happen to see a sort of word in it. I think, "Oh, what was that" and I just have a look. So it's not methodological... It's not a methodical, you know, scouring of Twitter, because I don't have the time or the inclination but you know, usually I find that I catch enough to keep interested." [19SL-FSS-28]

These academics took an approach to solve this issue by deactivating the notification in order to concentrate on their work. One of the respondents [10UT-FSS-28] described the effect of the sound produced by the alert tone to be 'mentally distracting'. Although these academics commonly had the Twitter application open on their desktop, one respondent [19SL-FSS-28] argued that it was not his intention to monitor Twitter continually. Thus, he pointed out that the alert notification with short highlights influenced him to frequently check on updates leading to more time used on Twitter.

One professor found it easier to access Twitter on the computer desktop but stated that she perceives a risk. This risk particularly relates to being prone to cause disturbance (often related to checking and browsing), compared to access on a mobile phone. To address this concern, she tried to restrain herself in using the office computer to access Twitter. She mentioned:

"If the goal was to look at Twitter then presumably the computer would be easier than a mobile phone, because it is much more accessible…. But I don't because that it just too distracting. I mean I just don't do it on the computer; it is the matter of disciplines." [26P-FAH-28]

"Sometimes I do decide when I want to get something written or I'm trying to read something, I actually try and not have Twitter on the screen because it's distracting. I try to not have email and Twitter and things like that open and just have open the word processing software for what I'm writing so as I don't get distracted by checking whether I've got new emails or whatever it is or whether I go flick, flick between Twitter and what I'm writing. It's too distracting if you're writing…it's too easy to keep checking whether people have said things...because it's constant, especially when you follow so many people, as I do now. I've been thinking about trying to use lists to kind of filter the ones that I really want." [4L-FAH-28]

The academic above employed self-control by closing the web search engine to break her habit of frequently checking Twitter and email while at work. She mentioned that the presence of temptation to peep on the web browser or computer screen for quick updates should be avoided. She also knows that it would distract her from doing her regular work. This fear seems serious since she had to seek solutions to the problem.

One academic in contrast drew a positive picture of Twitter distraction:

> *"Well it can be distracting… at work, but not necessarily in a bad way. It's not as distracting as Facebook because you're reading things that other linguists are tweeting, you know, you're in that community then. If other linguists are tweeting about something, if something... a live topic in linguistics or in your particular field that... it makes you feel part of that community certainly, in a virtual way, without it being as formal as an email or as sort of informal and personal as a phone call; so it helps keep connected to that community. So it's not as distracting as Facebook in that sense because Facebook is purely personal and that's just, you know, just looking at people's cats and things on Facebook when you're supposed to be working. It's nice for a break but you do start feeling quite guilty about it when you're being paid to be here to work, whereas Twitter, because I'm using it professionally, because I'm using it for work... It is a bit distracting but it's not… necessarily a bad way."* [25SL-FMDH-28]

While the respondent admitted that Twitter use poses a distraction to their academic activities, he also feels that it is not as bad as it looks because of the connections, communication and information acquired when using it for work purposes. Here, he compared the distracting effects of two social media platforms, Twitter and Facebook. He indicated that Facebook functions for more social activity and he interpreted that spending time on Facebook during working hours seemed more counterproductive. This implies that engaging in Facebook at the workplace is distracting. In contrast, he believed that distraction caused by Twitter is not really that bad because it enables the user to seek information related to his expertise and be 'virtually connected' with the community of experts. Hence, his practice exhibited that he was still within the working boundary. This gives him a perception that Twitter use during work hours is more of a goal-driven activity rather than a distraction.

6.16 Taking up time resources

Similar to the perception that using Twitter is a distraction from work, another issue that was uncovered in this research is the way in which Twitter takes up time resources of the academics. One professor said that he decided to stop using Twitter, after joining and participating for some time, largely because *'it's an easy way to waste time'*. He further explained:

> *"Well, the problem is that people start messaging you directly if you do Twitter, so you start getting people and they want you to follow them and you know, you could end up wasting an hour a day… I would have got a couple of tweets from students and so on and that put me off doing it because… you end up talking to students across the whole world, which sounds good, but there's no limit."*

He points out the issue of managing the medium of communication and networking activity on Twitter. His concern is similar to many other academics who commonly expressed problems with managing academic commitments and email overload. He further complained:

> "*I currently probably spend between an hour and two hours a day dealing with immediate emails and other things, so that's wasting enough time already, you know, before doing anything else… and then you get requests to join people's friend groups or Gmail Plus, GooglePlus groups or LinkedIn things, all kinds of stuff."*

And from his desktop computer, he pointed to an example of how using Twitter contributes further to his time-management problem:

> " *…this is the danger, you see. It took me how many minutes? That was two or three minutes. You can time it, from looking at that [Twitter timeline] to actually...*" [9P-FSS-28]

It is shown here that time is costly for the academic and suggested that Twitter is not really an important activity to spend his time on. This is true for him because he perceives that there are more important things to be done than just browsing and posting on Twitter.

Another professor related his experience by explaining that he tried to avoid participating in any conversation on Twitter, saying that:

> *"I don't really like to do it very often... it is kind of consuming, time consuming!"* [21P-FOS-28]

Other academics explained how Twitter had taken up so much of their time because they were hooked in using it despite their self-imposed limitations of use during short breaks. Some academics said their initial intention was to have a quick view for a short break, but it usually goes beyond the limit.

> *"More than I should... I'm trying to mark dissertations at the moment so I'm browsing things more than I should because I'm trying to distract myself as I get to the end of a difficult section and have a look at my Twitter."* [22SL-FAH-28]

Some academics habitually had their search engine browsers open on the computer window to conveniently access social media and other websites as part of a quick exit or break from their work. Although they are occupied in useful ways during this point in time, this activity delayed their main purpose or task at work. This way of taking up time resources is essential; but it could also imply negative impacts to the totality of their productivity.

> *"So I had it running in the background and you know, it's hard to say sometimes I spend half an hour there browsing; sometimes I won't go on or do anything for a day."* [10UT-FSS-28]

Further emphasis was made by one academic by saying:

> *"It's distracting. Yeah, procrastinating, because it will take me down different routes."* [18FR-FAH-28]

In contrast to these views, one academic argued that tweeting was not really a laborious activity that could consume much of their time.

> *"I don't know whether it has been really time consuming cause one colleague keep saying to me 'How do you get the time?' And I don't think you particularly need time for tweeting because if it's open all the time you know*

you have a look at it and you might... one minute like, go down to short tweets. It is just like browsing through the headlines." [25SL-FMDH-28]

The time issue could be managed, according to this academic. She does this by having the application 'open all the time' and monitoring it by spending just a few minutes. For her, this was not really much of a big of a deal.

Similarly, one academic displayed her ambivalent feelings about Twitter's time issue and value. However, she said that Twitter activity can still be useful if planned effectively.

> *"I think it' great Twitter, but I think that I can use it as a time-wasting activity. I think that's the only thing. But I don't know completely, because I do learn a lot from Twitter. I follow lots of Arts organisations."* [15P-FSS-28]

From a pedagogical perspective, one academic stressed her concerns on academic time, where students may send tweets to tutors after hours, which may take up the tutor's personal time. She suggested that a guideline be developed to manage the problem:

> *"Demands on the academic's time to kind of respond... yeah, that could be an issue. You'd have to kind of formalise its use in some way in the module handbook, like, "Tweet questions or tweets with a hashtag...There'll be no guarantee of a response" or that there could be that responses to tweets would happen in seminar time... because you could be in a situation where an academic is getting loads of questions, overwhelmed with questions and comments... You'd have to protect the demands on the academic."* [2L-FAH-28]

While there are differences in the perception of Twitter use in relation to time management, the majority of academics expressed the tendency of Twitter to take up time resources. This is especially true while at work where a considerable amount of time is being spent in browsing the site, and at home where no delineation is set because of the wide accessibility of the network at anytime and anywhere.

6.17 Information overload

A majority of academics discussed the problem of information overload. This problem is associated with too much information posted frequently by people they follow, if the information is not relevant or of interest to the user.

One academic described his busy work routines and how he would glance over Twitter to reduce time spent on reading various types of update. He stated that the information shared on Twitter was valuable but later on lost its value when the incoming information became unmanageable. Having many updates is associated with the volume of people being followed by the user. This creates a negative impact for one academic and made him discontinue connecting with people.

> *"I actually read very little. I'm obviously following people as one does but I don't have time to read all of those tweets that come through. What tends to happen is, I tend to turn it on and I just sort of go, "Ooh, what's new? Sometimes things catch my eye and I look at it […] I just don't have time to keep up with my Twitter feed, if you know what I mean. There's just too much of it and to the point where I've actually stopped following people because to be honest, if I follow anyone else, I'm just never going to read it […]So that's problem of information overload and I think that's what we always struggle with, with these technologies. It's great. It's fantastic but in a way, I don't see half of what people put on Twitter, you know, even relevant stuff from people that I'm interested in because there's just way too much of it and I've not got the time to every hour, check, scroll down to the last tweet that I saw and then scroll back up methodically."* [19SL-FSS-28]

Another academic stated that she does not regularly monitor Twitter applications on her desktop computer (as some other academics did) because it constantly pushes content and disrupts her concentration. She stated that:

> *"No, I don't have it open all the time because it's distracting because it's … you know things flick over so often and you could look up on this 25 new things on your timeline... so no I check it for short period."* [24L-FSS-28]

Others mentioned that viewing a large volume of information on Twitter creates pressure for them and could lead to missed information. As one academic mentioned:

> *"I don't try to read at all, I just kind of snapshot and I will get stressed and I know I will miss stuff but it is not like an email where you are waiting for a response and it sits there in the inbox to get more and more and more and you know I just kind of work on myself mentally to sort of shift to that."* [27P-FSS-28]

Information received by a user differs from an email in a way, because Twitter collects all information posted in one stream. On the other hand, other information in an email is received in a more personalised manner, creating a difference between the two media.

Some academics discussed how following students on Twitter had jam-packed their Twitter timeline with the students' personal activities. These updates or information are uninteresting and insignificant for the academics. As emphasized by one respondent:

> *"I found very quickly my twitter stream was just becoming full of things that I didn't really particularly need to know about or care about… so you know students were telling me that they were going out to the Uni, my stream was kind of overwhelmed by students' stuff.*

However, he also found a way to manage information where he sorts a specific list for students on Twitter.

> "*I add them to my list of students so I don't clog up my streams with lots of students stuff.*" [13UT-FAH-28]

Another academic made a principle not to follow students on Twitter in order to prevent his Twitter timeline from overflowing with unnecessary student information.

> *"I don't follow students back… it's only going to increase the never-ending volume of stuff!"* [19SL-FSS-28]

Despite the issue, Twitter offers a 'list function' for users that enable them to organise and separate information from those they follow. However, if the feature is not used or at least known by the academics, the feed becomes chaotic and poses a concern relating to information overload.

Another issue mentioned by some academics on the relation of Twitter use and information overload is the repetitive messages or updates about a similar topic. This leads to a 'flooding' of the same repetitive information in the news feed of the users. This may be the case during conferences where participants use hashtags to disseminate or publicise all information about the conference. As a consequence, the timelines of all users are flooded with the same information posted by an academic who is at the conference even if the participants are actually able to witness what is being tweeted by another user. Although, it's a new way to broadcast information, in this case about a conference, it may irritate the attendees if the same information is highlighted repetitively despite its good intentions to reach non-attendees. This is also a problem for conference participants and other users if they miss some important information because of the information overload. The relentless churning of information means useful research will be missed via this route. As one academic noted:

> *"I'm thinking within a restricted situation like within a conference, so, for example, typically at the conference that I go to, I find it a bit extreme because people sometimes are posting, this talk about this now… this talk about this now… I think well I can read a program for that […] you know it is a bit annoying if people just tweet about stuff that you could quite easily find out you know from the conference and 20 people will also tweet the same things as well. And then the trouble is you get swamped in information so lots of the conference website will have like the streaming of the a conference hashtags straight on to the webpage but again it just all piles in this stuff so fast sometimes."* [12FR-FOE-28]

In relation to this, another issue pointed out by some users pertain to a Twitter setting where an internet 'bot' is made to push information at certain hours. This type of publicising information irritates some academics who feel that it creates too much noise but shows less value. A respondent mentioned:

> *"I hate it when you see six Tweet in a row from one account which is clearly automated. I don't think it works really well when, you know some people have an account set up for automated follows and I hate that. I would be follow by person. I want twitter to be about people not about robots. And I have never done it, but I think some people will say I will set this thing to tweet at a particular time."* [17P-FSS-28]

While there are some Twitter features that are beneficial in terms of communication and information dissemination, Twitter is also perceived by other academics as personal interaction tool that could also become irritating and pose negative impacts if it violates their personal preferences in some way.

6.18 Extreme self-promotion

As seen throughout this research, Twitter becomes a way for people to project virtual and personal identity. For academics, it is also used to show reputation especially if it is utilised for academic purposes. However, during this phase, extreme self-promotion happens where users project their image too strongly and in a way that it is not really commensurate with their true status. One academic totally opposed the idea of how audiences tried to share and promote their activities at an event by tweeting in a frequent manner. He stated that such an act seems to inflate the ego which they solely do for self-publicity. This process shows an individual's superficial personality. The academic mentioned:

> *"I don't agree with that. I don't agree. I think this tendency to tweet events... I don't know, I just don't think it's interesting and I don't think it's useful. I mean I guess if you have a professional... or someone that's a conference organiser, maybe wanting to get the conference proceedings out there, tweeting, dedicated to tweeting at the corner, yeah, that's good but when you see academics going to conferences, you know, to literally just tweet and tweet and tweet and tweet, it's like, you know, you're not the voice of the conference, and you know and I think you're trying to pretend you are. Why don't you just listen to the paper?"*

This academic was cynical and doubtful about a colleague who had been spending time in sharing resources or communicating on Twitter. He understood that a professional body is actively tweeting because it is a part of their business marketing plan, but he condemned individuals that showed too much eagerness to post message on Twitter. He defined this type of person as self-centred. He is implying that they were only after popularity projected to members of one's Twitter network rather than using the platform for academic purposes. He further stated that:

> *"Sometimes I just think, "God Almighty, you're spending a lot of time on Twitter." I mean is it really right. I mean you clearly want to get your face out there. You clearly... and I sometimes tend to think, "Are you just a bit egocentric? Are you...?" Again, that tells you something. I almost look down slightly on these people that tweet too much because I think you're so desperate for your opinion to be out there constantly, that you have to tweet like literally every half an hour and you must like be trawling the Internet,*

looking for things to tweet because nobody has enough going on to kind of warrant that level of...and then...perhaps if you're actually a professional organisation and it's more of a kind of a corporate account, yeah, that might work... but an individual person just every half an hour is just... you know, your life is obviously a lot less full than mine, frankly, which is ironic because I know you're a very high academic but in a way, I just don't see how you have the time to do this, you know, it's um..." [19SL-FSS-28]

6.19 Conflict of identities with Twitter accounts

Management of self-identity also becomes a problem for some on Twitter in relation to community, privacy and self-presentation. This concept is related to the understanding of one's tweet as a self-projection and how a tweet may affect the employer's reputation. One academic said he felt mixed-up with his online identity and spoke about the complexity of presenting himself on Twitter with his attachment to an institution. He said:

"The other day, a few months ago now, I wanted to put something on about the REF. Something quite disparaging… on my tweet feed and I put it on and then I got scared and I deleted it and I don't know why. It's not really what it's for. Maybe I'm just not brave enough or enough of a free thinker but you know, I just thought, "You know what? I'll just take that off. I'm just not..." you know. I should probably have left it there, because I basically said, "What you're doing with this REF is this. It doesn't make any sense". I don't really care whether I've got two, three or four stars or bananas or whatever you want to call these things and so on and so forth but then I thought, "Oh, I'm representing the..." If it's a professional account, I suppose I'm partly representing the School, even though it's personal and I got into all that and I'm like, "I suppose the School wouldn't want me to say that" and maybe that's something for my personal account and not for my professional account and I had that slight debate because again, I know, a lot of people say they get around this by putting they are all personal opinions on their Twitter page… I'm not sure I entirely agree with that. It just gets you off the hook from a legal perspective.... Now I'm not an expert in this area of law... but it's a very... you'll probably know, but it's a very fast-developing area of Law and the honest truth is, no one quite knows what the answers to those kind of questions are. Are you representing your employer versus yourself, etcetera?" [4L-FAH-28]

It shows here that Twitter users maintain two contrasting identities as an individual or a part of an organisation. The problem lies when the user has two accounts that say different things and project two conflicting identities. This becomes problematic, especially for academics who have two or more roles in their shoes.

6.20 Questions regarding information accuracy and credibility

Together with the contention on identity, information accuracy is also a very important issue on Twitter. This is very essential for academics because they feel that Twitter is a medium which provides the latest and most diversified information and news. In here, the sources of information and its contents are commonly believed to be credible. One academic with a background in broadcasting and news reporting commented on the seriousness of the issue on data reliability on Twitter by stating that:

> *"From the professional point of view, the biggest, the really big thing with social media, Twitter in particular is verification of information. It's often a disaster. For example, the Japanese Tsunami, though a lot of photographs were tweeted of an oil tanker being caught in this huge wave it transpired that the picture was nearly 10 years old.... So there has been a lot of work done within organisations like the BBC and Sky to develop ways of verifying information…. And that has becoming really important. You can't take stuff at face value, so all the journalist take things that we teach student about checking things… making sure you are absolutely sure of your facts, still applies on social media… In the days before social media you would have checked information by going to, you know, the original source and rung them up or something; now because there is so much stuff coming in, you've got to be careful we been incorporating that into what we teach to make sure that they understand there are other ways of using things, like Google earth, Satellite tracking technology lapse in particular, geotagging."* [17P-FSS-28]

The statement above stresses the importance of clarifying the truth of materials shared on Twitter. She discussed it from a pedagogical perspective, specifically in journalism, stating that it is important to educate students to not easily accept and trust information that circulate over the internet. She pointed out the complexity of verifying the source of information because of the fact that web technologies become more sophisticated but also become less credible. These issues are due to the proliferation of varying information sources that could not easily be verified in a more authoritative manner. This implies that she had some questions regarding the accuracy and credibility of information, but still promotes critical thinking to screen out the messages or information flowing around the internet.

A professor also stated that he confidently believes that information provided by a professional body are better in terms of authority and credibility when compared to those coming from an individual. He mentioned:

> *"I would say most of the thing Twitter feeds that I follow I think I would think were reliable. I mean when it comes to organisation, when it comes to people, you have to be a little bit wary of some of the information you might get!"* [20P-FOS-28]

Some academics had a contradictory view in relation to information circulated through Twitter, where they claimed that journalists commonly spread rumours or false information and indicated that information on Twitter could be untrustworthy. This is supported by one respondent by indicating that an educational body is more responsible and reliable as far as resource and information sharing are concerned. This difference was explained in the statement:

> *"There's a difference between journalists, and journalists can't all be reliable and they often pass on gossip and things like that on Twitter, or individuals who claim to know something and you have to be very careful about buying that, you know, taking that as read, but in terms of academia, you know, it's different. I think it's like there are so many... with academia, if it's like Higher Education Academy or AHRC official Twitter feeds then it's just an extension of the website and it's things that you can buy into and believe in."* [11L-FAH-28]

Another professor showed his example of reporting the 'truth' on news at an event he attended. He believed that it was a vital information for the people, yet it has been prejudiced and not been highlighted by the journalists.

> *"So this week there's been a big conference, a fertility conference in London. I saw, last Friday, all of the press releases because I was invited at the press conference. So I knew what the newspapers were going to be talking about*

> *this week. So I've sent out some tweets that were timed to coincide with the press articles because I have that advanced information because I was at the press conference, you know [...] the press chose not to write a story so there was a good news story in there, in the pack of press releases and I thought it was very good but the press didn't write it up as a story."* [1P-FMDH-28]

He also spoke on issue of integrity by mentioning:

> *"Well, because the press like drama. They like things that are going to threaten us or cost money or save money!...but this was an 'IVF is safe' story and they chose not to write it so last night when I hadn't seen the story, I tweeted the story because it's a good news story…but that means that the press had almost filtered that piece of good news out from the public so, you know, perhaps it's my job to make sure the public get to know that happened."* [1P-FMDH-28]

This narrative shows that some news reported on Twitter can be biased and could show lack of trustworthiness when shared in the platform. However, people who feel dissatisfied with the reporting have an equal chance to take action. This can be done through posting of comments and communicating the right information on the same channel to reduce perceived an unfair or biased reporting as mentioned by the professor above.

Similar to the concern discussed above, some academics stated some constraints regarding the personalised and customised information (see Section 5.8: Information seeking and gathering) being circulated on Twitter in relation to the manner of following people. These constraints include: (1) the lack of diversity in information due to the inequality of inputs and (2) information credibility.

In relation to diversity of information, one academic mentioned:

> *"I think it's quite biased by who you follow. For example, if I want news about the progress of the election, I wouldn't get a very balance view from the people that I follow on twitter because you know, I am followed by a lot a Liberal academics so you know, they are the left wing as you get… so the balance of the news on twitter is not even."* [11L-FAH-28]

Another respondent discussed information credibility by saying:

> *"[…] I only really follow sources or information that I would trust anyway so you know if I was following Justin Bieber so it is very different […] I am following kind of reputable people and all sorts of information then I do trust the information I get through twitter very much."* [20P-FOS-28]

This academic stated her principles in following professional accounts because she feels that they are more trustworthy because of their stature. She also expressed doubts regarding celebrities' pages, because of the possibility that a dummy account was only created by some fans. To elude worries on unreliable sources, one academic suggested to cross-check information received from tweets with information from newspapers to present a more authoritative view of the posts. This is done to verify information circulating through the internet and at the same time trying to verify or clarify differences between the posts and the facts.

6.21 Privacy concerns

In addition to the accuracy and credibility of information circulated though Twitter, privacy issues also surround the use of Twitter among academics. In particular, two issues of privacy concern were discussed by the respondents: 1) academic privacy and 2) student privacy. Academic privacy refers to a manner of distinguishing ethical boundaries between the faculty member and students, while student privacy is more on respecting students' Twitter accounts and is related to not 'following' them on Twitter. These concerns are further discussed below.

6.21.1 Academic privacy

Some of the academics highlighted the issue of information privacy, specifically referring to safe-keeping important information about work or teaching ideas from Twitter. They thought Twitter was not suitable for personal communication with students. In addition, discussion should be conducted in private to maintain its integrity and confidentiality. One academic related this concern by stating that:

> *"It's important that confidentiality is maintained when it comes to discussion work so I want to make sure that that discussion happens in a one-to-one basis but if it's general questions about the course then that would be fine."* [28SL-FSS-28]

Twitter is more practical for sharing and highlighting important announcements and issues in a teaching context. One academic explained this by saying:

> *"I don't use Twitter for contacting students, I will really only use it to point them towards something or to report something. I won't use it to give them course materials or anything like that, partly because, again, this is a very grey area, to an extent if I do use it to form our course materials am I giving my competitors an advantage, the place I teach, this place I wanted to be the best. Why should I go away giving all my secrets away? Why should I do their work for them? We are going to be the best, maybe it is not the sharing attitude, but I think that something that you want to be a bit savvy about. I got an edge there and I want to keep that edge. I won't let you know but I want to know what you are doing."* [17P-FSS-28]

She confessed to not revealing or disseminating information and key knowledge to students through Twitter to protect her ideas as well as the novelty of her skills. This is also done to distinguish herself from other academics at other institutions. She discussed the importance of choosing the right information to be shared on Twitter and being discriminating about her Twitter use. This strategy was important for her to avoid losing information to academic rivals. She sought to sustain her position and reputation in her institution through safe-guarding her own 'brand'.

One academic had shared her concern for the important ideas she communicated through collaboration on Twitter with her research partner:

> *"Now this is a really interesting tweet. I worry about this tweet, because this is the big project…. But I just gave them the key ideas in a tweet, now after I did that I thought they won't notice, and also it had raised the profile of the project. So that is interesting, I shouldn't have done that, no one has retweeted it, which is great."* [15P-FSS-28]

> *"I think there are obviously copyright issues and things like that which have to be thought about. It's a public forum. People can see it so make sure that it's used in an appropriate way, and if it's a hashtag for a University project, that people's tweets aren't derogatory or denigrating or whether they're prejudiced so I think there have to be ground rules, yeah and they have to be aware of those ground rules."* [7SL-FSS-28]

The quote above shows the potential danger in sharing details about certain academic activities related to unofficial leaking of confidential information. This infers that drawing a line between different types of information to be shared on Twitter is significant.

> *"Yeah, again it's about keeping a balance between, you know, work and my social sphere of kind of discourse really."* [5L-FAH-28]

Privacy concerns related to academic activities encompasses various dimensions. This concern could affect relationships between an academic and his/her colleague, the academic and other academics from other institutions, the academic and other users all over the network, the academic and the students and the academic and himself/herself in relation to the boundary or balance between academic life and social life.

6.21.2 Student privacy

A majority of academics highlighted how they were keen to be connected with students on Twitter, yet there was a concern that appropriate boundaries should be maintained. They discussed the different uses of Twitter and Facebook, where Facebook is perceived as a private and personal social networking account (i.e. connect with friends and family) while the former is inclined towards professional work purposes. This shows that academics resisted in allowing students to be friends with them on Facebook while they allow students to follow them on Twitter. However, a fine line should still be set to avoid conflict, they thought.

> *"I do not use my own Facebook page for work. It is private and it's kept like that... I've had students request to be my friend before and I just think that's inappropriate. If they want to be friends with me, they can be friends with me on Twitter. I will happily talk to them. That's the public space."* [4L-FAH-28]

One respondent revealed that he purposely created two different Twitter accounts to differentiate his relationship with students. He said:

> *"I let students follow obviously my professional one but my personal one is blocked and I wouldn't let students follow that and again, I'm old-fashioned that way because as I said earlier, I'm not actually in the business of making friends with students. I'm very approachable I think as a professional and I'm*

very, you know, my door's pretty much always open but I don't really want to go to the pub with them afterwards."

Although he was aware of some academics having no restrictions on students following them on Twitter, he preferred the student-lecturer relationship to exist on a professional basis to avoid the misconceptions or dilemmas of relationships. He stated:

> *'There are some colleagues that just like to be friends with the students and... to give their personal side as well as their professional side and I don't like doing that. I think it leads to trouble. I think it makes the students respect you less in the long run and it's just not for me, it's just not me. So I very much... I believe personally that, you know, personal stuff should not go on the accounts that the students are seeing and that's why I keep them separate. I know a lot of people don't think that and that's fine but I do advocate a demarcation, as it were, between the two."* [19SL-FSS-28]

Similarly, another respondent supported the idea by demonstrating an ethics of care in academic-students relationships, yet maintaining control of them as a senior. He explained this by saying:

> *"You know the tutor–student relationship… you've got too treat it with a bit of care. And I don't want them to think that I am their mate, because I am not. I am their teacher. So it is a different sort of relationship. I am very happy; in fact I asked them follow me..."* [17P-FSS-28]

One academic discussed feeling uncomfortable when receiving too much of intrusion from students on his Twitter account:

> *"Frankly, it's a bit strange really if I just start following students because students will talk about you on Twitter and things like that probably. Like I've just had a seminar, you know, that's kind of odd and I shouldn't know that. There needs to be a space for them to discuss things outside of my... the academic realm (space), if you see what I mean, that I represent. So, I don't want to infringe (violate, damage) upon that."* [23UT-FSS-28]

Although academics approved students to follow them of Twitter, as discussed earlier, most of them also stated that they declined following students.

"I think there are a number of reasons why I don't follow students back. I think that I want to establish a distance between myself and the students. I think that they need to be free to live their lives without feeling like I'm monitoring them… I don't necessarily want to know where my students are going on a night out or how hung over they are…" [6L-FAH-28]

"I don't generally follow students. No, so it is very unidirectional. I deliberately don't follow students because I think that's too personal. I don't want to be seeing about that what they are doing on Friday, I don't. I don't want to see aspects of their lives. And I don't want them to think that I am seeing into their lives." [1P-FMDH-28]

These academics emphasise the significance of limiting the student-lecturer relationship to a formal one and to respect their privacy (i.e. social activities, group chatting, personal views) when using Twitter. They also emphasise that this is done to give them liberty in their own social space. Equally, they do not want to be seen as snooping on students' lives.

Similar to the academic privacy discussed above, student privacy is also a crucial concern. Nonetheless, this type of privacy poses a sole concern between the academic and his/her students and the relationship it creates through Twitter. Similarly, a boundary or balance between academic life and social life between the student and the teachers should always be maintained, academics thought.

6.22 Insufficient activity to establish a community

While interaction and communication has been seen as an essential component of Twitter use, some academics also noted the lack of interaction that leads to a building of an inclusive community in Twitter. One respondent talked about the importance of active participation among people in developing a community of similar interest on Twitter:

"If the association doesn't tweet than it just a missing how things build up and people just slowly see it. But you can't be strategic about it because, I mean we can encourage association to setup a twitter account but if it's not really much part of the culture there, at the moment it is a bit tricky." [27P-FSS-28]

There is no direct formula or procedure in building a community on Twitter and this shows that the influence partly comes from a group and individual's efforts to make the community activity happen. Hence, it is seen that interactions among users in the network does not necessarily lead to a solid community, but rather a more dispersed and diversified network with different perspectives. The academic is however hopeful that community building could happen.

6.23 Communication breakdown due to lack of sophistication

Some academics become self-conscious of anything they said or shared over the internet via Twitter. This concern is related to the possibility that these posts could be riddled with issues of misspelling, misuse or misinterpretation. This worry made them delete their posts so as not to create unpleasant feelings from others. The experiences were shared by respondents:

> *"Sometimes I do misspell on Twitter… I did this morning which I thought was really silly… which I realise you could interpret as rude! I tweeted that I am really looking forward to my fishing project and I am looking forward to learning about tackle- now tackle is like I meant is like fishing tackle, tackle also means something rude. And I thought ohh [expletive]! Do you think I should delete that?" [She deleted her tweet on her desktop].* [15P-FSS-28]

> *"I don't remember a specific example but where people have emailed back and it's been clear that what I meant wasn't clear and somebody had taken it the wrong way, then I've deleted those tweets. While there's been a risk of other people misunderstanding because you can... Twitter's so short that sometimes you say something and the nuance is lacking… So people say things often that are then misinterpreted because maybe they send three or four tweets in a row and if you read them altogether then it makes perfect sense….but if you read just the one it seems offensive."* [4L-FAH-28]

These academics brought out the issue regarding Twitter's limited sophistication of features, such as limitation of characters, which can lead to misinterpretation if not properly managed. Similarly, one professor opposed the idea that Twitter has positive attributes as a tool for conversation. He said:

> *"I don't think Twitter is the medium to have conversations, and I find it difficult to follow threads of conversation on Twitter in a technical way. So if I see a tweet from somebody else and they say 'oh thanks'… I don't know*

what it means, and then you have to press the button to find the tweet that they are referring to, and then you have to read it and understand it, it is not an intuitive way of threading a conversation, so I try to avoid it because it doesn't make sense… "Yes, occasionally people have said 'can I talk to you about something?' and I say email me. I mean there is direct messaging on Twitter but I don't like it […] because in order to direct-message people, you have to follow them. I would rather people email me. And that is why on my profile there is a link to my homepage and email link." [1P-FMDH-28]

In here, he spoke about Twitter complexity that does not really support a smooth stream of communication. He indicated his preference for using email as a mode of online communication rather than using Twitter. Although Twitter offers a private space to send and receive message, its character limitation may make conversations lose sense as opposed to an email where boundless space for information is allowed. Nonetheless, he deliberately use Twitter as a biography page that linked to his other details. He also linked it with his approach to following people. He also tried to limit his Twitter use so that delivery of unnecessary information on his timeline will be avoided.

This professor's disagreement was also related by another academic, stating that:

"It depends how good people are at replying because I know I've got some friends who I have had conversations on Twitter who don't use the reply button. They just send you a new message so you can't see the whole conversation, or if someone else gets involved. Whereas if people hit reply then it tends to be easier, doesn't it?" [23UT-FSS-28]

This statement above implies two aspects that drive the issue: Twitter breaks conversation into fragments that result in information being meaningless to others who view it; and a problem with unfamiliarity in using some of the features properly is present.

6.24 Technicalities/feature constraint

Despite valuing the use of communication technology that supported Twitter access, others have also argued about the compatibility and usability of the smartphone. They showed disappointment and frustration because of the less user-friendly features of the mobile phone. One academic added that the smartphone was her secondary choice for accessing Twitter, stating that:

"I just use my mobile for Twitter when I haven't I have got access to the computer or laptop." [25SL-FMDH-28]

A few academics highlighted similar reasons why the smartphone design made them favour a computer for tweeting:

"I haven't got used to typing with my thumbs, so I am quite a fast typer, I mean I am a fast touch typer or I recently have become a good touch typer and I actually find it quite hard not do things on the proper keyboard. So I don't particularly, I do, you know, I will sometimes tweet from my mobile phone or from my IPad but I don't like it! I really much prefer to tweet from a keyboard or to do anything from a keyboard; I know that is a very old-fashioned." [21P-FOS-28]

"Yes, I don't really like writing from this phone and I like my blackberry because it has a little key, I really don't like this (HTC) that much. I mean I don't think I send as many emails or texts as I used to… I just find the touch screen is awkward." [27P-FSS-28]

"Well, I think that if I've got the laptop open for doing something else then I'll just tweet from the laptop because the keyboard's easier to type with than tweeting from the phone." [5L-FAH-28]

Another academic talked about her experience, suggesting that her activity on social media had increased because of the new technology. This became more convenient for her when she found a better smartphone that supports Twitter in a better manner. She related:

"This is a new phone (showing her Iphone), I mean it is not an old new phone and it is easy. I had a blackberry before, it was just terrible and looking at Facebook or Twitter or anything on that was just a nightmare. The functionality was not very good and it always asked you if you wanted to have a Twitter update for blackberry and it was such a hassle and… it doesn't really work properly… and so it is easier frankly to access Facebook much more easily, and Twitter is very easy now." [12FR-FOE-28]

The narratives above show a negative effect of using Twitter and the technologies based on how technological dependency among the academics is experienced. The ease of use derived from the features of the technology, specifically mobile phones and other portable gadgets, contributes to higher use of and engagement with Twitter. However, this is also associated with the increased difficulties related to some features of the technologies that constrained the ways to maximise Twitter for the academics' use.

6.25 Summary

In summary, this section presented the different issues associated with the use of Twitter among academics interviewed in this study. The issues include psychological dependencies, image and identity projection, data integrity and privacy, and concerns on technical features of the platform. This chapter shows the other side of the spectrum by showing the negative effects of Twitter use among academics in comparison to the previous chapter that talked about the benefits derived from being engaged in the network.

Chapter 7 : Discussion

7.1 Introduction

The current research aimed to study academics' use of microblogging (Twitter) and the factors that influence their adoption and use of Twitter in a UK HE context. Hence, this discussion chapter addresses the main research questions of this study, namely:

1. What are the characteristics of academics that use Twitter?
2. What are the common patterns in the process through which they adopt it?
3. What immediate drivers shape its use?
4. What purposes do academics use Twitter for?
5. What temporal and material habits of use emerge through usage by academics?
6. What are the features of the technology/affordances that enable it to be used in different ways?
7. What are the concerns of academics that use Twitter?

These questions are answered in the first section of this chapter, the summary of findings [Section 7.2]. Following this, the next discussion [Section 7.3] will bring in the main findings, in order to compare and contrast them with the previous literature, mainly in relation to two key authors, Veletsianos (2011) and Lupton (2014), both in terms of empirical findings and theoretical conceptualisations. It discusses the emerging findings in detail, considering the similarities and nuances found, in comparison to these two studies, which include the following: Twitter use; motives of use; adoption processes; and temporal habits of academics' use of Twitter. It then discusses the findings in relation to other previous literature. The final section of the chapter [Section 7.4] explores understanding of Twitter use in relation to the underlying contextual factors in the HE context, through answering this important further research question:

8. How can the use of Twitter be understood in the light of the main structural pressures/trends that were affecting what it means to be an academic in the UK in 2013?

The chapter concludes with a summary of the main issues that have emerged from the discussion.

7.2 Summary of findings

In this research, it has been found that academics are engaged in multifaceted and complex activities through their use of Twitter. In understanding the phenomenon of academics' use of microblogging in HE, the study explored six key aspects: (1) attributes of Twitter users; (2) initial motives for starting to use Twitter; (3) the process of adoption; (4) academic use of Twitter; (5) temporal patterns and material habits involved in Twitter use; and (6) concerns related to the use of Twitter.

The study found two common characteristics shared among the academics that had adopted Twitter and so participated in the study. Regardless of age, discipline or seniority, a majority of academics perceived themselves in the following terms: (1) early adopters of technology compared to other colleagues in their department, (2) and being 'tech-savvy', meaning proficient in using technologies and advanced in exploring the latest innovations in hardware and software applications.

The study revealed that the academics' decisions to adopt Twitter originally grew out of some underlying, interconnected extrinsic and intrinsic elements which combined to motivate them to use it. The main elements were: (1) academic practices (i.e. research, teaching, research disciplines, management and administration role); (2) the need for establishing a digital profile; (3) social influences; (4) need for news and information sources; (5); following social media trends; (6) personal interest; and (7) beliefs about technology.

The third element developed in the study was an understanding of the process of adoption. Academics typically experienced a series of episodes in their Twitter adoption. Through the process they often encountered complex states of mind, including insecurity and ambivalence as a result of perceiving Twitter to be just another social networking platform. Despite of the sense of doubt, participants were keen to be sociable. These stages typically included: (1) initial scepticism about Twitter; (2) acting as a 'lurker'; (3) taking a trial and error approach; and (4) developing participation for professional use. In the initial phase, some academics were sceptical about the value of Twitter. Commonly, participants were hesitant regarding using it for work purposes, as the most common impression was that it was for social use. Nonetheless, the majority were 'early adopters' keen to try in spite of the problems. They showed curiosity about exploring it - 'to test the water' - based on what they heard or read. Even after their participation, they still had doubts, due to the complex context of other people's activities on Twitter. This ambivalence led to some becoming spectators or 'lurkers', trying to understand other people's participation on the platform before developing a strategic approach to its use by themselves. Some 'early adopters' had a long period of inactivity, where they acted as passive users or engaged in social surveillance. At the same time, they also tested or used trial and error, including in terms of learning how to operate Twitter functions, while some more advanced users tried to develop their personal use, such as social networks and sources of news, into a more academic practice. Fundamentally, they gradually developed their own interpretation of how to use Twitter. At this trialling stage, a majority of academics were successful, yet one reported failure, as a result of the limitations of Twitter features, a sense of self-consciousness when initially engaging in its virtual space, and the issue of time taken up. When academics decided to engage with Twitter, they progressively increased their participation through developing multiple ways of using it and repurposing it to a mixed use, involving both social and professional purposes, though the latter were predominant. Their adoption increased and was sustained when existing members on Twitter engaged and supported their participation. This sort of social influence significantly influenced academics to continue to visit Twitter and develop their presence.

Following the adoption stage, academics began to increase their primary use and become more consistent in their participation and developed habitual patterns of use. Academics in the study used Twitter for different purposes, suited to their academic practices, and it was not a solitary activity. The themes identified in relation to the varied uses of Twitter were: (1) communication; (2) dissemination; (3) pedagogical activities; (4) building relationships and maintaining networks; (5) forming a digital identity; (6) micro-breaks; (7) information seeking and gathering; (8) learning and (9) coordination or amplifying other social media and website use. The different practices academics employed showed different individuals used different strategies when engaging with Twitter. This indicated that there was no one simple formula regarding how these participants developed their activities on Twitter.

(1) Communication

Academics predominantly use Twitter for communication that involves informal dialogue with colleagues, other professional people, the public and students in either a synchronous or asynchronous ways. The content of the conversations includes discussions of academic research and information; asking for help from other colleagues in regards to research ideas or teaching; providing assistance/feedback to those from a similar research background, which thus involves an informal collaborative purpose; teaching or research activity; participating in social conversation with the audience; occasionally voicing suggestions or concerns; and using the technology as another informal channel to receive teaching feedback directly from students. Participants reported that having a dialogue on Twitter is a supplement to existing communication mechanisms.

(2) Dissemination

In terms of dissemination, academics aimed to share and broadcast their research work and other academic activities to wider audiences. It was clear that 'early career academics' aim to measure their research impact and performance through reporting and recording their research and teaching activities. Likewise, later career academics also used Twitter for publicising relevant academic events and administrative activities for the department, organisations or funders they worked with and for other parts of the university. Promoting academic work is not limited to individuals but can also involve supporting colleagues' and the employer's reputation in a broader context.

(3) Pedagogical activities

Academics in this study also believed that Twitter has the potential to become a digital tool for teaching and learning and experimented with pedagogical activities with their students. This included sharing their teaching syllabus and creating classroom discussion within their personal Twitter network; and generating exciting and pleasurable learning experiences for their students. They found it significant in promoting student learning and engagement between the lecturer and students; students also received peer-support through this platform.

(4) Building and maintaining network

Building relationships to diverse people on Twitter is another practice of academics that emerged in the study. This practice support academics in establishing or expanding important contacts in communities of the multi-layered academic hierarchy, among professionals, practitioners and students. Using Twitter promotes relationships and closer ties between academics and their contacts online and offline through continuous, convenient interaction. Furthermore, being in the network, these academics gained career opportunities, had more engagement with academic research and teaching work, learned to work in resourceful ways and became more visible in their communities of practice.

(5) Forming a digital identity

Returning to the idea of constructing an identity, this use involves academics displaying a new image of a modern and up-to-date scholar. Academics create a 'self-brand' by displaying their professional activities on Twitter, whilst at the same time showing their 'real-self' through revealing their human side. It is a self-presentation by an individual professional, carried out in a fairly informal way. Academics also used Twitter as an open journal for sharing a glimpse of their academic life. Academics construct their digital image through tweeting interesting characteristics and personality traits, such as interesting work practices and displaying professionalism; being an innovative and high calibre researcher; managing a busy academic life; connecting to important people; being socially relevant and engaged with students and communities; having the generosity to share useful resources; having an aspirational mentality; using humour; being entertaining and approachable; and being interesting and polite. Projecting these traits is important for academics, as it enables them to be accepted by audiences in their personal network and to boost their public profile.

(6) Micro-breaks

Micro-breaks are an exclusive and unique use of Twitter. Academics browse Twitter to take a short break from their work or to fill a gap between academic routines or activities. It was found that this activity brought mental relaxation, either through the distraction of reading highlights and information, or the activity of sending out tweets, whilst actively managing other practices on Twitter.

(7) Information seeking and gathering

Academics were interested in seeking and collecting information chiefly academic resources, latest developments in their fields, funding offers, and general news. They did this through their choice of specific people to follow on Twitter. Academics reported that managing lists of followers enabled them to receive useful information according to their interests, like academic discussions or blogposts, which often cannot be found through scholarly databases or traditional searching, and also saves time. Being the first to redistribute such information across the network helped to enhance their reputation. With information features like 'banners' offering quick accessibility and a rapid mode of information distribution, Twitter provides opportunities for academics to strategically acquire knowledge in relevant areas (e.g. research, teaching), on colleagues' topics of interest, and with experts or leading organisations in the field.

(8) Learning

In tandem with searching out ever more information, the participants found Twitter to be a useful platform for enhancing learning. Academics benefited from this through attaining a diverse range of educational and general information from people they connected to on Twitter, in one open 'collective database'. This has significantly increased their knowledge and awareness of events and developments within and beyond their network.

(9) Coordination or amplifying other social media and website uses

Besides managing different Twitter accounts for specific activities, academics also used Twitter to highlight their participation on other social media and websites and/or for personal contact, employing it like a 'business card'. Academics creatively integrated Twitter with other social media platforms to promote each platform's activity.

Temporal and habitual patterns of using Twitter emerged and reflect academics' diverse purposes for using Twitter. These were discussed under the following headings: (1) temporal patterns of use; (2) tweeting activity; (3) monitoring Twitter; (4) following and being followed; (5) storing information; (6) managing activities in other Twitter accounts and (7) technology affordances. These components are interconnected activities that suggest a particular approach to Twitter. For example, (1) temporal patterns of use, and (2) tweeting activity, may happen simultaneously. This involves academics logging onto Twitter to actively search for updates and, whilst doing this, sending tweets or retweets. These activities show their behavioural and temporal patterns on Twitter when performing activities such as sharing interesting posts or links; sharing individual activities; replying to comments or commenting on a tweet; and searching for information. It was also found that, besides managing their identity on Twitter, academics constructed different types of tweets appropriate to their purposes and audiences and strategically sent tweets at specific times, when followers were most likely to be active online. It revealed that academics use Twitter at certain times of a day and mostly when they have a gap within work of beyond working hours. It also showed that Twitter was mostly embedded in their working routines.

Themes (1) and (2) describe the routines and temporality of Twitter use, including the length of time academics logged onto Twitter for and at which points during the day such as in the morning, afternoon and/or night; the usually short duration of engagements (5-10 minutes); a tendency to use Twitter in specific locations (i.e. home, office, outdoors); and multiple checking of Twitter alongside other online social networks and media (*e.g. email, Facebook, Blog*). Corresponding to these two main activities, (7) technology devices such as the use of computing and mobile technologies (e.g. computer desktop, laptop, smartphone, tablet, internet technologies and web applications) were the key apparatus that supports academics' Twitter use. Some of the academics (3) monitored their Twitter stream as part of engaging with Twitter headlines or keeping up-to-date. Building a personal network on Twitter through (4) followers and following others is a premeditated way of managing information acquired, connecting to important people, enhancing career reputations, encouraging their dissemination efforts to go viral and help to promote their sharing of news. Academics were also found to adopt specific approaches in terms of (5) storing information taken from Twitter as a personal knowledge repository or sharing with their students. Finally, academics (6) manage multiple Twitter accounts on Twitter. The current study indicates that some academics have more than one account on Twitter. Among the accounts managed are ones for personal, professional, departmental and global research community use. They claim this practice could be either a solo lead or a collaborative effort with other colleagues. This highlighted that academics multitask with different Twitter accounts and this adds complexity to current Twitter use, such as in handling a range of dissemination and publicising activities for different audiences, having goals for each account activity, and performing multiple identities on Twitter. To balance the use they gave different priorities and weight to each account, characteristically their individual professional account being accorded the highest importance and being the most highly used. This implies that academics are enthusiastic about their use and adept at responding to a range of Twitter uses, and value Twitter's effectiveness for a range of academic commitments.

From a technological perspective, these uses are largely due to the fact that Twitter offers significant value to these academics through its characteristics, such as brevity, simplicity, rapidity, informality, dynamism, altruism, flat platform viral information and openness that make it useful to perform academic practices (Lupton, 2014). There are two ways of looking at the relationship between Twitter features and academics practices: professional use and time constraints. As regards the first point, academics use Twitter for professional purposes, and Twitter has limited characters, and so there is less risk to academics of having their privacy exposed, thus academics draw a line between the boundaries of their work and their audiences, unlike *Facebook*, which offers more characters, which creates a tendency for people to share more personal information and open the door into their private lives. On the second point, academics have high workload and time resource concerns; Twitter fits into their tight routines because the short message length of tweeting gives them sufficient time and space to show presence in an online community of practice and to engage in useful academic interests with minimal loss of time, in contrast to *Blogs,* which require many hours to write and maintain. Additionally, the use of mobile technologies advocates academics accessing Twitter via mobile devices and mobile apps, possibly because of the natural fit between the services' real-time update feed with the portability and ubiquity of mobile devices' anytime, anywhere culture, that requires reachability and connectivity to support multi-tasking activities. These affordances at some point contribute to the behavioural changes of these academics in terms of their approach to accessing and monitoring Twitter.

Whilst academics found Twitter was useful in complementing their academic practices, the study found that they had concerns about its effect. Issues they were concerned with included the following: (1) damaged reputation/status; (2) physiological impact; (3) a perceived lack of professionalism; (4) being attacked on Twitter; (5) a distraction from work; (6) taking up time resources; (7) information overload; (8) extreme self-promotion; (9) conflict of identities with Twitter accounts; (10) questions regarding information accuracy and credibility; (11) privacy concerns; (12) insufficient activity to establish a community; (13) communication breakdown due to sophistication; and (14) technicalities/feature constraints. These perceptions of risk are closely tied to the ways in which they employed Twitter.

In particular, two major issues were highlighted. Firstly, the academics were cautious about the types of tweets they sent and conscious of the need not to create negative impacts on others, themselves or their university. Clearly, this is associated with their professional status as an HE academic. This is associated with the blending of professional and informal personas in their self-presentations, which led to a blurring of the boundary between the two, in some cases. Secondly, academics revealed concerns about two potential psychological effects; addiction to Twitter updates and community interaction; and feeling the need to log on frequently, beyond normal working hours, so as not to miss the content. However, analysis of the matter shows that academics do it in a balanced way. Some even describe that the benefits outweigh the risks. Hence, they maintain engaging in

Twitter-related activities. In short, it is seen as a paradox, where the use of Twitter has benefits and at the same time could cause harm to the academics. This hints at an issue around the work/life balance issue. It seems it is hard to disentangle the two. Twitter demands constant attention leading to use outside work hours. Yet people feel it should be separate. Again this has a feel of indicating increasing demands on time from a highly pressurised job. The second issue is excessive self-promotion of individual academics' work and achievements generating potential pitfalls which might cause other colleagues to feel upset and/or offended.

This section has presented an overall understanding of academics' adoption and use of Twitter in the HE context. It showed that academics use Twitter for multiple purposes involving a range of inter-related factors, goals and incentives, which brought diverse experiences and involved negotiation and experimentation during the adoption process. It also suggests that academics manage complex sets of Twitter activities in sophisticated and complex ways, employing different strategies in managing their Twitter accounts, and developed habitual and temporal patterns of use exploiting the affordances of technologies. The range of Twitter use found in the current study clarifies how academics perceived the variety of options Twitter affords for their scholarly pursuits. Twitter offers considerable benefits and opportunities in supporting academic endeavours through its built in features such as live interaction; lightweight, customised and personalised aspects; and the supportive and collaborative communities it can facilitate.

7.3 Current research and other studies

While the literature has become rich with descriptions of microblogging use, thus far there are relatively few studies examining why academics use it. To date, there are two main previous studies, by Veletsianos (2011) and Lupton (2014). This section will discuss the research findings in relation to these two main previous studies, as well as relating the findings to other previous literature. It starts with an introduction to these studies and the current research, as presented visually in Figure 7-1. The discussion also underlines the evolving themes in the current study not identified in either Veletsianos (2011) or Lupton (2014). Later, it reveals other emergent findings that highlight the importance of this current study in the field.

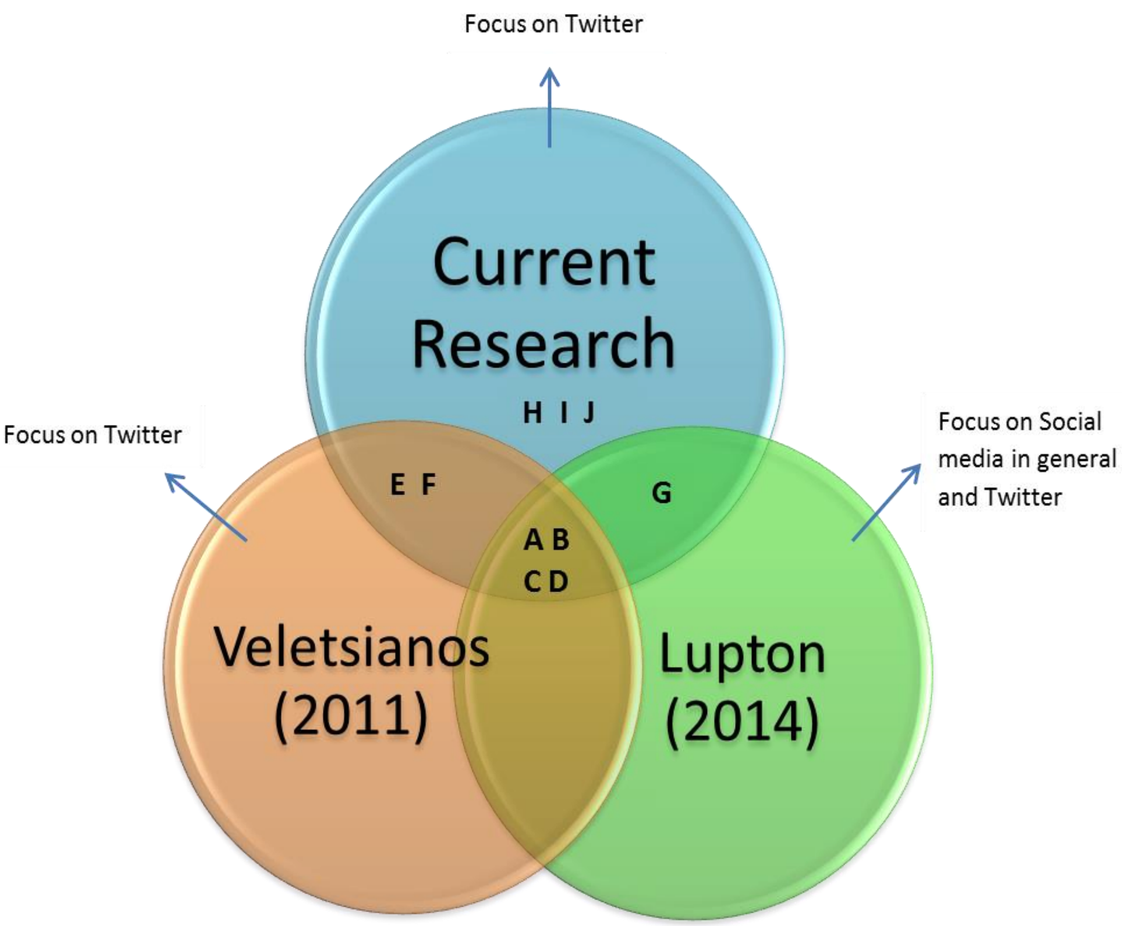
The current study is clearly distinguished from Veletsianos' (2011) and Lupton's (2014) studies in terms of its research aim, sample group, and methodological approach. Veletsianos' study (2011) aimed to identify how scholars' microblogging activities supported their scholarly work. The author gathered a sample of Tweets, from 45 scholars in HE in a number of countries, from four different disciplines, and employed qualitative content analysis to analyse types of Twitter postings. The outcome suggested seven categories of scholars' academically-oriented activities namely: "(1) sharing information, resources and media relating to professional practice; (2) sharing information about classrooms and students; (3) requesting assistance from and offering suggestions to others; (4) engaging in social commentary; (5) constructing digital identities and impression management; (6) attempting to network and make connections with others; and (7) highlighting one's own participation in online networks other than Twitter" (Veletsianos, 2011, p. 1). The current research accords with Veletsianos' main findings, but has a different emphasis. Veletsianos focused on categorising types of tweets, and thus it is found to be limited in terms of providing detailed explanations and reasons why such Twitter activities were undertaken. However, it has the strength of looking at what people do, sometimes what people say about what they do is unreliable. Having said that interpreting what the purpose of a tweet is just from a short piece of text seems challenging. Comments such as this provide a more detailed thought about the different qualities of the research methods in use.

In contrast, Lupton's study (2014) involved a broader context of social media platforms used by academics in HE and focused on identifying the most valued and beneficial aspects of social media for professional use. Through her international online survey of 711 academics (lecturers and postgraduate researchers) in five meta-disciplines, her results provided a comprehensive list of social media advantages and drawbacks, including discussing the use of Twitter by diverse levels of academics and of different nationality. Lupton identified the social media benefits as follows: (1) connecting and establishing networks not only with other academics but also with people or groups outside universities; (2) promoting openness and the sharing of information (research and teaching); (3) publicising and fostering the development of research; and (4) giving and receiving support. It was highlighted that Twitter use by scholars is greater than with other platforms. The findings between Lupton and current research overlap, in terms of types of use and general concerns. While Lupton's study covers a wider range of social media, it explores academics Twitter use in less depth.

The current study examines the factors influencing academics' use of Twitter in HE, and only focuses on one institution, the University of Sheffield (UoS), in the UK. In total 28 academics were interviewed from five meta-disciplines. These study further gauges academics' adoption and use of Twitter through capturing their perspectives and experiences; and by recognising how the use of Twitter shapes academic practice. While the current research only concentrates one institution with a relatively small group of participants, nonetheless, through employing a qualitative approach, it gives a wider focus and a more holistic view in understanding how academics use Twitter.

The qualitative research method used in this study helped to probe individuals' behaviours and established an understanding of their Twitter activities and patterns of use, including the following: identifying the initial triggers that encourages them to using Twitter; exploring in-depth academics' motivation for using Twitter; providing inclusive descriptions of the purposes of Twitter use and the process of Twitter adoption; detailing the temporal and habitual patterns of using Twitter; and unveiling academics' concerns regarding the use of Twitter. This method provides a more in-depth account than the approaches used in the other two studies, namely content analysis (Veletsianos, 2011) and survey (Lupton, 2014), as both limited the researchers' ability to discover the multifaceted and complex nature of academic Twitter use. This research design has facilitated the current study's discovery of further unique and significant findings either not found or given less emphasis in Veletsianos (2011) or Lupton (2014).

Figure 7-1: Connection between current research, Veletsianos (2011) and Lupton (2014) on common themes of Twitter use and concerns



A - Dissemination	F - Coordinating other web and social media platform
B - Building and maintaining networks	G - Concerns about using Twitter
C – Forming a digital identity	H - Micro-breaks
D - Pedagogical activities	I - Information seeking and gathering
E - Communication	J - Learning

A - Dissemination

With regard to Twitter as a form of dissemination, Veletsianos' findings describe how sharing of information, as well as media and various academic resources are becoming prominent among researchers and faculty members. Similarly, this use was found to be dominant practice with a high tweeting frequency. While this current study confirms his results, this research revealed more details of the types of sharing they do on Twitter. Besides sharing resources, academics use it to publicise and promote development of research, events and activities. Importantly, academics use it as a means to build 'research impact' through sharing their academic publications and communicate on academics related as discussed in the points 1-3 below. In Lupton (2014), academics found the virtues of openness and sharing information benefiting them in reduce the gap to information and people. In general, dissemination activity on Twitter is consistently found to be one of the main uses in the broader social media and microblogging literature (Java et al., 2007; Jansen & Zhang, 2009; Zhao et al. 2011).

Veletsianos questioned scholars' purposes in sharing; whether the act is a self-serving activity, attempting to develop individual identity, and how far this could benefit the community they were part of, which is an aspect addressed in the current study. Although this study has no statistical results related to this dimension as in Veletsianos (2011), nevertheless, the current findings reported dissemination to be one of participants' main activities on Twitter, and that a key reason for sharing was explored in more detail in this study and facilitates understanding in more depth why this practice is undertaken. Therefore, in response to Veletsianos' inquiry about why scholars share on Twitter the following three points suggest main reasons:

1. Academics in this study claim the pressure to publish and the impact measurement element in the REF is the main reason for choosing Twitter as an outlet to disseminate research beyond their institution, whilst providing an indication that their research had impacted on a broad audience. Twitter citation is increasingly used across academic communities (Priem & Costello, 2010; K. Weller et al., 2011) and academics in this study related this to their scholarship contribution, which can be measured in different ways. For instance, Arts and Humanities' academics (where generally the impact is hard to establish clearly) indicated that their research is placed within the public domain (e.g. poetry, literature, arts), thus their performance is relatively measured by engagement with the public, unlike applied science research, which invents products that can be commercialised or makes

direct contributions to human society. Therefore, demonstrating a social media report that displays audiences' engagement with their research is an alternative way of providing evidence of their work being acknowledged by public. The current research illustrates that groups of early career academics take to this sharing practice enthusiastically and develop a competitive environment in relation to promoting research and career progression, and this practice is affirmed in other studies (Lemon, 2014; Lupton, 2014). Veletsianos (2011), on the other hand, does not highlight different levels of academic seniority and how this may influence sharing, which this study does.

2. Academics are willing to share their activity in the public domain, as a means of updating their current status and being transparent in their research, disseminating such information to the government, HE funding agencies, authorities/stakeholders, colleagues, institutions and non-academic audience's and likely shaping Twitter as a 'surveillance tool' and establishing it as a new form of reporting progress on work whilst improving accessibility to institutions and HE. Through this sharing, they also attempt to construct a new professional image of the academic in the current era, involving openness and sharing, and they network in the public sphere and engage with large pools of local, national and international expertise. Ultimately, these academics projecting desire, tenacity and dedication in their work, besides forming an identity, determinedly to enhance profile and reputation.

3. Besides the activities stated above, the current research also found that academics share research as an act of knowledge transfer activity that significantly supports a community of researchers in exchanging thoughts and ideas, enriching learning and contributing to knowledge construction.

Therefore, based on the points addressed above, this substantiates the fact that academics strategically share information on Twitter for personal benefit, as presumed by Veletsianos. However, as stated above, sharing is not merely for self-interest but also for collective purposes, that conflicts with Veletsianos' hypothesis. This study offers evidence that academics disseminate and publicise academic activities to improve academic status. In supporting this notion, a study of professionals in online communities showed that building a reputation and enhancing their status is considered to be a great driver influencing active participation, knowledge contribution, and knowledge sharing with colleagues within their network (Wasko & Faraj, 2005). This network builds on the maintenance of status and power in academia through accumulation of reputation which may be sustained with constant collaboration and interaction within the academic community (Jones et al., 1997) (as cited in Wasko & Faraj, 2005). Accordingly, knowledge contributors perceive online participation as important for extending one's professional status (B. E. Stewart, 2013) and building an online identity supports self-esteem and the possibility of future reciprocation and bonding (McLure Wasko & Faraj, 2000).

B - Building relationships and maintaining a network

Veletsianos' findings suggest that scholars network and connect with people as well as becoming connecters between people. While this current research confirms Veletsianos' findings, the study extends it by explicitly discussing details on networking activities. Academics in this study claimed the benefits through networking include: to break the hierarchical gaps between academics, creating more career and interdisciplinary collaboration opportunities and continue to expand networking with different groups of people. Consistent with this, the benefits of making connections in social media community was strongly emphasised in Lupton (2014). This finding indicated how the feature of #hashtags was useful in supporting networking and generated bonding with new people who are interested with the same subject. It was also identified in this current study that academics preferred to bond in professional exchanges rather than having personal connections. This reflect to Boyd and Ellison (2007) argument, that user are interested in having access to the community of practice connected to members where they value the exchange of practice-related knowledge in the domain of like-minded members and they were tended to be less determined to have social relationships with fellow users. These important findings however were not addressed in either Veletsianos or Lupton's studies.

C – Forming a digital identity

The current research indicates that academics are forming a digital identity on Twitter and this was not addressed specifically in Veletsianos and Lupton. Veletsianos' study separates this idea in two uses: (1) '*engaged in digital identity and impression management*' - scholars exhibit their identity through presenting their professional work; (2) '*engaged in social commentary*' - scholars inform and update members about their social activities. This current research, however, contends that both uses are interconnected, and significant in forming an identity, in opposition to Veletsianos' view. In regards to Lupton's, this author claimed this use as – 'self-promotion'.

This research confirms both authors' claims however discuss this activity in more depth. Academics in this study display their digital identities by constructing a mix of professional and personal elements to balance their personalities and generate respected academic profiles. This activity is through communication, self-expression, self-promotion (Dijck, 2012) and behavioural tactics (e.g. sharing academic work and routine, sharing images (photos), updating status and sharing interests, keeping in touch, display character, and offering suggestions). These behaviours of blending multiple characteristics are 'social functions' Veletsianos (2013, p. 646) They are an act aiming to present their 'true-self' or a 'personal brand' through 'self-storytelling' and, applying this strategy, academics will be accepted by others in the community, since they are thus more likely to be viewed as socially acceptable and potentially influential (Marwick & Boyd, 2011; Papacharissi, 2012; Veletsianos, 2013). Academics in this study managed self-presentation and maintained impression through the ways similar with the processes mentioned by Marwick & Boyd (2011, p. 124), including balance of personal/public information, avoidance of certain topics, and maintenance of authenticity when engaged in a discussion among their networks (Marwick & Boyd, 2011, p. 124). This is manifested by their construction of tweets that are tailored to the audience and context of discussion. In addition, they document and share details of their professional life e.g. present a diary of daily activities to maintain audience interest.

D - Pedagogical activities

In the teaching context, this current research agrees with Veletsianos' ideas that academics play the role of active network members on Twitter in connecting students with practitioners and interacting collaboratively with outside expertise to provide more practical knowledge and real world experiences for their students. Nevertheless, these findings give further insights into learning activities conducted on the Twitter platform e.g. class revision, sharing teaching materials using #hashtags, use as a backchannel, types of use which are not indicated in Veletsianos (2011). This implies that academics in this study valued and explored Twitter for more diverse instructional purposes than Veletsianos identified. This study's findings also stress that the conversational and communal nature of learning on Twitter among students and between academics helps deliver significant outcomes to student learning, knowledge generation and engagement that augments previous studies in this field (Dunlap & Lowenthal, 2009; Ebner &

Schiefner, 2008; Junco et al., 2011; Lowe & Laffey, 2011; Rinaldo et al., 2011). From a wider perspective, it is also consistent with Lupton's (2014) arguments that social media and Twitter supplement continuous interaction and student support. Furthermore, this study found that incorporating Twitter into learning enhances students' transferable social media skills and thus their graduate employment prospects, agreeing with Faroughi's (2011) arguments. However, this current study also foregrounds academics' concerns regarding students' privacy in relation to sharing their work online. Academics also decided not to reveal much on teaching practices due to information privacy and worries that other colleagues might copy their innovative teaching approaches, a point not evident in Veletsianos' (2011) study.

E - Communication

In terms of the use of Twitter for communication, the findings of this study are consistent with Veletsianos (2011). However, this study also reveals that academics communicate collaboratively (many-to-many) on Twitter with colleagues inside/outside institutions and/or with other experts for research projects, which Veletsianos (2011) does not discuss. Twitter significantly facilitates academic collaboration and the connecting of research projects, and so enhancing engagement and promoting communities of diverse groups of people (e.g. academics. communities, university partnerships). These activities encourage co-creation and apply research to meet the public's needs and support human capital and development, reducing spatial and temporal constraints in relation to communication and allowing academics to collaborate on topics of interest and sustain work productivity. Besides this, it increases awareness regarding their own research projects (Vieweg et al., 2010; Zhao et al., 2011). One reason why the current research could provide further results is due to the method of study that probes academics' experiences in using Twitter more deeply than surveys are able to do. Another possible explanation is that, during the gap between Veletsianos (2011) and this current research (2013), academics may have started to discover different ways of using Twitter.

In comparison to Lupton (2014), this study highlights the concept of communication in social media and Twitter use, which this and other general studies of microblogging do not, mainly focusing on how people use Twitter for conversational and collaborative use (Honey & Herring, 2009; Jansen et al., 2009; Java et al., 2007; Kieslinger et al., 2011; Naaman et al., 2010). In this study, communication is stressed as an important element and the term can be defined as an informal interaction between academics and their audiences, which may be on a one-to-one, one-to-many or many-to-many basis for academic interest or social communication. The fact that Lupton's study focused on a wider range of social media means there is less stress on the detail of Twitter use in her work.

F – Coordinating and amplifying other social media platform and websites

It was also found that academics integrate Twitter with other social media to reinforce their visibility as 'public intellectuals' in other online spaces, as also noted in Veletsianos (2011). This activity is conducted in order to support others' academic work and activities on other social media or web platforms. Nevertheless, the current study found something not captured in either Veletsianos (2011) or Lupton (2014), namely that an academics' Twitter profile points their audiences to other personal contact information and official/individual web pages.

Although Lupton's (2014) study did not emphasise this theme, she did claim that most academics struggle to consistently handle the variety and diverse functionality of social media, and that this affected academics' time resources. Despite the fact that this study only focuses on Twitter use, it suggests that the academics in this study handled social media options through positioning their participation on a platform where they felt more comfortable in engaging and sustaining dialogue, particularly in a community of similar interest, which provided them with a sense of belonging, ownership and empowerment. For instance, academics in the current study claimed they chose to participate predominantly on Twitter because they felt this platform was more suited to their goals and purposes and easy to manage and therefore decided to be less involved on other social media platforms (e.g. Facebook, Blogs, Academia.edu). As a result, they tended to be more centred and experienced less of the issues indicated by Lupton.

G - Concerns about using Twitter

Such shortcomings of using Twitter featured in this current research coincide with Lupton's (2014) findings. Despite the numerous benefits social media provides as a research tool, Lupton's study emphasises that the major concern with using social media is privacy. In particular, many academics thought that social media sites blur the boundaries between personal and professional identity. She claimed academics do not want their work to be undermined by their private sharing on social media, which may occur because audiences cannot distinguish between academics as professionals and as peers. Academics in this study indicated similar concerns, especially in setting clear boundaries with their students. Twitter's egalitarian platform removes the gap between individuals' level or status. However, the problem is found to be minimal in this study because Twitter's main feature [140-characters limit] limits people's ability to have close relationships unlike *Facebook,* where studies claimed the major use was for social bonding (Boyd & Ellison, 2008; Ellison, Steinfield, & Lampe, 2007). Twitter allowed the academics in this study to engage primarily within their professional interest groups.

In contrast to Lupton (2014), the current research found that the most commonly raised concern was damage to one's reputation. Although Lupton identified this in her findings, she emphasised it less, as her focus was on social media in general. Sustaining an academic reputation is important; thus academics in this study were constantly aware of the need to construct appropriate content, including their personal input, or when providing comments on private issues/public circumstances, in order not to jeopardise their career.

Lupton's (2014) study has raised concerns about how academics could balance their time between managing activity on social media platforms and performing individual academic practice. This issue is recognised by academics in this study, however, they have anticipated it through taking an appropriate approach in adjusting their use of Twitter to ensure that Twitter was not too time consuming. For instance, they claimed to use it at a certain time in the a day especially accessing it when having a short break in between work or non-peak hours and spending a minimum time on it such as 5-10 minutes.

This current study suggests other characteristics of academics' participation on Twitter which suggests a wider categorisation of uses than in Veletsianos (2011) and a different interpretation of results from Lupton (2014). The themes include: (H) micro-breaks; (I) information seeking and gathering; and (J) learning.

H - Micro-breaks

This concept is new in this area of studies. However, research in the human computer interactions (HCI) field has found a similar idea to micro-breaks where they called 'self-interruption', where a person self–initiatedly distracts themselves; this approach is usually related to productivity value, attention, and multi-tasking patterns (Adler & Benbunan-Fich, 2013), as evidenced in the findings:

> *I'm very much a multi-tasker. I can mark and watch television or read a book and listen to music. I always have more than one thing going*

on at a time, except when I'm writing and then I like to turn it off... I try to. Don't we all? It depends how well the writing's going but I tend to try and have less distractions. [4L-FAH-28]

This activity is related to one's cognitive abilities, and it commonly occurs in independent tasks where a person voluntary switching their work to other activities before continuing completing the current task. Literature in different fields suggest factors that trigger self-interruption can be organisational culture (information-centred workplace), habit or routine, individual states of mind (negative or positive feeling), work stress, time-management or distraction (Dabbish, Mark, & González, 2011; Jin & Dabbish, 2009; Payne, Duggan, & Neth, 2007).

In regards to this, the finding has shown that academics would take a pause, switching to other activities such as browsing on Twitter before continuing to focus on their work. The technology used, such as smartphones, is another factor in triggering micro-breaks. It is said to fragment attention, as it can be interrupted in both ways, involving both push and pull modes. Pull is self-interruption through checking media or devices, while push is in response to the device alert notification from incoming messages (McGregor, Brown, & McMillan, 2014). This study shows 'pull' prevalence in checking habits behaviour (McGregor et al., 2014; Oulasvirta, Rattenbury, Ma, & Raita, 2012). The technology used, such as smartphones, is another factor in triggering micro-breaks. It is said to fragment attention, as they can be interrupted in both ways, involving both push and pull modes.

The current findings showed that academics indicated that their academic routines put them under time pressure. The workloads faced by academics have encouraged them to sometimes take time for micro-breaks, shifting to a lower level of activity. This is comparable to a 'coffee-break' or 'water-cooler break'. Seemingly trivial such breaks are nonetheless, vital to enable them to gain motivation and reduce tension, e.g. before starting a difficult task, when switching between tasks or after completing work, by browsing lightweight information or undertaking other useful microblogging practices in short bursts. Although there is no quantifiable evidence of the extent of impact of micro-breaks from this study, other scholars have suggested that taking micro-breaks may possibly support work concentration and performance in long-term processes by making short-term changes in the task and switching attention (Adler & Benbunan-Fich, 2013; McGregor et al., 2014). Other pedagogical literature has found taking micro-breaks on social media during classroom sessions showed decreased academic performance (lower grades) and that it distracted students from learning (Junco & Cotten, 2012; Rosen, Whaling, & Rab, 2013; Wood, Zivcakova, & Gentile, 2012). Nonetheless, academics in this study argued that it helped them to re-energise in their multitask routines or to *'kill dead time'* of short intervals doing something beneficial (e.g. browsing information to enlarge academic knowledge; sharing research interests and output towards creating future collaborations, or boosting academic profiles and visibility through communicating expertise in an academic discussion) and such an act leads to a positive scholarly impact. It is claimed that this practice mostly arises during working time and less beyond this timeframe.

> *I don't look at it (Twitter) so much at home. It's probably because I'm not working so much. It's just really...it's like in the background. It's like an accompaniment to my everyday work and because I think of Twitter more as a work thing in a way, that I connect it with my academic, kind of online identity and things like that. I think while I'm sitting watching 'The Only Way Is Essex' at home in my pyjamas, eating a chocolate mousse, I don't tweet that. [2L-FAH-28]*

This explains how academics occupied with work routines are often highly likely to log on to Twitter. However, many disengaged from it when not at work. This implies a significant relationship between work pressure and Twitter use, it providing a brief escape, while the scholar can maintain their professional standards as a result.

I - Information seeking and gathering

Information seeking and gathering was an essential activity and a motive to adopt Twitter for academics in this study. Information seeking is an attempt to find relevant information to meet specific information needs (Fainburg, 2009). In Lupton's (2014) study, the author's lack of emphasis of this use, and it being the least described in the social media and Twitter activity, make it seem of less importance. The current study argues that this activity is highly significant for academics in relationship to their scholarly practice. Academics participate on Twitter to keep abreast of current ideas and information. This accords with their norms and values, constantly seeking to extend their knowledge, which is a core aspect of their expertise, and Twitter, at some level, provides a repository of information for such experts. According to Nicholas et al. (2013), and Ma and Agarwal (2014), information seekers appreciate the knowledge they receive, and engage in significant forms of information acquisition when they recognise the knowledge contributor (expert) through the membership of a community that shares similar values, codes and narratives. Consistent with this, the current research highlighted how academics connect with specialised information sources and hubs through following people they trust on Twitter (e.g. colleagues, researchers, practitioners, journalists and organisations). Connecting to these people accelerates their information searching because the information is directed from these people's tweets.

In addition, this study found it was an important factor because academics perceived themselves to be 'opinion leaders', and thus needed to be updated with information and then re-distribute the knowledge they had gained through tweeting messages and resources to inspire others, to educate and anticipate within society, and via communication may influence and impact local or global scholarship. This also demonstrates that technology such as Twitter promotes openness in terms scholarly engagements by offering socially-relevant opportunities and community-oriented strategies for individuals, which can only be obtained by 'following' people and 'being followed' by your networks. This interaction between the two qualifies as opinion leadership in the sense that they influence each other through opinions and ideas relevant to their fields. The ideas of Sun, Youn, Guohua and Kuntaraporn (2006) and E Rogers (2003) support this argument by referring to opinion leadership as a process where some people who are to be considered opinion leaders exert considerable influence over the attitudes or behaviours of others, who are consequently called opinion seekers. This influence building and wielding is seen and done through information networks such as, in this case, Twitter and online platforms. A reversal of role between opinion leaders and opinion seekers may also be true when one or the other desires to acquire more knowledge or expertise particularly related to the discussion. In online settings, self-perceived opinion leaders have the tendency to show exceptional knowledge on a particular issue, an attitude of innovative insight and conceited involvement in discussions (Lyons & Henderson, 2005). In this way, opinion leadership becomes evident when a certain topic arises, hence, opening up opportunities to either be positioned as opinion leader or opinion seeker.

J - Learning

The current research identified that, besides searching for information, academics use Twitter to learn about academic-related subjects and general knowledge, a use not mentioned in Veletsianos (2011) and Lupton (2014). This study showed that learning is important to academics, who aimed to accumulating new knowledge that they may otherwise not encountered. They acquire learning through other member' insights, observations or involvement in discussions, materials shared or current affairs. This promotes different ways of learning for academics, relating to information on established research practices or teacher-oriented needs.

7.3.1 Other emerging findings

The next section discusses the remaining findings from the study which have so far not been revealed by other published in microblogging studies. The findings are related to: (7.3.1.1) immediate drivers to adopt Twitter; (7.3.1.2); the process of joining Twitter; and (7.3.1.3) temporal and habitual patterns of use of Twitter.

7.3.1.1 Immediate drivers to adopt Twitter

Understanding the immediate triggers for academic use of Twitter is important as it allows us to uncover the reasons that influence academics decision to adopt Twitter. These findings provide evidence about the interlinked factors which influenced academics' decisions to use Twitter occur through a combination of intrinsic and extrinsic factors, including user attributes, social factors, and institutional positioning towards academic practices. Considering this view, this study explores and explains social influences on academics' acts, intentions and behaviours in relation to social media in depth. Social influence in academia is ubiquitous, coming from senior colleagues and administrators within the institution, students, peers at other institutions, and even non-academic friends or family members, which is in contrast to organisational studies, in which technology adoption mainly comes from a 'top-down' approach.

This finding argued that age is a poor predictor of Twitter use as this study found a mix age of users. Other significant factors may play a role for instance individual's existent passion in exploring and adopting technology e.g. social media that co-exist with their philosophical beliefs, culture and norms. In addition, experiences with social media and perceived value of Twitter in supporting academic work are another significant influencer. In this study also it was found that that one of the key drivers to microblogging take up is colleague influences. With the increase growth of collaborative and interdisciplinary research has seen this tool is valuable and useful as it is economical, free and an effective medium for communication among researchers. The key aspect of this study is institutional orientation towards fulfilling HE agenda that underpins academic practices, as providing a strong impetus to academics' Twitter use. It brought attention to the underlying contextual factors that shape academics use of Twitter in this setting. This is explored in more detail in Section 7.4.

7.3.1.2 Process of joining Twitter

This study reveals the process of Twitter adoption by academics. In doing so, it contributes to an understanding of social media adoption at large; however, this study is distinct, due to its being a microblogging study in an academic setting. This study highlights that the adoption process is highly influenced by factors such as enthusiasm, the freedom to explore the platform, technology features, digital literacy competencies, and perceived benefits and engagement with communities of people who have joined. In addition, the process of adopting Twitter involved identity negotiation and construction through performing a role on Twitter, displaying shared values and mutual engagement where they had a common purpose, and showing interest in others' work, in order established themselves in a community of practice. This study also shows elements such as trust to be important in encouraging potential participants to join Twitter. The people with whom the academics interacted were in a group of similar practice, which provided a greater level of trust in using the platform and sustained online relationships (Nicholas et al., 2013).

7.3.1.3 Temporal and habitual use of Twitter

Even though this current study does not provide quantitative measurements of Twitter usage unlike Veletsianos' content analysis study, nevertheless, through deep inquiry, the current findings showed academics in this study enacted habitual patterns of Twitter use. This is another important finding, showing that Twitter is embedded in academic routines through specific patterns of use. These patterns are intricate but also habitual. They include checking at a particular time, carrying out short browsing, and parallel checking with other social media. Twitter seems to fit into academics multi-tasking working culture environment, where it can be used in between work, and this every day and ongoing use emerges as a routine. The ubiquity of mobile technologies used is another prominent factor that encourages the academics to enact routine uses of Twitter. The use of smartphones and tablets significantly shapes how academics access to Twitter to perform their professional practices.

In addition to the current findings, it is worth noting that previous literature showed that academics use Twitter for more individual interests, rather than professional purposes (Gerber, 2012; Ponte & Simon, 2011; Priem et al., 2011; Tenopir et al., 2013). In contrast, the current research revealed that academics mainly used it for professional purposes and appreciated its value in complementing their current academic practice. This finding is in agreement with Lupton (2014), who found that Twitter is largely used for professional academic work (90 percent), as opposed to roughly 60 percent using LinkedIn and 40 percent using Facebook (Lupton, 2014). These results may possibly suggest that increasingly academics consider Twitter as their primary professional tool. Thus, it is possible that Twitter now surpasses other social media applications at least for scholarship purposes as it seems stable and has worthwhile characteristics.

7.3.2 Summary

This section has discussed and provided evidence that supports findings from previous studies on academics' and other users' motivations in participating in microblogging or in using Web 2.0 technologies and social media. The most common uses in the broader context of microblogging studies also found in the current study are communication, dissemination, networking and information seeking. This suggests that, with other studies of Twitter involved in different contexts (e.g. corporate, health, government sector), with a diverse methodological approach (i.e. content analysis, survey, focus group), or different terminology, in terms of naming the category, in general, it can be said that the findings from this qualitative study showed a plausible use for Twitter in a HE setting. Further, the use of Twitter can be generalised in other larger contexts in terms of social media use and adoption. Nevertheless, this study is important and different to other studies, because it provides an in-depth understanding of how Twitter is being used by a group of academics in HE in their professional pursuits.

This study suggests some essential aspects that have increased the depth and richness of our understanding through exploring diverse uses, concerns, motives, adoption and habits of academics' use of Twitter that were not discussed or emphasised in previous studies. Veletsianos (2011) and Lupton (2014) previously suggest a range of main uses; nonetheless this research study suggests a greater range of uses still (i.e. micro-breaks, information seeking and gathering, learning, coordinating and amplifying social media platform and websites). This current study also complements the other two previous studies through responding to Veletsianos' Twitter postings inquiry and validating the response by showing details for each of the uses. While Lupton's study established that Twitter is a favoured form of social media, this current research gives much more detail showing that Twitter can be used in diverse ways for academic purposes and offers wider ranging results than Lupton's study. Lupton's results are hard to apply to particular

Twitter use; rather a mix of social media benefits was found in all cases. For instance, Lupton concludes that the principal benefit academics gain from using social media are related to connections or networks they establish with other academics, students, and also those outside academia. This study establishes the existence of similar benefits, yet solely in relation to Twitter use, finding more uses and benefits of using Twitter, including rapid and instant dialogue, enhanced academic visibility, staying informed, enhancing knowledge and releasing work pressure. The section has shown how the current study has explored and expands areas not addressed in both Veletsianos (2011) and Lupton (2014) and in other microblogging studies in this generally, through offering a deeper, richer insight and enlarging our understanding of academics use of Twitter through the strength of the qualitative method.

7.4 The underlying factors influencing academics' use of Twitter

This section draws attention to the underlying factors that influence the decision for academics in this study to adopt Twitter. Through the findings [Chapter 4, 5 and 6] and discussion [Section 7.3.1.1], it has been established that there are a range underlying factors in academics' motives for using Twitter, which are unfolded in the current research. It is identified in this section that factors relating to current HE UK policy and institutional governance play a central role in influencing academics' Twitter use. In such a wider view, some issues were seen to emerge as key factors in shaping the behaviour of academics in relation to technology and HE. These concerns, which are discussed in this chapter, include: (7.4.1) globalisation, (7.4.2) neo-liberalism, (7.4.3) new public management, (7.4.4) RAE/REF policies, (7.4.5) digitisation of universities and (7.4.6) compression of space and time. These issues lean toward a 'pessimistic' view because of the intense pressures negatively influencing academics' and HE's activities in terms of creativity and liberty. The disabling character of these concerns are rooted in the notion that HEs and academics need to comply with the demands of these forces to retain their position, reputation and funding sources rather than their own creative contributions. On the other hand, a more 'optimistic' outlook is described, as technology can still support academics and HEs in accomplishing educational roles as an effect of their adoption of modern technologies and media. These positive views include empowerment and assertion of identity as (7.4.7) 'digital scholars'. Section 7.4.8 of this chapter provides a summary of how the two different views and the wider structural forces are able to shape how and why Twitter is used by academics. Figure 7-2 below shows the structural 'pessimistic view' and the agency (of academics) in the 'optimistic view'. Section 7.4.9

discusses how academics use Twitter in the context through research dissemination practices and behaviour, and finally the overall summary of the chapter (7.4.10).

7.4.1 Globalisation

The challenge related to the impact of globalisation in HE has been stressed in a number of studies. Changes in UK HE since the 1980s can be attributed to economic and social developments on a global scale (Olssen & Peters, 2005). Globalisation is a complex driver of the world political, economic, social and cultural legitimacy and regulatory situations that highly influences the national economic policy. Primarily, it is the way in which economies of different nations are seen to undergo a process of continuing interdependence that ultimately leads to their merging, as well as the emergence of market and trade liberalisation (Clegg et al., 2003). Globalisation has been conceptualised and defined by many authors as applied in economic, political, and social aspects, as well as in the educational sector. Enders (2004, p. 7) sees globalisation as the process related to a combination of legal and financial barrier deregulation, open markets or quasi-markets (including higher education), and the increased priority on the concept of competition, efficiency and managerialism – all leading to a possible reorganization of a nation's economic, political, and social milieu. In another view, globalisation has been defined by Held (1999) as a concurrence of a widened, deepened, and sped up interconnectedness as seen in various aspects of contemporary life. To summarize from the HE perspectives and the definitions cited above, global HE can be related to a picture of a volume of interconnectedness in relation to scope, depth, and speed of interaction among Higher Education Institutions (HEIs) or universities around the world. This implies that in this context, universities are not to be seen any more as institutions detached from other fundamental parts of society, having an independent and exclusive way of operating in specific municipalities or cities. Instead, they can be considered as global HEIs working with other educational institutions across the continents.

With the fast pace of change and the shrinking of time and space in the 21st century, Brown (2006, pg. 1) posited that the countries in the world and the economic, political, social, and cultural processes they give and take has become more complex and increasingly interlinked. This pattern is also revealed in the trend in the knowledge economy for increased intellectual property needed to bring productivity and the supply side in line with the demands of the economic imperatives. In the light of this, HE is seen as of great importance with its unique strategic value to national policy. Governments regard universities as a potential key driver to create competitive advantage through meeting the skills needs of the global knowledge economy, delivering profitable research and as an exportable commodity itself in the production of human capital. This feeds through to demands on research to improve the economy and for teaching to produce employable students.

It has been argued that globalisation has contributed in framing the current climate for HE in different parts of the world. The transformation has forced universities to rethink their current organisation, and work towards being more efficient, transparent, and responsive (Clegg et al., 2003; Knight, 2008; Vita & Case, 2010). Globalisation, in this sense, includes trends such as new forms of management, borderless flow of capital and resources, and global mobility of labour forces and of students. This process also includes the advancement of innovative information technology, wherein the technologies are not only adapted but also diffused throughout all sectors including higher education (Enders, 2004).

As a consequence, contemporary higher-education policy makers, it is suggested, do not deny the role of a global economy that is driven by technology. This is further envisaged by capitalizing the university's function in producing a certain level of human capital or 'knowledge worker' to ensure their global economic competitiveness between and among countries. This brings about the fact that in many countries universities, and higher education in general, are being forced to produce professional graduates who are 'information-literate' and 'tech-savvy' to sustain notions of 21st century capitalism in the labour market (Selwyn, 2007).

7.4.2 Neo-liberalism discourse of global competiveness

Closely linked to globalisation is the neo-liberal agenda, which can be seen a view of globalisation that focuses more on the economic impact. Neo-liberalism's policies seek to encourage the 'free market', 'laissez-faire' or 'freedom of commerce' approach (Olssen & Peters, 2005). These market mechanisms exert direct pressure on HE to reconsider their commercial activities in the universities (e.g. market for students, market for research grants and scholarships research), that intensified pressure for HE to strive for funds, student places and reputation (Fanghanel, 2011).

The neo-liberal agenda has brought challenges to higher education's purpose and the academic's role. This new monitoring activity and control has made HE subject to government steering, scrutiny and increased regulation by policy. The effects of globalisation and neo-liberalism have also brought the disengagement of government funding that has become less reliable. Because of this, HEs have to position themselves in the diverse areas of the market with the aim to compete with one another. A new dominant perspective started to influence HE policies and actions of universities to secure various funding sources to save them from cost-cutting.

In view of that, HEIs begin to reconsider and multiply their functions and relationships to shift from an educational platform to becoming a 'business'. To strengthen their financial base, most universities have been using mostly taught students especially Masters student as a source of revenue. In addition, the government has increased the emphasis on financing quality research and has been very selective, identifying 'knowledge businesses' to encourage universities to produce potentially marketable and commercialised products.

In response to this complex demand, HEIs have begun to develop links with business in a series of new venture partnerships. The 'Triple helix' concept emphasises the three-way engagement between higher education, government and industry in the research process (Etzkowitz, 2008). This new context of hybrid research promotes trans-disciplinary teams working on big socio-economic problems to produce knowledge that is seen as socially and economically relevant (Henkel, 2005). On the surface, there is a notion that financial security is ensured in these private sector corporation-university partnerships, and would eventually rescue universities from their funding problems. This road to recovery is driven by an assumption of a 'win-win situation' by granting corporations with a more advantageous utilization of cutting-edge science and tools that could lead them to press on their competitive economic position in the global playing field. In addition, the R&D collaboration is envisaged to have a transforming effect on industrial performance, universities' community engagement, and national economic development through a combination of knowledge and technology transfer in both the public and private sectors.

This new linking between universities and multiple constituencies as well as the 'world of work' changes the status of academia. The commitment of working in partnerships, has forced universities to seek professional expertise from outside industry where they have to deal with conflicting norms and customs of doing research and research values (quality versus quantity), work-styles and functional areas and skills, the 'academic language' barrier and so on (Fanghanel, 2011; Gordon & Whitchurch, 2007; Whitchurch, 2008). This phenomenon erodes the place of academia as a place where independent and critical thought is possible.

Moreover, universities are facing challenges in putting more effort into seeking strategies to attract and manage contractual partnerships with corporate clients. They had to move from being conservative to being flexible. In here, they usually maximize forms of advertising tools and campaign mechanisms to shape and represent scholarly works such as research and teaching priorities. This is done to appease potential funders by suiting the university's academic undertakings to the needs and objectives of industry (Menzies & Newson, 2007).

7.4.3 'New public management'

New modes of working in the public sector, influenced by private sector models have been called new public management (NPM). Correspondingly, the old HE system has shifted to a 'new public management' or 'managerialism' concept based on the corporate model, with its managerial aims, goals, strategies, streamlined structure, and professionalism (Fanghanel, 2011; Henkel, 2005). The NPM top-down 'managerialist' approach is market-oriented with the efficiency criteria of "educational efficiency" "research excellence" "performativity" and "impact factor" (Lorenz, 2015, p. 1) that implies more measurement of everything such as in league tables, work-class rankings, research output, pedagogical methods and assessment, student admissions and the curricular structure of the curriculum (Fanghanel, 2011; Macfarlane, 2011; Tapper & Filippakou, 2009).

Performativity in HE implies the need to ensure that the contributions of an academic or the whole institution will bring benefits to the socio-economic system. This thought has driven universities to introduce numerous steering initiatives such as appraisal system to supervise and measure efficiency covering all aspect of research, teaching, administration and outside consultancy/services to generate the best performance results (Fanghanel, 2011). This is aimed at fostering and rewarding excellence and innovation across all sectors (Fanghanel & Trowler, 2008; Lorenz, 2015; Macfarlane, 2011), but has translated into creating competition within departments. This demand and the call to constantly outperform have been made too simplistic and superficial which has produced a lot of activity stimulated by trying to meet potentially pointless targets. Concepts, such as research quality, become subjected to a difficult situation and mode of quantitative measurement even if it is not fitting to do so. Increasingly, it created a negative connotation, through more complex organisational structures in universities with new policies and regulations, managerialism practices (Clegg & McAuley, 2005; Fanghanel, 2011), bureaucratic efficiency, and consumerism (Gibbs, 2009).

Greater demand and workloads are placed on academics to enhance their practices involving contributing more to quality research, working collaboratively with external parties (professionals and organisations) to support communities and enhancing engagement with students and the public. Furthermore, the 'economising of education' (Ozga, 2000, pg. 24) (as cited in Fanghanel, 2011) and the input of professionals in the curriculum has steadily contributed to generating curricula that focus on educating students beyond purely disciplinary bounds; developing 'transferable skills' and 'contextualised' curricula (J. Muller, 2009). These overloaded roles are affecting academics: work patterns and conditions; this has led to "many academics [feeling] exhausted, stressed, overloaded, suffering from insomnia, feeling anxious, hurt, and guilt and out-of-placeless" (Burrows, 2012, p. 1) from such conflicting, pressurised environments. The pressure being felt by people in the academia in relation to the management of roles and responsibilities is seen as contradictory to the core values, beliefs and identities of academics (Lemon, 2014). These various forces pose challenges to academics in terms of autonomy and creativity. Creativity and critical thinking are restricted, or worse completely stunted because the academics just comply with the demands made on them rather than finding their own ways of intellectual development and workload management (Clegg et al., 2003; Clegg, 2008; Fanghanel, 2011).

This new managerialism is thought to have eroded the collegiality in the enterprise university and has profoundly affected academic practice and culture (Fanghanel & Trowler, 2008; Henkel, 2005). Prior to this, the concept of collegiality in higher education was important, defined by (Kligyte & Barrie, 2011, p. 2) as a "collective administration and shared decision making of a group peers, visible in universities…" including academic boards and various committees. Thus, in behavioural norms, collegiality would involve an organisation having a common goal to engage in intellectual and social work, based on respect among colleagues (Kligyte & Barrie, 2011, p. 2). The NPM tends to be problematic as it shifts institutional organisation, through new conceptualisations of academic duties, performance and relationships within the university and with industry and the wider community. The new administrative culture of 'reporting and documenting', 'visibility and transparency' is not only impacting the university systems; it has also undermined the autonomy privileges of academics as public intellectuals and professionals, abandoning the grand narrative collegiality (power of voice of the academic community) and academics seem to be losing this 'battle' against the new management (Clegg, 2008; Fanghanel & Trowler, 2008; Fanghanel, 2011; Kligyte & Barrie, 2011). The aforementioned issues lead to the idea that complexity surrounds academia. This conveys a sense that being an academic is no longer straightforward. Issues of status and autonomy lead to disintegration in the academe. This in turn thoroughly affects their sense of professional identity (Nixon, 1996), which requires rethinking in the long run.

Academics are undermined by management which is based on metrics, control and display of performance, also known as the 'managed academic' (Fanghanel, 2011). 'Metrification' has been coined to refer to the set or systems of performance-based measurement tools developed with the main objective to monitor and supervise performances of academics. These instruments predominantly stress 'transparency', 'quality', 'accountability', 'productivity' and 'cost-efficiency', which can be measured from individual performance of an academic or within groups. Through these, academics' performance and displayed output will be assessed based on quality assurance measures and audits, research grants and income, citations rates, research/publications outputs, research impact to the wider public, student surveys and feedback, number of PhD students, students' examination results and so on. This data is reported in order to place them in internal and external rankings (Fanghanel & Trowler, 2008; Fanghanel, 2011). These auditing standards have become a means of measuring research productivity and ensuring compliance (Lucas, 2006). Nonetheless, there is a danger that the oversimplification and complexity of these metric assemblages will degrade the quality and performance of academics in the long run and put a lot of pressure on academics to perform. Similarly, the performativity culture (Clegg, 2008; Lorenz, 2015; Olssen & Peters, 2005) may create a pattern of performativity habits among academics which may lead to a culture of impression management which will harm their academic ability to discourse genuinely.

In the UK, the peer review process is used to measure academic impact and quality of university research (Grant, 2006) (as cited in Penfield, Baker, Scoble, & Wykes, 2014). Some of the tools or so-called bibliometric methods used are the H-index and impact factor. These are considered by some to be concrete evidence to measure academic impact. To realize this evidence of impact, the quantitative measurements of the H-index include number of publications and citations by individual, faculty, by field, and by institution (Lorenz, 2015). By determining these metrics, universities are able to measure the importance and extent of researches within the academia inside UK and internationally. This measurement of science citation indices and impact factors is important for the top level management for the universities to compete on the global stage and claim elite 'world class universities' status. This international competition was influenced mainly by Shanghai Jiao Tong's rankings in China and the UK *Times Higher*

Education Supplement (THES, 2006) (as cited in Tapper & Filippakou, 2009). The league table rankings culture forces HEIs to demonstrate global performance through delivering valued and excellent research outputs (Tapper & Filippakou, 2009). In the same way, another objective strategy for universities to improve their reputation is by improving their position in the National Student Survey (NSS) that is based on student satisfaction. However, these metrics do not necessarily measure the impact of research in a fair manner. These metrics are not able to measure the effect of the research on the community in terms of social, economic, and policy-making aspects. Rates of citation are much greater in certain fields than others, making it hard compare across different fields. In addition, these ranking systems have been used as promotion tools by some universities to attract students rather than presenting the true impact of their research.

Under pressure from macro-level forces, universities thus aim to expand their reputations globally and promote more international opportunities in relation to incentives for research collaboration, attraction of researchers, encouragement of international students, and promotion of student exchange. The emergence of this league-table approach has changed the culture of higher education where the performances of universities are perceived based on their ranking. British universities in particular have become more dependent on them and they have shown a desire to be claimed as 'world class universities' and highlighted their global reputation and performance status on the front of their websites (Tapper & Filippakou, 2009). This ranking game puts a serious burden on academics to produce research output, be openly competitive in pursuing larger research incomes and to work strategically and innovatively to attain prestigious academic awards (e.g. Noble Prizes) to assist their university in reaching its global standing.

In connection to concerns relating to the university-wide and individual academic competition in the HE sector and its role to UK's economic agenda, a corresponding matter on education agenda was also put to the forefront. Institutions of higher education in the UK have asserted the complementary roles and contributions of 'globalization' and 'internationalisation' in shaping higher education by showing that HEs can become independent and interconnected at the same time. This means that they can already function as a self-sustaining entity, while being able to contribute to a holistic progression towards a mutual goal together with other universities and scholars within the country and around the world. This internalisation has introduced the international dimension with the notion of 'borderless education' which led to major expansion of academic mobility, new international linkages, international academic programmes, partnerships and research initiatives (Enders, 2004; Knight, 2008). Internalisation is the integration of international, intercultural and global dimensions of a service, such as higher education, and its functions and in terms of its delivery beyond the institutional and national boundaries (Knight, 2008, p. 12).

Within 'internalisation' strategy, one aspect was to dominate student recruitment especially of overseas students to fill the financial holes left by the government cuts (Enders, 2004; Vita & Case, 2010). Moreover, the role of teaching is increasingly important in UK higher education following the introduction of tuition fees (Fanghanel, 2011). The marketisation of higher education has led to the proliferation of the idea that students have become mere consumers. These are not complete processes or going unchallenged. This notion consequentially raised issues regarding the expected outcomes on the excellence in terms of quality and quantity of teaching. This has set out the concept of research-based education that aims to respond to the basic premise and philosophy pertaining to learning outcomes and experiences (Zamorski, 2002).

Some countries including the UK have seen teaching practices as an important component in education and introduced Learning and Teaching Programmes, which were funded under the Higher Education Academy (HEA) to advocate teaching development and performance (Fanghanel, 2011). Such new education programmes focus more on early career researchers in preparing them to becoming teachers through being reviewed under a series of Teaching Quality Assessments (Fanghanel & Trowler, 2008). A framework of Graduate Certificates called 'PGRcerts' was introduced and provides a list of requirements of core competencies for academics. This includes documenting their teaching practice as a portfolio and providing evidence of their pedagogic skills as set out in the performativity assessment. Teaching was seen as less prestigious than research, even though it is not well rewarded, academics are still obligated to perform and are under pressure to deliver teaching quality, yet promotion is still based more on research income capture and publications. This illustrates the complex nature of the academic profession and the need to balance rewards for teaching, and research.

Along with this, the development of Information Communication Technologies (ICT) means that the university needs to utilise these amenities in improving their teaching curriculum and syllabus in line with the current global dimensions and connect with 'real world' activity for multi-generational workforce preparation (Selwyn, 2007; Hannay & Fretwell, 2011). By being able to explore the benefits of emerging technologies in academia, university administrators have accepted the idea that it could be considered as a quick solution to various higher education issues. First, ICTs are helping in market 'branding' of higher education institutions, which replaces and/or enhances traditional marketing promotion practices into high-tech ones to show adaptation in a globalized world (Selwyn, 2007). In addition, computer-based and computer-assisted teachings have helped considerably in various university processes, particularly in terms of efficiency, with less resources or investment needed such as classrooms or staff. In this way, the observation of Noble (2002, p. 29) (as cited in Selwyn, 2007, p. 87) becomes a reality when he stated that computer technologies enable strategies that target image branding and at the same time reduce the institution's direct labour and plant maintenance expenses. Computer technologies are likewise seen as an essential component in the promotion of the HEI and the potential engagement with expansive and profitable markets of students from around the world. If a similar entrepreneurial perspective is taken into account, the digitalization of teaching and learning opens up a new legacy of electronic resources for universities. This legacy is defined by an indefinitely replicable, scalable, and saleable reality for the academy, with crucial legitimate transfer of intellectual property rights from the tutor to the employer. Furthermore, the massive influx of students in universities, as well as its sustenance brought about by ICT is considered as a vital element in the creation and maintenance of a commercial infrastructure enabling higher education sector to be thought of as effective and globally competitive. Overall, technologies appeal to institutions, often because they seem to offer ways to increase student numbers and reduce staff costs. However, the use of technology in HE creates pressure on academics and administrators to learn new skills to be able to properly adapt. In addition, technologies do not necessarily reduce their workloads because an interaction between the technology and humans still exist.

7.4.4 RAE/REF

New public management's pressure on 'performativity', 'impact' and the evaluation culture is aligned with the research assessment system implemented in the UK policy. These systems include the Research Assessment Exercise (RAE) and from 2014 the Research Excellence Framework (REF). The RAE was set up to measure and present quality ratings in a highly comprehensive manner. A standard of measurement is used in this assessment which is applied in all disciplines where research is considered essential. This is especially helpful when funding bodies' have limited allocation for research grants to be given to UK HEs (HEFCE, 2009a, p. 6). Before its being superseded by the REF the

RAE has been administered to universities and colleges in all of UK in six instances from 1986 to 2008.

Recently, in November 2014, the REF was established as a replacement to the RAE. This new framework aims to establish an internationally competitive research among the HEIs in UK through a sustained research culture that significantly adds value in relation to economic and intellectual wellbeing of the nation (HEFCE, 2009a, p. 14). In addition to the previous metrics used by REF, the RAE incorporated the measurement of the research's "impact" upon the society, public policy, economy, culture, environment and quality of life. This type of excellence has become a standard and guide for UK universities when undertaking researches and when giving grants to their faculty and students.

As part of fuelling the neo-liberal agenda where the university is seen as the key apparatus for broader socio-economic impact, the framework has been disseminated to all education departments requiring them to invent ways to generate impacts that benefit the economy and society as a whole. Due to the notable aim of the REF and the considerable contribution of researches to the society, leaders and administrators of education institutions encouraged compliance to the framework with the objective to augment reputation and financial development possibly coming from grants (Penfield et al., 2014).

In the UK, the massive effect of the REF that allocated its 20% scores on "impact" and the pressure from the REF to publish in high-ranking or high high-impact journals among academics can be argued to pose a negative outcome on researchers' creativity. This undesirable outcome subsequently leads to confusion on the decision as to where to publish research articles (Nicholas et al., 2013). It could be argued that the concept of impact or the overthinking of citation ranking makes researchers prioritize implications toward REF rather than the significance of their findings to the discipline or field. However, some academics are certain that their researches still possess quality because of their status as tenured faculty members and connection with high ranking universities, which contribute to their ability to acquire research grants. This belief on their certainty then gives them confidence to disregard the pressures from REF (Nicholas et al., 2013).

This new assessment regime of measurement of publications/research output/impact quality is more rigid but is being accepted in science-based disciplines or STEM (Science, Technology, Engineering, and Mathematics). The stress on the economic benefits of the research outputs is bad news for some other disciplines such as social sciences and the humanities, because they appear to be hardly relevant to these corporate criteria. The typical output of the humanities is the monograph, but this does not appear in official 'output indicators'. Some research groups in the social sciences and humanities have tried to look for alternative ways to disseminate their research outputs. Since, traditional journal publications are not keen on publishing the types of output that this field produces; researchers are increasing their presence using social media to meet assessment demands (Rowlands et al., 2011).

Another pressure arising from research funders' demands is that academics are also being required to become involved in public engagement. The process of public engagement, according to the HEFCE (2007) is an interaction between HE specialists and non-specialists such as individuals and groups with no current formal or current academic relationship with an HEI. This interaction would involve academic commitment like research, teaching, and knowledge transfer wherein the dialogue aims to develop the understanding between the parties with regards to the aforementioned commitment and the seven dimensions of engagement. Seven dimensions of engagement were identified by (Hart, Northmore, & Gerhardt, 2009, pg. 3) as follows: *"(1) public access to facilities, (2) public access to knowledge, (3) student engagement, (4) faculty engagement,(5) widening participation, (6) encouraging economic regeneration and enterprise in social engagement and (7) institutional relationship and partnership building".* These elements encourage academics to conduct some activities openly, for instance to further share their research findings with the wider public, and have open dialogues with the public and outside funders and promote community engagement. In responding to this policy, some academics are innovatively using many forms of media, e.g. TV programmes, radio, social media, to broadcast information or become involved in discussions about their expertise. This is to link with communities as well as to establish their profile in their field of studies.

This can be linked back to the economic austerity and new public management where part of the UK government's economic imperatives is to show greater return on their investments on funding research. Therefore, funding bodies are under pressure to prove the value of the research they fund through evidence of impact on major social and economic problems. Correspondingly, those bidding for projects are required to demonstrate impact on the economy or major social problems. This implies making the projects larger, where applied research begins to connect with multiple stakeholders (e.g. private and public sectors, community, cross-departments) and to conduct interdisciplinary working. It is clear this also lies behind the pressure to do collaborative and interdisciplinary applied research. These requirements and regulations have placed further pressure on academics to change their practices to fit in with a wider agenda.

The current scenario and aforementioned pressures are believed to be putting pressure on many researchers as to where, when, and how to communicate their work. Some commentators have argued that the introduction to the REF framework with the emphasis on citation rates and evaluation on public engagement has influenced academics publications practices and research dissemination behaviour (Scanlon, 2014; Veletsianos, 2013). Hence, it should be noted that choices have to be made by academics and researchers between hasty dissemination to intended audience versus publication in top-level journals that have rigorous process and longer period of approval (Acord & Harley, 2012; Nicholas et al., 2013). As a response, some ways to disseminate researches in a speedy process without waiting for approval and publication have been sought, including publication of findings as brief reports, working papers, and in conference proceedings. Likewise, academics use blogs as platform to engage with wider audiences as well as peer-review mechanism for academics in getting colleagues inputs in preparing manuscript publications (Gruzd, Wellman, & Takhteyev, 2011b; Kirkup, 2010). However, these 'informal' ways of dissemination and publication are considered to be gray, having low status and prestige in academia (RIN, 2009) (as cited in Nicholas et al., 2013).

Ponte and Simon (2011) argued that most researchers increasingly share their research via social networks that is seems to have potential value to reach their target audiences faster and wider. As stated by Penfield et al. (2014, p. 10), media could also be considered soon as contributor to or indicator of impact soon as it has become an important tool and means in disseminating research findings and scientific ideas. With this development, a new field called altmetrics (or non-traditional metrics) has been conceptualized to provide a more substantial understanding of research impact based on reach, citation, utilization, and overall impact. This suggests an alternative to the traditional citation impact metrics where measurement of impact can be from the impact of work being mentioned by others such as in social media, or news media, or how many engagements have taken place through downloads and views. This includes online articles or documentation, books, slide-share presentations, YouTube videos, web pages, blogs and social network discussions. Is suggested more scholars started to use social media it may someday have an impact on tenure and promotion processes at academic institutions that still undervalued and is less recognised (Nicholas et al., 2013). Similarly, this modern practice may influence the REF framework to adapt in future.

7.4.5 The digital university

Corresponding to the fast-paced globalising world, HE policies are changed to respond to the rising competition in filling local/international students' places and enriching quality for both learning and research. HEIs have considered technology as a cutting-edge tool for research undertaking and other academic endeavours as well as administrative functions as a response to the demand to modernise. In keeping with prevailing policy rhetoric, policy-making bodies and administrators of universities have put technology-assisted teaching and learning as part of their policies and operations (Menzies & Newson, 2007; Selwyn, 2007).

The technology revolutions of 'digitisation' and 'global social networks' aid in the shifting of business models and approaches being followed by most industries. This shift is not only based on the global technological phenomenon but also based on the demands exerted by contemporary customers towards companies. Digitisation of content has revolutionised communication and sharing of materials such as images, videos and audio materials over the World Wide Web. People are now able to edit, document, print and distribute these materials in a more effective and faster way. The phenomenon of global social networks refers to the system of interconnections over the internet that allows easy distribution of content (Weller, 2011). The technology revolution offers a wide range of opportunities for people in the modern global world, and these two influences continuously push businesses to remain competitive.

Weller (2011) argues that impact from these two elements is driving the changes to create the "digital university". With this advancement, universities begin to promote ICT for many purposes ranging from research, pedagogical use, administration, and communication in formal and informal connectivity. ICTs have become a vital part of the market 'branding' of higher education institutions because of the promise that it enhances teaching and learning. Katz (2010, p. 48) argues that the present era of information technology is deeply connected to higher education and its mission towards the dissemination and generation of knowledge.

In the same way, the implementation of Information Communication Technologies (ICT) in HE aims to enhance universities' and academics' performance through boundary-crossing within the university, being better networked, and having an open culture with efficient, cheap and democratised tools that make things accessible to everyone. This is also parallel to the NPM regime of 'cost-effectiveness', 'teaching efficiency' and 'research excellence' with the aim to improve academic standards with the help of ICT. Specifically, the application of Web 2.0 and social media tools are being considered beneficial for communication and dissemination of information, expansion of networks, and opening up of opportunities for collaboration, all in the most efficient and convenient way possible. Here, advantages of embedding ICT in the HE systems and processes are not only seen at the domestic level but also at the global.

While others believe that the use of technologies opens up opportunities for institutions to enhance management strategies and performance, it can also be seen as a new form of surveillance and control as part of the total pressure for performativity. In relation to this fear, there is a concern raised about universities and their staff exploring social media (e.g. Twitter, Facebook) for use in learning and courses. Although universities may regard digital applications as an innovative way to deal with augmenting pedagogical methods e.g. through 'inquiry-based learning', technology does not solve all problems (Selwyn, 2009). For example, the 'Creepytreehouse' phenomenon is when a teacher introduces social media tools to students as a new method of communication in learning, but instead generates a feeling of anxiety among students because they feel that their private online spaces have been intruded by the teacher as a result of the obligatory connection (Young, 2013). Students may resist this approach as it seems to be forcing participation and can be seen as a violation of the rights for privacy and maintenance of their peer-groups. This poses a potential abuse of the student's privacy, liberty, ownership, or creativity that may be seen and experienced in an institutional level.

According to some commentators, virtual connections between students and the teacher undermines personal relationships and social ties, direct social interaction with students, natural discourse, individual privacy and freedom. It forces academics to quickly adapt to the pervasive computing mechanisms and virtual networked culture and invent their own approaches to correspond with management supervision. Besides, not all academics are inclined to use technology, in particular new social media tools. They feel it is time consuming and the effort expended is less recognised by their universities (Selwyn, 2007). In principal, this endless agenda has simply made universities a 'servant' to the global economy and dragged academics into the daunting task of constantly keeping up to date.

In addition to the effect of technological development mentioned above, universities are also under pressure to be responsive to the needs of the so-called "net generation" and ride the tide of students' idealism (Prensky, 2001; Thoms, 2012). This generation values the affordances of information technologies (computers, Internet, mobile technology, Web

2.0 and social media) and the information age, which rapidly influence many aspects of their daily life activities including communication, socialising, information searching and sharing, writing and learning. With this vast store of experience, knowledge and ICT skills, this university consumer is demanding different learning styles, and has different expectations and preferences from prior generations of students. Accordingly, with the increased presence of digital technologies in HE and the changing nature of digital students that enter the university, academics are facing the immediate task of integrating technology into their current provision and practice, thus forming another pressure for them (Selwyn, 2012).

Universities and academics can be seen to have an important role in introducing and promoting to students the appropriate use of technology. However, not all students are familiar with all types of technologies or have access to the facilities. Hence, it is the role of universities to respond to the issue of access and use among students. Another important role to be accomplished by the institutions is to update graduates with employable digital skills where industry is further advanced in adopting technologies, especially social media. But of course academics themselves may be lagging in the understanding of the technologies themselves.

Weller (2011) has made the argument that being digitalised in universities is not a primary factor for student recruitment and retention. Other important elements such as the universities' and academics' reputation, universities' ranking status, the scholarship offered by the universities, the student services and support offered, the employments prospects, education quality and course appropriateness are among the key factors in determining students' decisions (Henkel, 2005; Knight, 2008; Tapper & Filippakou, 2009). This implies that technology is not everything, it is not a central causal factor for university transformation; it is just an enabler for universities in sustaining relevance and competitive advantage. In reality, technology is not all that important; it is more about control and massifying education, not improving it.

7.4.6 Time-space compression

Many suggest that academic work has become more intensified through technologies and through the new managerialism, accountability, and constant surveillance (Caanan & Shumar 2008; Giroux 2002) (as cited in Fanghanel, 2011; Shahjahan, 2014). The temporal and structural change in universities has significantly disrupted academics' practices. This climate of change has generated tensions, a sense of loss and disenchantment for academics, erosion of their time-space dimensions, and created a feeling of unease with the ideas of competition, industry relevance, measurement of performance and outcome-based education which are at odds with their academic values, beliefs and identities.

The increasing weight attached to academics' duties makes academics' lives become more condensed and busier in managing their schedules, e.g. teaching duties, research pursuits, and administrative requirements. As a result, they have to work overtime beyond office hours, or more precisely to continue working from home which has invaded their personal lives. This generates issues of work-life balance and conflict from blurring the boundaries of academics' space and time. In a UK surveys conducted by Kinman et al. (2006) showed that stress among faculty and staff was seen from 59 percent of employees who worked outside normal hours, with 21 percent claiming to have a weekly regular working time that exceeds 55 hours. This finding illustrates a direct link between workloads and the increased amount of time spent on academic duties. While this picture directly shows how time is being managed by academics by juggling duties to produce academic results, this also correlates to them being under stress.

The temporal conflict (e.g. scheduled time) is also seen to be closely associated to intense organizational shifts in educational institutions. These shifts have been seen to have a link with 'managerialism' (Newson, 1992); 'the knowledge industry' (Garrick & Clegg, 2000); 'academic capitalism' (Slaughter & Rhoades, 2004); 'the new public management'; the transformation of relatively autonomous academics into 'managed professionals' (Fanghanel, 2011); 'state-funded organisations conforming to the 'fast-speed' tempo of business and politics (Henkel, 2000); and mediation of 'technology and mobility' on academics' time and space (Gibbs, Oili-Helena, Guzmán-Valenzuela, & Barnett, 2015; Shahjahan, 2014).

Kuntz (2012) argues that 'time-space compression' is a state of alienation, the outcome of an assortment of technologies' mediation and a virtual place, where the speed of interaction and information exchange is increased. He further explaines that this describes a condition of academics that is defined by routines and responsibilities and who can interact and execute their tasks in different spaces and requires increasing efficiency; this denotes doing more, in multiple places, with less time.

7.4.7 The Digital Scholar

Despite the pessimistic views mentioned by some academics in this study as well as in the literature, others see technology as an enabling and a positive force. While some scholars consider that new technologies are tools of control or surveillance, time-space compression and alienation, technologies are still seen to offer positive development connected with scholarship and innovation in academia. Because of the fact that it is inevitable for modern day academics to feel the presence of ICTs in their surrounding environment, including their workplace (Pearce et al., 2010; M. Weller, 2011), the ICTs have been put into good use by some individual academics and institutions. Some academics in HE optimistically choose technologies to harness the new possibility of innovation and performance in their work.

A few authors have discussed the affordances of the new digital technologies that play roles in supporting scholars' practices in a more efficient manner. One distinct concept described in relation to this is 'digital scholarship'. Weller (2011, p. 4) describes 'digital scholars' as individuals who demonstrate specialisation in a certain discipline by applying digital, networked and open approaches to attain efficiency. Although the description of digital scholarship mentioned above is seen through the individual's perspective, digital scholarship principally concerns and relates to the advantage of institutions and society in general (Pearce et al., 2010). It is said to be beneficial because it implies the acceptance of open values and the technology's potential on a larger scale than just a mere use of ICT for academic purposes.

Another term associated with digital scholarship are open scholarship and social scholarship (Greenhow & Gleason, 2014; Pearce et al., 2010; M. Weller, 2011). Open scholarship is characterised by the values of openness and sharing as applied in academic and scholarly activities (Veletsianos & Kimmons, 2012c). Social scholarship is the ways in which academic scholarship is influenced by social media practice and its affordances (i.e. promotion of users, their interconnections and user-generated content) as well as the potential values (i.e. 'knowledge as decentralized, co-constructed, accessible and connective') (Greenhow & Gleason, 2014, p. 394).

While some authors have described the three types of scholarship as mentioned above, little consensus on the concrete definitions of the terms have been established. Nonetheless, the common denominator here is the integration of technologies (e.g. Web 2.0 and social media) in academic communication and research activities, which can be characterised by technology, openness, collaboration, access, sharing and transparency. These emergent social tools are beginning to penetrate into the ways in which scholarship is 'organised, delivered, enacted and experienced' by individuals and institutions (M. Weller, 2011) (as cited in Veletsianos, 2013, p. 640). The application of these digital technologies for scholarly purposes brings deep transformation as well as perpetuation of long-established values and practice. Here, academics are trying to adapt with the new technologies and the environment it creates. This environment is different from what they had before technology was seen to revolutionise their traditional work environment. For example, the values of communication between students in terms of learning or administrative capacities are being facilitated through online platforms, which is entirely different from before. Similarly in research, collaboration and interaction can be done online. Further the application of open access journals offer a database of research to be viewed, digitally, freely and widely. This means, then, that the adoption of new technologies affect the ways in which academics teach and conduct research, while maintaining relevance through their autonomy, beliefs and scholarly values.

On another note, changes have been seen in relation to communication using digital technologies as it has changed the functions and aims of scholarship (Pearce et al., 2010; M. Weller, 2011). This shift also relates to the notion of how new technologies may be facilitating teaching and research practices among academics. M. Weller (2011) and Pearce and colleagues (2010) introduced the process of how technology transforms scholarship practices and the values integrated in social and technological change based on the types of activities that scholars commonly engage in Boyer (1990). Boyer (1990) argued that the roles of academics are of four broad types: (1) discovery – research for new knowledge creation; (2) integration - including interdisciplinary collaboration (different disciplines) in the wider academic community; (3) application – scholarship services (public engagement activities, policy contribution, and peer-review); and (4) teaching - the practical application of knowledge sharing and transfer to students.

The most significant contribution of Boyer's theory is the application of the process in the academic setting. This is due to the fact that the processes of discovery, integration and application in relation to technology are also seen in other fields, such as business and healthcare. In his theory, however, he pointed out that technology could be also be used in knowledge sharing and transfer to students. This process could not materialise if the teacher is not willing to adapt with the use of new technologies towards scholarship. Taking this into consideration, Boyer's work is significant in presenting how technologies transform scholarly practices. Furthermore, this view is also relevant when applied in the current UK HE systems and government policy (Pearce et al., 2010). In order to maintain good assessment results, academics should be seen to have a research output that is at par with the RAE and REF standards, particularly in the two aspects of scholarship, namely, ‘discovery and integration’ (Pearce et al., 2010, p. 33). Similarly, ‘application’ is directly attributed to the way academics engage in a scholastic connection in wider and global networks, while at the same time prioritising on teaching quality and excellence based on UK HE policies.

Few authors have applied Boyer’s ideas to digital scholarship though. Previous studies further posited how new technologies can offer a valuable new insight on openness while maintaining scholarly priorities. This integration of openness in various academic resources has also been referred to as open access, which seems to hold opportunities in supporting different array of functions in academia such as research and teaching. As Katz (Katz, 2010, p. 48) similarly contends, these technological affordances enable academics to multitask, multi-process, and work in a fast and low-cost connection with access to an abundant array of easily discovered knowledge. It has also being suggested to increase opportunities for an extensive cultural openness and public transparency to increase trust and collaboration. The value of openness or transparency among open scholars emerged and has been seen to initially be integrated in most of scholarship activities nowadays (Pearce et al., 2010; Scanlon, 2014; M. Weller, 2011).

Here, open access is presented in four dimensions, namely, 1) open data, 2) open boundaries, 3) open publishing, and 4) open education. The table 7-1 below presents how technology transforms scholarship practices.

Table 7-1: Comparison of Boyer's (1990) view of scholarship with Weller's (2011) and how technology shapes contemporary scholarship

Boyer (1990)	Weller (2011) and Pearce et al. (2010)	Technology transforms scholarship practices
discovery	open data	Provide new data sharing and working with stakeholders (scientists, institutions, users, data centres and publishers) to develop new scientific knowledge.
integration	open publishing	Moving towards the preparation of digital manuscript [and] encouragement of open publication possibilities, allowing increased collaborative working on texts.
application	open boundaries	Characterized by open communication for potential public engagement through networked communities.
teaching	open education	Provides [the] opportunity to reproduce content and share it between teacher and students. The digital networked approach creates possibilities for open courses of virtual learning. Supports traditional models of pedagogy theory of 'constructivism', 'connectivism' and 'communities of practice' (Henderson & Bradey, 2008; Lave & Wenger, 1991; Veletsianos & Kimmons, 2012b; Veletsianos, 2013)

The use of technology in academia has changed scholarly practices substantially though not dramatically. These technologies have modernised academic practices in many ways including communication, information searching behaviour (M. Weller, 2011), writing habits (Kirkup, 2010), research and publishing practices, teaching approaches (web-based teaching) and administration (reporting output requirements) (Pearce et al., 2010). It also embraced the ideology to collaborate among academics and non-academics within and beyond institutions and promises global collaboration and networks, as is always being stressed in academia.

Some academics have been enthusiastic to use different forms of technologies for information and communication. In order to participate in wider context and join the global debates that are relevant to their field, they explore technologies such as Web 2.0 and social media. Web 2.0 and social media technologies embody characteristics that offer new possibilities for lightweight, informal and unrestricted forms of communication and support the interdisciplinary idea of scholarship, where it overcomes the discipline and overcome geographical boundaries to a degree (Anderson et al., 2007; Nicholas et al., 2010). Another reason to adopt this type of technology is because it provides cheap or free tools saves time and offers quick access to perform scholarly activities that reflect the concept of 'less is more' (M. Weller, 2011).

The 'Academic 2.0' begins to explore social media and online social network tools such as blogs that encourage knowledge sharing among peers and creates digital identities (Kirkup, 2010). Facebook offers students the ability to share resources and provides facilities for group assignment collaboration; while Twitter enhances communication, peer-to-peer learning, networking and collaborative working (Veletsianos & Kimmons, 2012b). They are beginning to develop their own 'personal brand' amongst academics on different Web 2.0 sites as complementary to their existing institutional one (Marwick & Boyd, 2011). This channel enables them to be reached easily by the public and facilitates access to their research and publications, creating more opportunities for engagement, collaboration and recognition. Through openness and sharing, this has led to the construction of a 'digital identity', where academics began to expose some aspects of their personal life while showing themselves engaged in professional activities (M. Weller, 2011). In the light of establishing digital academic footprints across different social media sites, it may provide evidence of academic reputation, impact, influence and productivity by using online measurement tools.

Adopting communication technologies in academic activities allows them to join in the discussion with other scholars in different parts of the globe. Furthermore, technology and digital media are being seen as ways of defiance against institutional status quo and norms, including concerns on tenure and promotion (Veletsianos, 2013). In another way, open discussion has been proliferating also in social media through knowledge creation and dissemination. This openness also becomes a way of confronting the challenges brought about by evaluation metrics typically used in determining impact of work (Nicholas et al., 2013; Selwyn, 2007).

Despite the impression of 'technology affordances', 'enabler of change', 'transforming', and 'facilitating' academics' practices, Weller (2011) raised issues on technology determinism. He indicated that this conception may exhibit a strong 'mechanistic' side, meaning that technologies are seen to drive the development of social structure, cultural values and shape human behaviour. This conception undermines a sense of the role and power of humans in shaping the technology used and neglects the social processes associated with the technology diffusion. Some academics resit new technology and label it as 'trivial', 'ephemeral' of 'less importance' and disregard its influence, to a greater or lesser extent, on performing academic tasks, communicating, knowledge construction and transfer, information literacy, and social capital building that occurs within the convoluted social systems. In opposite to this view, previous commentators denote that technology itself will not change academic practices, but it can be exploited using different strategies and approaches to attain certain scholarly objectives (Clegg et al., 2003). According to this view, while new technologies may not really lead to a significant paradigm shift among academics and higher education, it may be considered as a means to increase scholarship in relation to research, publication, pedagogy and administration.

7.4.8 Summary

The previous section discussed two different views on the underlying factors that shape the use of Twitter among academics. The two views are a 'pessimistic' and an 'optimistic' perspective. The pessimistic view seen through the wider lenses of globalisation and the neo-liberalism agenda has brought out some issues affecting the HE UK policies in general. In particular, this view points to the reshuffling of management in the context of globalisation. Regulatory frameworks (RAE, REF) emphasise HE's need to impact the national economy, quality of life, and cultural preservation. In the globalisation agenda, a technology revolution is inevitable. This event is believed to be important in changing the world through supporting and maintaining global connections and enhancing communications. In line with these beliefs, HEIs begin to adapt and eventually transform their management by increasingly adopting technologies in various administrative functions with the notion of improving their education services. This implementation is also to set universities for competitive advantage. While this may seem as positive in terms of benefits, this is considered under a pessimistic view because it poses intense pressures for HEIs to meet the demands of global phenomenon beyond their autonomy and control.

Intensification of these demands in relation to performance management has been brought under this new policies and new form of management. These broader issues have directly affected academics in HE as the state impose new demands. Academics are pressured to meet key performance standards and are continuously compelled in multiplying their outputs to compete with others towards a certain form of excellence. One problem here is the feeling expressed by some academics about the integration of technologies into education as a burden, where they have to learn to adapt with the customised applications. In relation to the proliferation of technologies in academia, it has also been viewed as mechanism of monitoring and control forced upon staff; and this hinders their independence in coordinating academic work. These forces contribute to the erosion of academics' autonomy and create a competitive culture in academia. This is seen when academics have to perform in research, teaching and administration in order to gain promotion. As an effect, this negative force has led to time management pressures and stress (psychological and physical) among academics, particularly in trying to manage work-life balance.

On the other hand, the 'optimistic' view represents positive forces that relate to the use of technologies among academics. This perspective is founded on the notion that technology aids in the shaping of creative working environment with the aim of responding to the demands of the wider environment. The section on the optimistic view focused on the concept of 'digital scholars' and digital scholarship. This is referred to as an emerging effort rooted from the digitisation activities in universities where scholars adopt, interact with, and apply digital media in their academic work. In this view, academics are seen to creatively explore and re-invent technologies to meet the needs and demands of their scholarly involvements. The difference, then, between the two viewpoint lies on how the forces are able to allow academics to exercise creativity and autonomy in carrying out their academic works and opportunities in relation to the utilisation of digital technologies. The academics in this study are optimistic when adopting technology – that is Twitter and working to adapt with the pressure from the broader lens. This notion is presented in the figure 7-2 below.

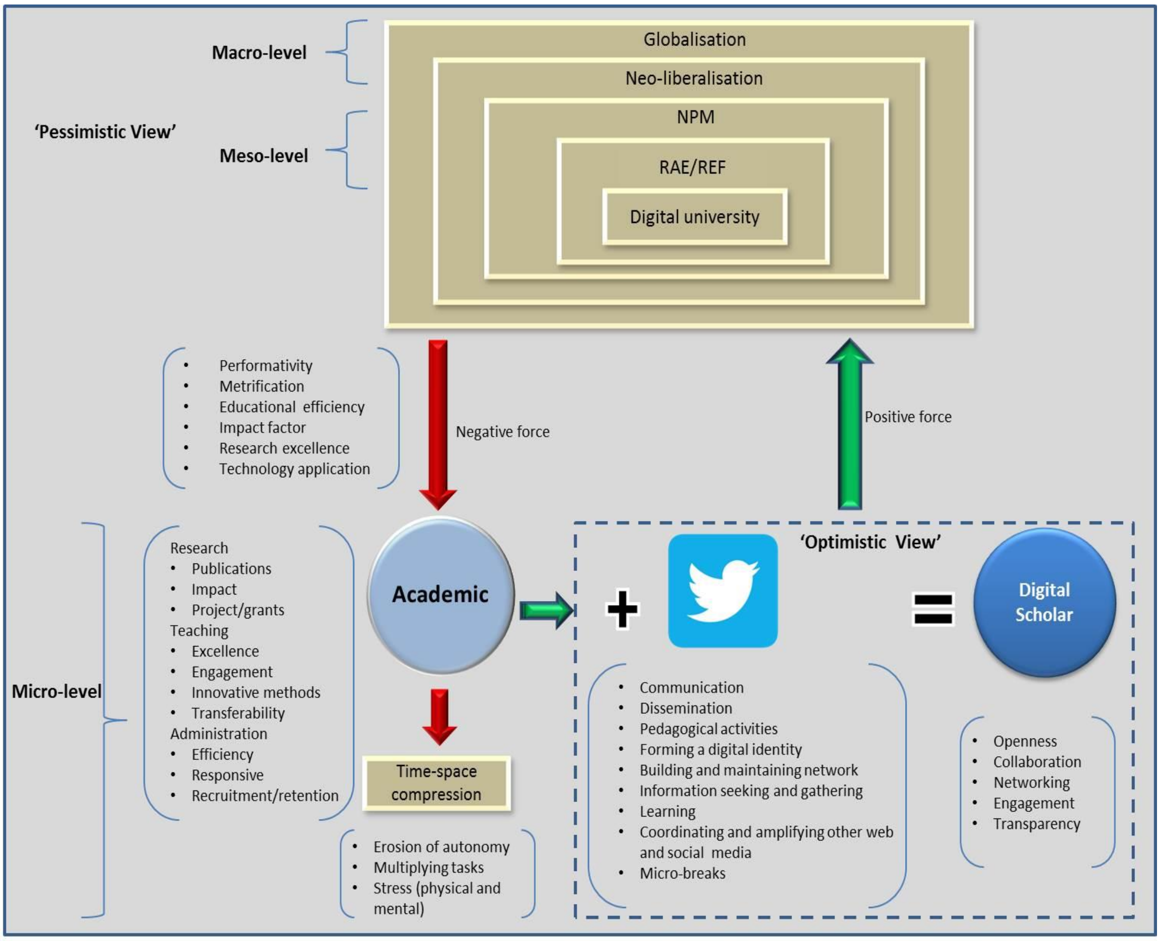


Figure 7-2: The 'pessimistic' and 'optimistic' views of underlying factors in use of Twitter

7.4.9 Academics' use of Twitter in context

In the light of the pessimistic view discussed in the previous section regarding the current atmosphere in HE which stresses the pressure of academic competition, performance measures, impact counting and which views technology deployment as a further means to regulate and control performance, management, surveillance, and accountability, Twitter may be experienced in the same light. Nonetheless, it is also possible to interpret things in an opposing way, in which Twitter seems to fit into academic work and seems to open up new possibilities for action. The following section explains further the issues surrounding academics in their workplace and seeks to explain how and why Twitter became rooted into their practices.

A strong narrative from the academics in this study described the current situation in their departments and the university as a whole as involving an increasing call to perform to the highest standards and revise their academic practice. Academics' multiple roles have created different demands that they are required to fulfil in the same amount of time. This includes pressure for excellence across research, teaching and administration. It also means pressure to perform other various facets of the academic, pedagogical and networking objectives of academics, including goals to:

1. Publish more quality research with evidence of impact;
2. Demonstrate visibility within their area of expertise and promote the field;
3. Improve student learning and engagement;
4. Keep up with students' new technology skills;
5. Work collaboratively with academics, professionals, public organisations and the government;
6. Expand communication avenues and disseminate research findings widely; and
7. Connect and interact more locally while going global.

Hence, academics are competing in order to survive, not only in being productive but also needing to be constantly prepared to reinvent themselves within an unstable environment.

Responding to this context, the group of academics in this study explore the latest technological innovations, in this context is Twitter, to improvise and work more effectively in delivering their goals. Academics at all levels of seniority (i.e. professor, senior lecturer, lecturer, university teacher) have taken the approach of promoting their work via Twitter and often claim that this social platform can be a powerful medium to support their academic development through sharing research and work, reaching beyond the 'performative' agenda. These academics hop on the 'bandwagon' and try to adapt to the global agenda; they seize opportunities, find ways to enhance their careers through a multi-diverse approach, and appropriate technologies to support their goals. Accordingly, these scholars apply Twitter in their research, teaching and managerial work to show a creative response to the burden of the current regulated framework.

It is apparent in the study that 'globalisation', 'neo-liberal' issues and government policies are affecting academics and making their routines unbalanced. These are related to political priorities and competition for government grants. Withdrawal of funding for research, teaching and the requirements from public organisations mean academics must compete for research grants: *"You have to do more with less; there's less money than there* *was. You have to get income through grants and they're harder to get [...] and if you get a grant my Head of Department will ask why it wasn't twice the size".* [15P-FSS-28]

The UK government has been quite wary about the quantification, control and assessment of Return On Investment (ROI) in order to justify the value of prospective researches and academics' strategic plans before investing budget. In parallel with this, the findings reveal that strong requirements are set down by Research Councils in relation to funding, requiring that academics explain the types of communication medium they will use to share their research with the public. They also have to explain how the research will impact on the economy and society. It has been seen in this study that such requirements influence academics to use Twitter: *"There are lots of government reports showing that we should communicate our research. So there's lots of documents about public engagement by Research Councils UK, when you write a grant, you have to fill out a box to say how you're going to engage with the public so we have to do it. Now some people would say going to a school once a year is sufficient. Some people say going to a cafe scientifique[3] is sufficient. I think it's an everyday thing that you have to connect...try and connect all the time, not just in these little peaks and Twitter is a tool to do that"* [3P-FOS-28]. This corresponds to Scanlon's (2014) reflection that the UK research councils have begun to pursue social media as one important media outlet for reaching the public. A sense of the impact of political agendas and the government economic imperative is apparent in comments such as *"...at the moment there is a big funding cuts on the arts in Sheffield [...] so it is kind of a political things"* [15P-FSS-28].

It is important to highlight that during the interviews the REF policy on citation rates for publications was among the most common issues discussed and was partly the impetus for them using Twitter. *"There is all this pressure to measure the academic impact and your departments are required to submit a certain number of case studies on the impact of particular pieces of research. It's therefore important for the department to be able to say, 'Yes, we can identify how far this person's research has been disseminated publicly so from that point of view, in terms of professional life, this stuff generally demonstrates a kind of broad dissemination of research and work connected to your research beyond just the university academic environment. It's really important... so when you have the REF, each*

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[3] A Café Scientifique refers to informal scientific discussion activity between the general public, practising scientists and science communicators to explore the latest developments in science and technology. Such events are held in a public place, such as a café, bar or restaurant, (http://www.sciencecafesheffield.org/)

department has to submit a certain number of impact case studies explaining the impact of its research in the wider world outside of academia" [see Findings 5.3.2: Academic publishing].

As an example, the University of Sheffield (UoS) has established its place among the top ten foremost research-intensive universities and is a member of the prestigious Russell Group. Thus, the university has positioned itself in an internationally recognized reputation for research excellence and considered to world-leading based on the 2008 RAE assessment involving a broad range of disciplines. This implies another anxiety of the management in sustaining themselves in the league-table while working to reach the highest 'world-class-status' before the next round of announcements of the recent REF exercise and thus calling for academics to continuously perform and produce research output: *"You know all the pressure is on getting the research done and delivering it!"* This constant pressure from 'top level management' highlights the crucial state for academics to consistently enhance their work and meet key performance standards. In the university general requirement, faculty members were required to perform 40 percent research, 40 percent teaching and 20 percent administration work. However, they admitted to having spent more time preparing for teaching than carrying out research which is supposed to be their main focus. With the workloads involved, most found themselves spending extra time beyond working hours carrying out research, highlighting problems with work/life balance: "*I'm doing a lot more teaching than research, often the only time I can do research is in my own time, in the evenings and at the weekend, [...] time to do research always gets eroded...and that is quite a problem".* [7SL-FSS-28]

Studies in higher education have similarly reported on the issues surrounding stress, work-life balance and the sustainability of working under current conditions (Gibbs et al., 2015; Hannay & Fretwell, 2011; Kimmons & Veletsianos, 2014). This implies common and significant concerns underpinning academics' perspectives today. In addition, they struggle due to the high demand from managerialism: *"I never have enough time. I can never please everybody. I can never work enough. I can never publish enough papers. I can never write enough grants, you've never done enough"* [3P-FOS-28]. Nonetheless, it was seen in this study that Twitter, at some points, helps to release pressure and respond to the demands through collaboration with other academics on Twitter.

There was a claim made by one of the academics that their university is among the top ten leaders in using Web 2.0 technologies: *"University of Sheffield is the eighth most active social media University in the world"*. This clearly suggests that their university is keeping up with the trend to be a digital university. Likewise, it is also evident that departmental management is incorporating social media initiatives for academics. Furthermore, some academics were given an ICT administration responsibility to organise departmental strategies in using digital technologies. This demonstrates additional top management support for the digitalised university concept.

The effect of massification on higher education systems and universities from the 'macro-determinist' view described above was seen to pressurise academics in this research in relation to their professional duties. Nonetheless, despite this pessimistic view, at the micro-level, academics showed acceptance and had a positive response to the pressures. Clearly, they liked many things about their university environment, and showed this by showing the initiative to work innovatively to keep up with changing trends. They insisted on their having self-autonomy *"I have freedom"* and explained that being in an academic role allowed them to operate in their field of expertise as a *hobby* or interest, without having too many conflicting situations: "*I come to work and I research the things I want to research within reason and nobody's telling me 'You must research this area or that area or the other area".* They showed passion in their work and loved the independence of determining what their research activities would involve. This passion for knowledge has been called 'intellectual love' (Rowlands et al., 2008, p. 353). Notwithstanding the depressing circumstances that were forcing them to adapt their workloads, it was recognized that they were working to adapt within the heavily-regulated HE blueprint that informed their practice and pushed them to construct meaningful, positive academic identities to the outside world. They used Twitter as a tool to advocate for their work and nourish them through portraying the different images of being an academic; this appears to be in distinct contrast to the myth of the stereotype 'ivory tower' academic.

It is shown through the findings that Twitter opened up new possibilities for academics working in a challenging and unstable environment. Twitter upholds their freedom through enabling them to pursue their academic interests, allowing them to freely express and share their views and ideas, and to engage with a broader scholarly community. This tool offers academics a new inclusive way of working, a convenient platform to network and communicate informally and spontaneously with others outside academia while sharing their ideologies and career philosophy. Despite the barriers and collective forces, they were working in healthier ways through seeking, sharing and receiving professional and social support from other academics on Twitter in a collegial membership environment. In practice, the collegial environment that some commentators think is being undermined by the new managerialism is being recreated online, through Twitter. One of the premises of this study is that discussion of scientific works, ideas, and experiences of academics could also be made open through online platforms such as Twitter. While this might seem to be less prestigious than dissemination through high-ranking journals, Twitter can be used and transformed into a conference venue or a meeting place for colleagues and critiques in generating, brainstorming, and writing of ideas. In addition, this way of gathering like-minded individuals can build ties, bonds and solidarity, leaping time and space boundaries. In this way, openness and its shared and inherent values become evident.

Twitter became a vehicle with which to begin to disrupt the competitive nature and hierarchy of academia that is often associated with the performance culture of higher education (Lemon, 2014). Academics in this study worked against the competition through engaging professionally with ideas, keeping in the loop on the latest information, and engaging with other academics, while also being a digital tool for teaching and disseminating research. The information they accessed was then shared with their students as well as introducing them to Twitter as a digital access point for resources. Academics in this study found a new, wider access hub to information. They repeatedly showed optimism and excitement about using Twitter: *"I don't feel pressured to tweet. I do enjoy doing it, yeah."*[2L-FAH-28], and enjoyed the opportunity to share this with their students and in the HE context as well. They found it exciting, especially when students began to engage with Twitter and realised opportunities emerged that they had previously not considered.

Twitter seems to fit well with their concerns around 'time-space compression' which forces them to produce more work, to engage in a diversity of networks to work in an effective and efficient way within limited hours of time. Within the context of the complexity that resulted in stress, academics found relief in using Twitter. Twitter allowed them to have mind relaxation from the saturated academic work and multitasking activity that has regimented their routine. This was referred to as a 'micro-breaks' in this study [see Findings 5.7] and is further explained in [section 7.3: H-Micro-breaks]. Here, a balance of work and Twitter engagement is seen despite the feeling of strain from work-related tensions. Micro-breaks enable the academics to perform multiple practices simultaneously within the shortest period of time allowed during breaks. These Twitter activities include timely updating of news feed, engaging into a quick discussion with a colleague, obtaining or sharing resources with academics or students, disseminating their latest publications and connecting with a wide range of people. While the actions described above may suggest struggle, in practice academics perceived them as easy, simple, and requiring less effort and yet the effect is vital. Twitter seems like the glue that binds all the activities together in one place. With the issue of time and common phrases such as 'I don't have enough time'; 'my routine is busy' constantly expressed as the main issue by academics in this study, Twitter enabled them to accomplish their goals any time, anywhere, spontaneously and with freedom. Through this platform and the mobile technologies; affordances, it has enabled them to have sense of success as a 'player' in this higher education and REF 'game': *'I wanted to stay at the top of my game, I wouldn't be able to do it on my own, without technology, without Twitter, without my iPhone.'* [1P-FMDH-28]

Section 4.3 indicated how academics in this study dealt with confronting and motivating themselves in relation to the environment on Twitter. It turns out they found that Twitter benefitted them due to the value they gained through networking with others and they experienced a sense of belonging to an online community. Twitter's open platform allows networks to grow rapidly and forms a default network for many different groups, as well as encouraging community norms to emerge (M. Weller, 2011). Being connected with the same group of academics who also value this way of working and sharing innovative ideas has built these academics' confidence and converted their feelings of frustration and exhaustion into being motivated, energetic, and inspired, encouraging them to sustain and enhance their work performance.

Through establishing their Twitter profile, academics developed a 'self-brand' of their expertise, presenting themselves as being approachable and less isolated, engaging professionally and creating new ways to be an inspiring academic. They created social bonds quickly in virtual space which can lead to meeting contacts in person. Ideally, it responds to the calls for an 'open-source academic' and 'openness and networks of digital scholarship' of 'open data, open publishing, open boundaries, open education' (Carrigan, 2014; Pearce et al., 2010; M. Weller, 2011) [see Section 7.4.7]. In addition, this digital identity helped academics to change stereotypical perceptions of academics as disengaged from society and the world, to one that involves new identities of being an academic in 21st century that displays positive, cutting-edge, attitudes to networking and interconnected communities, aligning with the requirements and changing policies in UK HE.

Communication on Twitter provides the chance to listen to other insights and ask questions. The chance to be heard and to listen presents a strong appealing factor in relation to peoples' desire, especially in this era where continuous process of meaning-making which demands active participation and communication among people. The more significant impact is the ability of academics to engage with others on a worldwide level that it is almost impossible to do without the ICT that supports connecting to, anticipating, and posing questions. In some cases shown in the study, the Twittersphere has allowed for contact with a well-established researcher that they never imagined having easy access to, or feeling that they could not contact others due to limited access, such as by email only on the university website. Twitter enhances these methods and reduces the gap through enhancing their visibility and predicting their active availability, based on their Twitter activity. Twitter breaks these walls down as contact at any time, concise communication about their work and informal inquiry is made possible in 140 character tweets that are beyond the norms of academic discourse. From the viewpoint of 'open data', open communication and discussion on Twitter with the academic community supports the new concept of research ideas, publications and enabling data sharing, as indicated in the findings [see 5.2 & 5.3].

Academics repurpose Twitter and use it as a tool to negotiate contemporary demands of their universities and shift towards new working habits, such as becoming a new medium for them to deliver a message through communication, or which disseminates information that is mostly related to their research output. In conjunction to this, some of the academics are responsible in their university for media activity as part of their public engagement duty; this necessitates them to communicate their research to the public [see Section 5.2.3].

The fact that Twitter supports 'viral' spread of information helps academics to promote and broadcast their work to wide, more diverse audiences globally, with less time and effort. As an outcome, it may attract followers to view their work or research findings, acknowledging it through citing their work and thus helping to build 'citation impact' as is constantly being demanded in UK HE. Equally, it permits transparency of work whilst improving accessibility to institutions and HE. The findings show that some academics in particular disciplines (e.g. Art and Humanities), and early career academics, showed concern about generating research impact but found using Twitter as a non-traditional way to measure their performance and advocate their academic progress. The power of this way of disseminating is far broader than traditional ways of working and pushes the boundaries in reporting the impact of research. This approach is based on other people who cited their tweet data, downloaded papers, shared information (e.g. research, blogs, articles), and the number of followers engaging with their tweets, known as 'altmetrics' (Holmberg & Thelwall, 2014; Priem & Costello, 2010).

Some academics linked their Twitter profile to their research blogs and other websites and social media platforms. Through the integration of multiple channels these academics were able to promote their research ideas, to gain informal peer-review from global peers, be involved in debate and fruitful discussions, and get feedback before submitting to journals for formal academic publication. These opportunities not only assisted in creating knowledge and being innovative, supportive and collegiate, but also open collaboration and open communication of ideas across and between disciplines. This reflects the facet of academics 'open publishing', Weller's (2011) emphasis on one aspect of interdisciplinary, where blogs are a useful example of how academics knowledge share and disseminate interdisciplinary knowledge (Kirkup, 2010; M. Weller, 2011).

Twitter is seen as a bridge to an interdisciplinary network that connects diverse systems together. It allows more openings to interdisciplinary and collaborative academic research and allows academics to continue to be 'research active' and productive, as stressed in the REF exercise and in the NPM, in parallel to the concept of 'open boundaries' (M. Weller, 2011). As Weller (2011, p. 72-73) has summarised, there are seven dimensions of interdisciplinary networks created by Twitter: geographical diversity, professional diversity, size of group, immediacy, interdisciplinary bridges, set cultures and norms, and the personal and professional mix. The findings show that Twitter allows academics to connect to the global community in different regions with ease. Moreover, they are engaged through following and being followed by diverse types of range and experience of professionals, like academics in other institutions, professionals, journalists and specialists, which inevitably brings a degree of interdisciplinary collaboration. The size of academics' networks in this study represents the considerable amount of collective expertise and knowledge accessed that supports exchanging views and advice on any particular topic. The immediacy of Twitter supports real time multiple information from different disciplines, and although the Twitter streamline is time-sensitive, it is possible to filter this information in folders, providing customisation of knowledge. Further, tweeting supports interdisciplinary bridges, that encourage connecting new people, while the hashtags feature groups diverse people into sub-groupings. The set of Twitter cultural norms creates its communities through mutual participation and active engagement from group members who identify their academic identities. A professional and personal mix constitutes the Twitter ethos of combining informal and formal (communication and resources) and tends to involve an interdisciplinary culture.

Interdisciplinary collaboration can be complex but Twitter makes this activity more straightforward and rapid. Twitter expands opportunities for academics to build partnerships, to develop skills and build research profiles through their professional interactions. Twitter is used as a medium to deliver and connect the central message from academics to gain the attention and support from the public and government. As such, referring to the wider problem of the financial cutting on art programmes, the academics using Twitter as medium to gain public and funders interest to provide social and monetary support for these issues. Besides, Twitter allows them to organise and discuss their research activity, ensuring the research projects develop, and creating new forms of communication with colleagues, greater awareness among colleagues, and better collaboration with external colleagues and stakeholders in multidisciplinary projects on a single platform and which is borderless: *"It's a way of working across that Faculty, Arts and Humanities and Social Sciences and across university community, cause if you are all on Twitter, it creates a community that you can create beyond the boundaries of the university."* [22SL-FAH-28]. Twitter provides transparency and accessibility to the university to evaluate the performance of academics in managing their work.

Academics appropriate Twitter to not only increase individual visibility but also that of their university. It is notable that their university, the University of Sheffield (UoS) is well-recognised as a 'Civic University', and by that it means their research priority should reflect widely-shared societal goals. With the REF system stressing the impact of research on social, economic and political aspects of life, the findings also indicate that some academics are working alone or together with their department to publicise their own and other colleagues' research, demonstrating engagement, sharing teaching practice and academics-related activity, running a research or teaching campaign/festival to connect with, share and educate the public on their research and how it will benefit society, inventing methods to enhance the pedagogical system and building relationship and networking across university boundaries. Because this effort raises the academics' and university's standing and reputation, this may attract more local and international students to their institution, and possibly bring interest from potential funders to collaborate in future research. Correspondingly, through facing fear and inferiority of contributing to the position in league tables, academics in the study showed themselves as being resilient and persevere with their commitments and create their own 'elite spaces' on Twitter, enhance their research collaboration projects and improve teaching quality. Essentially, the university can stay competitive partly because these academics engaged in advance with Twitter.

Universities are required to show how they enhance students' employability, demonstrating how they prepare students for employment, make them better equipped with relevant skills, through workplace training, such as team working, business awareness, and communication skills, as well as ICT skills. The findings of this study describe how academics have taken this role of preparing the course syllabus using Twitter to connect students with 'real-life' business experience, cultivate communication skills with the professionals, collaborate and receive feedback from experts and companies in their open learning activities, while giving students online space to discuss, debate and persistently engage in learning environments. This is what Weller (2011) labels 'open learning'. Regardless of the strongly regulated framework, they show a desire to support students in ways that might be recognised as uneconomical. This may suggest that innovation in teaching might be a creative response to the burden of the regulation framework and put forward the view that technology such as Twitter uncannily may be the answer.

During the time the investigation was carried out it was found that not many academics used Twitter for teaching; this may be explained from other studies that show Twitter was less favoured as an instructional tool compared to social media (Seaman & Tinti-Kane, 2013). Nevertheless this study showed positive use of Twitter for teaching and academics genuinely believed in the value of engaging students in comparison to the pessimistic view of technology that sees it as a sign of overriding, monitoring and conveying 'technology determinism'. In fact other academics confessed to potentially using it in the future, due to their encouraging experiences from private use and the perceived value of the concept of continued interaction in conference activities. This study has produced results about Twitter use for teaching and supports the findings of previous studies that looked at how Twitter was used to enhance student engagement and learning practices (Junco et al., 2011). Further, they showed awareness of trying to retain the borders of students' privacy and avoiding the concern of 'creepytreehouse' through not trying to invade their online membership or forcing students to adopt Twitter: *"If they [students] were already a member of twitter you already have an account it is up to them, they could either create a new account to tweet"*[14SL-FAH-28]. In the same way, it shows that Twitter is used in part to complement the learning process activity and was not viewed as the core fundamental method for the entire learning syllabus. While some critical views that social media can be disruptive and distractive tool in classroom learning (Selwyn, 2007), Twitter is seems to provide more benefits than harm, thus: *"Student can take a break to engage in Twitter, become more motivate to study*" [13UT-FAH-28], to reflect on the use of micro-breaks that encourage students to continue to learn and stay focus and motivated in classroom learning.

In relation to the research-led teaching, as these academics are working in a university that fundamentally emphasises this concept, they apply these ideas and use Twitter as a platform to draw upon their own experiences as a researcher, studying and writing about their research interest field, and teaching related aspects of their research, which informs the students about their research focus that showed aspirations for themselves and for their students. Twitter could be an online diary [see Findings 5.6.3] and provides access and knowledge to their students, not only sharing information on their life as an academic, but possibly driving students' interest in the topic of research as well as inspiring them to carry out investigations in this area for themselves. This approach aims to make students more independent learners rather than giving them information, which implies a constructivist approach. Further, the academics in this study shows effort in taking a numerous steps in meeting the demand of the disciplines on teaching student for the transferable skills, as indicated in the findings [see Section 5.4.4], where they tried to provide more real case examples through incorporate Twitter in a syllabus and get students to engage and connect with outside professionals, organisation as well as information to meet the transferable skills goals that being raved in higher education program.

Accordingly, the use of Twitter also contributes to academics' professional development and teaching preparation, as indicated by the HEA which records innovation and inventiveness in teaching activities and online teaching skills, in particular for early career academics. As indicated in the findings, some academics have documented their Twitter activity in the classroom for their PGR assessments and for their teaching profiles. In addition, academics received direct and open teaching feedback from students through Twitter which motivates academics to evaluate and enhance their teaching performance immediately and efficiently rather than waiting for the yearly management reports.

7.5 Summary

Academics can act reflexively, custom their roles and position their practice using tools such as Twitter to adapt to the neo-liberal agenda and comply with the HE policies imposed on them. In this context of study, Twitter is seen as a vital and useful tool in accommodating modern academics' work demands. It shows how academics can harness the performativity agenda to unleash new possibilities using Twitter. It is noticeable that academics in this study show strong initiatives from the 'agency' side and working from the 'bottom-up approach', through being keen in exploring and adopting technology into their practices. It was clearly shown that Twitter changes academics behavioural norms and values, in positive directions. Despite the academics' workload and other threats, they positioned themselves towards a deliverable, confident, authentic practice where Twitter serves as catalyst for positive action. Undoubtedly, academics in this study enjoyed using this tool not only because of the range of uses it provides, but also because it was simple and easy to use and was available at any time. The study indicates that it can help academic professional development and support the 'knowledge society' element as highlighted in the globalisation agenda through enhancing and expanding professional skills, such as communication and collaboration research skills; knowledge sharing and transfer skills; information retrieval and information collection skills; using innovative teaching techniques; resources; and experience through Twitter, which creates interest, understanding and enthusiasm amongst students, the public and so on. Although, academics recognised its risks, especially that the concept of openness allows surveillance by the university (Lupton, 2014), they nevertheless believed they actual risks minimal compared to its significant contribution to their academic profile and career progress and suggested that they could deal with them. In essence, academics need to balance up their aims; objectives and goals in using Twitter to equally weigh up with their current duties.

Chapter 8 : Conclusion

8.1 Introduction

Chapter 8 revisits the whole study, restating its initial aims and objectives, demonstrating how the research questions were answered, and outlining the contribution it has made to the field. The chapter starts with a summary of the work that has been done in the preceding chapters. It then discusses how the study contributes to existing knowledge in the fields of information science, social media and educational studies. It then discusses the practical implications of the research and finishes by considering the limitations of the study and by suggesting directions for further research.

8.2 Overview of the research

The main purpose of this research study was to investigate factors influencing academics' participation in microblogging in a UK HE context (Chapter 1). It critically identified the gaps and weaknesses in the literature (Chapter 2) and explained the choice of a suitable research methodology (Chapter 3). The research design was based on a two-stage investigation: an exploratory stage (pilot-study) and the main study (Chapters 4, 5 and 6). The findings are contextualised within the relevant literature and then placed in a wider context (Chapter 7).

Chapter 1: This research was conducted from October 2011 to September 2015 and aimed to explore the nature of academics' adoption and use of microblogging in UK HE. It was envisaged that this study would produce a conceptual framework to explain the studied phenomenon, against the background of the emergence of Web 2.0 technologies and social media in a higher education setting. It is shown that there is a growing interest in using Web 2.0 technologies and social media within HE where it is emerging as a tool to support educational and professional purposes. However, it is suggested that literature exploring why academics adopt and use Twitter is limited. Prior studies largely focusing on the broader use of social media in HE rather than considering in-depth Twitter's use as such. There is a lack of research taking a holistic view to understand the nature of academics' Twitter practice. A few studies describe academic experiences either around specific types of use at events or for certain activities or discuss its general use in less detail. Thus, with such gaps, the need for this study becomes apparent. Methodologically, a majority of the published work between 2007-2011, concentrated on Tweet message (data) analysis (Marwick, 2013). This suggested the potential value in employing a qualitative approach based on interviewing users to supplement the existing methods in microblogging studies. It is explained how, parallel to the aim of research, the study adopted an interpretivist methodology to provide insights into the microblogging phenomenon.

It is also explained that in exploring the context of the study, the initial aim was to understand the different ways academics adopt and use microblogging in teaching and learning in HE [see Section 1.3]. However, the outcome from the pilot-study suggested the need to expand the research to a wider perspective regarding how academics adopt and use microblogging in general, thus decentring learning uses. There were two reasons for this shift: (1) although there was evidence of interesting innovations around teaching, it was apparent that this was part of wider uses, that themselves merited exploration. Also, (2) it was recognised during the time period when the study was conducted (Dec 2012-July 2013), the number of academics adopting Twitter specifically for teaching purposes at The University of Sheffield was low. Hence, based on the result of pilot study, new research questions and objectives were formulated with the aim to investigate more comprehensively academics' adoption and use of microblogging for academic practice as a whole in higher education. The research aim was to explore academics' adoption and use of Twitter in UK Higher Education and the factors shaping this. In order to achieve this aim, the research questions were as follows:

1. *What are the characteristics of academics that use Twitter?*
2. *What are the common patterns in the process through which they adopt it?*
3. *What immediate drivers shape its use?*
4. *For what purposes do academics use Twitter?*
5. *What temporal and material habits of its use do they have?*
6. *What are the features of the technology that enable it to be used in different ways?*
7. *What are academic users' concerns about Twitter?*

One outcome from the analysis of data from the study was to suggest the value of examining broader contextual factors such as societal, cultural or institutional influences that drive the motivations of practitioners in adopting technology in HE at a deeper level (Selwyn, 2012). Thus, the study revisited the literature to formulate a final research question:

8. How does the use of Twitter reflect the changing nature of the role of an academic in the UK in 2013?

Chapter 2 provided a critical review of the major literature on the development of Web 2.0 technologies/social media and microblogging in HE. The idea of this chapter was to locate the study in social media and microblogging studies through identifying what we already know about how it was used. Literature about Twitter, the most popular microblogging tool, was reviewed including some material about its use beyond academia. This included how Twitter relates to other social media and discussing its main features, how it developed and studies of its adoption, how it's uses shape and are shaped by user activities and how it has increasingly becoming a critical tool and source of data for scientific research. This overview was then narrowed to focus on the study of academics' Twitter use by analysing studies of how it was used for different academic purposes and in educational arena. This literature points to some key issues surrounding Twitter use by academics, yet the literature was shown to be inadequate to draw firm conclusions about the key questions about Twitter use. From the insights derived from this analysis, the importance of studying Twitter for academic use was made clear. Some limitations of the existing studies were identified, suggesting the need for further empirical studies to fill the gaps in this research area. The gaps include in depth studies of the experiences of academics in using Twitter. There is a lack of literature on the initial triggers that drive academics to start using Twitter, the actual process through which academics adopt it, the different activities academics use it for, the patterns of use and the perceived potential risks of using the microblog.

Chapter 3 established the research design and methods adopted to collect the research data, the research criteria used to ensure the quality of the research, and discussed relevant ethical considerations. It first discussed the philosophical choices available and the arguments regarding choice of these methods. Consistent with the research aim, constructivism was chosen as the philosophical stance. Thus, an interpretivist paradigm was adopted to investigate and gain in-depth understandings and the meaning of this social reality for actors (academics) themselves. It was determined that a qualitative method was the most suitable approach for this study. The study involved investigating a small group of academics that use Twitter at The University of Sheffield to attain a deeper understanding of the phenomenon of academic adoption and use of Twitter through examining what academics experience when adopting Twitter, how they use it, when and where they use it, and what devices they used to Tweet.

The chapter discussed the two different stages of the study, namely the pilot-study and the main study. The pilot-study employed qualitative methods (mainly semi-structured interviews and secondary data of surveys). The pilot enabled the researcher to discover issues surrounding the context of inquiry, to test the methodological approach and reflect on the focus of the study, ascertaining gaps in the approach, and analysing the outcome in order to finalise a research aim, objectives, and sanctioning the approach for the main study.

For the main study, two stages of data collection were undertaken with the first round consisting of interviews with 13 academic participants and a second round with 15 academic participants. The first round of interviews gave the researcher insights of the emerging results, allowing a further check on the appropriateness of the approach before commencing the second round. This approach included analysis of three interviews conducted in order to develop initial ideas that would begin to offer a structure for the results. These initial ideas and preliminary findings suggested the appropriateness of the methods undertaken to eventually answer the questions posed. The second round of interviews of 15 academic participants was then carried out. Data saturation for this phase was considered to have been achieved when there are no new codes were emerging as additional interviews were analysed, precisely when coding at the 19th interview. The data were collected via semi-structured interviews with two complementary methods of (1) digital observation; an approach used to assist the researcher to familiarise herself with the environment of Twitter and assist her in understanding participants' participation on the microblogging platform, and (2) observation during the interview: an approach to gather on-site information of participants' activity with Twitter. Thematic analysis was the data analysis procedure selected for the study (Braun & Clarke, 2006).

Chapter 4, 5 and 6 outlined the main research findings from the interview data and sought to answer the research questions.

In chapter 4, the study firstly addressed what are the common characteristics shared by academics that use Twitter and identified two, namely: (1) they are early adopters of technology (2) they see themselves as being 'tech-savvy'. This gave the answer to the first research question. The second research question was about academics' immediate reasons to adopt Twitter. It was recognised that their decision to adopt Twitter originally grew out of some underlying, interconnected elements which combined to motivate them to use it. This consisted of extrinsic factors: (1) academic practices such as knowledge sharing, improvement of teaching, research dissemination, research collaboration and roles relating to HE management and administration) and (2) social influences; while intrinsic factors: (3) establishing a digital profile; (4) a desire to make a use of news and information sources; (5) following social media trends; (6) personal interest and (7) beliefs about technology. The common pattern in the process through which Twitter was adopted was revealed, to answer the third research question. In brief, there were four orientations involved during the course of adoption: (1) initial scepticism about Twitter; (2) acting as a 'lurker'; (3) taking a trial and error approach; and (4) developing participation over time. Academic participation increased and was sustained (1) when members/audience on Twitter engaged and supported their membership, and (2) when more colleagues they knew joined the community, which enriched their interaction and influenced their participation.

Chapter 5 describes that academics tend to have multiple activities on Twitter once they decide to adopt it. Essentially, there were nine primary activities performed by academics on Twitter: (1) communication; (2) dissemination; (3) pedagogical activities; (4) building relationships and maintaining networks; (5) forming a digital identity; (6) taking micro-breaks; (7) information seeking and gathering; (8) learning; (9) coordinating or amplifying other social media and website use. These set of Twitter uses gave an answer to the fourth research question.

Chapter 6

This chapter addressed research question five: What temporal and material habits of use emerged in Twitter use by academics? The main patterns of use were considered under the headings of: (1) temporal patterns of use (e.g. academics' activity in browsing Twitter including in early morning or late night, a frequent check on Twitter, a short browsing and parallel check with other communication media); (2) tweeting activity (e.g. time when academics often send out Tweet which are in the morning, during working hours and when travel); (3) monitoring Twitter; (4) following and being followed (e.g. their strategy in selecting, connecting and managing lists of people on Twitter and their awareness of people who followed them); (5) storing information (e.g. the approach used in gathering the information of interest on Twitter); (6) management of multiple Twitter accounts and (7) the use of technology in supporting Twitter use. These components are interconnected activities that suggest a characteristic pattern of Twitter use. The pervasive and ubiquitous spread of computers such as mobiles, smartphones, tablets, laptops, etc. has increased flexibility and access to Twitter, thus prompting academics to use it in their multitasking routines.

Question 6 was answered through unfolding the characteristics of Twitter that enable it to be used in different ways. Among its common characteristics are immediacy, multiple resources, live interactions, personalised news, brevity and simplicity, short and concise, viral information and give alert notifications. Accordingly, Twitter creates a culture of openness and altruism. These features seem to accommodate and support academic practices and this suggested that Twitter was valued more than other social media and web communication technologies (e.g. *Facebook, blogs, email*) due to such advantages.

Research question 7 was about the issues and risks in using Twitter. Some concerns were raised by academics about using Twitter, specifically risks around: (1) damage to reputation/status; (2) the psychological effects of Twitter; (3) a perceived lack of professionalism; (4) being attacked/criticised; (5) it being a distraction from work; (6) taking up time; (7) information overload; (8) extreme self-promotion; (9) conflicts of identity with multiple Twitter accounts; (10) questions regarding information accuracy and credibility; (11) privacy concerns; (12) insufficient activity to establish a community; (13) the limited sophistication of the communication; and (14) technology technical/feature constraints. These academics were constantly vigilant in their Twitter activity in order to maintain academic professionalism, reputation and privacy.

Chapter 7 presented a summary of the key findings and compared and contrasted them with the key literature and then went on to position academic use of within the wider context of the HE environment. It focused on a selection of highly relevant literature, confirming results and addressing the gaps in the literature established in Chapter 2. It contextualised the findings with closely related empirical studies, comparing and contrasting the study's findings in particular with Veletsianos (2011) and Lupton (2014). The current research found some similarities for the categories of Twitter use but giving more emphasis and precise explanations of the activities than other studies. Further, the current study identified evidence for more categories of Twitter use than previous studies. In addition, it gave a holistic view of the trajectory of academic use Twitter which comprised details of elements that include the characteristics of Twitter users, the process of adopting Twitter, the immediate cause to adopt and pattern of use, which these results also has not being revealed in other prior literature. This research is novel in examining the phenomenon through a qualitative lens unlike most previous studies. This approach allowed the researcher to explore the complex nature of academic Twitter use. In essence, this study complements Veletsianos (2011) and Lupton (2014) methodologically and empirically. The chapter further discussed and provided a theoretical basis for answering the final research question: (Q8) How can the use of Twitter be understood in the light of the main structural pressures/trends that affected what it meant to be an academic in the UK in 2013?

This study portrays academics at work and interacting with an environment of practice that stimulated them to adopt Twitter. It argues that there is strong pressure from the structural context that was affecting academics in undertaking their work. This could be interpreted pessimistically or more optimistically. A 'pessimistic' view uncovered in the literature would make reference to *globalisation, neo-liberalism, new public management, the REF, the digital university, and time-space compression* (Clegg et al., 2003; Clegg, 2008; Fanghanel & Trowler, 2008; Fanghanel, 2011; Henkel, 2005; Lorenz, 2015; Lucas, 2006; Selwyn, 2007; Tapper & Filippakou, 2009). The findings showed evidence that academics in the 21st century face new challenges and are expected to alter their traditional and typical working norms to comply with demands from university management and indirectly from funders and policy makers. The government's economic imperative lies behind the REF and HE UK policy, and so is influencing academic practice. This involves a set of standards for academics to improve and enhance their performance, including producing better quality and higher impact research, conducting collaborative research with professionals and industries to support communities and society, and cultivating public and student engagement. Despite long-cherished notions of academic freedom and autonomy, academics are pressured by academic competition and performance measures, university ranking mechanisms and institutional competitiveness, while impact measurement and teaching qualifications are increasingly specified for new entrants to the profession (early career academics). These increasing calls and heavier workloads in the academic profession have resulted in tensions and time pressures where academics have to work within tight time constraints.

In the pessimistic view technologies have often themselves been seen as a means to intensify demands and surveillance. The implementation of Web 2.0 and digital technologies that increasingly appeared in HEIs as a means to increase competiveness, enhance organisation activities and boost reputation has generated another burden to academics. Accordingly, Twitter could be seen as another source of monitoring academics' activities that may disrupt academic freedom in working. In contrast, the *digital scholar* concept suggests a more 'optimistic' view, where academics show positivity about inventing and adopting technology in enacting academic purposes (Katz, 2010; Kirkup, 2010; Nicholas et al., 2013; Pearce et al., 2010; Scanlon, 2014; Veletsianos & Kimmons, 2012c; Veletsianos, 2013; M. Weller, 2011). These authors argued that microblogging tools should be considered as an innovative medium for supporting and publicising scholarly work of academics as professionals. Some opportunities that the platform could provide include research collaboration between researchers from the international arena and extensive possibility of networking. Additionally, it could foster effective way of communicating and knowledge-sharing with peers, colleagues and co-academics in the various parts of the globe (Veletsianos & Kimmons, 2012c; M. Weller, 2011). The findings showed that academics interviewed in this study accord more with the optimistic view, despite acknowledging the pressure on them to change their current practice. These academics expressed their freedom to act and interact within their structural boundaries in managing their academic activities and development (e.g. freedom to determine teaching content, freedom to communicate research, and freedom to manage administrative activities). Therefore, they take responsibility and adopt initiatives to use technology such as Twitter as a vehicle to respond to the workloads that burden them and so finding greater value and promise in the tools used to support their work in effective ways.

It is argued that these pressures are evident in how Twitter is used. For example 'micro-breaks' capture something important about the behaviour of academics use of Twitter. The micro-breaks show that academics use Twitter during work routine to take a pause, relief and discharge their academic stress and seeking for comfort through Tweeting. In fact, academics will engage with Twitter whenever they have a moment. These short breaks allow them to continue being active pursuing the work demand such as communicating and collaboration, sharing research, promoting activities, teaching effectively, develop networking, updating owns knowledge and learning.

8.3 Statement of empirical and theoretical contribution and methodological reflection

The overall purpose of the thesis was to investigate factors influencing academics' use of microblogging in higher education. In general, this study makes several noteworthy empirical and theoretical contributions to Information Science (IS) research, technology adoption in educational studies, and more particularly to the implementation of Web 2.0/social media and microblogging in higher education settings. This study has provided clear examples of the disparities between the educational rhetoric and educational realities of social media use.

8.3.1 Empirical contribution

From an empirical point of view, the study filled a knowledge gap in the existing literature relating to microblogging. There are no previous studies purely on academic (lecturer) perspectives on microblogging research that adopt a solely qualitative method. The findings contribute to identifying the importance of causal relationships between technology use and scholarship purposes through unfolding the factors shaping academics' use of Twitter and outlining the different ways Twitter can be used to support academic pursuits. This study recognised that microblogging is seen as an emerging practice among academics and can become innovative skills in supporting a professional academic through its application such as communication, dissemination of research, teaching, building professional identity, learning and information searching and networking.

The study extends current understanding by revealing the stages of adopting Twitter. It highlights that the adoption process related to Twitter are apparently not a simple learning curve phenomenon, due to circumstances that occur hindering progression until the problem is fully addressed. This explains that Twitter participation is a sophisticated and evolving activity where the use is developed over a certain period of time, through a series of events, such as observation, experimentation, trial and error, and lessons learnt. It underlines how individual engagement and participation in an online network is mainly influenced by the group or community of individuals join and where they feel a sense of belonging to those with similar interests. This finding has been discussed previously in online community studies (McLure Wasko & Faraj, 2000; Wasko & Faraj, 2005). It has been learned that, within the phases of Twitter adoption, academics had feelings of ambivalence, and were involved in social adaptation and negotiations with the existing Twitter community, discovering Twitter functionality and practical value from other individuals. This showed that social media adoption is not a straightforward process.

This study expands ways of understanding microblogging adoption in a group of academics through presenting details of how they made the decision to start using Twitter. It revealed different interconnections of immediate motives that triggered an individual to adopt Twitter, including social factors, user attributes, and institutional orientation. It is recognised that, within the trigger episodes of Twitter adoption, academics' duties (i.e. research, teaching, disciplines and administration) was the most important element contributing to shaping academics' decision to adopt Twitter. Not surprisingly, one's profession has a strong association in the decision to adopt a technology. Prior empirical studies largely employed and tested models or theoretical frameworks such as the Technology Adoption Model (TAM) (Ajjan & Hartshorne, 2008; Gruzd et al., 2012; Steyn, Salehi-Sangari, Pitt, Parent, & Berthon, 2010) to investigate people's attitudes and decision to adopt social media tools. However, the predictive model of TAM was found to be a bit simplistic and ignore important organisational, cultural and social factors (Orlikowski & Hofman, 1997). This limitation is addressed in this study, as it sees wider processes such as globalisation and an evaluative culture having strong impacts on shaping the academics use of microblogging. The discovery was made through using an open inductive method.

These findings contribute to establishing the different ways academics use Twitter for academic pursuits in more detail. Although there is some overlap between professional and private use, the academics in the study mainly distinguished formal from social use of Twitter as part of negotiating their identities on Twitter (Papacharissi, 2012; Veletsianos, 2013). Importantly, this research presents offers a better understanding of the trajectories of academics' use of microblogging. It reveals new categories of use and explains uses in depth, providing thick descriptions of use specifically when compared to two key previous studies by Veletsianos (2011) and Lupton (2014). Most previous studies on microblogging typically focused on particular types of use, such as within conferences, different motivations for using Twitter, behavioural activity on microblogging, types of tweet content, and benefits of use, which did not cover the entire scope of how and why microblogging was adopted and used in particular contexts, as evidenced in this study. This study provided other significant findings, as summarised in Section 6.2, related to six key elements comprising (1) characteristics of Twitter user; (2) academics' motives for using Twitter; (3) process of joining Twitter; (4) Twitter uses; (5) pattern of Twitter use; and (6) concerns about using Twitter.

This study enlarged knowledge about academics' different purposes for using Twitter and confirmed the results discussed in the previous literature on the use of microblogging in academic contexts, as well as in wider social media usage. This study provided a closer examination of the diverse potential uses of Twitter and highlighted how relevant these uses relate to academic practice. The main uses include communication, dissemination, networking, information seeking and gathering, learning, teaching and for a space to mainly construct a professional academic identity while performing other identities. Twitter allows academics to transition from the conception of the academic as a conservative persona to a modern one that exhibits credibility, while maintaining a pleasant character and outgoing personality. In addition, academics were involved in distributed practices with multiple Twitter accounts and other social media to accomplish a variety of academic tasks. This study also explains that academics use Twitter in strategic ways to manage sets of activities on Twitter, and highlights how different academic levels, e.g. early career academics, and discipline, e.g. Art and Humanities, have taken a serious approach to using Twitter with a particular aim of using it a useful supplement to performing academic duties, specifically in communicating and disseminating research.

This delineation of Twitter uses displays academics' creativity and agency in re-shaping the original purpose of Twitter for their own purposes; similarly it asserts the usability and practicality of Twitter in offering flexibility and possibilities that ally to academics' working needs. It contributes to new academic information skills, networking and enables them to reach a wider audience; receiving or directing information from people they follow, seek and [or] share knowledge with thus creating a new open-avenue via a simple and accessible tool, where usually academics have limited time to search traditional information outlets. Another aspect of this is innovative pedagogies through leveraging microblogging affordances in support of modern students' learning choices and independence, which previous studies discussed as "pedagogy 2.0" (McLoughlin & Lee, 2010).

The findings also established a novel finding of micro-breaks for academics to revitalize themselves from their work pressures and regimented diaries by moving to Twitter to take a short break. Using Twitter thus appears to be as a stress release tool, allowing academics relief whilst continuing to be productive. This finding highlights that academic workplace systems created individuals involved in 'multitasking' routines and tangled with 'time-space compression'; these are factors that encourage academics to develop micro-breaks to take a pause from work (McGregor et al., 2014). This phenomenon has not been identified in the literature before.

This study is particularly important in advancing our understanding of the behavioural patterns of academics associated with managing their microblogging activities. These patterns are intricate but also habitual, and are formed by aspects of purpose (e.g. communication, dissemination, information seeking, etc.) and flexibility in use (e.g. type of devices that support the use). Specifically, a focus is developed on the role of mobile devices such as smartphones, laptops and tablets in the proliferation of Twitter activities in the academic profession. This is seen as fundamental because of these tools' ability to be operated anytime and anywhere, because these devices increase the ease of access and operation of Twitter and other social media platforms.

Platform features show that choice of tools is an important element and provides an understanding of how different social media are used in different ways. Twitter's features are well-suited and effective for academics' work purposes, and its use is more highly regarded than other communication platforms. This also agrees with Lupton (2014), where the majority of her respondents expressed the view that Twitter was the most valuable professional social media tool. The study also explored academics' concerns about Twitter. Some concerns identified here agree with previous studies that discussed the risks of using social media in general (Lupton, 2014). However, this study presents specific knowledge on interviewees' fears relating to Twitter. These findings are significant and thus far has not been clearly emphasised in other microblogging studies in HE (Veletsianos, 2011).

8.3.2 Theoretical contribution

From a theoretical viewpoint, the current study is important in revealing the underpinning factors that shape how and why academics use Twitter in the HE UK setting. A number of authors have identified the need to investigate the wider structure of organisational and social factors that influence and shape of technology adoption by practitioners in HE to augment knowledge the current literature on social media and Web 2.0 technologies (Lupton, 2014; Selwyn, 2012). The current study contributes to addressing such calls.

This study contributes to IS research, HE and educational studies through highlighting two views on technology use in HE, that is a 'pessimistic' and an 'optimistic' one. The optimist believes that social media can be used to strengthen the higher education institution in its current form, while the pessimist believes that social media exists as a means to control, disrupt (and ultimately replace) the university tradition of academic freedom and intellectual creativity with greater control and surveillance. In respect of this debate and regarding the phenomenon of social media, microblogging use in particular is seen as beneficial in supporting academics' equilibrium in contemporary academia, and is less seen as surveillance or superficial as presumed by the sceptical perspective. The findings offer another way of viewing Twitter, commonly used for social networking, that could in modest ways be used successfully for educational and research purposes. This shows that not only tools that have been specifically designed for the HE context can be used to meet academic objectives. In addition, it offers evidence that not all technologies are a potential burden in academia as negatively claimed by some previous commentators.

The findings reveal a group of wider factors that contribute to force academics to perform. These global drivers are seemed as negative force which is referred to here as the 'pessimistic' view. These pressures include: global competition; neo-liberal politics; HE policy change and new management regimes; the withdrawal of government funding for teaching and research in favour of a market-orientation; university ranking and competition for elite status; increasing digitisation in HEIs. The demand or pressure from for universities to be technologically transformed from traditional to digital is based on the quest for global competitive advantage in response to the challenges of producing and disseminating research and teaching. In addition to the aforementioned factors, institutional management also plays a key role in reshaping academic practices and in the digitisation and mediatisation of the traditional university which could be of importance in responding to the demands of global university competition (Burrows, 2012; Fanghanel, 2011; Gill, 2009; Henkel, 2005; Kelly & Burrows, 2011; Lemon, 2014; Lupton, 2014; Selwyn, 2012; Veletsianos, 2013; M. Weller, 2011). There is a complex debate about the value of adopting digital technologies in HE. Selwyn (2014, p. 3) refers to the scene as characterised by "hype, hope and fear". This author comments on the gap between educational rhetoric and educational realities, of the high expectations of HE in technology use such as social media, but the major disappointments when implementation fails. The characterisation reflects growing stress levels among academics prompted by the heavy workloads, a long working hours culture and conflicting management demands.

This study locates the micro-level view of academics as individuals in HE interacting with the institutional in the context of macro-level and meso-level force that frame their practice. It reveals how academics respond to the competitive climate. It explores the 'performativity' and 'excellence' discourses in HE and the proliferation of the 'impact' agenda creating a context in which many academics feel that there are increasing time pressures in their work (Burrows, 2012; Clegg et al., 2003; Clegg, 2008; Gill, 2009; Kelly & Burrows, 2011; Lemon, 2014). In this context the study shows that academics are negotiating microblogging use to neutralise the negative atmosphere. It reveals the agentic power of academics in practice, in positioning themselves towards the management agenda, which this study established as 'optimistic' overall.

Twitter is a microblogging tool that can work as a vehicle to counter-balance the neo-liberal agenda that pervades in HE, and aids in transforming academic practice. This tool offers an openly creative, communal and convivial activity for academics. Despite the necessity to handle increasingly diverse tasks and balance multiple roles which requires an assorted set of skills, knowledge and competencies, they showed aspiration and commitment to their work and to their discipline. Academics created a space on Twitter for the exercise of principled personal autonomy and agency. Those that adopted the technology 'othered' themselves through innovatively using digital technologies. Meaning that these academics were setting up themselves to be characteristically different than others and position to be dominant in the community through the use of technology. They continually engaged in constructing and reconstructing themselves and their identities to maintain a coherent identity in the social world, as a professional that is socially engage, stay positive, enthused and empowered through technology.

This study depicts two different views of structure and agency and contributes to the importance of theorising this view (Archer, 2000; Clegg, 2005; Fanghanel & Trowler, 2008), besides providing an understanding of the impact of social structure on agency practice and action. It revealed that the influence of agency on responding to and adopting technology is interlinked with academic identities. Despite diverse academic roles, the participants showed the ability to sustain highly distinctive, strongly framed academic identities. "*Identities at the micro level focus on the individual. However, these are inscribed in wider world society and within existing practices and policies, levels of institutions, and communities of groups of co-workers, department or units*" (Fanghanel, 2011, p. 6). In another sense, identities are constructed, fluid and influenced by academic biographies and backgrounds, habits, position in the academic field, personal philosophies about education, beliefs about the discipline, research technology, teaching and educational goals in relation to other aspects of their environment, and the wider world, broadly speaking (Clegg, 2008; Fanghanel, 2011; Henkel, 2005). Academics' roles in relation to the management and administration functions of universities also play a part in that positioning - institutional reform through technological forces. As such, the motivations that guide academics in adopting technology for their everyday use emerge from factors that are complex making it difficult to fully explain the process. Because of these difficulties, it is recommended that a focus on the possibilities for increasing value of academics engaged in Twitter be understood further, as initially done in this study. Academics' beliefs and opinions shape technology's use, rather than it being pre-given in the design of the technology itself.

This study has paid detailed attention to how changes are experienced by academics in terms of connections between adopting technology and academic practice. In this way, results of this study serves as an opportunity to present an important element in empirically understanding what is happening within and outside the university sector. A deeper understanding of this phenomenon also demonstrates conformance to global demands to demonstrate competitiveness and maintaining individual identity and fulfilment of duties that shape their working behaviour. This study also showed that the diffusion of technology, such as Twitter, is not a direct process; moreover it is not always top-down oriented. This study showed an emergent structure of academics who have a special interest and expertise in integrating innovative instructional technologies into their teaching and academic work. The initiative to explore this microblogging tool is a sign of more bottom-up control. This effort showed some factors and individual attributes that encourage academics to enact such work practices, skills, expertise and experience with digital technologies and indeed the feature of Twitter itself that allows users to be self-dependent.

8.3.3 Methodological reflection

An inductive, qualitative approach was chosen to increase the chances of discovering unanticipated elements, the dynamic nature of online participation, and to analyse impacts, challenges and implications of adopting new technologies in HE. Using in-depth semi-structured interviews as the focal method has extended our knowledge of microblogging adoption and use by academics in higher education contexts.

Qualitative research is different from a quantitative approach in many important aspects. For example, it delves more deeply into individuals' feelings, experiences, backgrounds, states, and settings purposefully, in order to generate an understanding of *'how and why'* people perceive, take action, reflect, interact, enact, and interact (Baker & Edwards, 2012). In Chapter two it was noted that previous studies of microblogging use mainly employed quantitative inquiry, such as content analysis of Twitter datasets or surveys of larger populations (Kieslinger et al., 2011; Mahrt et al., 2014). In contrast this qualitative approach contributes through providing richer meanings and results that brought a different approach to understanding microblogging use in the particular context chosen.

Using this exploratory approach complements and extends the findings of the related studies that used quantitative methods. As such, the inductive approach exhibited openness, and offers in-depth explanations for findings that the quantitative studies had, which generally lacked detailed measurements of individual activity, precisely when framed by hypotheses or questioning further why such an act was undertaken. In this case, interviews were also used as part of a multi-methodological study to confirm and complicate previous findings, as in the collected tweets study by Veletsianos (2011) and scholars' surveys in Deborah Lupton (2014) [see Section 7.3]. Using this method, this study shows no differences on demographics, where academics in this study were treated as a homogenous group, with no distinctions made in terms of academic level, discipline, age.

Instead of simply looking at what occurs within the boundary of Twitter use, this study has revealed a greater understanding of social media adoption that can be attained by looking at wider context. As such, upon investigating what are the different purposes of academics using Twitter in HE, the use of interviews allowed the researcher to probe the critical role that HE structures played in shaping the use of Twitter by this group of academics. In the same way, this study illustrates how academics involved in microblogging referred to a range of interrelated contextual factors as well as revealing complex needs in terms of managing, distributing, approaching and sustaining the practice that emerged beyond the use of Twitter. This illustrates how qualitative research can capture the complex nature of adoption and use of technology. Such complex uses and processes are hard to capture through a simplistic explanation or determining relationships and networks among variables, predictions of theories and hypothesis which aim to interpret them 'objectively', based on numbers and statistics (Marwick, 2013). Therefore, rather than taking a statistical approach, the method used in this study shows alternate ways to make sense of academics' practices, social norms and power relations as they (academics) play out on the digital world (Twitter) (Marwick, 2013). Framing a study with theoretical resources may explain the phenomenon from a theoretical view, nonetheless it may seem to limit the analysis as ignoring other emerging findings that are worth taking into consideration or which may become important variable that can influence results of a study.

As stated in Chapter three (Methodology), interviews can be a useful way to investigate normative assumptions about technology. Thus, in this study when the researcher interviewed the academics, many questions were asked about their Twitter activity, how they actually used Twitter, how they communicated on Twitter, how they logged on to Twitter and paid attention to details in their actions. The researcher opted to feign ignorance and requested explanations of the principles of using Twitter which helped in revealing implicit norms of use. As such, it was very useful to ask academics to show the researcher their Twitter accounts and guide the researcher through their tweets. This helped uncover much rich information about their content strategies, monitoring and checking behaviour, choice of devices used, tweeting activity, scrolling Twitter streamline, and following approaches that are presumptions previous studies made; and to highlight the gap between self-reported actions and actual practices.

This study further suggests the need to ask broader questions and to adopt more complex methods for data collection when studying academic adoption and use of Twitter in HE. These questions and methods must aim to better capture the complex nature of microblogging use, broadening the simplistic views of the purpose of using Twitter, of Twitter behavioural activity, of the types of tweet content accessed, and of the benefits of use, as much broader questions to explore beyond interviews to reveal other aspects that are missing in the context of this study.

8.4 Statement of practical implications

This section explores the relevance of the research findings for higher education institutions (HEIs), academics, and software design communities.

8.4.1 Implications for Higher Education Institutions (HEIs)

For the last few years HEIs have been struggling to find effective ways to encourage staff to use social media (Mahrt et al., 2014; Roblyer, McDaniel, & Webb, 2010; Veletsianos et al., 2013). Part of the issue underlying this failure is a lack of understanding regarding what social media are and the various forms they can take (Kaplan & Haenlein, 2010). Academics are acquainted with the benefits to be derived from using these digital tools for their scholarly activities. For instance, in reference to the REF, through interdisciplinary research and engagement, the use of microblogging is seen as having practical advantages among academics in this study. It can support HE's aim to enhance collaboration globally, as well as generating an impact on research dissemination to wider society. Appropriate ways of adapting the platform should be considered so that it can fulfil its potential as an alternative means of conducting academic activities. Hence, this study can help in enlightening HEIs to promote social media, such as microblogging, through understanding its value, benefits and use for all institutional stakeholders and academic sphere.

Before attempting to promote use of social media, HEIs must be aware of the issues and take into consideration that there is no direct solution for adoption of technology such as social media, or clear 'step by step' procedures to follow. The findings showed the critical role played in adoption through complex and multifaceted stages. Thus, technology diffusion should not be expected to be an overnight implementation. Nonetheless, this result also indicates that much support is needed across the institutions, to understand how adoption could be brought forward and executed.

The outcome of this study has shown the value of Twitter for academics to stay competent and fulfils the university's aim in positioning towards the global trend and policy-makers' demands. Thus, it is plausible for institutions to prepare methods such as training and workshops identifying good practice in using social media and Web 2.0 in the institutional community. It is recommended the institutional support team needs to have an action plan, to establish appropriate policies to facilitate the greater use of social media and foster the take up through leading by example.

The findings indicate neglect in the promoting of social media across departments, where the initiatives are usually driven by enthused individuals. Some academics in the study voiced the opinion that greater managerial support would be valuable. They believed that management should encourage social media use through a defined plan, formality in process and centralisation. Thus, HEIs and their support staff (e.g. computer support system, learning technologists) can create more awareness through more Web 2.0 support, such as social media events, social media courses and digital professional training for academic staff, early career academics, postgraduate researchers and administration staff, in order to increase knowledge, and develop their interest in using these technologies in many different contexts, such as academic practices, learning, pedagogies and administration.

Such support should include launching Web 2.0/ social media policy and guidelines to all levels of staff. Institutions may develop recommendations or guidelines jointly with other relevant parties and gather examples from good practice of social media in other institutions. The policy needs to be developed properly to accommodate the different aspects of culture in different departments, as well as different styles of pedagogy, so that it is not seen as another control tool or constraint on user innovation. The policies should envisage nurturing users on the use of social media. As such, it should clearly highlight the key benefits of social media and examples of its application, besides being able to anticipate future issues. It is important to offer this activity via academic staff to encourage them to take this into research, teaching and management activities. Providing this activity will provide clear understanding for academics of the importance of this tool, thereby making them less likely to abuse it.

For example, institutions should emphasise the benefits of Twitter and its core use such as is underlined in this study where it enables communication, rapid dissemination and connects people quickly. Institutions should embrace this advantage to support interdisciplinary and partnership activities and overcome geographical distance, while building an image across the globe. Twitter is a new mode of interaction that could be promoted by institutions to encourage more transparency and accessibility in scholarship, enhancing more knowledge creation and transfer, and motivating others to consider Twitter as a distance collaboration platform that is efficient and cost-effective.

Accordingly, among the lessons learnt is the importance of recognising social etiquette on Twitter, such as on the appropriateness of the content being posted in the public domain, to deal and manage issues such as privacy and ethical intellectual capital share on Twitter. This is significant to safeguard the university's and academics' reputations. Furthermore, the institutional policies and practice needs to study the information policy, particularly the learning materials used and shared via Twitter, to address the preservation of these resources. These were among issues highlighted in the study and thus should be able to be anticipated in prolonged use.

Besides guidelines, institutions could also consider other methods to encourage adoption and use of Twitter including identifying the key individuals or 'evangelists', as 'Twitter ambassadors' to help nurture the social media diffusion. These academics can be presented as key successful digital academics that are effectively utilising the microblogging platform and social media. They can serve as a 'champions' for these efforts and effect change at all levels of a university. Twitter ambassadors can take the role of opinion leaders in supporting the institution to embrace and persuade others (i.e. academics, university staff and students) to adopt this tool, learn the best way to use it through provide training on how to use Twitter effectively in their daily lives, and how to take advantage of this tool.

The institutions could lead by example such as by using Twitter on some occasions; for example communication in interdisciplinary projects, internal communication and announcement activities. The department learning technologist could encourage Twitter activities by appointing academic staff to be part of the faculty discussion on the department's use of Twitter. This exercise could be iterated weekly by asking each staff or student volunteer to tweet on research and academic related matters, or establish an open session of academic discussion (e.g. one hour dialogue on Twitter) with students, colleagues or the public with the aim to ask or answer any academic and course related matters, or create a trending topic to discuss. Correspondingly, Twitter can be used for promotional activity or as effective marketing tool to intervene early on student recruitment and retention issues, as revealed in the study. Universities and academics should be encouraged to use Twitter to measure their performance through 'evaluating' students' engagement and feedback in a more direct and social way.

Another important activity is to foster a participatory Twitter community in a more supportive way. The study showed that participation on Twitter is highly influenced by active interaction and engagement to create and sustain the activities. The reason a community on this platform could foster collaborative work is through people's contribution to the platform. Thus, besides the users' need to actively take part, the key evangelist or institutional support team also needs to constantly show support to the 'newcomer' on Twitter to make them feel confident, ease them into learning from others and foster closeness in a new membership on this platform.

The behaviour of early adopters of technology showed in the study that Twitter was adopted from different academic seniority levels and age groups in the university; this challenges the idea that digital tools are mostly relevant for 'young' people or the 'digital native'. This strong evidence implies that Twitter could serve many different levels and groups of people, therefore HEIs could find this a positive impetus for social media adoption not only for a specific age/group user, but also as a adequate tool for all users and thus social media implementation can be made possible.

Despite the sceptical view that academics commonly have on social media, nonetheless this view could change once they become frequent users after they have started to understand the use and value of this tool, as evidenced in this study. This implies that the negative impression towards Twitter can be reduced once the user starts to explore and experience it. Hence, non-adopters of social media could make an effort to take up on this tool, engage in the right community and practice it through learning from their success. On the other side, the institutional and technology support team could provide ongoing support such as offering a helpdesk system to answer any queries on how to use social media appropriately and effectively.

The notion of micro-breaks offers a new use for Twitter, which could bring significant results to their academic and social practice while providing a virtuous release between work activities. This use may highlight that certain social media tools may work and support academics' work/life balance without being structured or 'forced' to use other systems to make them perform their academic tasks better. The findings also indicate that the existing use of software and web communication systems are too regulated, lack flexibility and feasibility such as for research activity, that makes them inequitable for academic and departmental use. The institutions and technology support team could see Twitter as another economical tool that rather has to be built up; they could support and embrace the use in better ways.

A proper framework is required in providing the best support to the academic staff and students in ensure the sustained and meaningful use of these Internet technologies. In these ways technology support systems could focus on the way technological innovation is introduced in a university and the types of infrastructure and substance resources they should provide, by considering the level of ubiquity of internet access and use that simply does not exist in many people's lives. Another gap is to revise the use of communication systems such as email, chat forums, and Virtual Learning Environment (VLE). Some concerns were raised by academics on issues related to communicating on this platform due to its inefficiency. This is perhaps an issue that needs to be explored further in order to improve the service to the entire user community in institutions. This could be done through analysing the current problems and finding alternative solutions to improve it. On the other hand, consideration might be given to building and experimenting with a system that is less formal and may support similar services to those Twitter provides to suit the current educational environment. In addition, integrating the social media/Twitter services into the environment raises their visibility and makes them easier to use; for example in the VLEs.

From the learning perspective, institutions and academics are the key pivotal factors in supporting students' supposedly self-directed learning activities, providing students with a good core set of skills and in assisting students to adapt with the learning environment of technology-based system (Crook, 2008). Institutions and academics need to consider, for example, the practical challenges of how to provide training for students to use social media and how best to design blended curricula using social media. Nevertheless, one needs to understand that social media such as Twitter does not work well in all contexts and disciplines, depending on the needs of a course, learning activity design, assessment design and the nature of the field. Another focus could be on managing the students' needs in learning. Among the key factors highlighted in this study is the importance for academics to situate the technology within learning, clarifying the role of technology to students, ensuring the usability of the technology, providing user guidance and social norms, etiquette, and designing for socialisation in social platform collaborations. Students' privacy needs to be emphasised before implementing Twitter in classroom learning.

Introducing social shared community spaces on Twitter will promote and encourage students to continue to learn from the best tutors, and through peer-to-peer learning, and improve the quality of communication inside and outside of a department. Students will gain transferable skills from academics that share their 'diary' on Twitter; for instance, learning about systematic procedures to conduct better research for a subject, enabling students to communicate and think critically in the academic world and modelling best practice. Correspondingly, parallel to the philosophical view of constructivist learning, this encourages students to create, learn and share on other social media outlets that they are more familiar with and to socially engage with them most of the time, as social media such as Twitter seem to embrace their creativity and freedom in education.

Twitter is now highly regarded in academia as shown in the context of this study. Twitter has progressively affected research workflow where academics have discussed and shared their research publications on Twitter (Nicholas et al., 2010). This study reveals that academics practise 'altmetrics' as part of their alternative method for measuring citation impact. Although a study reported that altmetrics or Twitter citation did not predict its impact on future publications (Haustein & Peters, 2014), nonetheless, this may change over time. Since this study took place the researcher believes that the pattern of use may have changed during this period. Furthermore, tweeting behaviour is still too understudied to determine whether Twitter metrics are a legitimate use (Gruzd et al., 2012). As the rapid evolution of scholarship communication becomes more diverse every day via social media platforms, this practice could be an important mode in acknowledging academic research in the near future. Correspondingly, the positive expression displayed in this study on the 'altmetric' manifesto may convey that this practice looks promising as similarly stressed in study by Priem and Costello (2010). Nevertheless, HEIs should always ensure that if altmetrics are used, they are used judiciously and measures are put in place to avoid them being gamed. Altmetrics can be used in the most effective way possible to complement academic dissemination and research impact.

8.4.2 Implications for social media/software designers

The findings provide some insights for microblogging and social media software developers, which they can use to evaluate Twitter and social media design to accommodate scholarship purposes. The study showed that academics value the features of social media; thus it is important for the software developer to support this innovation in the educational context and initiate action such as collaborating with HEIs and the academic community to enhance the social software to better meet higher educational needs.

Undeniably, Twitter has improved a lot since it was first established; thus it is difficult to point to specific facilities it offers. However, some technical issues need to be considered, such as the limited sophistication of conversation on Twitter due to its limited characters. Admittedly, this limitation characterises Twitter as designed for quick and concise messages. However, from this study some academics would prefer the message length to be expanded. It would be beneficial to conduct more research and gather responses through surveys or interviews on the word limit that may actually fit academic or public conversation. Further, this study raises problems with the technicalities and usability of third party applications (e.g. Hootsuite, Tweetdeck) that may hinder user interest in Twitter. Thus, Twitter.com and these third parties could reflect on this matter and revise their adaptability and flexibility. In addition, some suggestions were made for Twitter.com to enhance their latest newsfeed service that currently lacks the capability to refresh automatically when accessing it from difference mobile devices.

Accordingly, Twitter could develop software features that allow it to be downloaded on mobile devices because the evidence from the findings of this study reported that Twitter software in a mobile device is less user-friendly and thus makes some academics choose to login from their computer. This lesser flexibility may restrict users' desire to use this platform and perhaps make users less efficient in communicating and sharing information, as well as engaging in the academic Twitter sphere. Academics in this study mentioned compiling reports on their dissemination activity on Twitter to their funders and university as proof of academic public engagement. Ideally, Twitter developers could develop a useful feature to make it more practical for the user to generate reports on their own activity.

8.5 Future research

Once the contributions and the practical implications of this research have been highlighted it becomes relevant to acknowledge the limitations of the study and to suggest areas for further research. Although the limitations of this research have been discussed throughout the study they are summarised in this section. Inevitably, time limitations were one of the major factors that had an impact on the findings of this research. Further research is suggested either to address these limitations or to further examine relevant aspects that emerged from this study.

8.5.1 Content and sentiment analysis of Twitter data

It is recognised that in previous social media research, a variety of methods were used such as data mining and analysis of Twitter activity, including Web-based analytics, Twitter API and statistical tools (Boyd & Crawford, 2012). Twitter data has been extensively examined in relation to the use of hashtags and search keywords. For example, an analysis of the common trending topic for that day, content contribution and how using hashtags facilitates discussion were done by Morstatter, Pfeffer, Liu, & Carley (2013) and Yang & Counts (2010). In order to further explain and illustrate the sentiments as well as to analyse direct responses of the respondents, content analysis was used in this study. This qualitative method of analysis allows researchers to analyse textual, as well as visual, materials produced from a particular data stream. In particular, content analysis was used in relation to the use of tagging and hashtags in communication, as well as the attachment of sources of URL links to engage people in discussions of particular subjects (Bruns & Burgess, 2011; Honeycutt & Herring, 2009). Hence, by analysing these details, particularities such as academic roles, motivations, interests, and identity could be interpreted from the posts, in addition to the direct narrations of the academics who use Twitter.

In the light of this other work, a limitation of this study is acknowledged. It is recognised that further research should explore different data sources to examine academics' behaviour beyond interviews. A lot could be learned by combining quantitative and qualitative data gathered from participants through interview and from the data gathered from Twitter and other databases. This would enable researchers to verify information collected from the interviews with academics that would not only have an effect to their academic roles but also their effect to Twitter's nature and functionality. Such researches can already be done, and so many possibilities can also be opened up, because of the emergence of big data analytics, which is associated with effectively analysing the expanding volume of information shared across the World Wide Web. Nonetheless, it remains a limitation for this present research as it only concentrated on the possibilities that can be understood through qualitative data and perspectives.

During the data collection, academics' Tweet data were collected, however, considering the time constraints, the outcome from and the richness of the interview analysis offered rich images in understanding and answering the study inquiry; thus this data was not used in the final study. The Tweet corpus included a collection of the tweet messages, date and time, types of applications used (i.e. Twitter website, Tweetdeck, Hootsuites) and computing devices (i.e. computer, mobile, tablet) (see Appendix G). These microblog posts were collected once the interviews with each individual academic were completed and the consent of the participants established.

The REST (REpresentational State Transfer) API was employed as a method for extracting the IDs of participants for the dataset already collected. The open source python wrapper was used as a tool to help to update streamlines, status data and user information from each of the individuals, though not their private messages (DM). This Twitter API was chosen due to its flexibility, simplicity to build and facility when combined with query techniques. It offers the facility to capture Twitter features, including posting, retweeting, and mentioning, follower/following, and searching (Suh, Hong, Pirolli, & Chi, 2010). However, it has a rate limit of a status query maximum of 5000 per request, which is less, compared to other methods such as Streaming API (Gaffney & Puschmann, 2013), for the purposes of this study the researcher was interested in capturing a smaller sample size of data, and therefore this approach was suitable. A corpus of 100 recent tweets from each individual academic was captured, following the study conducted by Veletsianos (2011) involving (100) tweets, which the author of this study believes is a suitable number, due to the fact that use of this analysis has reached data saturation. Using this methodological approach of coding and analysing content, such as communication, images, audio and text, allows the researcher to deliver systematic patterns and valid answers to unravel how this data was being used in particular contexts of study (Krippendorff, 2012). The subjects' Twitter stream provided a background to understand the interview data. Time constraints have prevented a complete formal analysis being undertaken. Thus, the following analyses are planned for future study.

The first analysis could be to explore the temporal patterns of tweets by academics during different periods of a day. A comparison of tweet activity performed at certain hours, such as in the morning, afternoon and evening, would help to identify the overall pattern of the period of academics' access into Twitter. This quantitative analysis would be useful for cross-checking with the micro-breaks activity use by academics in this study. It could reveal the actual nature of academics' routines precisely, such as when the usual 'time-out' or gap occurred during the day.

A second type of analysis would be to do a content analysis of the different types of Twitter posts and conduct a quantitative inquiry on the messages. This analysis would help in validating the results in the main findings, revealing the different types of activities, and identifying the most common use that these academics usually perform on Twitter (Veletsianos, 2011).

Complementary to the second analysis, the third analysis could be to narrow down to specific uses of Twitter, such as communication/dissemination and identify the different types of academic interaction/ sharing (e.g. URL links, resources, online articles or documentation, blogs, books, slide-share presentations, YouTube videos, web pages, blogs and social network discussions). This analysis would help to reveal how far academics have been engaged in promoting individual research to wider audiences and help characterise the nature of information typically shared.

Measuring academics' engagement through retweeting activities could be another form of analysis. As these findings indicate, academics create strategies to manage their Tweet posts, where people typically think explicitly about their followers when tweeting and retweeting. Thus, retweeting analysis could reveal types of links or sources that academics usually share, and the types of tweets they usually build and engage with. People retweet for a number of reasons, including both self-gain and altruistic purposes. Retweeting constitutes a natural form of engagement in that it disseminates a tweet to a wider audience and thus propagates a message faster and more globally and can be a kind of crowdsourcing mechanism. Nonetheless, it works best when the author is highly influential, for example politicians, celebrities, famous people and professionals (Murthy, 2013) or academics in this study.

A fourth analysis could pay attention to the socio-material (non-human) aspects of the types of devices, such as computers, smartphones or tablets, which support academics' access to Twitter. This analysis would provide a different angle on how material used could shape academics' Twitter activity. Investigating the common devices used by academics to access Twitter would contribute to understanding the influences of computing and mobile technology affordances towards users in using social media.

The fifth possible further study is sentiment or linguistic analysis on academic Tweet postings. This study could reveal categories of frequent topics discussed or communicated by academics on Twitter. Sentiment analysis would help to discover whether the tweets convey a positive (optimistic) or negative (pessimistic) emotion, measure the strength of this sentiment, and whether particular topics are discussed (e.g. coursework activity, travelling to conferences, communicating or sharing colleagues' work). This finding would be useful for understanding the connection between what is posted and how academics illustrate their activities in constructing their identity and performing on Twitter. In addition, it would measure academics' rapport with colleagues or other people on Twitter. This analysis could be performed using a set of Natural Language Processing (NLP) tools developed by the GATE framework (Cunningham, Maynard, Bontcheva, & Tablan, 2002). This programming tool can be customised and perform reasoning-based queries, such as identifying topic frequently discussed by academics on this platform, and sentiment.

For future analysis, as suggested above in (1-4), a deductive approach would be taken where an established coding scheme of Twitter categorization derived from previous microblogging studies (Honeycutt & Herring, 2009; Jansen & Zhang, 2009; Java et al., 2007; Naaman et al., 2010) together with the devised work of Twitter categories from (Dann, 2010) and the analytical framework from the thematic analysis of academics' interviews could be used as reference codes when clustering the tweet content. Applying an established coding scheme would enhance the explicability and validity of the research instrument (Rourke & Anderson, 2004). Any data that did not fit into the existing coding template would be treated as a new category. The researcher would not want to limit the potential of new categories expanding from the Twitter content during the analysis process, which may possibly enhance the current conceptual framework derived from prior studies. Another advantage of adopting the existing framework is to support and confirm the consistency and legitimacy of current findings and to create the possibility of contributing to the emerging record of data (Rourke & Anderson, 2004).

Future study in general will analyse the detailed nature of the behaviour of participants on the microblogging platform. Online observation can be used to compliment the prime approach, which is interviews, helping the researcher to explore issues in more depth and check the consistency of what has been reported in the interviews, as well as filling in gaps that were not captured during the interviews (Gao et al., 2012; Luppicini, 2007).

Accordingly, this approach may help to unveil implicit issues through providing important insights into and information about informal aspects of interactions and relations. In this study, academic Tweets would be observed, in order to fully comprehend their actual activity and to cross-check with the academics' interpretations of their Twitter use during the interviews. The limitation of undertaking interviews is that it provides a subjective interpretation by the researcher, compared to other methods (Luppicini, 2007).

8.5.2 Ethnography - participant observation of behavioural pattern of use

In the light of the current study, it would be of value to conduct further work based on participant observation. Observation is important for focusing on and understanding an actual phenomenon in natural settings and considering other aspects that may be involved, such as human (academic) and non-human (technological devices) participation. This would shed light on the connection between academic practice and Twitter activity in the academic workplace. The outcome of such data would highlight the significance of counter-parting the interviews with observation in order to achieve further depth in understanding the phenomenon of academics' activities on Twitter. It suggests that this exclusive concept of the pattern of using Twitter could enable different angles of observational and ethnographic studies. The findings of the present study reveal that academics have different attitudes towards managing and using their Twitter accounts (see Chapter 6). As such, some showed a preference for monitoring Twitter by having the Twitter website permanently open on the computer browser, or accessing it from different types of technological devices, e.g. computer, laptop, mobile devices, showing a separation of devices to access Twitter. Investigating using participation observation would help explain some other emerging pattern of academics' use of Twitter and better understand academic information management behaviour. Ethnographic studies may require a long period of observation. However, they would allow the researcher to observe as an 'insider' how academics accomplish their Twitter practice at certain times of the day, through observing when academics log into Twitter and how it fits in to their multitasking routines.

It is important that future studies further examine academic behavioural patterns, both on Twitter and in different social media in general, to build a better understanding of the characteristics of different platforms offer to academics, and whether other social media use is significant and has a relationship to academic practice.

With regard to the methodological limitations of this study, future observations would allow the researcher to better understand the field or study through learning and evaluating the participants' interactions with groups of people and behaviours towards some specific activity on Twitter. Observation quality is evaluated by the ability to give the reader a 'real' feeling and understanding of the observed setting (Patton, 2002, p. 262).

8.5.3 Non-adopters of Twitter

Another limitation of the current study is that it focuses on a group of academics that use Twitter. Since the majority of academics still do not use it, discovering reasons for non-use is important. Therefore, forthcoming studies should recruit a sample of non-adopters to balance the analysis through comparing and contrasting these users' perceptions about Twitter. In particular, the current study has contributed to revealing notions of pessimism and optimism, thus through further study the researcher could gain insights into the pessimistic view on using technology, specifically Twitter, for academic practice. Potentially, these non-user academics would put forward their views of technology, e.g. that this tool provides more issues than benefits, or it may reveal other significant approaches adopted in response to academic work pressure, as discussed in this study. By contrast, they might admit to resisting change or avoiding the problem of adoption, or they may never have considered using social media.

Despite this argument, Chapter four, section 4.4.3 discusses an academic that has dropped his Twitter use due to his concern with wasting time. Nonetheless, in spite of his criticism, he also recognized the importance of being on Twitter for academics, and therefore maintained his profile through hiring an assistant to manage his Twitter account. This academic argued the importance for current academics taking advantage of social media to establish professional profiles through being visible in this digital age. This ambivalent response, however, may contribute to the non-user view that also acknowledges how Twitter could be an enabler in facilitating academic practice. This answer possibly provides a response to all unfavourable opinions and sceptical thought that sees Twitter as a 'social tool'.

8.5.4 Other future research

While this study provided a sample of academics from one institution, the selected sample's use of Twitter may differ from other samples. Thus, other general suggestions for forthcoming studies could focus on the academics' different roles such as teaching vs.

research or early career researchers vs. senior academics, disciplines such as social sciences vs. science, gender and age differences, or academics with more followers vs. less followers, in order to examine whether these contextual variations produce different approaches in using Twitter. Sampling diverse academic populations would enrich results to the study.

Interviewing the management of the University of Sheffield (UoS), including faculty heads, could be another direction of research. This would clarify the results reported in this study, and helping us to understand how differing conditions influence academics' microblogging practices. This might better capture the role of organisational structures and the role they play in shaping microblogging use. Gaining insights from the institution would offer a clearer view of the current institutional atmosphere. This would advance the exploration into the vision, mission and objectives in organising stakeholder needs and expectations, and especially their role in encouraging academic staff to position themselves towards the global agenda and the digital university. In addition, it would further scrutinise the current university's strategy towards social media use and action taken by providing resources (e.g. Web 2.0 staff development training) and facilities (e.g. computing and digital devices) to the staff and students in the university. Similarly, different faculties might have different objectives and responses concerning social media and microblogging adoption. Focusing on specific faculties' strategies may also help to clarify and address issues faced by some academics in different faculties on research impact measurement, because of the discipline's particular nature, such as being less involved in publishing research results (e.g. Science vs. Arts and Humanities). This accompaniment would extend and complement the current study into better understanding the overall phenomenon of microblogging adoption from the view of structure and agency.

The context of study was foreground at one institution at a particular period, this being a well-known research-intensive university. Thus the result might have been influenced by this particular institution's strategies, aims and culture. It is recommended, then, that future studies could take place at other UK universities, with different system and backgrounds in order to generate different insights in this field – such as non-research intensive institutions. The bases for the differences of the insights to be prospectively derived could come from the various natures of the HEI, research prioritisation, and modes of communication, administrative support and student engagement. Taken further, research can be conducted at different countries, for example, the USA, Canada, Australia, other European, Middle Eastern and Asian countries that undoubtedly have different governance regimes, HE agendas and university policies that shape academic practice, plus a range of academics' identities and beliefs in relation to adopting technology and social media, which would provide a significant case for comparison with the current study. This may generate additional value through different perspectives on academics' microblogging adoption and strategies of use.

8.6 Closing statement

In summary, the overall contribution of this study has been in opening up new lines of inquiry for further research within the fields of microblogging studies and social media research. Nonetheless, the outcome of this study is subject to change. Twitter use is not a stationary condition, due to many influences, such as changes in cultures of use and technological developments, which are continually reshaping academics' practice on Twitter. Since the main data collection in 2013, there has been rapid development in the wider use of Twitter. This is likely to have been reflected also in changes in HE use such as new concerns around users' privacy, and the development of other mobile platforms and third party applications to support access and help manage Twitter. Discovering how use is changing, among early adopters as well as late adopters could be very interesting. It is hoped that this study will motivate other researchers in carrying forward this area to create a deeper understanding of the phenomena of Twitter use and technology adoption in education more generally.

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Appendix A: List of publications and presentations arising from this thesis

Ahmad Kharman Shah, N., Latif Shabgahi, S., & Cox, A. M. (2015). "Uses and risks of microblogging in organisational and educational settings". *British Journal of Educational Technology.*

Ahmad Kharman Shah, N., & Cox, A. M. (2015). "Factors Influencing Academics' Use of Microblogging in Higher Education" at IFutures Conference 2015, The University of Sheffield, United Kingdom, 7th July 2015.

Ahmad Kharman Shah, N., & Cox, A. M. (2014). "Twitter for Teaching: Through the research lens" Technology Enhance Learning Festival, University of Sheffield, 8- 12th September 2014.

Ahmad Kharman Shah, N., & Cox, A. M. (2014). "Factors Influencing Academics' Use of Microblogging in Higher Education" at Summer Institute Consortium for Science of Socio-Technical Systems (CSST) at The University of Missouri, Columbia, USA, 8 – 10th July 2014.

Ahmad Kharman Shah, N., & Cox, A. M. (2014). "Using Twitter in class: Lessons from the literature and from practice" at Learning and Technology Conference at The University of Sheffield, United Kingdom, 7th January 2014.

Shabgahi, S. L., N. A. K. Shah., A.M Cox. (2013). "A comparative review of research literature on microblogging use and risk in organizational and educational settings" Online Communities and Social Computing, Springer: Volume 8029, pp 174-181.

Shabgahi, S. L., N. A. K. Shah., A.M Cox. (2013). "A comparative review of literature on microblogging use and risk in organisational and educational settings" at Human Computer Interaction (HCI) International 2013 Conference at Las Vegas, Nevada, USA, 21-26th July 2013.

Ahmad Kharman Shah, N., & Cox, A. M. (2013). "Factors influencing Academics' use of Microblogging tools in Higher education" 'Twitter and Microblogging: Political, Professional and Personal Practices' Conference at Lancaster University, United Kingdom, 10- 12th April 2013.

Shabgahi, S. L., N. A. K. Shah., A.M Cox. (2013). "A comparative review of literature on microblogging use and risk in organizational" Conference at Lancaster University, United Kingdom, 10- 12 April 2013 and educational settings' at 'Twitter and Microblogging: Political, Professional and Personal Practices' Conference at Lancaster University, United Kingdom, 10- 12th April 2013.

Ahmad Kharman Shah, N., & Cox, A. M. (2012). "Factors influencing Academics' use of Microblogging tools in teaching and learning", eLearning2.0 Conference, The University of Brunel, Uxbridge, London, United Kingdom, 7-8th June 2012.

Appendix B: Ethics-Letter of Approval

Information School Research Ethics Panel

Letter of Approval

Date: 15th January 2012

TO: Nordiana Ahmad Kharman Shah

The Information School Research Ethics Panel has examined the following application:

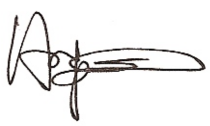
Title: Factors influencing academics' use of microblogging tools in higher education

Submitted by: Nordiana Ahmad Kharman Shah

And found the proposed research involving human participants to be in accordance with the University of Sheffield's policies and procedures, which include the University's '*Financial Regulations*', '*Good Research Practice Standards'* and the '*Ethics Policy Governing Research Involving Human Participants, Personal Data and Human Tissue'* (Ethics Policy).

This letter is the official record of ethics approval by the School, and should accompany any formal requests for evidence of research ethics approval.

Effective Date:



Dr Angela Lin

Research Ethics Coordinator

Appendix C: Participation Information Sheet- Reviewed version

The University Of Sheffield.

Research Information Sheet

Dear participant,

You are being invited to take part in the research project title ***"Factors influencing academics' adopt and use of microblogging in higher education***".

Before your take a decision to participate or not, it is important for you to understand the purposes and implications of this research. Please take your time to read the following information carefully and do not hesitate to ask the researcher if something is not clear or if you would like to obtained more information. Thank you for reading this.

1. What is the research project's purpose?

The aim of the research is to explore academics' use of microblogging in teaching in Higher Education.

This study will examine factors influencing academics' decision to adopt microblogging tools (in particular Twitter) and explore how they use these tools in their academic practice. The study will investigate how academics' perceive Twitter as a professional and instructional tool and identify factors that may have shaped their academic activity/routines.

2. Why have I been chosen?

You have been chosen to participate in this research as you are an academic using Twitter OR a student on a course organised by such an academic.

3. Do I have to take part?

Your participation in this study is completely optional. If you decide to participate, you will be asked to read and sign a consent form and you are free to withdraw at any time without fear or prejudice and without it affecting any benefits that you are entitled to in any way. You do not have to give a reason.

4. What will happen to me if I take part?

Academic interviews

If you decide to participate you will be invited to an interview. This will last around 45 minutes. You will be asked about how you use microblogging and how you think if affects your academic routines (i.e. teaching or research).

The researcher will also read your Twitter postings and may ask about these.

In the interview participants will be asked about their perceptions about the current use of microblogging as a communication tool to support their professional use OR learning process in a classroom and the connection, if any in which they are participated. Your interview will be digitally recorded. After the interview, the recording will be transcribed into word documents and fully anonymised, as any reference to participants' identity will be eliminated. Additionally, all information in the interview process will remain strictly confidential.

If relevant I may observe classroom use of twitter. If I do so consent from students will have been obtained in advance via the lecturer.

5. What do I have to do?

You will be asked to provide answers and comments in relation to the questions asked and shared your experiences during the research project, i.e. through the interview and questionnaire.

6. What are the possible disadvantages and risks of taking part?

Your participation in this study does not imply any identifiable risks or disadvantages. All your comments will be made anonymous in order to protect your identity and the confidential documents will be locked in a secured filing cabinet. Questions were designed not to cause harm, anguish or discomfort. If you feel uncomfortable answering any questions, feel free to express your concerns. You are, of course, free to decline to answer such questions. You may withdraw from the study at any time. You are moreover encouraged to refrain from disclosing any information that you may consider defamatory, incriminating or otherwise sensitive.

7. What are the possible benefits of taking part?

There will be no material or monetary benefit for your participation. One of the benefits of your participation would be that your opinions and experiences may help to have a better understanding on the use of microblogging tools in Higher Education and the possible effects that may uncover certain aspects of use, social engagement and the impact of social network tools for scholarship and education, and based on this sharing and findings, some suggestions can be made to improve learning and academic teaching profession.

8. What happens if the research study stops earlier than expected?

All participants will be informed if the research stops earlier than expected. Reasons will be clarified.

9. What if something goes wrong?

If you wish to express any concern or make a complaint regarding the conduct of the research project, please contact the researcher's supervisor. If needed, verification of serious adverse events can be obtained by reporting research misconduct to the University of Sheffield's Registrar and Secretary Office. Contact details are listed at the end of the document.

If your complaint has not been handled to your satisfaction you can contact the University's Registrar and Secretary.

10. Will my taking part in this project be kept confidential?

Your assistance in providing the required information will be highly appreciated. All information you may provide will be kept in strict confidentiality and anonymous, including the name of all participants and any other information participants may recognized.

11. What will happen to the results of the research project?

The results of this research will be published in a doctoral thesis. Information gained during the research project may additionally be published, in the form of interview transcripts, in academic journals, books and conference papers; and used for subsequent research. In all of the aforementioned circumstances, the participant's name, affiliation and position title will never be used in relation to any information any of the information provided.

Participants will be notified upon publication of results in the doctoral thesis, and copies will be forwarded upon request.

12. Will I be recorded, and how will the recorded media be used?

The audio recordings of the interviews or focus groups in which you may take part during this research will be used only for transcriptions and analysis and may be used for illustration in conference presentations and lectures. No other use will be made of them without your written permission, and no one outside the project will be allowed access to the original recordings.

13. Who is organising and funding the research?

I am a postgraduate research student in the Information School at the University of Sheffield and this will be part of my study for a PhD.

14. Who has ethically reviewed the project?

This research operates under the rigorous research ethics protocols of the University of Sheffield. It has been ethically reviewed and approved by the Ethics Review Panel of the Information School.

15. Contact for further information

If you have any question about any aspect of this project, please speak to the researcher concerned or her supervisor, who will do their best to answer your query. Contact details are listed at the end of the document.

Thank you for your help with this research.

Students Details	
Student name	Nordiana Ahmad Kharman Shah
E-mail	lip11na@sheffield.ac.uk

Address	Room 224, Department of Information Studies, University of Sheffield, Regent Court, 211, Portobello Street, Sheffield, S1 4DP
Tel	0044(0) 7429482767

Supervisor details	
Supervisor name	Dr. Andrew M. Cox
E-mail	a.m.cox@sheffield.ac.uk
Address	Room 222, Information School, University of Sheffield, Regent Court, 211, Portobello Street, Sheffield, S1 4DP
Tel	0044(0)114 2226347

Registrar and Secretary and Chief Operating Officer	
Name:	Dr. Philip Harvey
E-mail	registrar@sheffield.ac.ukmailto:j.j.foster@sheffield.ac.uk
Address	University of Sheffield Registrar and Secretary, Firth Court, Western Bank, S10 2TN, Sheffield
Tel	0044(0)114 2221100

A copy of this information sheet will be given to you along with a signed consent form. Finally, thank you very much for taking time to participate in this interview. Your assistance in providing the required information will be highly appreciated.

Appendix D: Consent Form: Interview

University of Sheffield

Participant Consent Form

Title of Research Project: **"Factors influencing academics' adopt and use of microblogging tools in higher education"**

Name of Researcher: **Nordiana Ahmad Kharman Shah**

Participant Identification Number for this project: **Please initial box**

1. I confirm that I have read and understand the information sheet dated _______________ explaining the above research project and I have had the opportunity to ask questions about the project. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline. ☐

   Lead Researcher contact details:

   Dr. Andrew Cox
   Room 222, Information School, University of Sheffield, Regent Court, 211, Portobello Street, Sheffield, S1 4DP
   a.m.cox@sheffield.ac.uk
   0044(0)114 2226347

3. I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research. ☐

4. I agree for the data collected from me in this study may be stored (after it has been anonymised) to be used in future research. ☐

5. I agree to the interview being audio recorded ☐

6. I agree to take part in the above research project. ☐

Name of Participant *(or legal representative)*	Date	Signature
Name of person taking consent *(if different from lead researcher)* *To be signed and dated in presence of the participant*	Date	Signature
Lead Researcher *To be signed and dated in presence of the participant*	Date	Signature

Copies:
Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/pre-written script/information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be placed in the project's main record (e.g. a site file), which must be kept in a secure location.

Appendix E: Interview questions – Reviewed version

Part 1: The Interview questions

A. Academic background

1. How long have you been working in academia?
2. How would you describe your current job?
3. What is your philosophy of teaching?
4. Can you describe your best personal experience of learning?

B. Twitter use

5. How did it come about that you first started using do you use Twitter? /When do you start to use Twitter?
6. Can you give me some examples of how you use Twitter? [Ask for specific "stories" – prompts: what was the idea behind that? How did that work?
7. How many Twitter accounts do you have?
8. Do you use any other social media?
9. How do you use (browse / search) twitter yourself?
10. What would you say you tweet mostly about?
11. When do you tweet? How often?
12. Where do you tweet?
13. What is your approach to things like: following others, retweets, hashtags, privacy settings
14. Do you ask for support/give support to other user on Twitter?
15. What devices do you use to tweet?
16. What features of twitter that you found useful?
17. How does using twitter fit in with other social media use?
18. How does it fit into other routines and things you do?
19. How do you present yourself on Twitter? Any specific identity?
20. How do your colleagues view your use of Twitter?
21. How do you value Twitter as a professional/teaching tool?
22. Are there any issues on using Twitter?

C. Twitter in learning

23. What types of activity do you do with your students using Twitter?
24. Do you think Twitter improves your communication with students?
25. From your point of view, how do your students respond to Twitter activity in your classroom?

26. How good are the facilities / technical support available to support the Twitter activity in the classroom?
27. Does your university/department support you in integrating Twitter or other social media in your classroom?
28. What are the immediate issues of integrating Twitter as part of the teaching activity?
29. Has using Twitter changed your learning style/ How Twitter has affected your teaching style?

D. Technology awareness/experiences

30. How important is using technology in general in your role?
31. What is your opinion about using technology in teaching?

Part 2: General Information

I. Name (optional):____

II. Department:____

III. Academic degree:
□ Master □ PhD □ others (please specify):
____

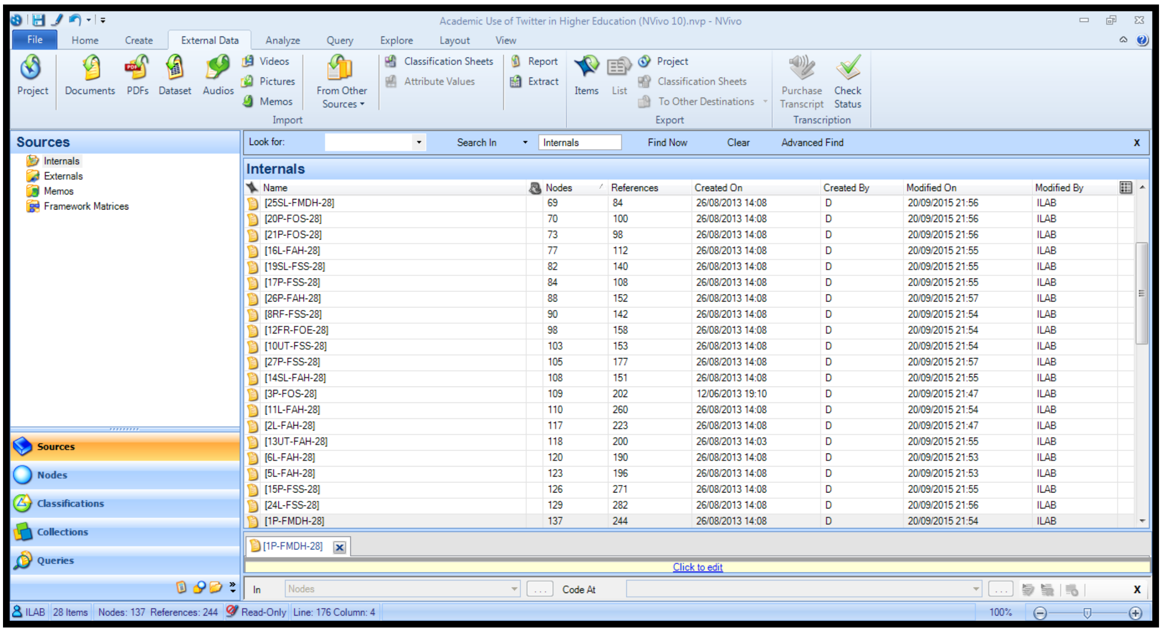
IV. Academic status:
V. □ University Lecturer □ Lecturer □ Senior Lecturer
□ Reader □ Professor

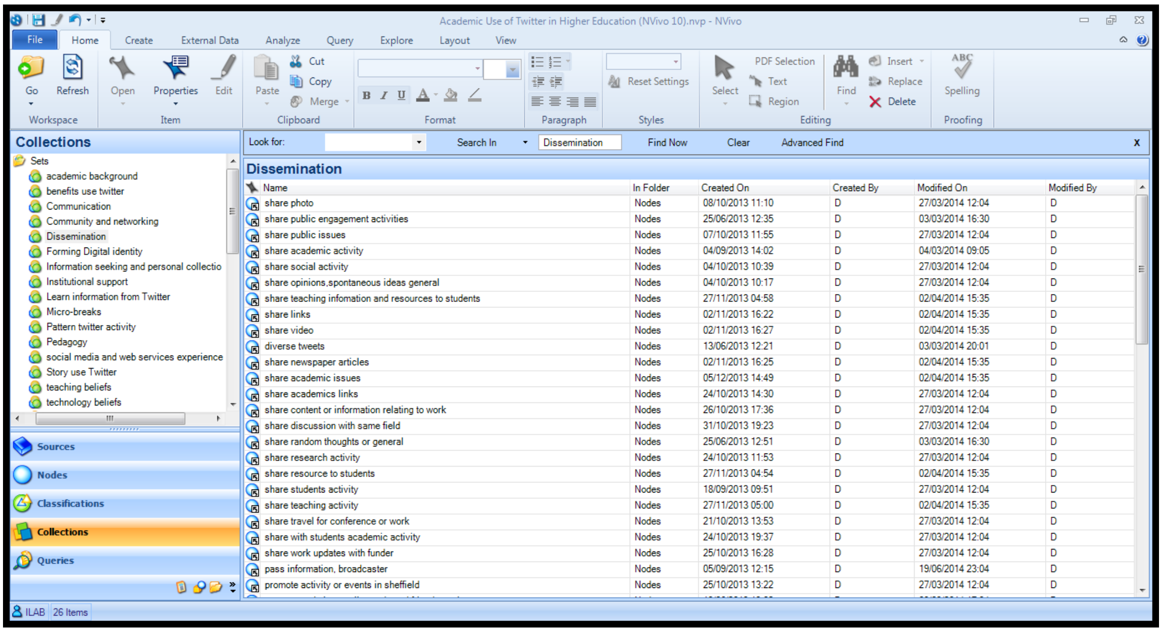
VI. Gender: □ Male □ Female

VII. Age (years):
□ 20-29 □ 30-39 □ 40-49 □ 50 and above

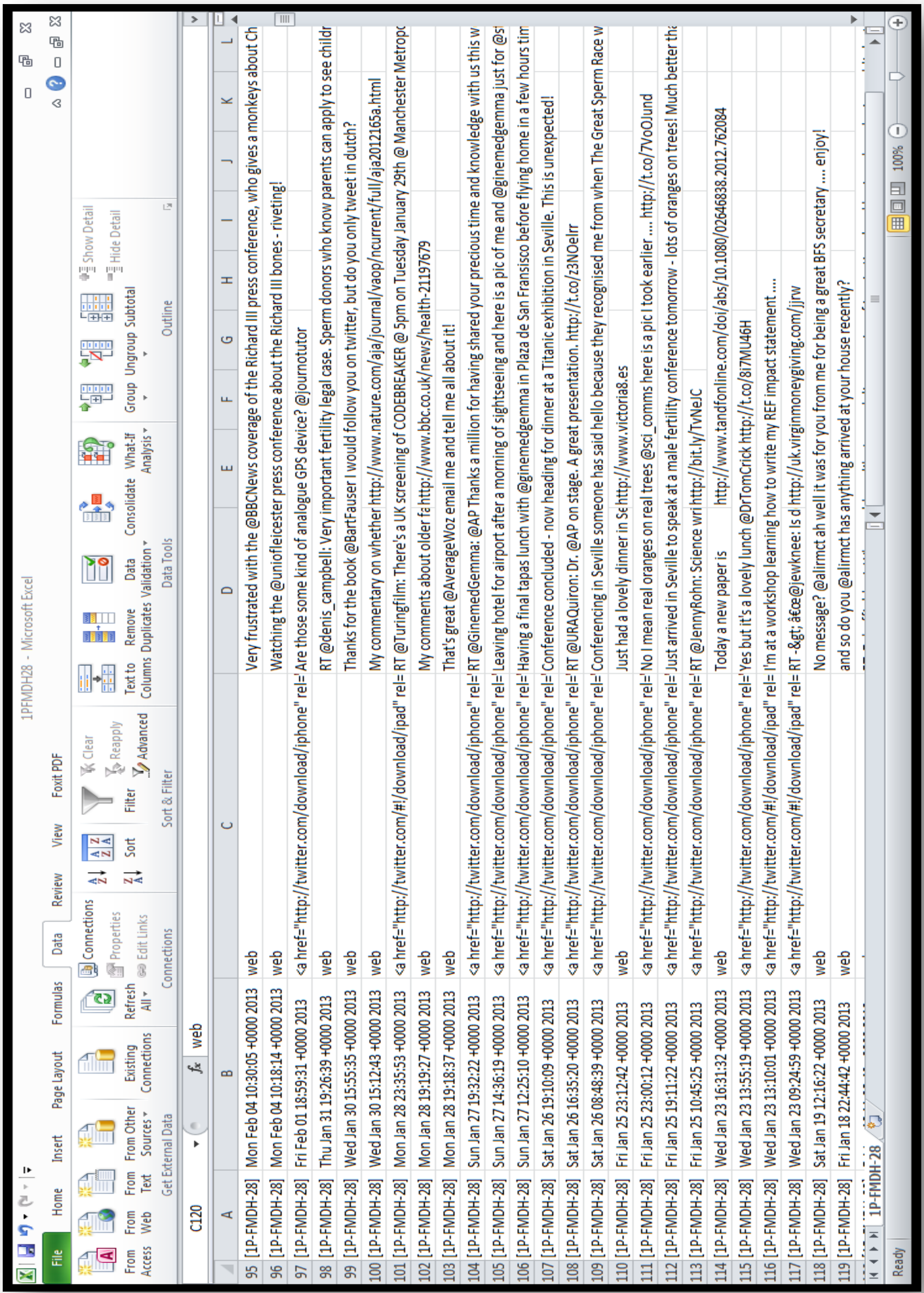
VIII. Preferred contact method:____

Appendix F: NVivo Coding





Appendix G: Tweet data



	A	B	C	D
95	[1P-FMDH-28]	Mon Feb 04 10:30:05 +0000 2013	web	Very frustrated with the @BBCNews coverage of the Richard III press conference, who gives a monkeys about Ch
96	[1P-FMDH-28]	Mon Feb 04 10:18:14 +0000 2013	web	Watching the @uniofleicester press conference about the Richard III bones - riveting!
97	[1P-FMDH-28]	Fri Feb 01 18:59:31 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	Are those some kind of analogue GPS device? @journotutor
98	[1P-FMDH-28]	Thu Jan 31 19:26:39 +0000 2013	web	RT @denis_campbell: Very important fertility legal case. Sperm donors who know parents can apply to see childr
99	[1P-FMDH-28]	Wed Jan 30 15:55:35 +0000 2013	web	Thanks for the book @BartFauser I would follow you on twitter, but do you only tweet in dutch?
100	[1P-FMDH-28]	Wed Jan 30 15:12:43 +0000 2013	web	My commentary on whether http://www.nature.com/aja/journal/vaop/ncurrent/full/aja2012165a.html
101	[1P-FMDH-28]	Mon Jan 28 23:35:53 +0000 2013	<a href="http://twitter.com/#!/download/ipad" rel=	RT @Turingfilm: There's a UK screening of CODEBREAKER @ 5pm on Tuesday January 29th @ Manchester Metropo
102	[1P-FMDH-28]	Mon Jan 28 19:19:27 +0000 2013	web	My comments about older fa http://www.bbc.co.uk/news/health-21197679
103	[1P-FMDH-28]	Mon Jan 28 19:18:37 +0000 2013	web	That's great @AverageWoz email me and tell me all about it!
104	[1P-FMDH-28]	Sun Jan 27 19:32:22 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	RT @GinemedGemma: @AP Thanks a million for having shared your precious time and knowledge with us this w
105	[1P-FMDH-28]	Sun Jan 27 14:36:19 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	Leaving hotel for airport after a morning of sightseeing and here is a pic of me and @ginemedgemma just for @s
106	[1P-FMDH-28]	Sun Jan 27 12:25:10 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	Having a final tapas lunch with @ginemedgemma in Plaza de San Fransisco before flying home in a few hours tim
107	[1P-FMDH-28]	Sat Jan 26 19:10:09 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	Conference concluded - now heading for dinner at a Titanic exhibition in Seville. This is unexpected!
108	[1P-FMDH-28]	Sat Jan 26 16:35:20 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	RT @URAQuiron: Dr. @AP on stage. A great presentation. http://t.co/z3NOeIrr
109	[1P-FMDH-28]	Sat Jan 26 08:48:39 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	Conferencing in Seville someone has said hello because they recognised me from when The Great Sperm Race w
110	[1P-FMDH-28]	Fri Jan 25 23:12:42 +0000 2013	web	Just had a lovely dinner in Se http://www.victoria8.es
111	[1P-FMDH-28]	Fri Jan 25 23:00:12 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	No I mean real oranges on real trees @sci_comms here is a pic I took earlier http://t.co/7VoOJund
112	[1P-FMDH-28]	Fri Jan 25 19:11:22 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	Just arrived in Seville to speak at a male fertility conference tomorrow - lots of oranges on trees! Much better tha
113	[1P-FMDH-28]	Fri Jan 25 10:45:25 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	RT @JennyRohn: Science wri http://bit.ly/TvNeJC
114	[1P-FMDH-28]	Wed Jan 23 16:31:32 +0000 2013	web	Today a new paper is http://www.tandfonline.com/doi/abs/10.1080/02646838.2012.762084
115	[1P-FMDH-28]	Wed Jan 23 13:55:19 +0000 2013	<a href="http://twitter.com/download/iphone" rel='	Yes but it's a lovely lunch @DrTomCrick http://t.co/8I7MU46H
116	[1P-FMDH-28]	Wed Jan 23 13:10:01 +0000 2013	<a href="http://twitter.com/#!/download/ipad" rel=	I'm at a workshop learning how to write my REF impact statement ....
117	[1P-FMDH-28]	Wed Jan 23 09:24:59 +0000 2013	<a href="http://twitter.com/#!/download/ipad" rel=	RT -> â€œ@jewknee: Is d http://uk.virginmoneygiving.com/jjrw
118	[1P-FMDH-28]	Sat Jan 19 12:16:22 +0000 2013	web	No message? @alirmct ah well it was for you from me for being a great BFS secretary .... enjoy!
119	[1P-FMDH-28]	Fri Jan 18 22:44:42 +0000 2013	web	and so do you @alirmct has anything arrived at your house recently?

Appendix H: Pilot-study

Academic interviews

In gathering the qualitative data, three people were interviewed by the researcher. A written statement of research objectives and ethics was given to the subject participants to review in this study before they decided whether to sign the consent form. Each interview lasted for approximately 50 minutes. The interviewees remained anonymous (by use of pseudonyms) in the report to protect their privacy. Semi-structured questions were used in the interviews and were recorded using a digital voice recorder and manually transcribed. The interviewees were asked about their experiences on using Twitter for teaching purposes. Transcripts of the interviews were analysed using thematic analysis. A thematic framework was developed. The final results were organised according to the key themes which emerged from the academic staff interviews.

For this study, the participants registered with new accounts on Twitter for the purpose of the experiment. One academic member had more than six years' teaching experience working in the university. The other two were postgraduate students that worked casually as tutors in the department. These participants were aware of the social media take-up in education, and interested in investigating how these tools might enhance and shape learning. These participants had a background in using other social media tools for personal and learning purposes. Prior to using Twitter, use of a current social media tool had not been explored in the teaching course; thus, another purpose was to encourage students to experiment with and evaluate the use of Twitter in a classroom context. In addition, the syllabus incorporated study of communication in organisations, and Twitter was thought to be the best model for the exercise, where students could benefit through experiencing how this social tool worked in an organisation.

Student survey

Data for this study were obtained from both closed and open-ended questions of undergraduate students (N=50) out of 65. These respondents were all enrolled on the ABC 123 course. Sets of guidelines were distributed to the students prior to their use of Twitter. Student participation was voluntary; therefore, the academics' approach was to invite and strongly encourage students to participate, rather than demanding their participation. As part of the invitation, the academics defined their expectations of students as: setting up a Twitter account; 'follow' all class members and tutors; post at least five tweets during the activity; tweet discussion on two journal papers assigned in groups; and commit to log into Twitter at any time during the day for four weeks. Students were free to withdraw if they were not happy to continue. Students were expected to communicate their thoughts critically on the assignment with their fellow members on the social platform. On the completion of the activity, students were invited to share their reflections, based on actual activities they had performed on Twitter through the use of a survey.

One (1) incomplete questionnaire was discarded, leaving forty nine (49) cases for final analysis. Data were collected using self-administered instruments. A 27-item questionnaire developed by the researcher was used. The measurement items were analysed for correlation, reliability and validity. The items that did not represent the constructs well or missed values were eliminated. For all the measures, a five-point Likert scale was adopted with anchors ranging from strongly disagree (1) to strongly agree (5). The measurement items were analysed for correlation, reliability and validity analysis. The data were analysed using SPSS (version 19.0). Cronbach's alpha was used as a statistical technique to evaluate the internal consistency of questionnaire subscales. One-Sample Kolmogorov-Smirnov Test of normality was applied to the data set. Further, the Estimated Regression Equation was used to analyse the association between three dimensions (social connections, engagement and learning experience).

The researcher sought to highlight that, for this ABC 123 module, the majority of the students were International students, mostly Chinese, and most were using Sina Weibo, largely because Twitter is forbidden in China. Although Gao et al. (2012) argue that Sina Weibo is one of the leading social networking sites in China, developed by the Sina Corporation in 2009, and to date has more than 5million users, for this pilot study, the researcher was interested in exploring the use of Twitter in the United Kingdom in particular. Also Twitter is seen as having more global users. The researcher, then, has no intention of investigating Sina Weibo further for the purposes of this study, even without taking into account other limitations to conducting further study in this area, such as the language barrier for tutors and local students, when monitoring posts written in Chinese. The outcome from the assessment provided some useful recommendations on how education can establish best practice use of Twitter based on the strengths and problems identified during the exercise. The survey also produced similar and consistent results to previous studies, meaning that the study can be said to be substantial, as reported in Appendix (H and L).

The demographic background of this group is displayed as a statistical description of participants that took part in the study.

Table 8-1: Academic demographic

Participant	Gender	Age group
Academic (1)	Male	40-49
Academic (2)	Female	30-39
Academic (3)	Female	20-29

Table 8-2: Student demographic

Gender	Participants	Age Group	Participants
Male	27	18-21	44
Female	23	22-25	6

Table 8-3: Discipline areas

Course	Participant
BSc Information	25
BA Business Management	8
BA Accounting & Financial	6
Accounting & Financial	10

Survey

Surveys are a non-experimental, descriptive analytical tool used to collect data on a phenomenon with aim to measuring population's characteristics, opinions or attitudes, desires, observation through behavioural observed of a certain topic of interest. There are several ways of conducting a survey, including observation, interviews, and questionnaires (e.g. mail, online, telephone, face-to-face) (Bryman 2012). The survey consists of two forms: cross-sectional surveys and longitudinal surveys (Babbie 2009). Cross-sectional surveys involve gathering a data sample at a targeted time that belongs to a specific group or population, while longitudinal survey data are collected from the same people at multiple intervals (Babbie 2009). The advantage of a survey is its ability to be generalized to represent a large population, thus offering a better account of the attributes of the general population relevant to the study (Bryman 2012).

This method was used to augment the interviews in the pilot study. Students of the participating academics were invited to participate. Using a cross-sectional survey, the students answered a set of questions in a questionnaire in order for the researcher to acquire their reflections on their use of Twitter in learning settings. The questionnaire gave the researcher the opportunity to explore how the use of Twitter by academics for teaching and learning may have affected students' learning experiences, including how or whether it influenced students' participation and engagement, in regard to their connection with academics and among colleagues, as well as their completion of assignment tasks. This method was not used in the main study as the focus of research has broadened.

SPSS statistical analysis

IBM SPSS Statistics is a computer software package that runs statistical analysis and is frequently used in quantitative research (Bryman, 2012). This software system provides advantages in enabling the researcher to analyse data and generate numerical output very quickly in many diverse forms, such as graphs, charts, plots or reports (Bryman & Cramer, 2012), depending on the methods of analysis chosen when examining the variables and the relationships between them (Bryman 2012). This study employed IBM SPSS in analysing the survey data collected in the pilot-study, to provide descriptive findings on their reflections on Twitter use in learning, and to answer the research questions. Following this, Pearson's correlation analysis was performed to discover the connections between identified variables.

Appendix I: Survey Consent Form (Pilot study)

University of Sheffield

Participant Consent Form

Title of Research Project: **"Factors influencing academics' use of microblogging tools in teaching and learning"**

Name of Researcher: **Nordiana Ahmad Kharman Shah**

Participant Identification Number for this project: **Please initial box**

1. I confirm that I have read and understand the information sheet dated ________________ explaining the above research project and I have had the opportunity to ask questions about the project.
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.

Lead Researcher contact details:

Dr. Andrew Cox
Room 222, Information School, University of Sheffield, Regent Court, 211, Portobello Street, Sheffield, S1 4DP
a.m.cox@sheffield.ac.uk
0044(0)114 2226347

3. I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.
4. I agree for the data collected from me to be used in future research
5. I agree to take part in the above research project.

________________________ ________________ ________________________
Name of Participant Date Signature
(or legal representative)

________________________ ________________ ________________________
Name of person taking consent Date Signature
(if different from lead researcher)
To be signed and dated in presence of the participant

________________________ ________________ ________________________
Lead Researcher Date Signature
To be signed and dated in presence of the participant

Copies:

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/pre-written script/information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be placed in the project's main record (e.g. a site file), which must be kept in a secure location.

Appendix J: The Interview questions (Pilot study)

A. Academic experiences

1. How long have you been working in academia?
2. How would you describe your current job?
3. What is your philosophy of teaching?
4. Can you describe your best personal experience of learning?

B. Microblogging use

5. How did it come about that you first started using do you use Twitter for learning?
6. Can you give me some examples of how you use Twitter in learning? [ask for specific "stories" – prompts: what was the idea behind that? How did that work? How did students respond?]
7. What types of activity do you do with your students using Twitter?
8. Do you think Twitter improves your communication with students?
9. From your point of view, how do your students respond to Twitter activity in your classroom?

C. General use of Twitter

10. How do you use (browse / search) twitter yourself?
11. What would you say you tweet mostly about?
12. When do you tweet? How often?
13. Where do you tweet?
14. What is your approach to things like: following others, retweets, hashtags, privacy settings
15. What technologies do you use to tweet?
16. What features of twitter are useful for learning?
17. How does using twitter fit in with other social media use – in learning?
18. How does it fit into other routines and things you do?

D. Support for Twitter in learning

19. How good are the facilities / technical support available to support the Twitter activity in the classroom?
20. Does your university/department support you in integrating Twitter or other social media in your classroom?
21. What are the immediate issues of integrating Twitter as part of the teaching activity?
22. What are the key issues of using it in the classroom?
23. Is there an issue around your personal privacy – or the separation of your personal life and students' knowledge about you?
24. Has using Twitter changed your learning style/ How Twitter has affected your teaching style?
25. How do your colleagues view your use of Twitter?

E. Technology awareness/experiences

26. How important is using technology in general in your role?
27. What is your opinion in general about using technology in teaching?

Part 2: General Information

IX. Name (optional):____

X. Department:____

XI. Academic degree:
□ Master □ PhD □ others (please specify): ____________

XII. Academic status:
XIII. □ University Lecturer □ Lecturer □ Senior Lecturer
□ Reader □ Professor

XIV. Gender: □ Male □ Female

XV. Age (years):
□ 20-29 □ 30-39 □ 40-49 □ 50 and above

XVI. Preferred contact method:________________________________

Appendix K: Survey Questionnaires (Pilot study)

Title: "**Factors influencing Academics' use of Microblogging tools in teaching and learning**"

Research student: Nordiana Ahmad Kharman Shah

Contact Email: lip11na@sheffield.ac.uk

Contact Telephone Number: 0044(0) 7429482767

Supervisor: Dr. Andrew M. Cox

Contact Email: a.m.cox@sheffield.ac.uk

Contact Telephone Number: 0044(0)114 2226347

Before you complete the survey, please read all the information given below

1) You need to be over 18 years old and voluntarily participate in this study.

2) The survey takes 10 – 15 minutes to answer all questions.

3) You can be assured that all information will be kept confidential.

4) Handing back the survey is taken to constitute consent for your answers to be used in the research.

5) There will be no compensation or remuneration for you to participate in this study.

6) For your information, this study has received ethical clearance by The University Research Ethics Committee (UREC), The University of Sheffield

7) If you have any questions about this study, you may contact the researcher at lip11na@sheffield.ac.uk. Alternatively, if you have any complaints or comments regarding the manner in which the study is conducted, you may contact Andrew Cox, the student's supervisor.

We appreciate your cooperation and your time to participate in this survey.

Research on social networks and student engagement in higher education are important emerging areas of study. Microblogging is a Web 2.0 tool that enables individuals to collaborate, communicate and share knowledge. This study explores how Twitter is used for conversational communication in an educational institution.

Definitions are as follows:

Twitter: An online social networking service and microblogging service that enables its users to send and read text-based posts of up to 140 characters, known as "tweets"

Member: An individual who creates and posts his/her own messages on the Twitter

Note: Please answer all questions and complete this survey based on your own posting activity and experience with Twitter. Select an answer for each question from the 5-point Likert scale according to your attitudes toward other members and experience with Twitter. If you have any questions regarding this study, please do not hesitate to email the researcher: lip11na@sheffield.ac.uk

Twitter Usage:

	Please rate these statements	***Strongly agree***	***Agree***	***Neutral***	***Disagree***	***Strongly Disagree***
1	With Twitter, I communicated more with other students	1	2	3	4	5
2	With Twitter, I communicated more with the tutors/lecturer	1	2	3	4	5
3	I knew many members in the classroom prior to participating in Twitter	1	2	3	4	5
4	Twitter has helped me to feel connected to class activity	1	2	3	4	5
5	I was able to learn and understand the academic paper discussed through Twitter	1	2	3	4	5
6	Activity through Twitter helped me build a chain of ideas to solve a problem	1	2	3	4	5

7	My personal experience of using Twitter helped me to understand the set papers about microblogging better	1	2	3	4	5
8	I participated actively in Twitter for this course	1	2	3	4	5
9	I enjoyed doing a learning task collaboratively with other students using Twitter	1	2	3	4	5
10	I prefer to do a learning task individually	1	2	3	4	5
	Please rate these statements	***Strongly agree***	***Agree***	***Neutral***	***Disagree***	***Disagree***
11	I have confidence in my ability to provide knowledge that other members consider valuable	1	2	3	4	5
12	I enjoyed sharing knowledge with other members through posting a message in Twitter	1	2	3	4	5
13	I enjoyed gathering information through Twitter	1	2	3	4	5
14	Twitter was effectively used to communicate the task and solve problems	1	2	3	4	5
15	I frequently worked with other students in undertaking the task in Twitter	1	2	3	4	5
16	Twitter was useful as a medium for information sharing	1	2	3	4	5
17	I enjoyed discussing the task through Twitter	1	2	3	4	5
18	Twitter is a good medium to share information in an easy way and quickly	1	2	3	4	5
19	I developed useful strategies to learn the papers in Twitter	1	2	3	4	5
20	I found using Twitter difficult	1	2	3	4	5

21	Getting access to Twitter was a problem	1	2	3	4	5
22	I spent time thinking deeply when discussing the topic when using Twitter	1	2	3	4	5
23	Using Twitter made me understand how to communicate online better	1	2	3	4	5
24	I plan to create a group learning to discuss task using Twitter	1	2	3	4	5
25	I intend to continue using Twitter in the future	1	2	3	4	5
26	Twitter made the course more enjoyable	1	2	3	4	5
27	My overall experience of using Twitter was good	1	2	3	4	5

Please answer these questions:

1. Do you use any microblogging tools apart from this class? (e.g. Twitter, Weibo, Yammer)
   If YES, please name it and for what purpose do you use this tool?
   ____

2. Did you enjoy participating in the discussions for the articles using Twitter? Why/why not?
   ____
   ____

3. How did the discussions using Twitter help you learn to read an academic paper?
   (Please explain details)
   ____
   ____

4. How could the use of Twitter in a classroom discussion be improved?
   ____
   ____

Demographic Information:

Gender	
◯ Male	◯ Female

Age
◯ 18 – 21 ◯ 22 – 25 ◯ 26 – 30 ◯ Over 30

Discipline Area
◯ BSc Information ◯ BA Business Management ◯ BA Accounting & Financial

Thank you for your time and assistance in completing this questionnaire.
Please return this survey to:

Nordiana Ahmad Kharman Shah
Information School
The University of Sheffield
Regent Court, 211 Portobello
Sheffield, S1 4DP

UK

Appendix L: Reliability test and factor analysis results for Social Connection

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.721	7

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	18.50	11.969	.518	.666
Q2	18.14	11.470	.583	.647
Q3	19.24	15.574	.069	.766
Q4	18.64	11.541	.636	.634
Q6	18.50	12.582	.535	.665
Q14	18.64	13.419	.405	.695
Q23	19.26	14.319	.295	.718

Factor Analysis

Communalities

	Initial	Extraction
Q1	1.000	.497
Q2	1.000	.652
Q3	1.000	.879
Q4	1.000	.633
Q6	1.000	.518

Q14	1.000	.420
Q23	1.000	.251

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.807	40.101	40.101	2.807	40.101	40.101	2.762	39.452	39.452
2	1.043	14.903	55.005	1.043	14.903	55.005	1.089	15.553	55.005
3	.866	12.376	67.381						
4	.827	11.815	79.195						
5	.581	8.296	87.492						
6	.453	6.477	93.968						
7	.422	6.032	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component	
	1	2
Q1	.696	.109
Q2	.784	-.193
Q3	.103	.932
Q4	.796	.018
Q6	.720	.001
Q14	.601	-.243
Q23	.430	.257

Extraction Method: Principal Component Analysis.
a. 2 components extracted.

Rotated Component Matrix[a]

	Component	
	1	2
Q1	.670	.220
Q2	.805	-.064
Q3	-.048	.936
Q4	.783	.145
Q6	.710	.116
Q14	.632	-.144
Q23	.383	.323

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Component Transformation Matrix

Component	1	2
1	.987	.161
2	-.161	.987

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Drop Q3 and Q23 and the new Cronbach alpha is higher (0.781)

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.781	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q1	13.36	8.725	.524	.752
Q2	13.00	8.041	.641	.709
Q4	13.50	8.378	.643	.710
Q6	13.36	9.256	.545	.744
Q14	13.50	9.888	.431	.777

Reliability test and factor analysis results for engagement

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.625	**11**

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted

Q7	28.32	13.773	.486	.549
Q8	28.36	15.256	.334	.591
Q9	28.62	15.710	.380	.583
Q10	28.52	21.071	-.351	.729
Q11	28.72	17.185	.168	.624
Q12	28.70	16.378	.355	.592
Q13	28.54	16.335	.338	.594
Q15	27.64	17.133	.179	.622
Q17	28.52	14.949	.601	.545
Q19	28.12	14.761	.494	.556
Q22	28.14	15.796	.352	.589

Factor Analysis

Communalities

	Initial	Extraction
Q7	1.000	.515
Q8	1.000	.586
Q9	1.000	.570
Q10	1.000	.679
Q11	1.000	.555
Q12	1.000	.416
Q13	1.000	.430
Q15	1.000	.428
Q17	1.000	.638
Q19	1.000	.661
Q22	1.000	.482

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.303	30.025	30.025	3.303	30.025	30.025	2.371	21.555	21.555
2	1.533	13.940	43.965	1.533	13.940	43.965	2.083	18.937	40.492

3	1.123	10.211	54.177	1.123	10.211	54.177	1.505	13.684	54.177
4	.980	8.913	63.089						
5	.885	8.045	71.135						
6	.794	7.222	78.357						
7	.755	6.863	85.220						
8	.521	4.735	89.954						
9	.456	4.146	94.101						
10	.359	3.261	97.361						
11	.290	2.639	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component		
	1	2	3
Q7	.602	.381	.084
Q8	.438	-.269	.567
Q9	.661	-.328	-.158
Q10	-.517	.413	.491
Q11	.290	-.451	.517
Q12	.596	-.221	.109
Q13	.483	.367	-.248
Q15	.256	.601	.019
Q17	.786	.095	-.106
Q19	.525	.509	.355
Q22	.641	-.145	-.223

Extraction Method: Principal Component Analysis.
a. 3 components extracted.

Rotated Component Matrix[a]

	Component		
	1	2	3
Q7	.245	.661	.131
Q8	.121	.123	.746
Q9	.705	.080	.258

Q10	-.814	.125	.032
Q11	.112	-.116	.727
Q12	.468	.175	.408
Q13	.344	.528	-.180
Q15	-.063	.634	-.146
Q17	.598	.502	.167
Q19	-.010	.767	.270
Q22	.652	.207	.119

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Component Transformation Matrix

Component	1	2	3
1	.736	.563	.375
2	-.401	.810	-.429
3	-.545	.165	.822

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Reliability after Factor Analysis

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.683	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q7	12.06	4.507	.522	.596
Q13	12.28	6.083	.408	.646
Q15	11.38	6.281	.311	.682
Q17	12.26	5.829	.493	.614
Q19	11.86	5.347	.485	.610

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.701	4

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q9	8.30	2.990	.524	.613
Q12	8.38	3.669	.379	.698
Q17	8.20	3.061	.619	.558
Q22	7.82	3.130	.442	.669

Reliability test and factor analysis results for learning experience

Case Processing Summary

		N	%
Cases	Valid	49	98.0
	Excluded[a]	1	2.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.494	9

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q5	22.65	10.231	.515	.352
Q16	23.04	10.123	.572	.336
Q18	23.37	13.946	-.047	.529
Q20	21.96	11.998	.113	.508
Q21	21.90	11.594	.155	.493
Q24	21.94	11.059	.380	.407
Q25	23.31	12.092	.101	.513
Q26	23.12	12.901	.112	.495
Q27	23.29	13.167	.110	.493

Factor Analysis: 2 dimensions: Q5, Q16, Q20, Q21, Q24; Q25, Q26, Q27; drop Q18

Communalities

	Initial	Extraction
Q5	1.000	.723
Q16	1.000	.691
Q18	1.000	.725
Q20	1.000	.759
Q21	1.000	.528
Q24	1.000	.696
Q25	1.000	.660
Q26	1.000	.546
Q27	1.000	.710

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.808	31.205	31.205	2.808	31.205	31.205	2.395	26.616	26.616
2	2.111	23.451	54.657	2.111	23.451	54.657	2.233	24.813	51.429
3	1.120	12.441	67.098	1.120	12.441	67.098	1.410	15.669	67.098
4	.693	7.704	74.801						
5	.636	7.062	81.864						
6	.551	6.118	87.982						
7	.442	4.910	92.892						
8	.405	4.499	97.391						
9	.235	2.609	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix[a]

	Component		
	1	2	3
Q5	.448	.650	.316
Q16	.265	.773	.154
Q18	-.429	.141	.722
Q20	.863	.122	.004
Q21	.695	.139	.158
Q24	.341	.583	-.490
Q25	-.544	.508	-.326
Q26	-.544	.436	.244

Q27	-.646	.499	-.210

Extraction Method: Principal Component Analysis.
a. 3 components extracted.

Rotated Component Matrix[a]

	Component		
	1	2	3
Q5	-.066	.843	.089
Q16	.194	.808	.016
Q18	.165	.077	.832
Q20	-.578	.546	-.356
Q21	-.494	.513	-.147
Q24	.240	.529	-.598
Q25	.807	.053	-.081
Q26	.578	.138	.439
Q27	.840	.022	.067

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Component Transformation Matrix

Component	1	2	3
1	-.750	.516	-.414
2	.574	.819	-.019
3	-.329	.252	.910

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Reliability after factor analysis: Q5, Q16, Q20, Q21, Q24

Case Processing Summary

		N	%
Cases	Valid	49	98.0
	Excluded[a]	1	2.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.727	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q5	13.45	8.336	.564	.654
Q16	13.84	8.931	.471	.688
Q20	12.76	7.397	.577	.642
Q21	12.69	7.925	.453	.699
Q24	12.73	9.241	.395	.713

Q25, Q26, Q27

Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.674	3

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q25	4.72	1.512	.530	.585
Q26	4.56	2.537	.435	.646
Q27	4.72	2.532	.591	.511