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Exploring Barriers To Use Of Social Media In Support Of Non-Formal Learning By Pupils Attending Secondary Education In The UK: A Mixed Method Approach

by

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ABSTRACT

FACULTY OF PHYSICAL SCIENCES AND ENGINEERING

WEB SCIENCE

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EXPLORING THE BARRIERS TO USE OF SOCIAL MEDIA IN SUPPORT OF NON-FORMAL LEARNING BY PUPILS ATTENDING SECONDARY EDUCATION IN UK: A MIXED METHOD APPROACH

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The problem this thesis seeks to address is that despite there being lots of evidence that young people of secondary school age in the United Kingdom embrace social media there is no established recognised best practice for incorporating it into their learning experience. This lack of best practice matters because social media has been demonstrated to support learning very effectively (closely fitting pedagogical approaches such as constructivism and connectivism), and digital literacy around the use of the World Wide Web in general and social media in particular is considered a life skill. A mixed methods, explanatory sequential approach is used to improve understanding of why and how pupils use social media, what they seek to achieve in doing so and why teachers do not appear to be promoting the use of social media to support non-formal learning. Data collection consisted of a quantitative survey undertaken by 380 pupils attending secondary schools in the counties of Hampshire, Cambridgeshire, Norfolk and Suffolk in the UK. This was followed by qualitative studies in the form of 8 focus groups with an average of 12 pupils per group and 18 individual interviews with teachers, which were thematically coded using an inductive, constant comparison approach until reaching point of saturation. An argument is presented that, although both pupils and teachers recognise the potential of social media to contribute to the non-formal learning process, this will not take place until key barriers are removed; in particular the perceptions of risk need to be addressed, and limitations created by the technical affordances of current platforms must be overcome. This thesis suggests that a set of mitigation strategies for these barriers could be developed based upon Digital Literacy education and Participatory Design led software development. This thesis therefore provides an original contribution to knowledge in the identification of barriers inhibiting use of social media by pupils in compulsory education to support non-formal learning and proposes an interdisciplinary approach to mitigate for these barriers.

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DECLARATION OF AUTHORSHIP

I, Robert Blair

declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Pupil perceptions and use of social media in support of non-formal learning

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. Parts of this work have been published as:

Perceptions of school children of using social media for learning. *IJEL-International Journal on E-Learning*. Blair, R., Millard, D., & Woollard, J. (2015).

Signed: .....

Date: .....

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Chapter 1: Introduction

1.1 Setting the scene

This thesis describes an investigation of the perceptions and use of social media by pupils attending secondary schools in England in support of non-formal, collaborative learning. With a focus upon the affordances enabled by social media such as creativity, sharing of knowledge and the building of communities of learners this study seeks to identify possible barriers, explore whether these exist due to limitations of pupils or technology and determine whether if they can be overcome through education, policy, or some form of technical solution. In attempting to address the question of how possible barriers to the use of social media by teenagers in support of non-formal, collaborative learning may be identified it is appropriate to first determine the value placed upon social media by teenagers. One indication of this value may be the number of teenagers reported as using social media and how this number has grown as reported in the UK and the US.

In 2008 the Independent regulator and competition authority for the UK communications industries (Ofcom) reported that of children in the age range 12 to 15 who had access to the internet at home 52% had an active social media profile. In 2010 this figure had risen to 70%, a further increase to 75% in 2011 followed by a slight decrease to the latest estimate of 71% in 2014 before rising to 74% in 2017 (Ofcom, 2010; 2014[a]; 2017). It may be interesting to note that the figures for active use of social media in the age range 16 to 24 in the UK have seen a steady rise from 69% in 2012 to 83% in 2014 (Ofcom, 2014[b]).

Similarly, figures reported in the US describe a rise in the use of social media by teens from 55% in 2006, 65% two year later and climbing to 76% in 2014. Of teens reporting an active social profile 81% were aged 15 and over with 68% in the age range 13 to 14 (Lenhart, 2010; 2015). These figures would appear to suggest that there exists an enthusiasm by teenagers to utilise the features of social media to complement, and in some cases substitute, their daily 'real world' social life.

When one couples this apparent enthusiasm of teenagers to utilise social media with consideration of constructivism as the basis for the majority of current learning theories (Liu et al, 2005; Swan. K, 2005; Brown & Adler, 2008) the importance of using social media in support of non-formal, collaborative learning becomes apparent. From a pedagogical perspective social media, being collaborative and communal in nature, would appear to be a logical partner in

support of constructivist learning whether cognitive or social in nature (Churcher et al, 2014, Maloney, 2007). It is generally agreed that knowledge exists not only in the mind of the individual but also in the discussion and interplay between learners (Tarantino et al, 2013), which are viewed as essential ingredients in learning (Hrastinski, 2009). When used as an educational tool social media has been shown to lead to increased engagement with other learners (Chen et al, 2010; Junco, 2012), and course content leading to attainment of desired learning outcomes (Mehdinezhad, 2011; Pike et al, 2011).

Possibly due to the difficulties inherent in gaining access to the highly gated community of pupils in secondary education much of the research focusing on the use of social media to support non-formal learning has taken place in the higher education sector (Ahn, 2011; Kennedy et al., 2006; Minocha, 2009, Sharpe et al., 2005). Research conducted into adolescents use of social media is more limited, mostly looked at online safety, privacy, identity or cyber bullying in and out of the classroom (Livingstone & Brake, 2010; Burnett & Merchant, 2011; Lankshear & Knobel, 2011). Studies of the use of social media in support of (formal) learning have mostly been situated in the classroom focusing on the development of skills and uses of creating media (Greenhow & Robelia, 2009; Ito et al., 2008; Jenkins, 2006). The results of a systematic review of 17 education databases and 24 education journals[1] conducted by Henderson, Snyder and Beale (2103), into the use of social media for collaborative learning by school pupils initially identified 135 articles relating to school pupils and their use of social media. After further selection the number of articles was reduced to 43 relating specifically to the use of social media by pupils on support of collaborative learning in the classroom.

Though a limited amount of research has been reported looking into the use of social media in support of collaborative learning by school pupils this research appears to be in the areas of formal learning i.e. in the classroom or informal learning outside of the classroom. Investigation into the use of social media to support non-formal, collaborative learning appears to be quite abundant yet this research has been centred on students in the further and higher education sectors. Upon investigation of published research in the field of social media in support of education it would appear evident that there is a dearth of work reported on the use of social media in support of non-formal, collaborative learning by school aged pupils.

[1] Database: A+ Education, APA-FT, Trove, Scopus, Emerald, ERIC, BHI, IBSS, LISA, Social Services Abstracts, Scoiological Abstracts, CSA Linguistics and Language Behaviour Abstracts, Proquest, Expanded Academic, ARROW, EditLib, Monash University Catalogue
Journals: American Educational Research Journal, Australasian Journal of Educational Technology, Australian Educational Computing, British Journal of Educational Technology, Children & Society, Cognition & Instruction, Computers & Education, Computers in the Schools, EDUCAUSE Quarterly, EDUCAUSE Review, English in Education, International Journal of Web-based Learning & Teaching Technology, Journal of Adult & Adolescent Literacy, Journal of Children & Media, Journal of Computer Assisted Learning, Journal of Online Learning and Teaching, Journal of Research on Technology in Education, Language & Education, Learning, Media & Technology, Linguistics & Education, Literacy, New Media & Society, Research in Learning Technology, Technology, Pedagogy & Education, Scandinavian Journal of Educational Research

1.2 Positionality

As a teacher of Information Computer Technologies (ICT) and Computer Science in UK secondary schools (age 11-18 years), I experienced first-hand the reticence of students to access what I had considered to be a wide 'pool' of pupil knowledge through the use of networked technologies. With the intention of reducing effort required by pupils to complete and submit homework tasks each class of students I taught were given access to an application within which they could support each other through sharing knowledge and submit their homework solutions via online quiz.

Intrigued by the near-total lack of participation or up-take by students I decided to try to find out why this apparently ideal tool was not being used to share knowledge, the answer to which was quite puzzling. In discussion with pupils over a school week, at lunchtimes and during lesson breaks the recurring reason given by students for not utilising the discussion facility may be summed up by a pupil response 'but you can see it sir!'. One reason this response seemed puzzling was that the subject which I taught depended upon and was built around networked technologies which pupils appeared to be all too willing to use for social interaction (Marwick & Boyd, 2014; Agosto et al, 2014), hence use of the technology did not appear to be a problem. A second reason was an apparent lack of awareness or appreciation by pupils of the many ways in which networked technologies could be used to support learning activities even though these formed the basis for a National Curriculum for ICT (DfEE, 1999) taught in state funded school in the United Kingdom at that time.

In discussion with pupils and fellow teachers the notion occurred that my puzzlement, to some extent existed due to my background and experiences as a teacher ICT following National Curriculum guidelines. With regard concepts of digital literacy within the National Curriculum it soon became apparent that the topics, resources and guidelines labelled as promoting digital literacy including such uses as knowledge sharing and understanding how to safely use and 'behave' within an online environment was in fact supporting pupils in their development of digital skills (Sonck et al, 2011; Meyers et al, 2013; Zhong, 2011) such as use of numerical manipulation and processing using spreadsheets, presenting information and collecting information with no regard for authenticity.

Further to recognising this apparent difference between understanding of digital literacy and digital skills and hence, my assumptions of pupils understanding and awareness of the potential of networked technologies to support knowledge sharing I realised that my place within the teaching and learning process, or my positionality had influenced my own understanding and perceptions

of how pupils would use the technology. On recognising the impact of my own biases based upon my 'position of power' (Wardale et al, 2015; Lin, 2015; Bourke, 2014) within the teaching and learning process the requirement for a means of mitigation of these biases in an investigation became evident if findings were to be considered as other than my personal opinion. Within the literature on researcher positionality (Holmes, 2016) identities including gender, class, ethnic background, level of education, political views, sexual orientation and disability have been described as possible influences in researcher engagement with research participants (Gray & Coates 2010; Pang, 2016; Yunong & Xiong 2012) contributing the 'insider-outsider' debate (Cormier, 2018; Nakata, 2015). To mitigate for the possible influences of identities such as these where impact may take the form of cognitive bias (Couture & Maticka-Tyndale, 2012), a reflexive approach in the research process was adopted in order to ensure rigour and reliability (Court & Abbas, 2013; Savvides et al, 2014). Guided by research literature, elements of the reflexive approach included moderation of research questions by research peers and supervisors, consultation with research participants post interview to ensure accuracy of transcripts followed by intra-rater reliability checking of analysis findings (Moran et al., 2016). In support of this reflexive approach the validation process of 'member checking' in which approach participants were offered the opportunity and encouraged to engage with analysis findings to validate (or not), researcher interpretations and understanding (Birt et al., 2016; Thomas, 2017).

1.3 Research studies

Seeking to develop a better understanding of the phenomena this work utilises a mixed method approach to investigate school pupil perception and use of social media in support of non-formal, collaborative learning. The investigation comprises three stages of data collection and analysis. The first stage consists analysis of data collected through an online survey (383 responses), followed by a second stage consisting analysis of data collected through semi-structured, focus group interviews with secondary school pupils in the age range 11-17. The final stage entailed analysis of data collected through a series of semi-structured individual interviews with 18 of the teachers whose pupils had taken part in the survey or focus-group interviews. For this investigation other stakeholders identified in the project comprise of, but are not limited to senior school management, governors and pupil parents or guardians. By considering the perspectives, attitudes and beliefs of pupils and teachers regarding the use of social media in support of learning this work will further contribute to a holistic understanding of the potential and impact of these new technologies in today's compulsory education system.

Each of the research studies addresses a set of questions designed to shed light upon the conjecture that barriers to the use of social media by secondary school pupils in the UK to share knowledge do exist.

1.3.1 Study 1

1. How do school children perceive their use of social software in everyday life?
2. How do school children perceive their use of social software for formal and informal learning?
3. Does practice match perception in Q1 and Q2 - how is social software actually used by school children?

1.3.2 Study 2

1. Is social media being used by school pupils to support non-formal learning?
2. Why do school pupils decide to use or not use social media to support non-formal learning?

1.3.3 Study 3

1. What are teacher understandings of pupil perceptions and use of social media?
2. Do school teachers decide to use or not use social media to support non-formal learning?

1.4 Thesis Structure

Following the introduction chapter in which the rationale for this research and the research conjecture are outlined the remaining 7 chapters of thesis are set-out as follows. To provide background knowledge for this thesis a review of current research literature is presented in chapter two. Guided by the research questions this chapter addresses the ‘what’, ‘why’ and ‘who’ for this work with a focus upon social media as the technology of interest describing ‘what’ affordances are enabled by the technology which promote its use, support of non-formal learning being the reason ‘why’ we are interested in the technology and finally ‘who’ are we interested in as the users of this technology. Chapter 3 explains the theoretical framework within which this research sits giving an overview and rationale for selection of the philosophical approach of Pragmatism. The chapter goes on to explain the choice of adopting a mixed-methods model used to guide choice and sequence of methods for data collection, triangulation and analysis. Data collection methods, rationale for their selection, data analysis and findings for the online survey,

focus group and individual interview studies are described in chapters 4, 5 and 6. Triangulation of findings from each study, how they contribute to the overall research questions and lead to identification of barriers is discussed in chapter 7. Based upon the barriers identified a strategic framework consisting suggested mechanisms for mitigation of these barriers is presented.

Chapter 8 commences with a recap of research findings and how they address each of the research questions, limitations of the work and possible directions of future research in this area. Following this the specific outcomes and contributions of this project and the overall contributions of this research to the field of knowledge are then presented. Finally, this thesis concludes with a summary of the research objectives, what has been learned, barriers identified and how these barriers may be overcome.

Chapter 2: Literature Review

2.1 Introduction

In attempting to gain an understanding of the place for social media in today's learning context an awareness of research and practice in the field is of benefit. To that end findings and discussions in current literature addressing the following commonly occurring themes relating to the research question are discussed. The structure of this chapter is designed such that information is presented regarding the technology under investigation, how that technology may be used and who is going to use it.

2.2 Social media - what is being used

The popularity and hence positive perception of social media with young people has been highlighted by listing the number of users in the 12-15 age range with access to the internet at home as, even with a decrease from 75%, in 2011 the UK figure still stood at 71% in 2014 with regard access alone and 72% of users in age range 12-15 having a social media profile in 2016 rising slightly to 74% in 2017 (Ofcom, 2016[b]; Ofcom, 2017). To support understanding of this apparent enthusiasm for use of social media, and how it may possibly be leveraged in support of learning a definition of social media and the affordances enabled is given.

Due to the varieties and changing nature of social media on offer to the public finding a widely accepted definition for social media in the literature has proved problematic. Bryer and Zavatarro (2011), define social media as "technologies that facilitate social interaction, make possible collaboration, and enable deliberation across stakeholders". In broad agreement Dabbagh and Reo (2011), identify networked technologies which facilitate social communication, collaboration and creativity. Similarly, Mao (2014), defines social media as a new technology or application based on Web 2.0 features enabling communication, collaboration, sharing and publishing of content, user interaction and management. Whilst identifying recurring themes for social media as being based upon new technologies which facilitate collaboration, content sharing and management along with the opportunity to express oneself creatively, in this work a simpler definition for social media is used i.e. a networked media which allows not only private communication but also profile creation, management and sharing (Obar & Wildman, 2015).

If one looks beyond an immediate definition of the technology as described by technical functionalities it becomes apparent that it is not the functionality which is of importance but the affordance such collaboration or privacy which that functionality enables.

2.2.1 Affordance

In an educational context such as being considered in this research, social media has been described as a set of tools which may afford learners the possibility to take part in meaningful learning activities (McLoughlin, 2011: Alam & McLoughlin, 2018). Of interest to researchers in the field of technology mediated learning is use of the word 'afford' which has come to be generally accepted as referring to the affordance of a technology (Ke & Hsu, 2015; Santos & Faure, 2018). As a noun the term 'affordance' is claimed to have been introduced by ecological psychologist James. J. Gibson in his theory of affordances (Gibson, 1986), described as an "operationalised presentation of ethology's fundamental principle: reciprocity between an organism and its environment." (as cited in Jenkins, 2008). According to Gibson affordance relates to "both the environment and the animal in a way that no existing term does (Gibson, 1986)". A further definition offered by Norman (1988), differs slightly in that there is a focus on the "perceived and actual properties of the thing". The difference between the two definitions is highlighted by Bower (2008), emphasising the concern for utility held by Gibson and the focus on usability of Norman. A straightforward example of affordance is given by Kreijns and Kirschner (2001) in describing the affordance of a wooden bench:

A wooden bench is supposed to have a sit affordance. A hiker who has walked for hours and passes the wooden bench on a walk along small country road, might perceive the sit affordance of the wooden bench as a function of the degree of fatigue. A very tired hiker will sit on the wooden bench but will not lie down (unless the wooden bench also has a 'lie' affordance). A still fit hiker, however, might not even pick up on the sit affordance of the bench and pass it by. The wooden bench is in that case no more than a piece of wood with no further meaning.

Using the example of a wooden bench the authors have highlighted the fact that the tool or technology, in this case the bench, does not have any other affordance than that which the user perceives. The relevance here is that social media do not, in and of themselves afford the support of learning by offering for example such activities as collaboration, creativity, sharing of knowledge, evaluation or reflexivity. Social media *enables* the affordance of these activities which the user may then enact. In a similar vein it should be noted that the use social media in support of learning does not guarantee an impact upon learning only the potential of impact (Burden, 2010; Gros & García-Peñalvo, 2016; Tang et al, 2017).

Indeed, though much of the literature advocates the use of social media in support of learning there are those who would raise a warning against such action. Research suggests that, amongst other criticisms, the use of social media application Facebook whilst doing schoolwork may be associated with academic under-achievement as indicated by an overall GPA lower than those not using the application whilst multi-tasking (Kirschner & Karpinski, 2010; Junco & Cotton, 2012; Lederer, 2012; Waycott et al., 2010), this was especially noticeable with weaker students (Andersson et al, 2014).

Moving on from considering affordances enabled by social media in the context of learning the next section looks at the affordances enabled by networked social media which may explain why this technology appears to be so popular with children and young adults.

2.2.2 Social affordance

If one considers that the user group of interest in this research is school pupils in the age range 11-18 prior to investigating use of social media to support non-formal learning by this group it would be prudent to consider *what* it is about using social media which is attractive to this group i.e. what benefits do children and young adults gain?

Generally regarded as a life stage consisting upheaval and change in which childhood is exchanged for young adulthood accompanied by a growth of autonomy from parental control, members of this group most often turn to peers for personal and social relationships regarded as essential for wellbeing and finding their place in society (Ahn, 2012; Antheunis et al., 2012; Berndt & Ladd, 1989; Boyd, 2014; Harter, 1999; Palmonari et al., 1992; Bucher & Helmond, 2017). In this instance it is the possibility to manage and maintain these relationships offered by the social affordances of social media technologies which is appreciated by adolescents (Castells et al., 2007; Ling & Yttri, 2006; Lu & Hampton, 2017). In managing relationships adolescents utilise the connectivity of networked technologies supporting communication between friends at any time and in any location such that interactions may be initiated, switched or terminated as desired or deemed necessary (Brown & Klute, 2003; Campbell & Ling, 2009; Grabher & König, 2017). Further to this point how relationships are maintained e.g. micro-coordination of everyday activities (Ling, 2004; Lomborg & Frandsen, 2016) determines the quality of relationships in the form of much desired inclusion, trust and acceptance in peer groups coupled with intimacy and care with and by peers (Erdley et al., 2001; Hartup & Stevens, 1999; Best et al, 2014; Oberst et al, 2017).

2.2.3 Networked affordance

Whilst social affordance refers to enablement of social interactions sought by children and young adults the technical or networked affordances (Halpern et al, 2017) refer to features and functionalities which enable these social affordances. Describing social media as an example of a networked-public comprising the community arising as users and technology interact in a networked constructed bounded system within which a user profile may be created and shared over an observable network of connections Boyd (2010), suggests that there exist four primary network affordances of persistence, visibility, spreadability and searchability which are utilised by adolescents. Each of these affordances may contribute to the maintenance and management of social relationships as described above in that, for example, communications through a digital network are persistent and hence support both synchronous and asynchronous messaging, both expression and content are available for immediate and future reference. Expressions and content may be visible to members of a network who can bear witness to effort and intent, which can in turn be distributed or spread throughout a network. Lastly, as expressions and content are persistently stored within a digital network these may be made accessible to searches by those within the network i.e. the social group of importance.

Having briefly examined how the networked affordances of social media technologies available to users can support social affordances and be perceived in a positive fashion the next section introduces how and why these affordances may give rise to negative perceptions of social media due to possible danger i.e. perceptions of risk.

2.2.4 Perceptions of risk

In the area of risk research analysis of risk has been most commonly defined as being either technical or social. Approaching analysis of risk from a technical standpoint involves the characterisation of risk (R) in terms of magnitude (AF) and probability of exposure to that risk (P) such that risk (R) is equal to the product of probability (P) x magnitude (M) and is predominantly about safety (Pearce, 1994; Hansson & Aven, 2014). From a social perspective there have emerged two dominant paradigms in the analysis of risk, the first being the Cultural theory of risk (Douglas, 1966; Douglas & Wildavsky, 1983; Kahan, 2012) of risk with the second being the psychometric paradigm (Fischhoff et al., 1978; Marris et al., 1998; Slovic, 1992; Wynne, 2016). A third approach to analysis of risk, more commonly referred to in sociological publications as a point of contrast (Taylor-Gooby & Zinn, 2005; Mythen, 2018), is one of ‘reflexive modernity’ (Beck et al., 2003) developed by Ulrich Beck (1987) which describes a broader concept of uncertainty in which new risks can become political and cause in change society (Hasan, 2018). Adopting a social

approach, whilst the objective of the psychometric model is to empirically determine perceived levels of risk using such scales as knowledge of risk, control over risk and dread potential (Siegrist et al., 2005; van Schaik, 2018), the Cultural theory approach specifies a grid/group typology consisting four types of people – egalitarian, individualist, hierarchist or fatalist – which govern their beliefs and indicates which type of hazard the person will be concerned with (Sjoberg, 2017). Of relevance here is that research into the understanding of risk perception has highlighted the way in which people accord different values or ratings to the same risk usually in the form of an 'unrealistic optimism' or 'optimistic bias' in which the same risk it rated differently for themselves, their family or to the public in general (Bialostok & Whitman, 2012; Lichtenstein et al., 2016; Weinstein, 1987) such as may be apparent by pupils or teachers. In considering access to participants, the environments in which the use of social media under investigation occurs and the cultures within which this use occurs a Cultural theory approach to the perceptions of risk is applicable to this work.

2.2.5 Distraction

Adopting an approach to possible perceptions of risk based upon cultural theory a perception of risk relevant to this investigation is that of the risk of *distraction* reported by pupils and teachers (Spangler et al, 2016; Fewkes et al., 2012). In this investigation an understanding of distraction is based upon that which impacts upon or influences attention, which in turn may be *slightly* less troublesome to define.

A cognitive understanding of attention is based upon assumptions such as that of a world outside of the human mind existing which consists of discrete quantities of information. The mind perceives the 'outside' world through processing these discrete amounts of information and this perception is enabled by attention. Furthermore, as attention is the product of the processing power of the mind it is subject to the brain's physical limitations and as such is a finite resource (Aagaard, 2015; Bergen, 2018). Building upon this definition of attention as a finite resource it could be reasoned that distraction may be considered as anything which diverts this finite resource from the task at hand which in this investigation is non-formal learning (Hirsh-Pasek et al., 2015; Sana et al., 2013; Wood et al., 2012).

If one considers the willingness of students to participate in distractive behaviour such as multi-tasking or off-tasking which may influence learning and educational performance (Gaudreau et al., 2014; Harrison et al., 2013; Sana et al., 2013) a cultural theory of risk highlights the influence of the tacit acceptance of multi-tasking and off tasking within a group (Taneja et al., 2015). In this

scenario it would appear that as many students do not believe that multi-tasking will have an impact upon academic achievement (Bowman et al., 2010; Ravizza et al., 2014), adoption of distractive practices whether habitual or mediated (Aargaard, 2015), may be regarded as a group norm. It may be due to this 'acceptance' that both teachers and pupils have commented upon the danger or risk of distraction when using networked technologies in the learning process (Baumgartner et al., 2017; Richter, 2015).

Following a discussion of how the affordances of social media may be viewed differently by participants which in some cases may result in a negative view based on a perception of risk the next section discusses briefly a method by which negative perceptions may be reduced.

2.2.6 **Digital literacy**

To mitigate for possible negative perceptions of social media in support of non-formal learning an approach, suggested by Cultural theory may be that of raising awareness and understanding of social media technology within the culture to which an individual has membership. In this research, those involved and upon whom the outcomes will have most immediate impact are pupils and teachers who, though ostensibly with a common goal belong to separate, quite distinct cultures i.e. a culture of pupils who, as adolescents seek peer approval, friendship and emotional support and for teachers an institutional culture with a hierarchical structure. To raise awareness and understanding of the use of social media within these cultures a mechanism is required by which the technical and social skills needed to utilise affordances enabled by the technology are provided.

Recognising the need for understanding of the digital skills required in today's computer supported society to effectively, safely and confidently use networked technologies which have developed over the past two decade such social media research in this area had been conducted in a number of disciplines. This has led to the use of different terms with the same basic meaning such as digital skills fluency, knowledge, competency and literacy (Litt, 2013), for the purposes of this research the term adopted will be that of Digital Literacy (Gilster, 1997; Alexander et al, 2016; Pangrazio, 2016). Described as a product of the 'second digital divide' (Hargittai, 2001; Van Deursen & Helsper, 2015; Scheerder et al, 2017) in which a lack of digital literacy has overtaken lack of access to internet connected technologies (OECD, 2016) as becoming a dominant factor in how and why people use - or do not use - the internet, several key literacies have been identified. Whereas Gilsters' original description of digital literacy in use of internet-based technologies (in Pool, 1997) as:

> "the ability to understand and use information in multiple formats from a wide variety of sources when it is presented via computers … and, particularly, through the medium of the Internet",

barriers to access have been identified by Van Dijk (1999) as comprising lack of: material resource; usage opportunities; experience, interest, anxiety and unattractiveness of new technology; and lack of digital skills. From these early discussions several frameworks have emerged (e.g. Dudeney et al., 2012; Eshet-Alkalai, 2004; Hobbs, 2010; Spence, & Caplinger, 2016; Sefton-Green et al, 2016) in which the authors describe as detailing skills and understanding required to successfully navigate today's internet-based technologies. Similar to the digital literacies framework developed by Eshet-Alkalai describing the cognitive skills required for effective participation in a digital world (Eshet-Alkalai, 2004; Alkalai & Aviram, 2006; Eshet-Alkalai, 2012) Hobbs' framework (2010), defines digital and media literacy as the ability to access and responsibly choose information, create and analyse the quality and credibility of content, apply social responsibility and ethical principles, and share knowledge and solve problems. In considering frameworks developed a common strand may be discerned with regard a move away from a focus on technologies to aspects which are cognitive, reflexive and socio-relational (Kirsch et al., 2007; Leu et al, 2017). When considered from the perspective of a Cultural theory approach to the perception of risk the argument may be presented that the implementation of a digital literacy strategy would increase understanding and awareness of use of social media hence reduce negative perceptions i.e. perceptions of risk.

Based upon analysis of quantitative and qualitative data (Eshet-Alkalai & Amichai-Hamburger, 2004) Eshet-Alkalai developed a conceptual framework (2004) addressing what they considered to be the majority of cognitive 'survival skills' required for effective participation in a digital world (Gilster, 1997; Hargittai, 2008; Lankshear & Knobel, 2008; van Laar et al, 2017). Whilst Eshet-Alkalai's original framework incorporated five types of literacies the revised framework includes the sixth literacy of 'real-time thinking' (Aviram & Eshet-Alkalai, 2006; Chajut & Eshet-Alkalai, 2009; Neumann et al, 2017; Llomaki et al, 2016). Each cognitive skill of the revised holistic framework for digital literacy is described as follows:

1) Photo-visual literacy: intuitively understand visualgraphic instructions and messages
2) Reproduction literacy: creation of new meanings or interpretations through the combining of existing and independent information

3) Information literacy: effective assessment through identification of subjective, false or biased information

4) Branching literacy: navigation of hyperspace within complex domains of knowledge

5) Socio-emotional literacy: critical, behavioural and analytical maturity supporting sharing of emotion coupled with design of knowledge through virtual collaboration without succumbing to internet deception

6) Real-time thinking: effective processing of large volume, rapidly changing information presented in different formats simultaneously

Following this brief discussion of the technologies of interest in this research the next section will consider the context in which the use of social media is being considered.

2.3 Social media – context

In this section the current use of technology in the form of social media to support learning outside the classroom by users in the age range 11-18 is investigated. In order to place the use of social media to support learning in context different theories and modes of learning are presented followed by discussion of existing work in the areas of higher and compulsory education. Based upon findings of existing research an argument is put forward identifying a gap in the field to research.

2.3.1 Theories of learning

During the latter half of the twentieth century the behaviourist theory of learning developed by B. F. Skinner (1963) along with theories based upon information processing perspectives came to be replaced by the theories or, possibly more accurately, belief systems of constructivism as developed in the field of cognitive psychology (Anderson, 2016; Bada, & Olusegun, 2015; Flowerdew, 2015; Karmiloff-Smith, 2018; Bransford et al, 1999; Gergen, 1985; Mayer, 1996; Vygotsky 1978; Windshitl 2002; Lambert & McCombs, 1998; Rowlands & Carson, 2001). Behaviourism was criticised as being too centralised, focused upon the actions and development of the individual whilst the information processing model[2] comparing computer and mind was considered too reductionist. This move to constructivism was later supported by a number of studies strongly suggesting that changing from individual learning to learning in a collaborative

[2] Concensus of IPM, the Modal Model or stage theory developed by Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control processes. *The psychology of learning and motivation,* 89-105.

fashion appeared to contribute to increased learner motivation and achievement (Johnson et al, 2000; Snowman et al, 2009).

Constructivism

Though constructivism has become accepted as the dominant theory for learning (Liu & Mathews, 2005; Taylor, 2017), it is still very difficult to 'pin down' a concise definition of the constructivist view of learning, it is not without its' critics and the connectivist (Siemens, 2014) model of learning would claim greater relevance in a learning world supported increasingly by networked technologies and communities. It has been suggested that the success of constructivism is due to a shared belief that knowledge is constructed by the learner who in turn takes active part in the learning process and is not a passive recipient (Rowlands and Carson, 2001; Johnson, 2014; Kent et al, 2016). Rather than attempting to compare and contrast the many varieties of constructivism the two most prominent i.e. social and cognitive constructivism, are described next.

Cognitive Constructivism

Emphasising a learner centric and experience focused process in learning cognitive or radical constructivists believe that knowledge does not exist as an entity by itself and cannot be directly transmitted between individuals. From a cognitive constructivist perspective knowledge is discovered or constructed idiosyncratically by the individual. It is through this construction or discovery that cognitive conflict occurs within the individual leading to learning whilst interactions with others in the community and the learning environment operate only as stimulus for cognitive conflict to occur (Bilbokaitė, 2015; Kasemsap, 2015; Schcolnik et al, 2016).

Social Constructivism

Taking a somewhat different stance the framework of social or realist constructivism, considered to have originated with the work of Lev Vygotsky, holds central the role of the environment in the learning process. Context dependent and specific to the learning situation learners are thought to accept the norms of the community in which they are learning. As part of a learning community and through interaction with the environment coupled with existing understanding the process of learning occurs (Amineh & Asl, 2015; McInerney, 2013; Woolfolk, 2001).

Connectivism

In attempting to explain and understand how learning occurs an emerging alternative to the theories of constructivism is that of connectivism (Siemens, 2005; Downes, 2006; Louriero & Bettnecourt, 2010; Mattar, 2018; Vlachopoulos et al, 2016). From the connectivist perspective

learning is a continuing and connection forming process which, due to the developing nature of the learning landscape, is uncontrolled by the learner (Ally, 2008) and may be characterised as “the amplification of learning, knowledge, and understanding through the extension of a personal network” (Siemens, 2005), or as described by Downes (2007) “... the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks”.

The core competence for connectivism is to identify links or connections between sources of information and maintain these links to support ongoing learning. Personal knowledge is held by connectivists as consisting of a system of information networks which supply information to a community which returns information to the particular system. For continued knowledge growth the learner must continue to partake or contribute to the different information systems. Through connections created the learner has access to current information hence the learners’ knowledge will remain current. (Siemens, 2005).

A cause of much debate within the learning community is whether or not connectivism may lay claim to being a theory of learning rather than a model (Bell, 2010; Kop & Hill, 2008; Garcia et al, 2015; Mohamed et al, 2017). Connectivism assumes that individual learners are connected by networks consisting existing connections and which share context and cultures (Anderson et al., 2010). For this to be the case one must be able to explain which came first, the learner or the learning network. Arguing that connectivism “misrepresents the current state of established alternative learning theories such as constructivism, behaviourism and cognitivism, so this basis for a new theory is also dubious" (Goldie, 2016; Smidt et al, 2017), Kerr (2007), considers connectivism to be an extension of existing theories of learning whilst Verhagen (2006), stating that connectivism does not explain at the instructional level how to enable the learner describes connectivism as a perspective on pedagogy instead.

From the preceding basic explanations, it can be seen that each of these learning perspectives holds the learner as the centre of the education experience, consider that the learner is not a passive participant and that they construct knowledge in some way. The relevance of each of these perspectives becomes apparent when one considers the focus of the investigation being reported herein i.e. social media in support of non-formal learning. As will be discussed later in this chapter the environment, social media or social networking software upon which research is based, may take the form of institutionally designed and operated platforms or freely available commercial applications. Thus, depending upon the theory of learning subscribed to the impact of the learning environment will vary. When attempting to judge or interpret claimed outcomes of investigations reported it is imperative to have an awareness of the learning theories implied.

2.3.2 Modes of learning

Considering formal, informal and non-formal modes of learning formal learning is intentional, takes place in an institutional setting, follows a set curriculum and will lead to a formal accredited qualification. The learning has specific objectives and is supported by trained teaches or instructors. Conversely *informal* learning is said to occur in environments and locations which may be considered to be non-educational such as a workplace or the home. Self-motivated the learner takes part in unstructured learning which does not lead to a qualification or certification and is not time or location dependent (Greenhow & Lewin, 2016; Rappa & Tang, 2017). Between these modes of learning is said to exist *non-formal* learning which may be structured in support of formal learning but does not take place in the classroom. The learning which takes place is intentional, voluntary and, of itself, may or may not lead to an accredited qualification (Smith, 2012; Werquin, 2007; Cruz-Benito et al, 2015), striking a balance between formal and informal learning with negotiated outcomes (Whitty & Anane, 2014).

Non-formal learning:

Recognition and acceptance of non-formal learning as a mode of education is increasing at the national and international levels of education as organisations identify 'lifelong learning', whether formal, informal or non-formal as becoming a necessity rather than a luxury (UNESCO, 2014, 2015; Bryant & Usher, 2014; Witthaus et al., 2016). This may be evidenced if one considers the increasing efforts being made to develop and introduce methods by which this non-formal learning may be validated (Harris & Wihak, 2018; Travers & Harris 2014; Elkin, 2015). Though non-formal learning is often described as being similar to informal learning the main identifying characteristics adopted within this work is that of self-direction, often linked with spontaneity (Ferguson et al, 2014; Mardis, 2013; Yang et al, 2013).

In this investigation the term is used primarily with reference to one aspect of 'non-formal' learning which is the unorganised or unstructured nature of an activity in which learning has not been explicitly identified as an objective (Cruz-Benito er al., 2015; Jagust et al., 2018; Greenhow & Lewin, 2016). Based upon and apparent pupil willingness to use networked technologies for hedonic purpose the focus of this work seeks to investigate the willingness, or lack of willingness to utilise network affordances to share knowledge in an unstructured or unorganised fashion i.e. without instruction (Asterhan & Bouton, 2017; Boulton, 2014; Marwick & Boyd, 2014).

Based upon previous work by Smith (2001), Whitty and Anane (2014) suggest overlapping characteristics for each mode of learning (fig. 1).

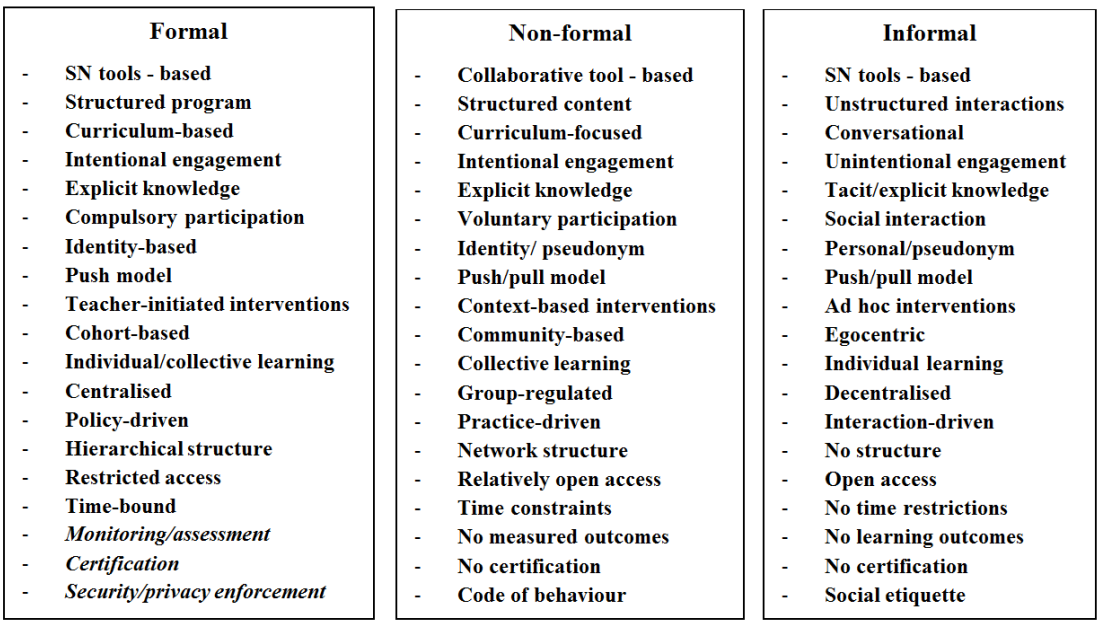

Figure 1. Characteristics of learning mode (Witty and Anane, 2001)

Each of the characteristics listed in fig.1, were identified based upon learning which is occurring in a 'real world' physical location whether it be at school, university, home, club or serendipitous. Of interest to this research is the idea that in a virtual location such as a social media-based network many of the disparities which arise due to physical location no longer exist (Wenger, 1998).

As described above for each of the modes of learning a fixed boundary is implied delineating the modes into clearly defined sectors yet it has also been suggested that these boundaries can be thought of as permeable and non-static (Barron, 2006; Bass, 2012). Learning has been described as occurring at any point on a continuum existing between the formal and the informal (Cross, 2011; Sefton-Green, 2013; Selwyn, 2007; Lim, Ang, & Koh, 2016; Rajala et al., 2016; Sharples et al., 2015).

Going further, it has been argued that to distinguish between different modes of learning is unhelpful and restrictive. It makes more sense to recognise attributes of the different modes of learning such as purpose, process, location and content which are relevant to all learning situations (Malcolm et al, 2003). Rather than utilise the terms formal or informal this work uses the term 'non-formal' to describe learning which does not occur specifically within a classroom or learning institution, is not led by a teacher or instructor and has goals set by the learner (Halverson et al., 2011). Having reported current theories and modes of learning the medium in which the learning under investigation takes place will be discussed i.e. social media, and the affordances enabled for learning.

2.3.3 Existing research ----

The objective of this research is to contribute to existing understanding of how adolescent school pupils perceive and use social media in their everyday lives and in support of self-directed, collaborative learning. To this end it is prudent to have an appreciation of the extant research within the field i.e. studies conducted into perceptions and use of social media in education and the impact they have upon this work. At a relatively early stage in the development of social media the potential to support collaborative learning and knowledge sharing was being recognised (e.g. Erstad et al., 2009; Lewin & McNicol, 2014; Livingstone & Bober, 2005; Knobel & Lankshear, 2006; Richardson, 2006; Zhang et al., 2015; Zhang et al., 2017). Though, as mentioned earlier, the majority of this research had been conducted in the higher education sector (Ahn, 2011; Davis et al., 2015; Manca & Ranieri, 2016; Minocha, 2009), there appears to be a small but growing body of empirical research in the schooling sector (e.g. Barron et al., 2010; Calvani et al., 2102; Eynon & Malmberg, 2011; Furlong & Davies, 2012; Krutka & Carpenter, 2016).

Much of the research conducted in the higher education sector has looked at the question of student use of social media in support of non-formal learning, how it is being is used and if a willingness to use social media may be leveraged to enhance knowledge sharing and learning. Whilst some research suggests that though students are readily using social media it is rarely in support of learning or for educational purposes (Hew, 2011; Pantazis et al., 2014), others maintain that social media is increasingly being used by students as informal learning spaces and sharing of knowledge (Dabbagh & Reo, 2011; Minocha & Kerawalla, 2011; Dyson et al., 2015; Tang & Hew, 2017).

To educators and researchers, it may seem rational that students use the affordances enabled by social media to support learning hence if an institution of learning offers a social media platform then students will surely utilise the tools offered. Apparently not, in an investigation into student motivation to use social media for learning Silius, et al., (2010), developed a platform called TUT Circle for first year university students with the aim of providing easy to use tools for study support through interaction with other new students. As connecting web-based teaching and learning communities seemed rational a social media tool was seen as an answer to the problem (Kuosa et al., 2014; Silius et al., 2009).

A social network site for students was developed by the institution in the context of supporting the study of basic engineering mathematics and was provided free of charge. Believing this to be an efficient solution to the problem of many first-year engineering students needing support with mathematics the researchers were surprised when the social media tool was all but ignored by

students (Silius et al., 2010). In contrast to the initial failure of a seemingly rational solution a community repository project called 'Humbox' (McSweeney et al, 2011) reports ongoing relative success. One possible reason for the initial failure of TUT Circle and the success of Humbox may be the design process followed by respective research teams. The TUT Circle researchers developed and offered an institutionally supported social networking site with very little input from the end users (Tervakari et al, 2013) whilst design of the Humbox was user centred with a focus on ergonomic and co-design guided by user experience (Millard et al, 2013).

As mentioned earlier the body of research conducted at university level i.e. with participants who are in the 18+ age range and in voluntary education is quite extensive, to describe all work undertaken would not be possible in this work. An important factor to note here is that students are utilising the affordances enabled by social media through their own volition i.e. their goals are endogenous. The following is a sample of work relevant to the current topic of discussion briefly describing motives, method and theoretical lens utilised by researchers.

Higher education

In an effort to determine whether learning can be enhanced through social networking Yu et al (2010), conducted a survey followed by focus group discussions with university students into their use of the applications Facebook, Xanga and Myspace. Based on the social learning theory of Bandura (1977), the findings of the study implied that it is appropriate for teachers and instructors to utilise online networking sites in designing learning activities to increase peer to peer collaboration (Deaton, 2015). It was also found that undergraduates with a capacity for self-regulation would often receive more peer feedback which may have contributed to greater academic achievement.

Deng et al (2013), investigating the possible reasons for student engagement, or lack thereof, in online discussions conducted using Facebook and Moodle interviewed 14 trainee teachers attending a university in Hong Kong. Discovering that students were actively using Facebook groups in support of learning rather than the Moodle discussion forums set up by a course instructor the investigators used Activity Theory (Engeström, 1987) as a theoretical lens to look into the motivations for the students' social media preference. Through analysis of data researchers developed a model consisting technical, individual and community aspects to explain online participation as sense of ownership existing practices and presence of peers all contributed to increased engagement.

Considering the topic of use of social media and academic achievement from a different perspective Hommes et al (2012) sought to address the question of if and how informal social

interaction impacts upon student learning. Through self-reported surveys first year medical students were asked to take part in the study which was conducted near the end of their first year in medical school. Online informal social interaction was evaluated using a Network Approach (Wellman, 1988), which concluded that participation in social networks was positively associated with social integration, academic achievement and motivation.

Still discussing engagement with social media but in a slightly different context Majchrzak et al (2013), analysed knowledge sharing in the workplace through the lens of Affordance (Lee, 2010; Norman, 2007). Through consideration of technological capabilities and how they relate to desired action the researchers utilised these technological capabilities in combination with human action as an analytical unit to build on Treems and Leonardis' four affordances of social media (2012). From an affordance perspective this study suggests that knowledge sharing becomes more aligned with technical capabilities when the focus shifts from knowledge management to knowledge conversations and using an affordance lens removes the separation between technology and user.

Returning to social media designed to support learning i.e. 'learning networks' and based upon a current literature Sie et al (2012) presented an overview of the potential for Social Network Analysis (SNA) (Erikson, 2004; Haythornwaite, 2011), in analysis of learning networks. In their conclusions the research team suggest that though learning environment may be changing SNA can make a positive contribution to social learning. Focusing mainly on analysis and visualisation of single mode peer-peer interaction current use of SNA may provide greater information about learning facilitated by social media.

The examples listed above are relevant to this work as the general topic of investigation is the use of social media in support of non-formal learning. The use of social media by students outside of institutions settings has been investigated through a variety of means and theoretical lenses with the intent to investigate social media use which may be learner led. Research into use of social media in support of learning by students in the age range 11-18, which may occur within or without the institutional setting is described next.

Compulsory education (11-18)

In an investigation into the use and perceptions of social media by young people and how it may be usefully harnessed in formal education Luckin et al (2009), collected data through a guided survey in 27 UK schools (N=2611), followed by 60 focus groups in 22 schools. Focusing upon types and usage of tools in young people's everyday lives the researchers sought to identify if and how

these tools and the usage could support formal. Comparable to the findings of Livingstone et al. (2005), and Van den Beemt (2010), the study indicated that learners in the 11-16 age range could be described as (1) researchers, (2) collaborators, (3) producers, (4) publishers or a combination thereof. With regard usage of social media file sharing featured prominently whereas evidence of producing resources was low, also there was little evidence of critical enquiry, analysis or sharing of knowledge. Similarly, taking a Learning Ecology perspective (Barron, 2004), and through upon analysis of data collected through a nationally representative survey (N=1000), Eynon and Malmberg (2011), set out to create a typology of young people based upon use of the internet outside of formal education. Informed by the sociology of childhood paradigm (James & Prout, 2015), and using latent profile analysis coupled with multinomial regression four profiles were identified: the peripherals, normatives, all-rounders and active participators all of which would appear to agree with previous work in identifying a limited number of adolescent social media user and usage.

Acknowledging the tensions within research regarding claimed sophistication of use of social media by students (Greenhow et al., 2009; Eynon & Malmberg, 2011; Ito et al., 2008), Greenhow and Lewin (2015), developed a model to theorise a space for learning in social media focusing upon different levels of formal and informal attributes present. Based upon two case studies, the first involving resources supplied to schools in twenty different countries (Lewin & McNicol, 2014), and the second being development and use of a Facebook application 'Hotdish' (Greenhow 2011; Robelia et al., 2011), the authors problematised learning and teaching in formal and informal spaces through a lens informed by ideas from social constructivism and connectivism. The project findings identified that a minority of young people are realising the potential of social media for collaboration by initiating and engaging with self-directed learning activities. Hence, in conclusion Greenhow and Lewin argue that the learning attributes of social media can be harnessed to enhance and support young people's formal learning experiences.

Switching to a focus upon informal learning i.e. activities that are not formally required by a school or other learning institution, Lin and Farnham (2013), investigated extra-curricular learning activities and practices of young people. Employing a theoretical framework based upon immediate and extended networks based loosely upon the work of Granovetter (1973), as most relevant to their aims the researchers conducted a mixed methods study comprising 23 semi-structured interviews with participants aged 13 to 17. The project findings indicate that few of the participants used social media to interact with extended networks and a sense of relationship was the main reason for engagement with informal learning suggesting that social aspects should be a primary consideration in designing a social media based informal learning tool for teenage students.

Approaching the question of student use of social media in support of learning from a different perspective Mao (2014), investigated attitudes and beliefs about the use of social media and other web-based technologies based upon student affordances. Analysis of data collected from a combination of 167 self-reported questionnaires, and three semi-structured focused group interviews the authors suggested that with regard use of integration of technologies in learning design, students could be described as open-minded whilst teachers were perceived as being close-minded. Based upon their investigation the author was keen to emphasise the importance the 'hidden curriculum' (Gredler, 2009), recognising that students interact with and are influenced on a daily basis by a society and culture which is increasingly driven by technologies. Results from the study also suggested that to be used effectively as a learning tool effort must be taken in the design and scaffolding of learning activities using social media, with learner involvement in the process when necessary.

The body of research covered in this section is by no means exhaustive as interest in the use of social media and related technologies in the support of learning continues to grow. What has been covered are the area's most directly related to the current investigation i.e. types of users in the relevant age range, how social media is being used by those users, mode of learning ranging across the spectrum from formal to informal and perceptions of social media in support of learning. By reviewing research conducted in the higher and compulsory education sectors it can be seen that the use of social media by teenage students in support of non-formal, self-motivated collaborative learning is lacking.

2.4 Social media - who is using it

As mentioned there has been much work carried out investigating use of social media in support of non-formal learning in the higher education sector and general e-safety in compulsory education. In contributing to the field of research this work looks at the use of social media by school pupils in the age range of 11-18 in support of non-formal learning. Having discussed the 'what' aspect of this work through different facets of social media and the 'why' aspect in considering the use of social media in support of non-formal learning we now look at the 'who' of this work. The following sections discuss the participant group consisting children and young adults in the age range 11 - 18 years old and why they use social media.

2.4.1 Digital Natives

As mentioned in section 2.3.3 there has been much work carried out investigating use of social media in support of non-formal learning in the higher education sector and general e-safety in

compulsory education. In contributing to the field of research this work looks at the use of social media by school pupils in the age range of 11-18 in support of non-formal learning. Having discussed the 'what' aspect of this work through different facets of social media and the 'why' aspect in considering the use of social media in support of non-formal learning we now look at the 'who' of this work.

As this investigation seeks to identify possible barriers to the use of social media by school pupils to support non-formal learning it is germane at this point to briefly discuss how popular perceptions of pupils as users of networked technologies have developed and changed. Possibly the most well know of these perceptions has been that of the 'digital native', a term coined by specialist in game based training Mark Prensky (2001), to describe those born after 1984 as experienced users of digital technologies who behave and think differently that those born before this time (Kirschner & De Bruyckere, 2017; Smith, 2012). Informed by Tapscotts' 'net generation' (1998) and Howe and Strauss concept of 'millennials' (2000), Prensky suggested that as those born after 1984 had grown and developed surrounded by and interacting with digital technologies they should be considered as digital natives. Based upon concepts of neuro-plasticity (Damji et al., 2015; Marshall, 2018) he argued that as digital natives had grown up in a digital environment their neural development was affected by the use of these digital technologies and thus they had developed with inherent sophisticated skills in the use of digital technologies which enabled them to undertake such actions as online multitasking, information gathering and collaboration with ease.

Interesting though these assertions were, and seeming to address a growing zeitgeist within the education and educational research sectors regarding the rapid development of digital resources Prensky coined the term not based upon scholarly research or empirical evidence but upon rationalisation of behaviours and environments observed (Kirschner & De Bruyckere, 2017; Bullen et al., 2011). The concept of a digital native received further promotion, becoming more readily accepted within academic and educational communities with the publication of 'Educating the net generation' (Oblinger et al., 2005), which appeared to resonate with educators as they identified with the dichotomy described as that between the digital native and the digital immigrant born before 1984 based upon first-hand experience of apparently digitally proficient students within the classroom (Judd, 2018; Smith, 2012).

Though the concepts of a digital native and digital immigrant became widely accepted within popular media (Judd, 2018), uncritical acceptance of the digital native discourse started to falter as a growing number of research studies questioned the actual existence of the digital native and whether, as Prensky and others claimed, education systems should be adapted to meet their

needs. Drawing on the work of Kennedy et al. (2008) and Oliver and Goerke (2007) in agreement that a limited number of the student population are technically proficient a review by Bennett, Maton, and Kervin (2008) argued that this did not necessitate wide ranging and large scale educational change. As further studies were conducted criticisms of the digital native concepts began to emerge with large scale studies of student use and adoption of digital technologies establishing that, as with the findings of Bennet et al., whilst a limited number of students fitted the profile suggest a that of a digital native the majority did not with evidence of a wide range of technology adoption by students (Jones et al., 2010; Kennedy et al., 2010; Margaryan et al., 2011). Further to this Romero et al., (2013) found that it was older students i.e. born before 1984, who exhibited the traits of a digital native over younger counterparts with Wang et al., (2014) concluding in their study that digital natives were not indeed more technically knowledgeable than their middle school science teachers. As an end note on this limited introduction to the debates surrounding the concepts of digital natives and digital immigrants it is interesting to note that in a large scale cross European study 'EU Kids Online' the term 'digital native' was placed first in a list of top ten myths concerning young people and their perceptions and use of digital technology (Livingstone et al., 2011).

Having considered popular perceptions of how and why children and young adults use networked, digital technologies the following sections discuss possible reasons for this groups use of digital technologies from an individual and group perspective.

2.4.2 Identity

The concepts of identity management and social capital are of much interest in research studies investigating the possible gainful or harmful effects arising from the use of social software upon users (Madge et al, 2009; Wang et al., 2016). These research efforts have produced conflicting conclusions, with some researchers claiming that use of social software can be very positive whilst others argue for the opposite being the case.

In a study of internet users in the age range 10 to 19 years results have associated increased use of internet with perceived decline in social support and increased feelings of depression (Subrahmanyam et al., 2001; Lin et al., 2016). Others studies have shown that heavy use of the internet has led to a feeling of being more isolated from society and reduced family interactions with friends and family for young users (Brenner, 1997; Boulianne, 2016). In an investigation of possible links between use of internet and loneliness results indicated a positive relationship

existed, increased internet use led to increased feelings of loneliness (Prezza et al, 2004; Woods & Scott, 2016).

Conversely, results indicating positive relationships between internet use, communications and social capital have also been found (Gross, 2004; Kavanaugh et al, 2005; Williams, 2006; Tyack et al., 2017). Positive effects on using the internet have also been found in investigations focusing upon social involvement and well-being (Kraut et al, 2001; Best at el., 2014; Chan, 2105). Studies of both teenagers and adults have indicated that internet users have higher levels of trust and larger social networks in comparison to those who do not use the internet (Hampton & Wellman, 2003; Robinson et al., 2000; Ceron, 2015; Usta et al., 2014). In a slightly different take upon the issue of loneliness research suggests that negative emotions were likely when communication occurred with strangers (Gross et al, 2002; Nowland et al., 2018; Ostovar et al., 2016). Though producing conflicting conclusions these research studies have focused upon concepts such as social identity, identity performance, publics and social capital as effect metrics (Boyd & Heer, 2006; Phillips, 2016; Ryan et al., 2018). Literature concerning the broad concepts of identity and social capital are discussed in the following section.

In seeking to identify potential affordances which may be enabled through the use of social software in support of collaborative, non-formal learning the initial objective of this investigation was to gain a better understanding of the perceptions of school children in their use of social software. Though varied definitions of social software describe the presence of different functionalities those generally agreed upon are mostly to afford the cognitive process of Identity management (Schmidt, 2007; Tatum et al., 2017; Jupe et al., 2018). Without the presence of identities or profiles a network may struggle to be described as social. Information is often given context and validity by the profile of the originator. Social networks grow as new profiles are added, existing links strengthened and new links forged (Mason & Rennie, 2008; Boyd & Ellison, 2007; Schencks & Toetenel, 2016; Demir & Akbulut, 2018).

In the use of social software, a user profile is the tool used by which an identity is created and maintained but the use of a profile is by means a modern phenomenon. In a portrait statue dated 2575 - 2467 BCE the image Rahoptep, a member of the ancient Egyptian royals' family, and his wife Nofret is recorded. As an important figure in the society of the times a list of Rahotep's status and accomplishments was listed on the side of the sculpture to ensure that there was no mistake in any reading of the representation (Friedlander, 2011; Marchi & Shlossberg, 2016) as such the statue is an example of a social identity performance or impression management i.e. a profile. By regarding the formation of user identity as a process (Buckingham, 2007; Dudek, & Heiser, 2017) the researcher may be able to develop a deeper understanding of user perceptions.

The term identity is commonplace across a variety of fields of research such as psychology, sociology, political science, history and social networks yet there are differences between the fields in understandings of the concept of identity and the theoretical role it plays (Stryker, 2000; Wry & York, 2017). A general definition for identity, self-identity or self-concept has been given as a mental and conceptual awareness of self that is learned, structured and fluid (Capozza & Brown, 2000; Marcia, 2017; Karwowski, 2017). Across the domains of research, the two perspectives of identity theory (Burke, 1980; McCall & Simmons, 1978; Stryker 1968; Monrouxe & Rees, 2015; Maddux, 2016) and social identity theory (Abrams & Hogg, 1988; Tajfel & Turner, 1979; Cannella et al., 2015; Van Knippenberg & Hogg, 2018) appear to take prominence. Each of these perspectives lays claim to a heritage originating in the work of G.H. Mead (1934) and structural symbolic interactionism (Alexander & Wiley, 1981; Stryker, 1980; Francis & Adams, 2018; Carter & Fuller, 2016). Both perspectives regard the nature of self as socially constituted and place a theoretical emphasis on self as dynamic, multifaceted and mediating between social structure and individual behaviour. Though similar in many ways the differences which exist may be summed up by the description "sociology for one and psychology for the other" (Hogg et al., 1995; Hogg et al., 2017).

Both perspectives regard the nature of self as socially constituted and place a theoretical emphasis on self as dynamic and multifaceted and which mediates between individual behaviour and structured society. Attempting to explain individuals' role-based behaviours identity theory may be regarded as a micro sociological theory whilst, attempting to explain group processes and relations, social identity theory may be considered a social psychological theory (Hogg & White, 1995; White et al., 2017; Yonkers, 2015).

Identity theory

Although heavily influenced by the work of Mead (1934) and Blumer (1969) identity theory disagrees with the structural symbolic interactionist view that society works in an undifferentiated, cooperative fashion but rather regards society as being differentiated and organised (Stryker & Serpe, 1982; Brenner et al., 2014). Viewing identity as being self-comprising multiple-role identities, the basis for identity theory is that it reflects a multifaceted and organised society.

Explaining social behaviour in terms of a relation between the self and society identity theorists focus mostly on the outcomes for individuals based on processes related to identity (Rosenberg, 2015). Regarding the self as being multifaceted and based upon roles of the self in society the concept of role identity was proposed for each facet or role position occupied by the self in

society (Stryker, 1968; Wiley, 1991; Maurer & London, 2018; Kaplan & Garner, 2017). As role identities are self-conceptions or self-definitions the role identity should be considered reflexive thereby providing meaning for self through social interaction (Burke & Reitzes, 1981; Stets et al., 2017; Rocque et al., 2016).

Linking role identity to social behaviour outcomes identity theory recognises that identities based on roles will be organised and prioritised in the self-concept (McCall & Simmons, 1978; Carter, 2015). The ranking of role identities in a hierarchy gave rise to the term identity salience, role identities positioned near the top of the self-hierarchy are more probable to influence a course of action. The implication of a role identity hierarchy and identity salience is that people with the same role identities may behave differently in a given situation due to a difference in identity salience (Thoits, 1991; Markowski & Serpe, 2018).

social identity

Sharing roots with identity theory in structural symbolic interactionism social identity theory is concerned with relations between groups, group processes and self as a socially constructed entity. The theory has origins in the work of Tajfel on social categorisation, social factors of perception and cognitive and social beliefs (Tajfel, 1970; Rothbart, 2015; Van Stekelenburg & Klandermans, 2017). With origins in the social psychology work of Henri Tajfel the theory was fully developed in collaboration with John Turner and others in the late 1970's (Tajfel & Turner, 1979; Turner, 1982; Trepte & Loy, 2017; Haslam & Turner, 2014).

In developing a self-concept, the social identity theory provides a self-definition determined by the social category to which belonging is felt and in terms of the defining characteristics of the category. It is important to note in this theory that each person has range of category memberships which will vary in importance within the self-concept (Abrams & Hogg, 1990; Marcia, 2017).

The effects of social identity are explained the notions of: categorisation of objects, people and groups; identification of groups and group membership; and social comparison with similar selves. In the same way that individuals categorise objects to understand them they will also categorise other individuals and groups to understand the society. Categories inform an individual about others and also about themselves by knowing which category they feel they belong to. To assist in categorisation an individual must identify which groups they feel they belong to. Identification may consist of group membership, which is a social identity, and may also apply as an individual thinks of themselves as unique, referred to personal identity, depending upon circumstance. Social comparison is based upon the normal psychological notion of a positive self-concept thus

for self-evaluation an individual may compare themselves with similar others (Festinger, 1954; Guo et al., 2016).

If group members compare groups to show their own group in a positive light they may see themselves in the same positive light. Following on from this are the ideas of positive and negative distinctiveness. As group members view similar groups they view their own group more positively but to have their own group seen positively by other groups the members try to reduce differences between groups.

Unified theory of Identity

Having discussed their shared roots in structural symbolic interactionism (Alexander & Wiley, 1981; Stryker 1980; Hammack, 2015), it should not be surprising to suggest that identity theory and social identity theory also aspects of many concepts in common (Hogg, et al, 1995; Brown, 2015; Steinberg & Darling, 2017). The shared concepts of each theory suggest that rather than being seen as competing theories the separate features of each may be complimented by features of the other in such a way that a unified theory may emerge (Stets & Burke, 2000; Stets et al., 2017). Focusing upon the similarities of the two theories several fundamental definitions in common can be identified including: 1) self-categorization as a cognitive association of the self within a social category which is separate to other categories, 2) identities as self-categorizations in terms of roles or groups; 3) the self-concept as the set comprising all of a person's identities, and 4) identities are situationally activated (Stets, & Burke, 2000; Stets et al., 2017). Having described identity theory in terms of behavioural outcomes in a social context and social identity theory in terms of cognitive outcomes Burke and Stets (1999) suggest that a unified theory would address both outcomes simultaneously (Ellestad & Stets, 1998; Hamilton & Mackie, 1993; Dweck, 2017).

identity performance

Independent of the theory of identity ascribed to the phenomena resulting i.e. the identity, may exist only for the duration that it can be practiced in a society and is largely shaped by the reactions of others to it (Haslam & Reicher 2007; Emler & Reicher, 1995; Asch, 2017). In presenting an identity to society the individual attempts to maintain control of the self-portrayed and hence the reaction to it by minimising characteristics not considered to produce the desired reaction (Goffman, 1959; Schmader et al., 2015). In this respect it has been argued that identity or self is the product of managed dynamic and performative action rather than simply a sustained, innate characteristic (Buckingham, 2007; Schroder et al., 2016). Described as identity

performance or impression management by Goffman (1959), an individual will put effort into what they want to say in creating and maintaining an identity.

Identity performance has been defined as the deliberate actions which are relevant to the norms of the social identity being maintained (Klein et al., 2007; Wittkower, 2014; File, 2018), relating only to the social identity of the individual. Extending the performance analogy Goffman (1959), theorised that two aspects to identity performance exist which are a “front stage” on which a public self is presented to the world and a “back stage” self-presented only to members of a group to which the individual feels belonging. As this work seeks to investigate affordances enabled by social software it is of interest to reflect upon the functionalities of social software which enable creation of a profile which can be kept purely private or back stage, accessible only by admittance or a public profile which is front stage, open to the world.

Further consideration of identity performance may also be given in the context of relations to explain the flow of information in a network, social or otherwise. In social networks relations may be regarded as ties which are described as strong, weak or latent (Granovetter, 1973; Haythornwaite, 2002; Valenzuela et al., 2018; Wegge et al., 2015). If an individual expends considerable time and effort in maintaining reciprocal relations such as those with close friends or family these would be considered as strong ties. A weak tie exists if the relation is with associates or “friends of friends”, which are described as being further removed in a network. Weak ties are considered important as they allow for the flow of new information and the development of new strong ties, without which a network may struggle to survive (Granovetter, 1983; Hansen & Villadsen, 2017; Aral, 2016). A latent tie describes a relation which is possible but does not yet exist, engagement or observation of which may or may not develop into a weak tie (Haythornwaite, 2003; Dekker & Engbersen, 2014).

2.4.3 Social capital

In the same way that relations or ties can be described in networks as weak or strong they can also be thought of in terms of social capital as bridging or bonding. Social capital has been defined as the resources, actual or virtual, that are made available to individual or groups as a result of social relation or interaction through a network (Lin et al., 2001; Putnam, 2004; Bordieu & Wacquant, 1992; Bordieu, 2018; Julien, 2015; Lin, 2017). It has been suggested that social capital also has the ability to influence outcomes at the level of the individual and the group (Beaudoin, 2007; Williams, 2006; Ellison et al., 2014). Putnam (2000) conceptualised social capital in terms of links between individuals and groups (Burt, 2017; Andriof et al., 2017). Bridging social capital exists if the tie across groups is weak, bonding social capital is in place if a strong tie exists.

Bonding social capital is likely to exist between homogenous groups, close friends or family members in emotionally strong relationships whereas bridging social capital originates from weak ties where connections are more tenuous. Information flows which occur through bridging social capital are likely to be of more social benefit to the recipient as it will be non-redundant information which offers a new perspective (Granovetter, 1983; Phua et al., 2017; Parcel & Bixby, 2016).

Recognising social capital as multi-dimensional Scheufele & Shah (2000), distinguished three domains of social capital including: the intrapersonal domain correlating with life satisfaction; an interpersonal domain concerned with trust of and between individuals and a behavioural domain based upon active social, civic and political participation (Alvarez et al., 2017; Eklinder-Frick et al., 2014). From a psychological perspective research suggests that a positive relationship exists between various forms of social capital and indicators of psychological wellbeing including such metrics as self-esteem, efficacy and life satisfaction.

2.4.4 Community of practice

A phenomena resulting from production of social capital is the development of an environment in which information can flow due to: low barriers for engagement; sharing of expertise; contributions being valued; strong support; social connection; and willingness to participate (Jenkins, 2006; Meng et al., 2015; Molyneux et al., 2015). Promoting the use of social media to support non-formal learning may facilitate the development of "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis." (Wenger et al., 2002) in which there is a sharing of community resources as found in a Community of Practice (Tseng & Kuo, 2014; Gardner et al., 2015; Goodyear et al., 2014).

2.5 Summary

This chapter has provided a review of concepts directly relevant to the research question by looking at prominent theories and modes of learning, a brief definition of social media, the affordances which support self-directed collaborative learning enabled by social media technologies both positive and negative. In looking at the technology under investigation, how that technology may be used and who is going to use it the following concepts are brought forward as relevant to this investigation:

- Technology under investigation: social and networked affordances of social media accompanied by the perception of risk and distraction and digital literacy

- How the technology is being used: from theories of learning the concepts of social constructivism and connectivism along with non-formal learning as a mode of learning
- Who is using the technology: in discussing who is using social media the concepts of identity and social capital

Current literature related to the topic of supporting non-formal learning in the higher and compulsory education sectors was reviewed listing examples of different theoretical lenses and frameworks utilised. In discussion of the current research reviewed it was shown that a gap in the research field does exist which this work seeks to address. The next chapter will introduce theoretical framework within which the current research sits followed by a description of the research methods used, results and analysis.

An interesting aspect of the research described above is that the participants are either partaking of a formal curriculum of learning voluntarily, as in the higher education sector or involuntarily as secondary school pupils. Of relevance to this work is that a gap in the field of research is exposed. Students attending institutions of higher learning have taken part in investigations of their self-directed non-formal learning, the students have chosen (or not), to utilise affordances enabled by social media to support endogenous goals. Investigations into the use of social media by school students in support of learning have been reported as participants utilise social media either in the classroom or to meet goals set exogenously thus cannot be claimed to be self-directed. The gap in the field of research which this work seeks to investigate is the use of social media by students in the age range 11-18 to meet goals set endogenously as part of collaborative, self-directed learning.

Having identified a gap in the field of knowledge the following chapters present findings of three studies conducted in this area leading to a discussion of the current landscape within which sits social media as a means of support for non-formal learning by secondary school pupils in the UK.

2.5.1 Main research question

To place the following chapter which describes and explains the theoretical framework within which this research is housed in context a recap of the main research questions is presented:

What is the role of social media in support of non-formal learning by school pupils?

RQ1. How do school pupils perceive and use social media

RQ2. How is social media used by school pupils to support non-formal learning

RQ3. How do teachers think social media is used by school pupil

Chapter 3: Theoretical framework

3.1 Introduction

In setting out to develop and conduct an investigation involving participants within an educational context with the intention of informing an audience i.e. produce an output of value and use, identifying an appropriate structure for the investigation and guiding principles for selection and application of ethical, investigative techniques provides evidence for claims of investigative rigour and academic credibility. From the practical perspective questions such as 'what is the subject under investigation?', 'where will the data be coming from?', 'what type of data will be collected?' and 'how will this data be analysed?' require careful consideration to ensure the most appropriate tools and techniques are employed without bias and in an ethically acceptable manner. In addressing these practical considerations thought must be given to the theories or paradigms upon which choice of investigative methods are founded. Hence to address these questions of practicality and philosophical grounding prior to starting on the investigative road there is a need for a theoretical framework within which the investigation will sit (Creswell, 2014; Grant & Osanloo, 2014; Hesse-Biber & Leavy, 2010; Mertens, 2014; Tashakkori & Teddlie, 2010).

In developing a theoretical framework for this investigation, the following data source/types were included when considering philosophical and methodological choices and how these choices of investigative method will be ethically applied:

- technologies used - data type: quantitative
- frequency of use - data type: quantitative
- duration of use - data type: quantitative
- purpose of use - data type: quantitative/qualitative
- perception of technology - data type: quantitative/qualitative
- willingness to use technology - data type: qualitative
- reasons for use - data type: qualitative
- barriers to use - data type: qualitative

As illustrated by this initial list of topics, to develop an understanding of current technology use in the form of social media in support of non-formal learning both quantitative and qualitative data is required to explain not only what technology is being used and how but also why. To give context to the subjects of the investigation in the wider picture of secondary education in the UK the following diagram (fig. 2) shows stakeholders identified.

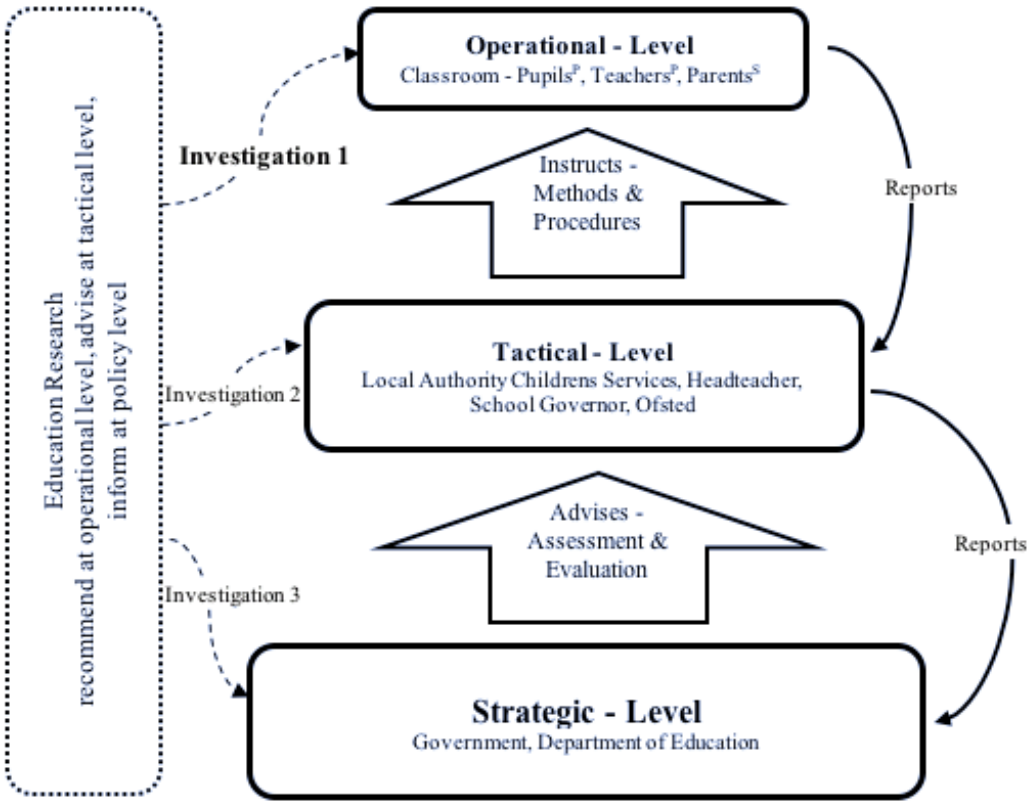

Figure 2. Stakeholder levels - operational, tactical, strategic

the remainder of this chapter goes on to discuss the philosophical approach adopted which provides a rationale for selection of a mixed methods model of research (Caracelli & Greene 1993; Onwuegbuzie & Teddlie 2003). Following upon this, reasons for selection of methodology are presented which support selection of suitable methods for data collection and analysis.

3.2 Ethical considerations

As this investigation focuses upon barriers to the use of digital technology to share information and support non-formal learning by children and young adults i.e. human interaction with technology, the inclusion of human participants places a demand for consideration of social responsibility and care for these participants. Adding to this consideration, the age range of one of the primary stakeholder groups at the operational level (fig. 2) places extra responsibility upon the research design in the form of duty of care as according the research ethics guidelines and requirements followed, these participants fall with the category of 'vulnerable' due to being under 18 years of age. As shown in the stakeholder levels diagram (fig. 2) the primary stakeholder groups in this investigation i.e. those directly impacted by the use of social media to support non-formal learning are identified as classroom pupils and teachers, with each group requiring specific ethical consideration.

For this investigation the age range of classroom children is determined as 11 – 18 years with classroom teachers considered as being over the age of 18 years. As such, and in accordance with guidance on research design from the following bodies:

- the Engineering and Physical Sciences Research Council
- the Economic and Social Research Council
- the University of Southampton policy on ethical conduct of studies involving human participants
    - Study 1: Ethics Approval #5942
    - Study 2: Ethics Approval #13464
    - Study 3: Ethics Approval #18578

and requirements when conducting research with vulnerable participants i.e. under 18 years of age, stipulated by the Research Governance Frameworks followed by the county councils of Cambridgeshire, Hampshire, Norfolk and Suffolk (appendix B), in which the studies comprising this investigation took place the following steps were built in to the design of the investigation.

3.2.1 Participant access

- Pupil - each of the county councils within whose jurisdiction research studies were conducted had in place a research governance framework based upon the UK policy framework for health and social care research published by the UK Health Research Authority and the UK Health Departments (HRA, 2017). The guideline in place for conducting studies based within secondary schools or collecting data from pupils attending secondary schools with each county stated that if the number of schools (in each county) was four or less the decision to grant access lay with the relevant headteacher. As this entailed the headteacher acting *in loco parentis* with regard pupil safety and well-being, the headteacher in school was approached for permission to collect information from pupils attending their school in the form of an online questionnaire and focus group interviews.
- Teacher - In support of request for this permission the following research design factors were presented to each headteacher.

3.2.2 Informed consent

- Pupil - no pupils would be approached or invited to take part in any study without either the explicit written consent of the headteacher (*in loco parentis)*, or the parent or guardian of the pupil.

- Teacher – though not stated within or required by the research governance frameworks in place, no teacher would be approached to participate in a study without the permission of their headteacher as a matter of courtesy.

3.2.3 Right to withdraw

- Before participation - after reading the relevant study information and having agreed to take part in a study if a pupil or teacher no longer wishes to participate they can withdraw at any time.
- After participation - if a pupil or teachers wishes to withdraw from a study after taking part in data submission the tranche of data to which they contributed will be removed e.g. if a pupil wishes to withdraw from a study after taking part in an online questionnaire all of the data collected during the time and date in which the pupil participated will be removed. Similarly, if a pupil or teacher wishes to withdraw from a study consisting focus group or individual interview the data collected during the appropriate time and date will be removed.

3.2.4 Participant anonymity

- Pupil - to remove the possibility of participant identification through triangulation the only data collected specific to a pupil group will be gender and school year along with date and time of participation which may allow for identification of a group but not an individual.
- Teacher – as the teacher participants are interviewed individually the identifying data collected during each interview will be date, time and participant gender.

3.2.5 Data security

- Access - all data collected will be stored upon a single, password protected, non-networked computer to which access is limited to the researcher.
- Storage – data will be stored on an encrypted storage device stored within a fire-proof container.
- Retention - all data collected will be destroyed after analysis.

3.2.6 Analysis confirmation

- Participants will be offered the opportunity to view collected survey data and interview transcripts after participation in survey or interview to ensure accuracy of survey data and transcription of interview recording.
- Participants will be offered the opportunity to view data analysis and findings throughout the research process. Participant comments will support researcher ongoing reflexivity and constant comparison in data analysis.

3.3 Philosophical approach

In addressing the topics listed which could be investigated through the collection of quantitative data e.g. how many? how often? an empirical approach to the research could be adopted. Emphasising quantitative methods an etic perspective places focus on scientific techniques such that hypothesis could be created and tested to determine the effects of social media technology use and measure relationships between variables (Creswell, 2003; O'Leary, 2004; Sale et al., 2002). Whilst this focus upon the use of quantitative techniques would offer the opportunity to measure the effect of social media upon knowledge sharing between pupils the nature of restrictions upon methods of data collection would have an impact in the form of anonymity required for participants under the age of 18. Coupled with a demand of anonymity, the reasons for adolescent use of social media as stated in the literature review would be difficult to measure directly from the web and would require further investigation to understand. Conversely, a qualitative approach grounded in constructivism and interpretivism could accommodate these more difficult to measure elements of the investigation (Alasuutari, 2010; Maxwell, 2012; Wikgren, 2005). Adopting a qualitative research method would allow the development of theories driven by the research questions based upon in-depth investigations of separate cases in which circumstance can change as quickly and as often as the constructivist paradigm would suggest and from the perspective of participants involved (Curry et al., 2009; Guest et al., 2011), rather than there being only one testable and measurable objective truth (Shah & Corley, 2006).

in determining a theory of research upon which to build the investigation an examination of the research objectives and the questions which could be asked in support of attaining those objectives was required. Considering the nature of the topics listed and perceived lack of understanding about the use of social media for knowledge sharing by adolescents an explanatory rather than conclusive research design is required (Olah et al., 2012). Being explanatory in nature the research would also be required to be inductive to aid development of theories to support understanding in the area of research rather than deductive in approach as used to support

testing of previously developed theories. To purely measure by empirical means the use of social media in support of non-formal learning by pupils would not have revealed its current role as perceived by pupils or teachers hence a purely quantitative approach would not have been entirely suitable. However, whilst being aware that measures based upon quantitative data alone could not explain all aspects of the research these measures were recognised as being of use in determining to a limited extent the of actual use of social media to support non-formal learning e.g. was it being used at all by pupils, and hence not excluded from the research. Recognising that a solely empirical approach would provide a limited understanding for the research consideration was given to qualitative, constructivist techniques which may afford a richer, deeper understanding of the current use of social media for promotion and use of social media by participants in support of non-formal learning. Recognising the benefits and drawbacks inherent with each of the paradigms described (May & Pope, 1995) a more expansive approach was required allowing use of appropriate methods from each paradigm which match the research questions and the data they produce to better understand the nature of this social reality (Caruth, 2013; Driscoll et al., 2007) i.e. a mixed method approach. Being Pragmatic by design a research model based upon mixed methods will support gaining of objectives such as explanation, confirmation and internal validation through triangulation within the research process (Feilzer, 2010; Gioia & Thomas, 1996; Jick, 1979; Teddlie & Tashakkori, 2012). In the following section the mixed method model type of research and foundational theory of knowledge is discussed.

3.3.1 Mixed methods Research and Pragmatism

In recognising that to develop an in-depth understanding of the current place of social media in support of non-formal learning by pupil's analysis of both quantitative and qualitative sources of information is required a mixed method model of research was deemed appropriate. Before discussing the development and implementation of this type of research model a summary of the philosophical foundations of this model is offered.

Until relatively recently arguments were being offered as to why the mixing of quantitative and qualitative research could would not be acceptable in any effort to capture a social reality as they represented different perspectives of objectivity and subjectivity in research (Maxwell & Loomis, 2003; Mays & Pope, 1995). The divide between the scientific and constructivist or interpretivist paradigms (Scotland, 2012) created space for a third paradigm called mixed methods and built upon the concept of inquiry developed by Dewey (1920, 1925) known as Pragmatism (Biesta, 2010; Caruth, 2013; Dellinger & Leech, 2007; Hall, 2013; Pearce, 2012). Unlike the 'traditional' research paradigms of empiricism or constructivism which are built upon philosophies of knowledge consisting ontologies, epistemologies and methodologies Pragmatism stems from a

philosophy of knowledge built upon on Dewey's concepts of inquiry (Dewey, 1922; Morgan, 2014) as illustrated in figure 3 (Biesta & Barbules, 2003; Strubing, 2007).

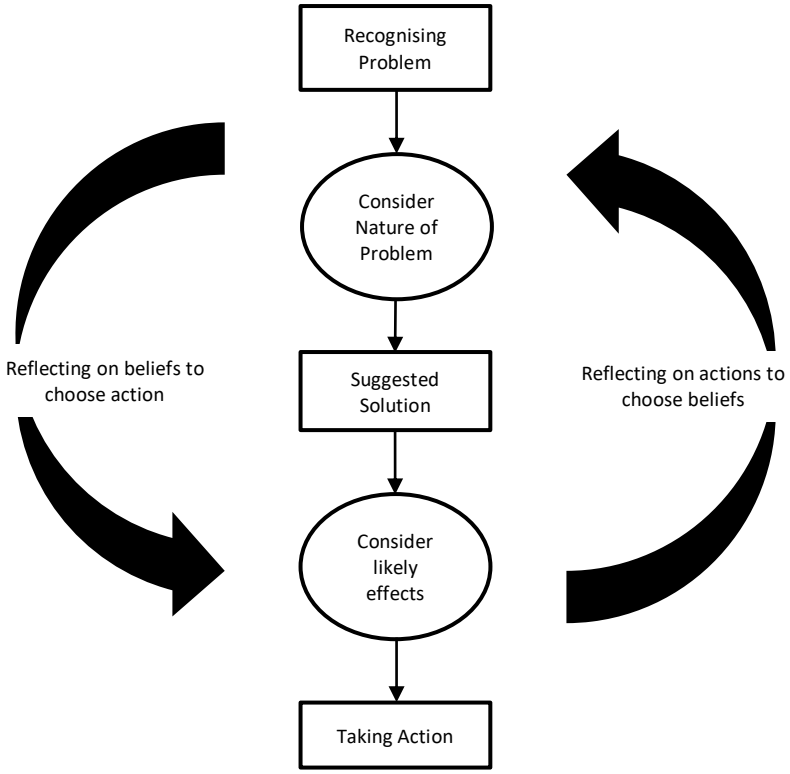

Figure 3. Dewey's model of inquiry

With its emphasis on experience the ontological arguments about either the nature of the outside world or how the individual perceives the world become discussions which are about both sides of one coin (Morgan, 2014). As such Pragmatism allows for both quantitative and qualitative methods to be used within a study placing importance upon research questions over philosophical worldviews or methods to be used as the most important element (Creswell & Plano Clark, 2007). Though not a primary justification for adopting a philosophical approach founded in Pragmatism there is an acceptance of using "what works" to achieve results, suiting the methods and approaches to what is required and practicable, rather than upon an agreed set of rules (Creswell & Plano Clark, 2007, Johnson & Onwuegbuzie, 2004). Overall, this makes a mixed methods approach founded upon a philosophy of Pragmatism particularly suited to this research.

3.4 Mixed Method Design

With the decision taken to utilise a mixed method research approach the identification of an appropriate research structure along with data collection methods and techniques of analysis is

required. To aid selection of an appropriate research design a number of factors are available for consideration to narrow down the options such as the type of data to be collected, participant access, timescale and resources available with which to conduct the research. As both qualitative and quantitative data are to be collected and analysed a number of different research designs are available for selection the general categories of which are summarised in the table 1.

Category	Description	Weighting	Timing	Details
triangulation	Concurrent but separate study of both quantitative and qualitative data, which are then merged together to create a single interpretation.	Usually Equal	One Stage	Each piece of data is analysed independently, but there is the risk that the results from each do not match.
embedded	One data set acts to support findings based primarily on the opposite data format	Favours either qualitative or quantitative	One or Two Stage	Qualitative or quantitative data are used for a different purpose to answer a specific question in an overall study that favours the other data type.
explanatory	Qualitative data is used to explain quantitative results.	Usually quantitative	Two Stage	Qualitative data provides additional insight into surprising or outlying results, but requires additional time.
exploratory	Qualitative results inform the later quantitative method.	Usually qualitative	Two Stage	Qualitative approach explores a phenomenon, before using quantitative to interpret these results, but requires additional time.

Table 1. Major mixed method design types (Creswell & Plano Clark, 2007)

Though each of the research designs have an advantage in that they all allow for collection and analysis of both qualitative and quantitative data the number of phases comprising the study and the sequence of collecting and analysing quantitative data initially which to analyse and inform the collection of two sets of qualitative data suggests a sequential research design. With an equal weighting given to both types of data collected this form of mixed method research design will support triangulation to ensure validation and confirmation the pupil data sources (Creswell & Clark, 2007) followed by comparison of findings developed through analysis of pupil and teacher data sources.

Mentioned previously, a non-trivial aspect impacting upon the research design is that of resources available with which to conduct the research project. Of benefit to the single researcher use of a sequential strategy such as an explanatory sequential approach allows for division of the investigation into manageable task procedures over a period of time rather than the collection of multiple forms of data at the same time as might be entailed in a convergent design (Creswell, 2014). Conversely, drawbacks to be considered are those of time taken to implement the different phases of the investigation and selection of participants for the qualitative phase(s) of

the research. Though often not within their control the researcher must decide whether to use the same participants for both phases of the research, participants from the same sample for each phase or from the same population (Creswell & Clark, 2007; Ivankova et al., 2006). With these benefits and drawbacks in mind and as the investigation would commence with the collection and analysis of quantitative data to highlight whether there is value in proceeding with the research followed by investigation through collection of qualitative data to allow synthesis of complementary data results resulting in a more complete understanding of the area under investigation an explanatory, sequential research design was adopted.

3.5 Methods

Selection of an explanatory sequential research design to address the main research questions suggested a two-stage investigation with the first stage comprising two phases. The first stage would commence with a quantitative investigation of pupil perceptions and uses of social media followed by a qualitative investigation to develop deeper and richer understanding of the phenomenon. Informed by the findings of the first stage of research the second stage of the investigation entails a smaller sample set comprising teachers of pupil participants engaged in the first stage of the investigation. The types of data collected at each stage are listed in table 2 below.

Data Set	**Data Type**
How do school pupils perceive and use social media	Quantitative
How is social media used by school pupils to support non-formal learning	Qualitative
How do teachers think social media is used by school pupils	Qualitative

Table 2. Data Types

A challenge faced in design of the first stage of the research is to ensure rigorous quantitative sampling in the initial phase followed by purposeful sampling in the second, qualitative phase to ensure that the qualitative phase builds directly upon results of the initial quantitative phase (Creswell, 2014). The difficulties encountered in this instance arises due to requirements for participant anonymity when conducting research with participants are under 18 years of age as stated by the Research Governance Frameworks of each Local Education Authority with responsibility for participating schools (appendix B). To mitigate for this inability to identify individual pupil participants in the initial research phase qualitative data collection with pupils would take place in schools where pupils had completed the survey. Further to this the individual interview teacher-participants were selected from those whose classes had completed the survey. The method of triangulation employed is outlined in the following diagram (fig. 4).

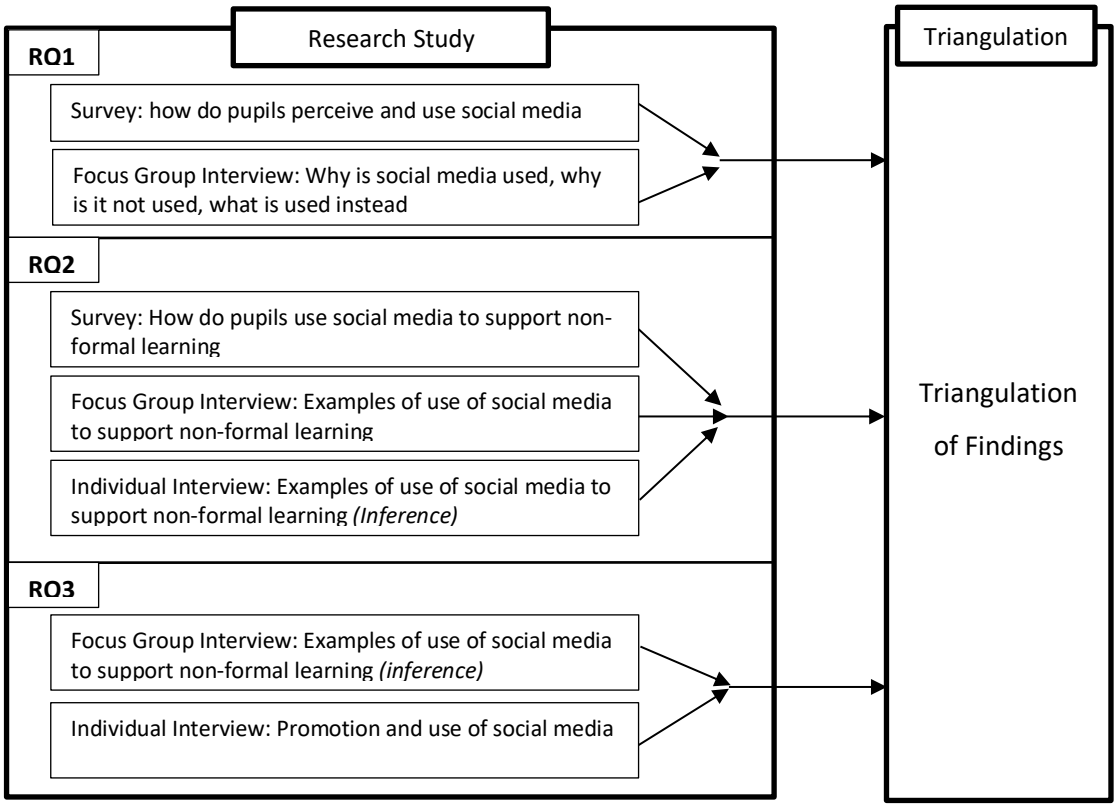

Figure 4. Methods & Triangulation

Based upon the methodological decisions presented the following section explains the choice of methods used in this research followed by a discussion of the triangulation process and chapter summary. The method selection was guided by the three research questions listed previously for contribution to a final summary upon triangulation with findings from the other methods.

3.5.1 Survey and statistical analysis

Studies discussed in the literature review informed selection of data collection methods for this research (Creswell, 2014). In considering the enthusiasm of children and young adults to use social media and the number of studies conducted in this area the question arises as to why relatively little is known about its use in support of non-formal learning by adolescents. In many of the studies conducted relating to students and education a survey, either offline, online or in several cases both (Barron et al., 2010; Eynon & Malmberg, 2011; Luckin et al., 2009; Mao, 2014; Pollara & Zhu, 2011), was described as the most appropriate tool for data collection. The reasons given for use of ranged from student access and sample size to efficiency and cost though mention was also made of lack of pressure or influence upon participant (Ajjan & Hartshorne, 2008). Though apparently a very popular data collection tool when conducting research with participants an issue reported as requiring careful consideration is that of validity of self-reported data (Creswell, 2014). In making claims to counter inaccurate or misleading self-reported data several studies describe the use of individual or group interviews for comparison or triangulation purposes (Junco, 2013).

When taking into consideration the apparent reasons for popularity of an online survey instrument as a tool for collection of both quantitative and qualitative data in relevant current research an online survey tool was chosen to determine what social media was being used for by pupils and whether they did or would consider its use in support of non-formal learning (RQ1). Though qualitative in nature once quantised, data collected through use of open-ended questions as part of the online survey also contributed to addressing the second research question regarding pupil perception and use of social media with regard non-formal learning (RQ2). To accommodate the limited time available for implementation of data collection and the range of levels of reading ability attained by pupils due primarily to age, questions based upon a three-item Likert scale will presented to pupils in the initial stages of the online questionnaire in an attempt to ensure that at minimum the primary use of social media questions would be attempted. A further benefit of introducing the research questions with limited responses is to promote participant ‘comfort’ and ‘confidence’ in participating in the research process (Ruzek et al., 2016; Wills et al., 2017). Whilst the range and type of quantitative data collected was limited due access restrictions, lesson time available for survey, format of questions and requirements for participant anonymity to make sense of quantitative data collected descriptive and statistical analysis in the form of frequency analysis and Pearson Chi Square tests (Armstrong & Overton, 1977) were utilised.

3.5.2 Focus group

Following an explanatory sequential research design a second phase of data collection involving pupil participants was designed to gain qualitative insights into themes identified on analysis of quantitative data collected through online survey. As well as providing qualitative insights analysis of focus group data would also be of importance in offering a means by which to mitigate for possible validation issues which may arise when using self-reported data (Junco, 2013). The use of focus group as an economical, fast and efficient data collection method (Krueger & Casey, 2000) to help explain survey findings has been successfully reported by studies researching such topics as learning impacts on social media (Yu et al., 2010), the impacts, barriers and issues of implementing Web 2.0 technologies in secondary schools (Crook et al., 2008) and student and staff perspectives on using ICT's (Waycott et al., 2010). Collection of data through focus group has also been reported in conjunction with analysis of subject specific social media sites (Pimmer et al., 2012) as well as the use of the successful use of an online environment to conduct focus groups themselves to determine reasons for participant preference (Zwaanswijk & van Dulmen, 2014). Though recognised as an efficient and engaging method by which to collect data (Colucci, 2007) the focus group is not without criticism with respect to participant interaction (Kitzinger, 1994; Morgan, 1997), facilitator subjectivity and control (Krueger & Casey, 2000; Litosseliti; 2003) and depth of participant response (Michell, 1999; Morgan, 1997). In mitigation for these possible criticisms of the research procedure the focus group facilitator utilises an audio recording device to record participant comments to allow for note taking in a research journal with regard participant behaviour and participation, 'leading' of topics and returning to participant comment to seek further detail. Being semi-structured in format the focus group interviews allow for participant digression as the facilitator encourages pupils to express their thought about a range on topics which may not be considered as being strictly 'on topic'. In this way examples and explanations of use (or non-use) of social media generally (RQ1) and in support of non-formal learning in particular (RQ2) can be collected along with instances of teacher promotion of social media use to support learning (RQ3).

3.5.3 Interview

Possibly the most time consuming and hence expensive of the data collection methods the individual interview can not only provide rich descriptions with reasons that may otherwise be difficult to reach but, if used in conjunction with other data collection methods e.g. survey or focus group can also provide data for the purpose of triangulation (Creswell, 2012). Whilst a preference for interview via email by adolescents has been reported due to convenience (Mason & Ide, 2014), criticisms levelled at face-to-face semi structured interviews include effects of

possible 'power dynamics' or imbalance between the interviewer as knowledge seeker and interviewee as knowledge holder and the possible effects of social and cultural assumptions (Ibrahim & Edgley, 2015).

In their investigation of how learners engage with and experience e-learning Conole et al., (2008) successfully combined data from interview, survey and audio log which provided data not only rich in description but also suitable for validation of findings through triangulation. Though relatively novel, Lee (2013) incorporated individual interview by email to give context to findings of a Delphi study conducted as part of an investigation of 'soft skills' or character traits such as emotional intelligence or social aptitude sought by prospective employers. In a somewhat different fashion Lin and Farnham (2013) described use of a mixed method approach based upon interview alone to understand why extended networks developed on social media are used for informal learning by some adolescents and not others. In this instance quantitative data was collected as part of the interview process which, though adding to interview duration allowed for further interrogation of interesting data as it was recorded. Informed by previous research and to support validation of pupil data collected via survey and focus group the decision was taken to conduct semi-structured individual interviews (Povee & Robert, 2015) with the second of the primary stakeholder groups in this research i.e. classroom teachers of the participant pupils. Contributing to understanding of teacher perceptions (RQ3) and pupils use of social media to support learning activities (RQ2) through examples, the second stage of the research project consisted of teacher interview carried out by telephone (Hesse-Biber & Griffin, 2013; Hope, 2015; Seitz, 2106) to accommodate teacher availability.

3.5.4 Thematic analysis

Having adopted a mixed method model for this research founded in the philosophical approach of Pragmatism and Dewey's concept of inquiry (1922) the choice of method to utilise for analysis of qualitative data generated by focus group or individual interview is not necessarily tied to any particular methodology (Green & Thorogood, 2004). With this in mind choice of analytical method is guided by deciding whether a deductive approach, in which codes and categories are based upon existing theories or research is most suitable (Elo & Kyngas 2008) or an inductive approach in which codes, categories and themes concluded from the transcription of raw data without preconceived notions will give new insights or richer understandings (Halkier 2010). As data for analysis originates from two different samples i.e. pupils and teachers for the purpose of triangulation and comparison, and the aim of this research is not to reinforce existing theories an inductive approach in the form of thematic analysis is identified as the most appropriate method

of analysis for this research. For a claim to internal validity the thematic analysis employed is an iterative process built upon constant comparison continuing until a point of saturation is reached (Burrows & Kendall, 1997; Teddlie & Tashakkori, 2009). The claim for validity of analysis was further supported by implementation of measures to ensure intra-coder reliability through analysis of each transcript being carried out three times with a separation of 14 days between reading (Olsen & Shorrock, 2010; Rousson et al., 2002).

3.6 Triangulation

Discussed in section 3.2 and located within the research design as shown in figure 4. the process of triangulation was integrated within the research design as a means by which to further legitimate findings from each method employed through validation (Lin & Farnham, 2013; Faust, 2012). To support investigation of RQ1 and RQ2 themes and findings developed through analysis of focus group qualitative data were compared with themes and findings of the online survey conducted as part of the first study to identify areas of convergence and divergence. Building upon findings supported through triangulation of focus group and survey data the triangulation process was repeated to address RQ3 by combining complementary and comparable findings developed through analysis of teacher interview data. By comparing pupil comments gathered via survey and focus group with teacher observations an appreciation of participant perceptions was developed supporting understanding of the current role of social media in support of non-formal learning in participants lives.

3.7 Summary

In this chapter the philosophical approach of Pragmatism, the mixed methods model and the methods of validation through triangulation used for this research have been described. Beginning with an overview of the paradigms of empiricism and constructivism as two opposing worldviews the philosophy of Pragmatism was presented as most suited to achieving the objectives of this research. Unlike empiricism and constructivism, the Pragmatic approach does not regard the use of qualitative and quantitative data as incommensurable thus allowing for the flexibility of a mixed method approach to identify different aspect of social media as perceived by different participants for the same purpose. Utilising a mixed method approach the design of the research employed complimentary data collection methods affording the opportunity for triangulation of themes and findings developed from quantitative and qualitative data to support a detailed understanding of the current role of social media in support of non-formal learning by secondary school pupils. The structure and sequence of the research process followed is illustrated below in figure 5.

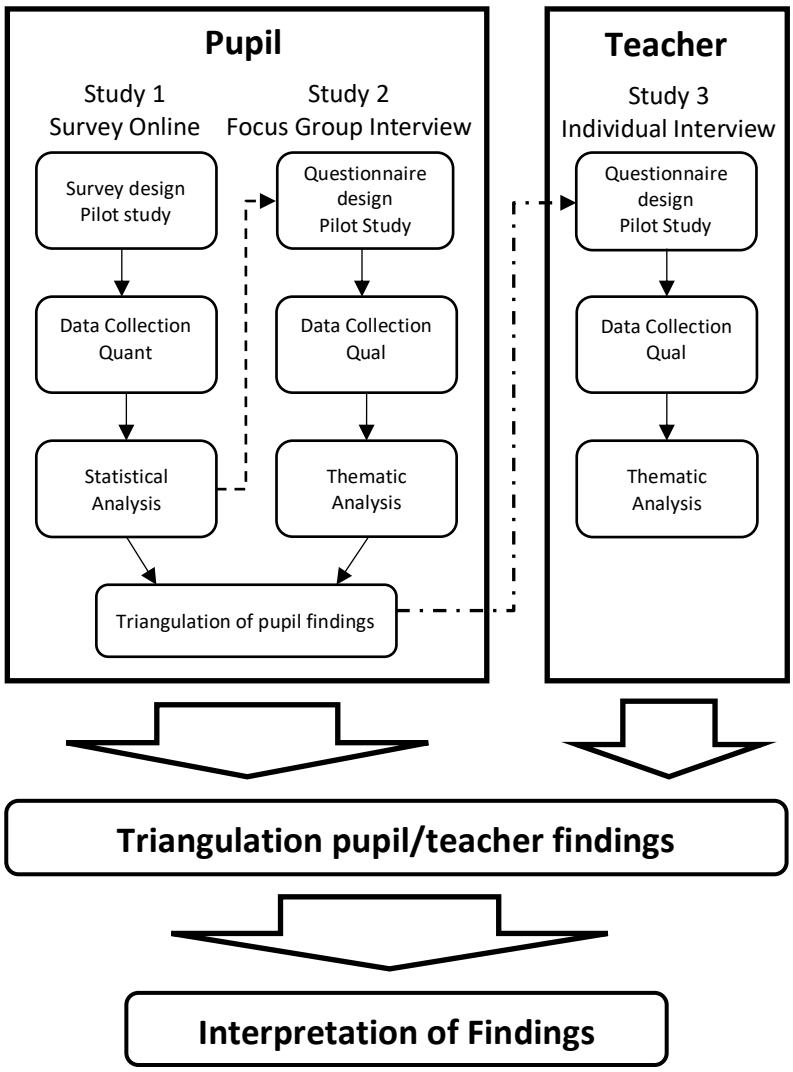

Figure 5. Research process, sequence and structure

Details about the use of each method detailed in section 3.4 are given in the following chapters which describe the sample and data collection for each of the studies conducted providing an in depth summary of each link in this chain of research. Following the descriptions and findings of each study an overall analysis is presented including the main contribution of this research. The following chapter details the first study in this research which took the form of an online survey.

Chapter 4: Study 1 – Pupil Survey

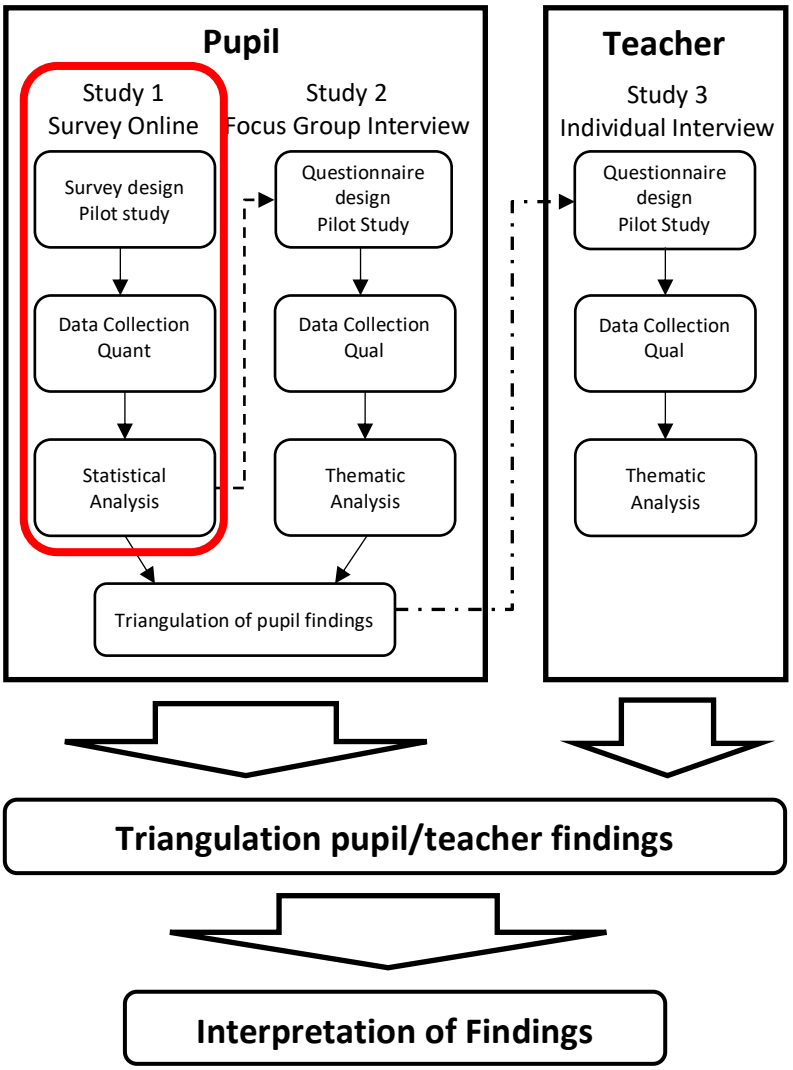

Figure 6. Study 1 position in overall research

The report of the first study is based on a paper accepted for publication in an AACE publication International Journal of E-Learning, vol.16, no.2, (2017) 'Perceptions of School Children of Using Social Media for Learning'. The position of the first study in the overall research design in shown in figure 6.

4.1 Introduction

Unlike conducting research with participants who are over the age of 18 recruiting participants who are of school age is a difficult stage in the research process (Alderson, 2004; Sinclair, 2004). Issues of approach (Hood et al, 1996), access through gatekeepers (Butler & Williamson, 1994)

and consent (Cree et al., 2002; Hill et al., 2004; Masson, 2004; Miller, 2000; de-Marcos et al., 2016; Neier & Zayer, 2015) can appear to frustrate the research process leaving researchers feeling dependent upon the goodwill of organisations to cooperate (Aldgate and Bradley, 2004). For this research the approach was to use the authors experience as a classroom teacher and exam board coursework moderator, and to utilise existing professional relations with departments of ICT in a group of six UK secondary schools, the sample can therefore be considered one of convenience. School leaders were invited to participate in the study who would then act *in loco parentis* for the school pupil population with respect to the parental or guardian consent required for participants under the age of 18. Further documentation was made available if requested, the main approach, though, was to ensure that head-teachers were aware of their ability to act *in loco parentis* as granted in the Research Governance Frameworks set in place by the schools Local Education Authority.

4.2 Method

Due to the potential size of population sample, access to an online questionnaire or e-survey was selected as the most appropriate tool for data collection (Couper, 2000; Gillani & Eynon, 2014; Wodzicki et al., 2012), for the initial phase of research with the second phase comprising focus group interviews. The survey consisted of 8 sections including participant consent, use of social media, educational use of social media, and learning and sharing knowledge. From discussion with serving classroom teachers several factors affecting research instrument design were recognised early in the process. It was realised that as the participants could vary greatly in terms of reading ability and comprehension skills the survey design would require great care to accommodate this variation. To help participant understanding the questions would be couched in ‘student speak’. Another important aspect to consider was the time required to complete the survey, as participant schools were asked to conduct surveys during timetabled classroom lessons, the content of which were planned in advance and accounted for the entire lesson time. Due to these time restrictions the questions were kept to the minimum required to gain baseline data for further qualitative research.

4.3 Survey

Conducting research with school pupils as participants in the school setting is recognised as being fraught with difficulty (Greenhow and Robelia, 2009), not least of which is gaining access to the participants’ school environment. The research instrument developed in this project was designed to be administered by school teachers during timetabled lessons without the need for researcher presence. Though addressing the issue of researcher presence and possible ‘observer’ effect in

the classroom the drawback was dependence upon teacher willingness to administer the online survey.

In design of the survey instrument several steps were taken to ensure internal validity (Gray, 2009). Once the initial questions were drafted each question was subject to internal peer review (Creswell, 2007). Then during informal usability style testing with volunteer participants at a local school the relevance of each question was discussed and participant comments noted for action if deemed necessary. Finally, the study was submitted to and granted ethics approval by the University of Southampton ethics board (Ethics number 5942).

Once the surveys had been taken the raw data collected was cleaned in three stages to ensure that further analysis would produce meaningful results. The first stage was removal of participant records who had not agreed to take part in the survey (and had thus left the survey early). Next was removal of participants' records who reported that they did not use social media. These participants were given the opportunity, if they wished, to explain why they did not use social media for further analysis. The third stage of data cleaning consisted removal of records with questions answered in a meaningless way (either no selection, or more than one answer selected).

Quantitative questions were typically answered via a Likert scale, these were plotted and error bars calculated to show significant results at the 5% level to indicate possible statistically significant differences. The Qualitative data results consisted of the reported examples of participants providing or receiving help with their learning through social media. After a first reading of the comments initial codes were developed to describe a range of intentions and activities. Following a second reading at 14 days after the first reading of the comments and third reading after 28 days, a set of high-level themes were developed to give one interpretation of common themes and a high measure of intra-coder reliability (Neuendorf, 2008; Krippendorff, 2004), based upon intra-class correlation[3] (Rankin & Stokes, 1998). Once initial themes had been developed a second thematic investigation of the pupil responses was conducted seeking evidence for one of the six levels of thinking as described by Anderson's revision of Bloom's taxonomy (Boles et al., 2015; Churches, 2008; Tijaro-Rojas et al., 2016) or any of the verbs described by Andrew Churches (2008) updating of Bloom's revised digital taxonomy map (Wedlock & Growe, 2017).

[3] ICC = 0.96, with 95% CI (0.95, 0.97).

4.4 Results and Analysis

In total 383 pupils responded to the survey across 17 classes in six different schools. Of these 71 were excluded from the study due to incomplete or poorly formed answers, of the remaining 312 pupils, 144 left qualitative comments as well as providing quantitative data as opposed to quantitative alone.

The first section of the survey investigated pupils' perceptions of the importance of social media or social networking sites (SNS), participants were asked "do you think that social media is important in everyday life?", with 3-point Likert answer options: 'very important', 'sometimes' or 'not important at all'. Fig. 7 Gives an overview of the answers received, grouped by academic year. It indicates little change in average perception of importance as pupil's progress through academic years, although there is a small spike in 'very important' answers in year 7 (11 years old) and another in 'not important' answers from year 10 (14 years old). We also analysed the replies by gender and year group, which revealed greater variance (Fig. 8, Fig. 9). Whilst the level of importance self-reported did not seem to be affected by academic year ($\chi^2(10, N = 313) = 16.919$, $p = 0.076$), when considered by gender as analysis indicated that gender did appear to have an effect ($\chi^2(2, N = 313) = 9.693$, $p = 0.008$).

Responses from female pupils indicates that social media gains importance between year 8 (12 years old) with 20% of females reporting that social media is very important to 70% in year 10 (14 years old) after which levels of importance start to fall. But for male pupils instead of falling in year 8 levels of importance appear to peak at 45% then fall to 20% only rising slightly in year 11. These trends act to cancel each other out, and on average across all years, 31% of respondents reported that social media was very important, and a further 62% described it as important. However, 7% described social media as not important at all, this challenges the popular views of the ubiquity of social media use and importance amongst young people, and echoes similar findings amongst University-aged students that challenges the idea of Digital Natives (Jones et al, 2010).

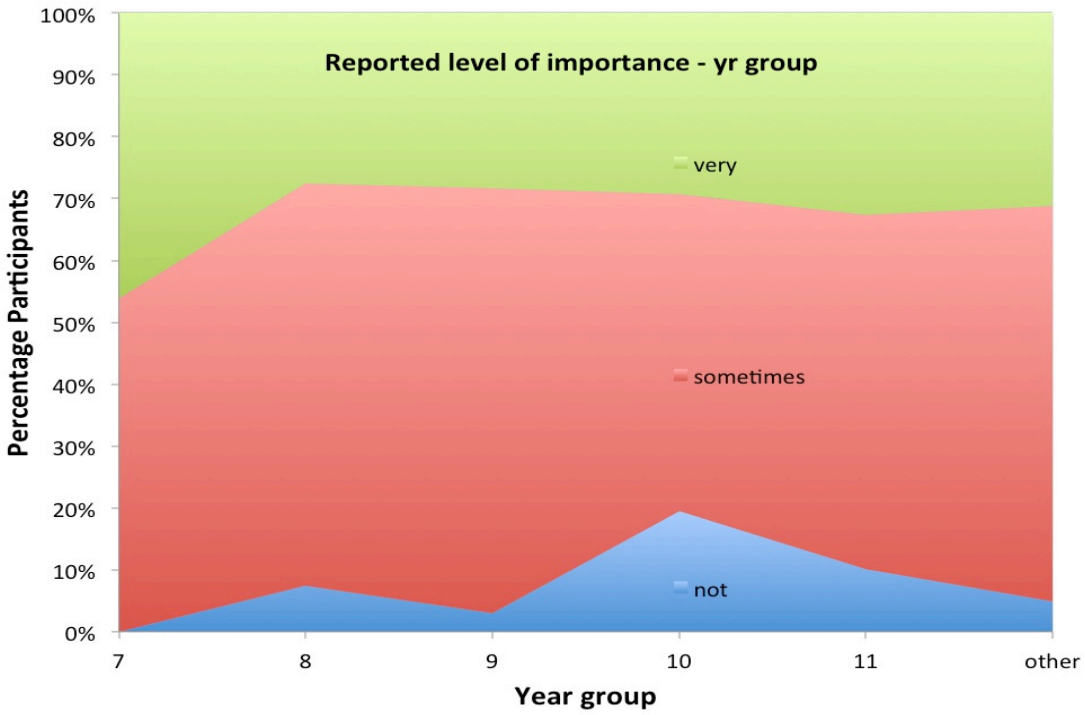

Figure 7. Reported level of importance of social media in everyday life by year group

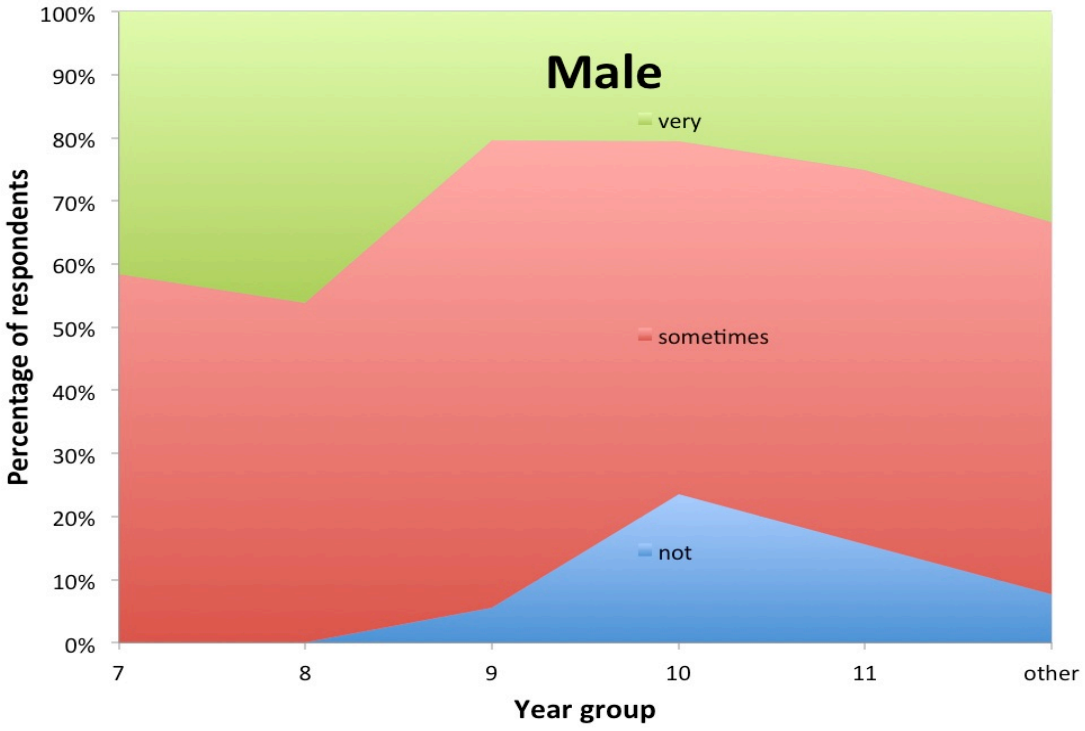

Figure 8. Reported level of importance of social media in everyday life by year group / Male

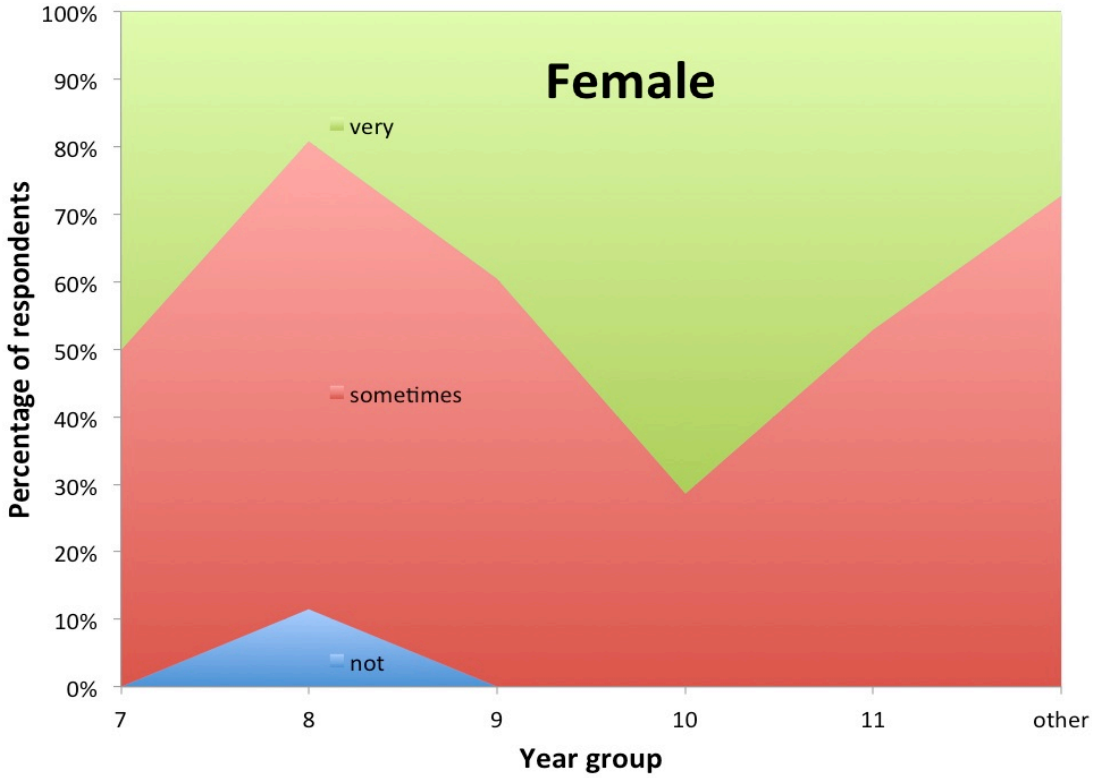

Figure 9. Reported level of importance of social media in everyday life by year group / Female

Results of data collected for participant time spent online on a daily and weekly basis followed quite closely the reported levels of importance. As might be expected results of statistical analysis suggest that self-reported perceived level of importance does have an effect upon the amount of time spent online by participants both daily (Fig. 10), ($\chi^2(2, N = 166) = 22.205$, $p = 0.001$), and weekly (Fig. 11), ($\chi^2(2, N = 149) = 54.617$, $p = 0.001$).

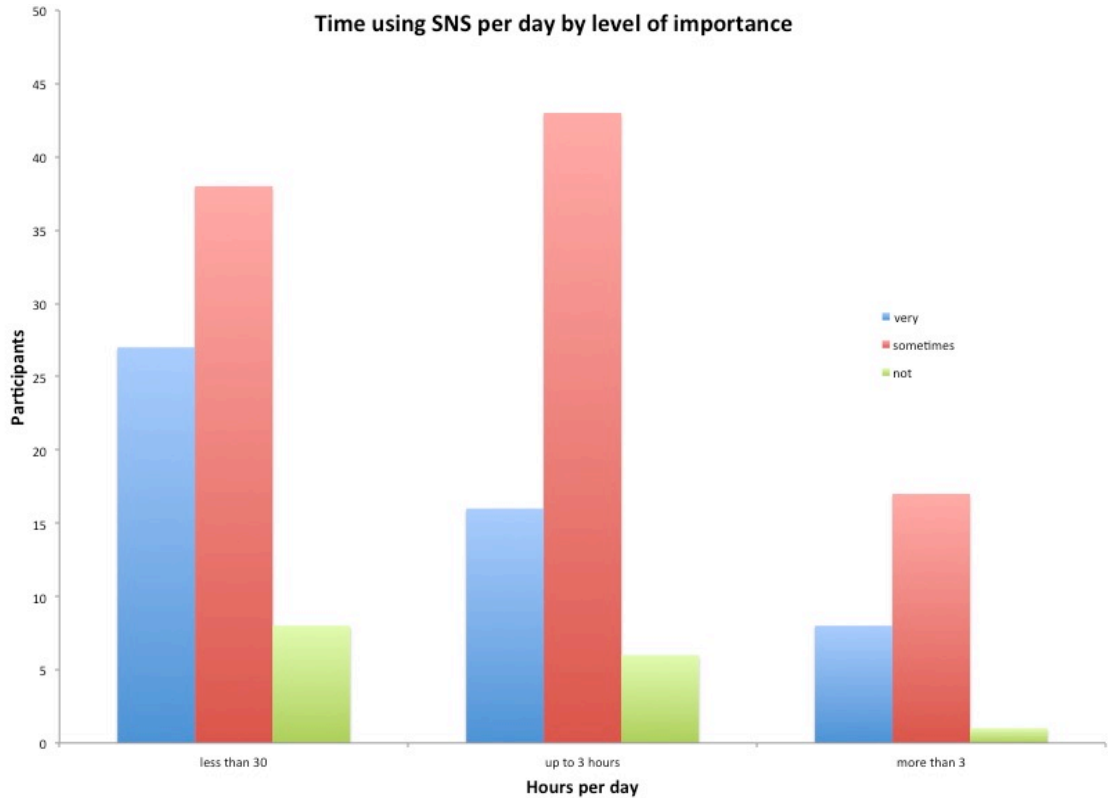

Figure 10. Reported level of importance of social media in everyday life by hours spent using social media per day

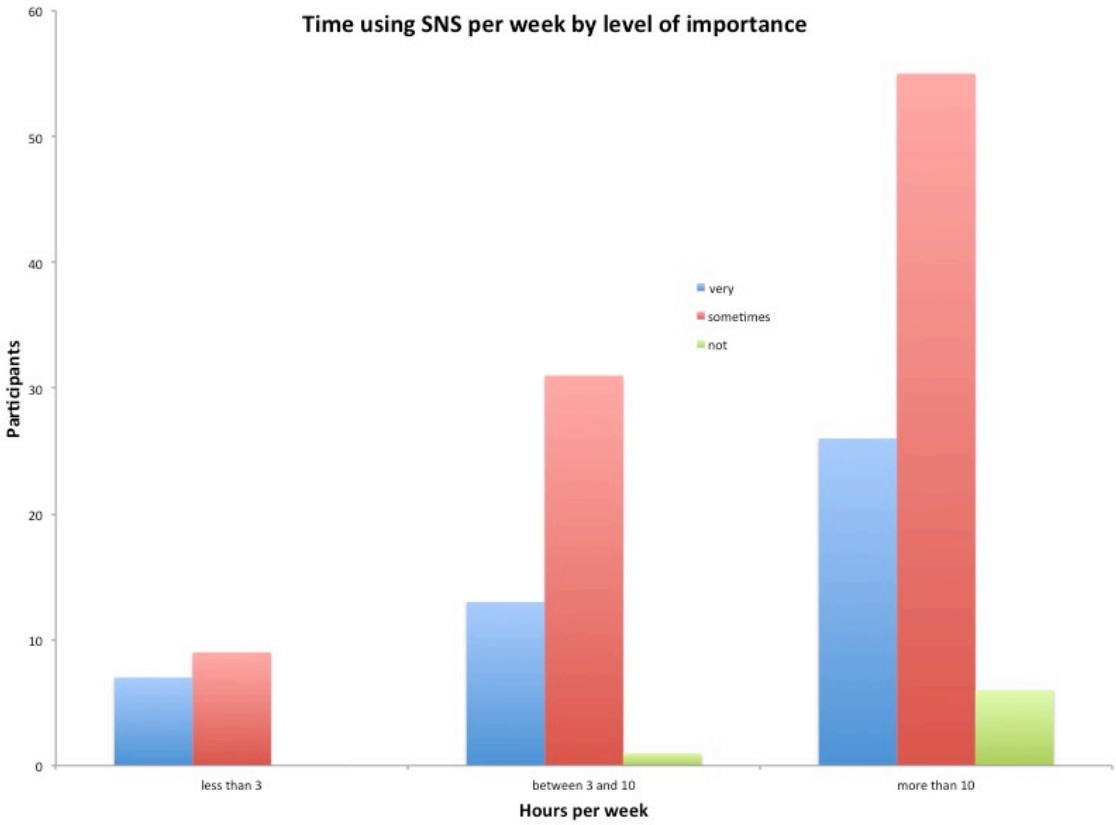

Figure 11. Reported level of importance of social media in everyday life by hours spent using social media per week

Other possible indicators of the level of importance reported by participants were number of social network site friends (Fig. 12) and the number of groups (Fig. 13) of which participants were a member. When questioned about group memberships and number of friends the analysis produced some unexpected results. In both cases the way in which pupils answered the question about perceived importance of social media seemed to have little effect on their number of friends or group membership. Analysis suggests that self-reported level of importance has no effect upon the number of friends a participant self-reported ($\chi^2(5, N = 294) = 548.041$, $p = 0.001$)[4]. The story is similar when group membership is considered, though level of importance appears to have little effect *within* groups analysis suggests that an effect does take place *across* membership of ranges of groups ($\chi^2(4, N = 308) = 164.933$, $p = 0.001$)[5].

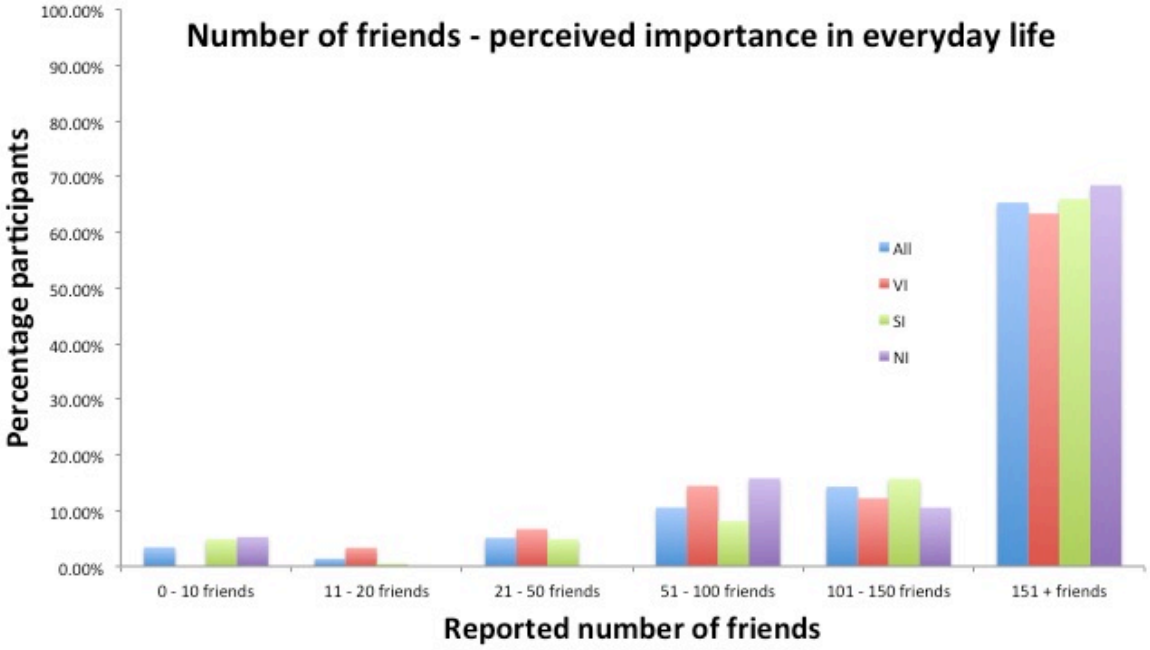

Figure 12. Reported level of importance and number of friends
(All – pupils, VI – very important in everyday life, SI – sometimes important in everyday life, NI – not important in everyday life)

[4] Monte Carlo, Fisher's Exact Test sig=0.169 based on 10000 sampled tables with starting seed 743671174
[5] Monte Carlo, Fisher's Exact Test sig=0.006, based on 10000 sampled tables with starting seed 743671174

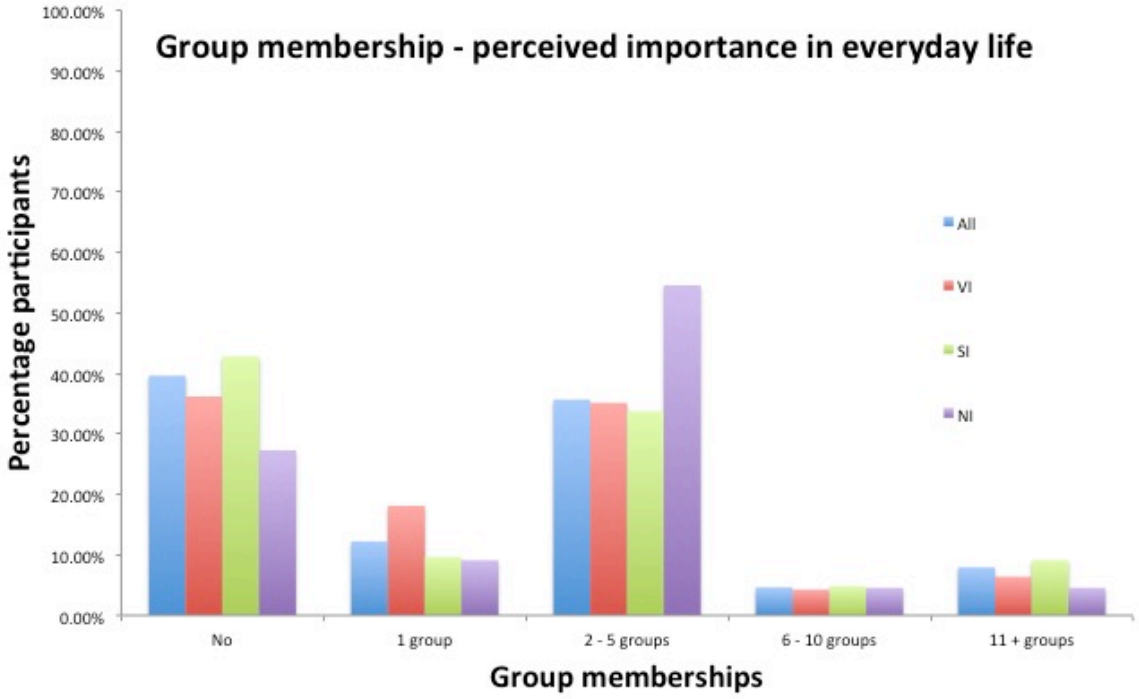

Figure 13. Reported level of importance and group membership

However, although nearly 40% of the sample responded that they were not a member of any group, in the most popular 2-5 groups range the percentage of those who apparently perceived social media as not important in everyday life was, surprisingly, almost 20% greater than for other groups (Fig. 13). This may be some artefact of the patterns of use amongst more experienced users, and requires further investigation.

The questionnaire also asked pupils which social media systems they used, and how frequently they used them. We were concerned that an open question might confuse younger children (who might not be aware of what we meant by social media) so the participants were asked to answer this in relation to 11 named systems. These included the most well-known social networks (Facebook, Twitter and MySpace), curation style sites (Tumblr and Pintrest), photo sharing (Instagram and Flickr), Q&A (ask.fm), in-game communities (Minecraft), and sites popular with younger users (Bebo and SnapChat).

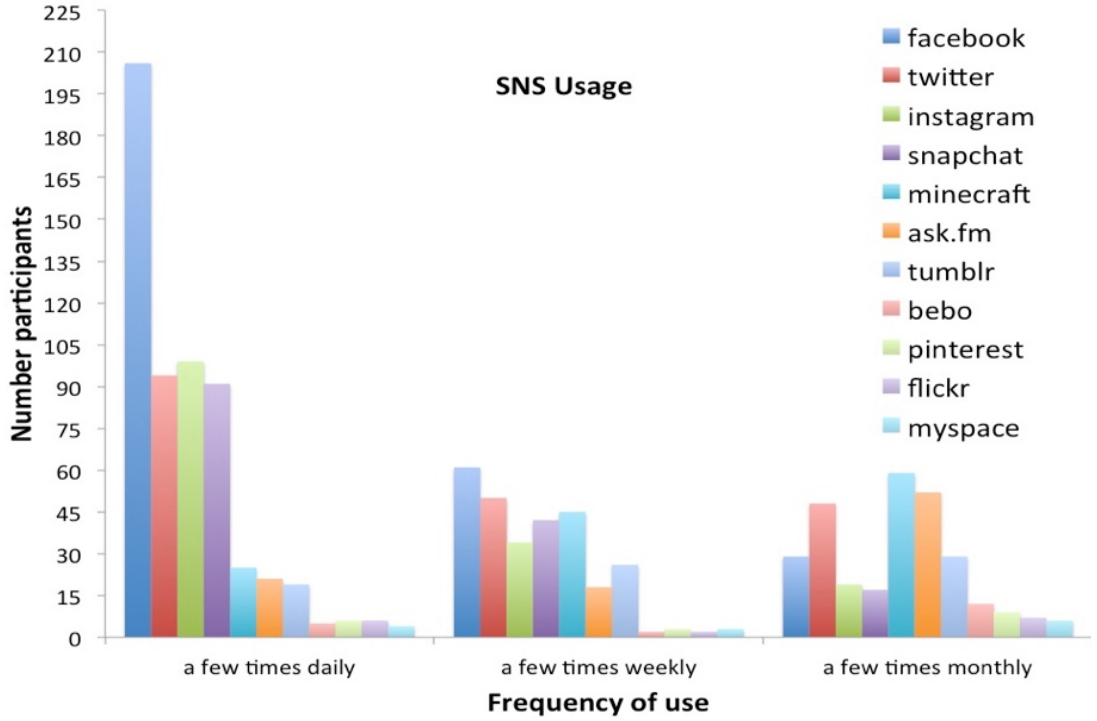

Figure 14. Reported Social Networking System (SNS) frequency of use

The data collected is shown in Fig. 14 suggests that there seems to be three categories of application depending upon popularity and frequency of use: (1) popular and used frequently: Facebook, Twitter, Instagram and Snapchat (2) popular but used infrequently: Minecraft, Ask.fm and Tumblr (3) unpopular and used infrequently: Bebo, Flickr, Pinterest and Myspace. These categories remained constant even when participant responses were grouped by year (Fig. 15), by reported level of perceived importance in everyday life (Fig. 16) or by gender (Fig. 17).

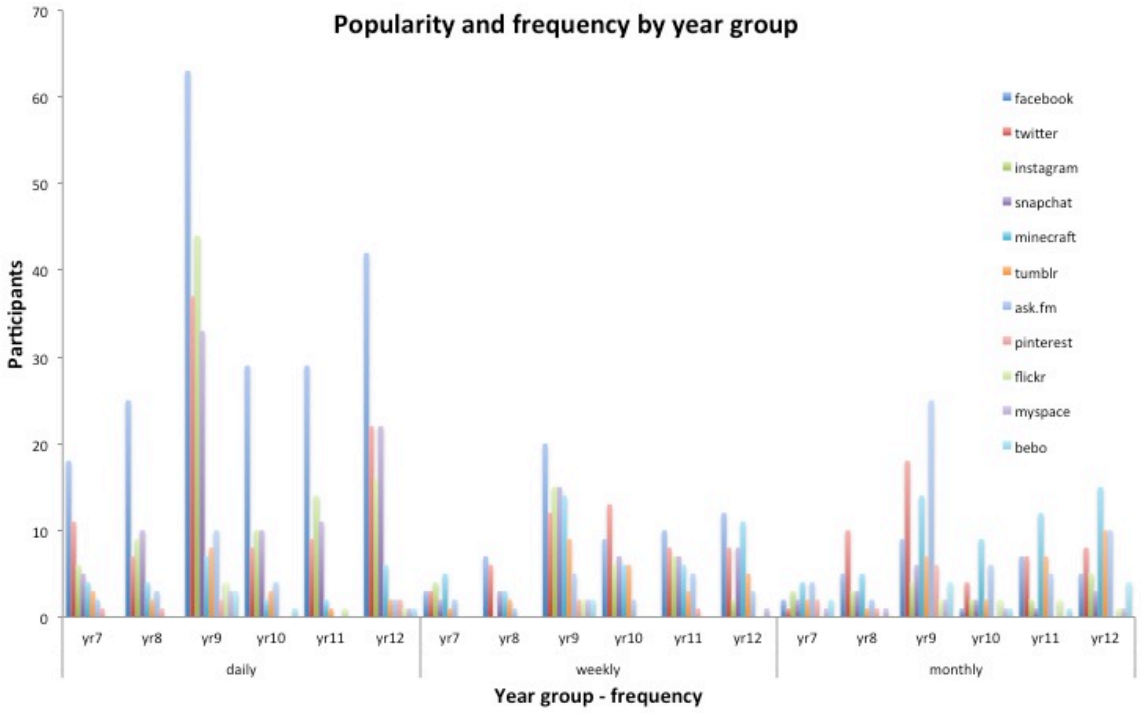

Figure 15. Reported Social Networking System (SNS) frequency of use by Year Group

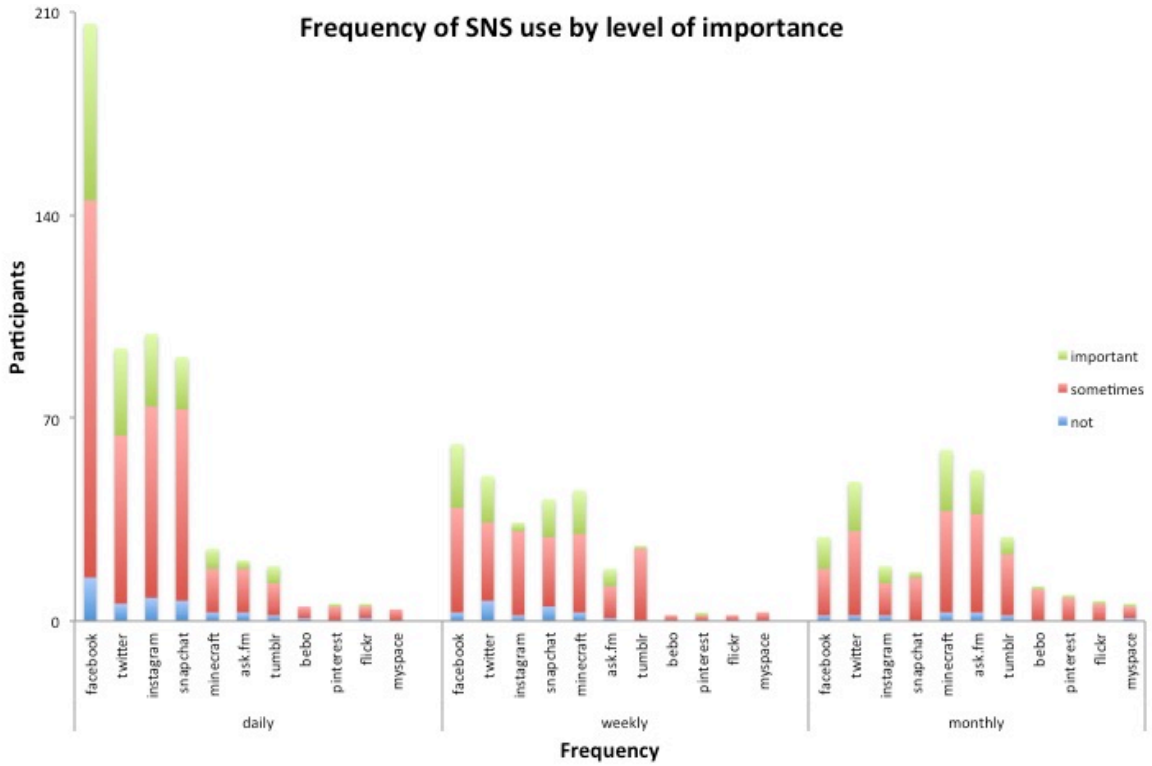

Figure 16. Reported Social Networking System (SNS) frequency of use by level of importance

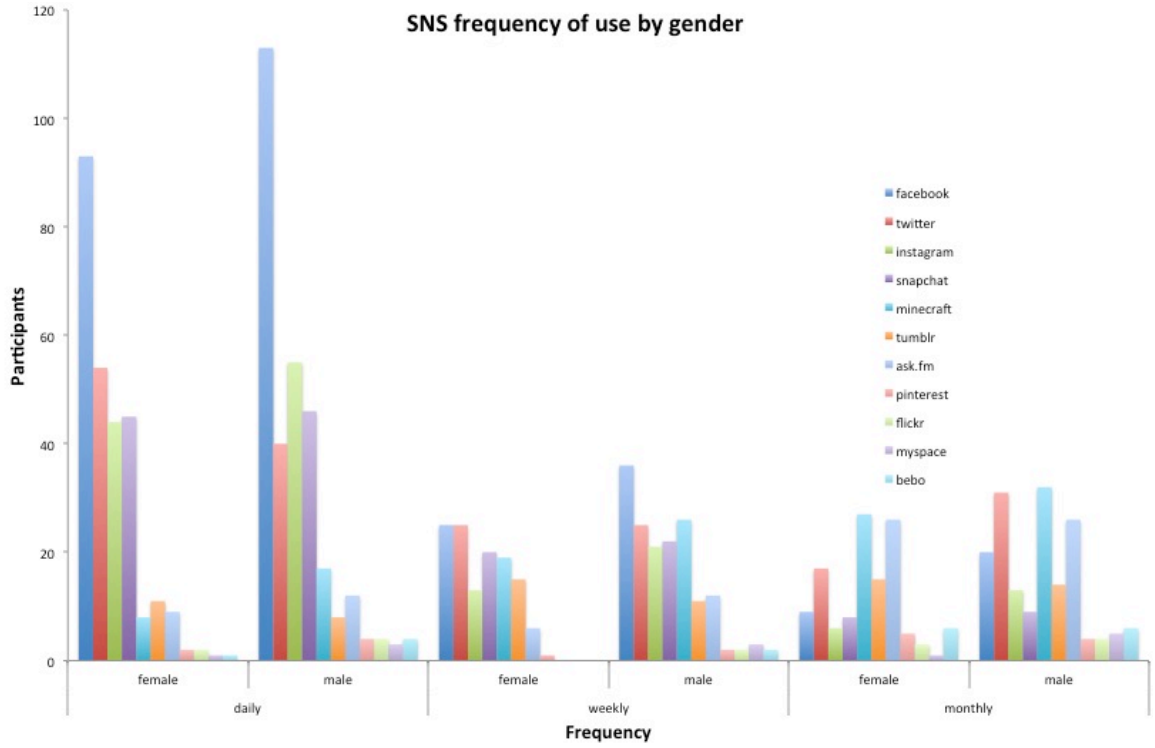

Figure 17. Reported Social Networking System (SNS) frequency of use by gender

It is interesting to note that the general age limit stated in terms and conditions for use of the social media listed (apart from Minecraft), was year 9 (age 13). As participants had submitted demographic data in the form of gender and academic year group it became clear that age limits were not generally being adhered to as some pupils in year 7 (age 11), reported holding accounts for over three years (Fig. 18).

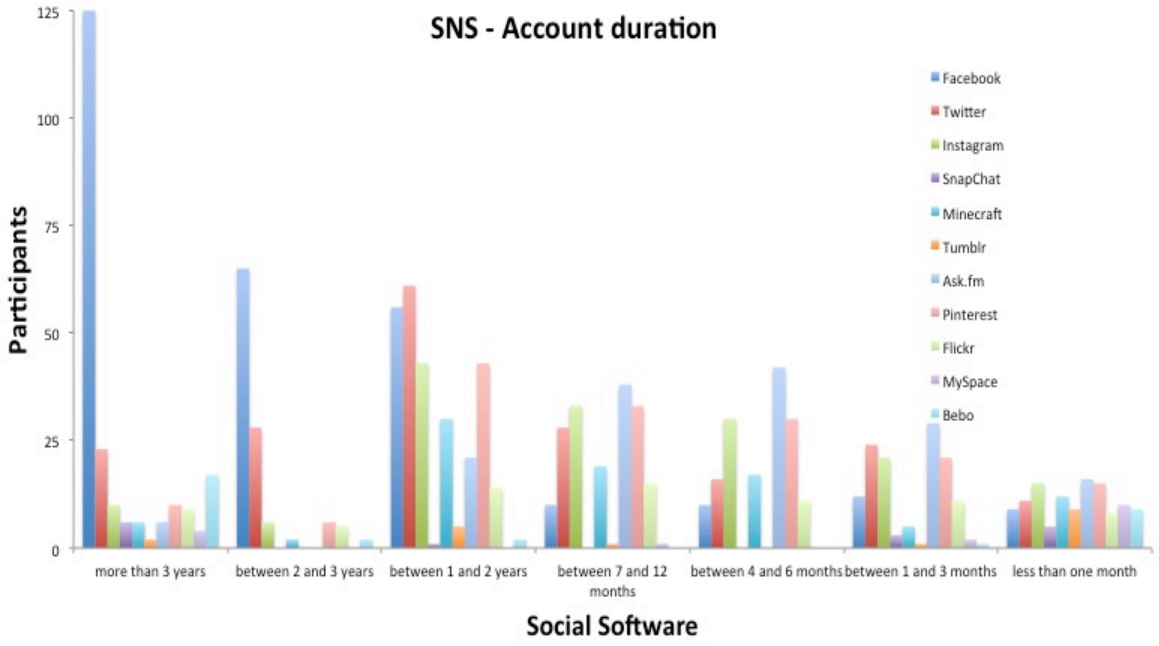

Figure 18. Number participants – duration of SNS accounts held

Looking at social media uses participants were asked to place a value on the likelihood of using social media for a particular task, a value of five for the most important 'I only use social media for this reason', and a value of one for the least important 'I will rarely use social media for this reason'. Fig. 19 shows the results; it is clear that 'talking to friends' was regarded as significantly more important than 'talking to relatives', and almost twice as important as 'organising events', 'sharing knowledge', 'taking part in discussions' or 'helping with schoolwork'.

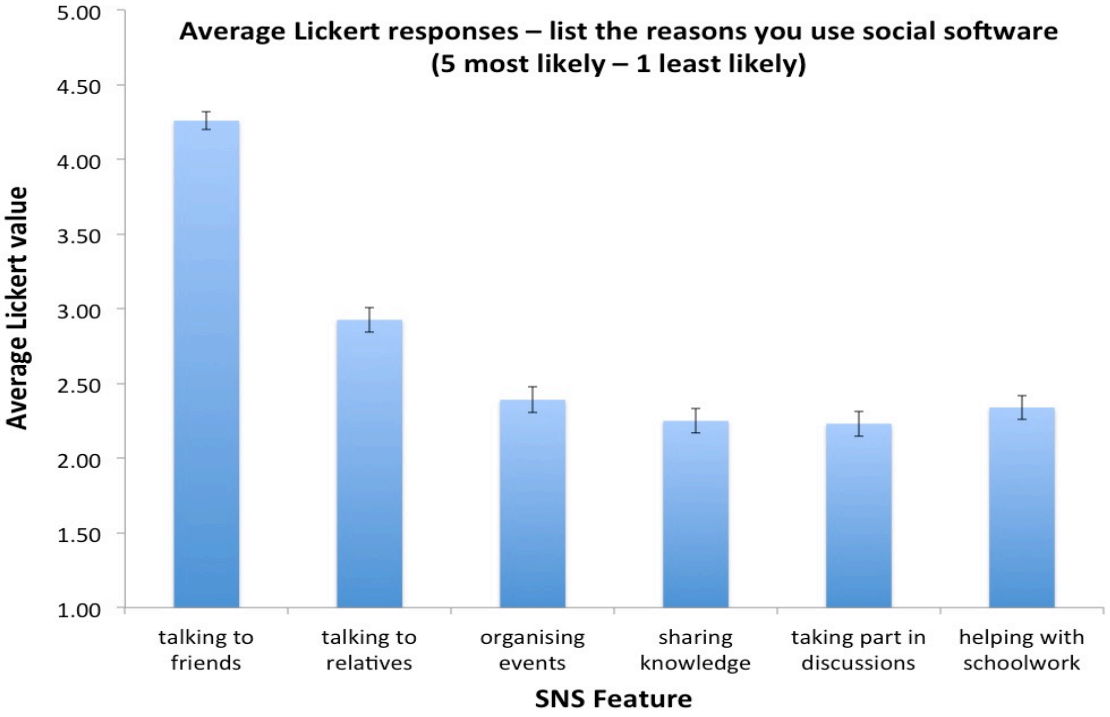

Figure 19. Average values given for reasons for using social media (5 most likely – 1 least likely)

Analysis of responses by gender (Fig. 20) and year group (Fig. 21) yielded comparable results with few significant differences noted. This indicates that pupils are either not using social media for more advanced interactions (such as learning), or are not aware that they are doing so. This is explored further in the qualitative analysis below.

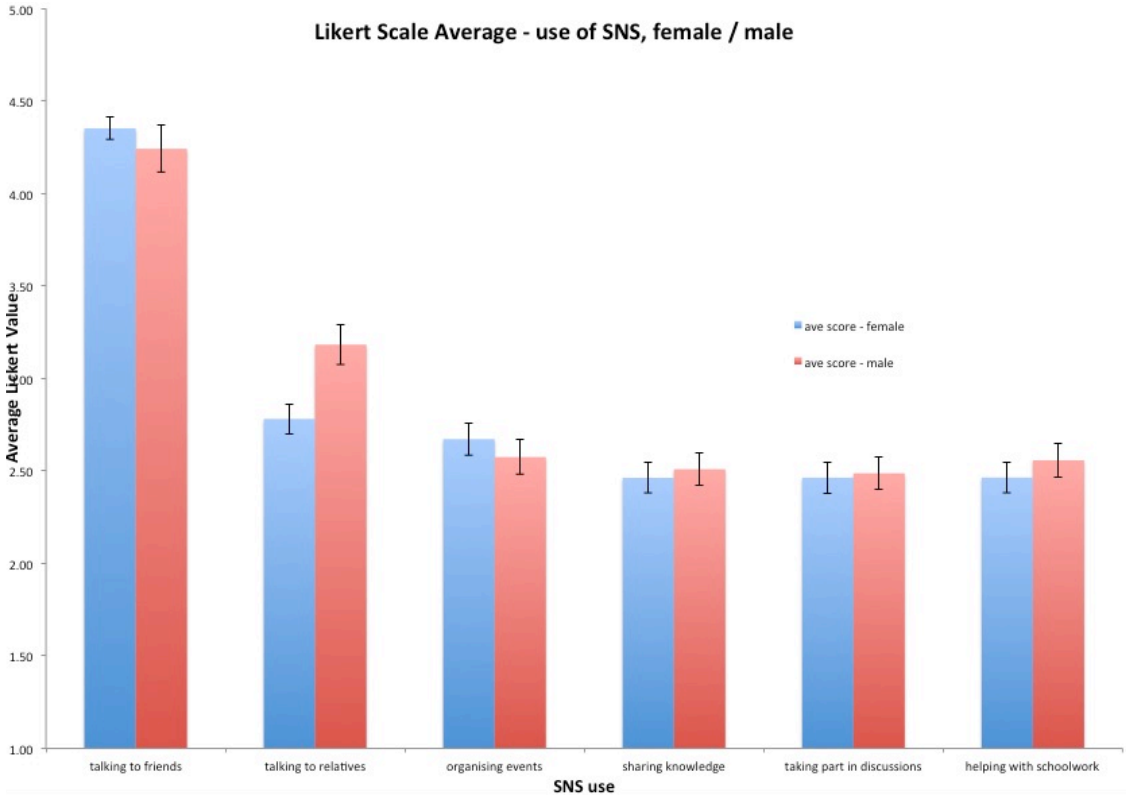

Figure 20. Average values by gender given for reasons for using social media (5 most likely – 1 least likely)

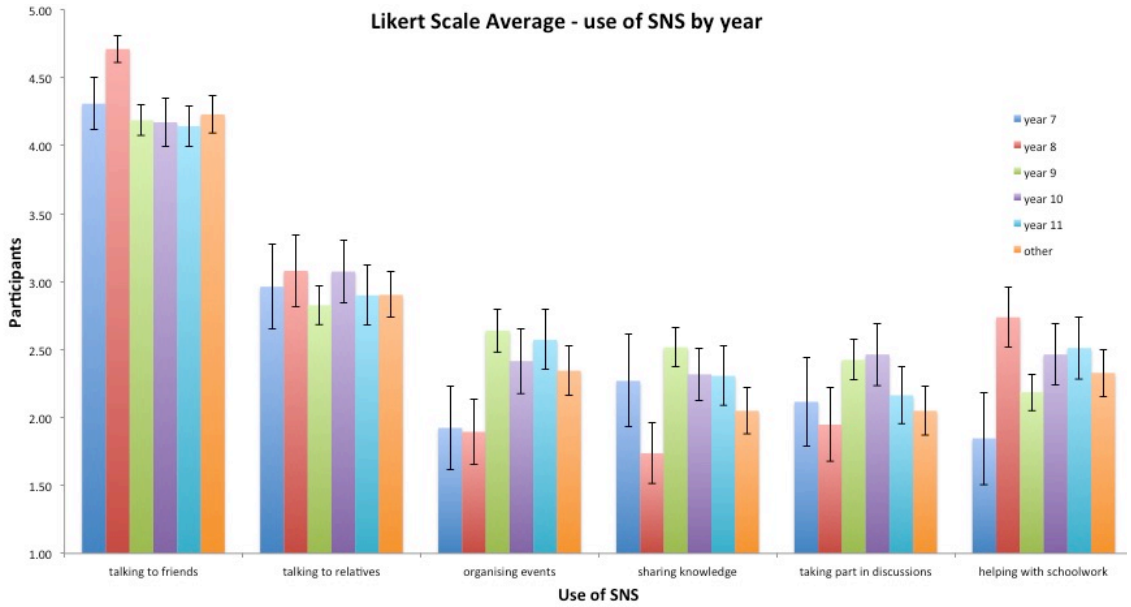

Figure 21. Average values by year group given for reasons for using social media (5 most likely – 1 least likely)

To determine if there was a difference between reported perception of the importance of social media in everyday life and in support of learning participants were asked how important they perceived social media to be in collaborative, informal learning and knowledge sharing when in lessons and out of school.

The chart below (Fig. 22) shows little difference in the three reported perceptions of social media when used in lessons and reveals a general ambivalence whatever the enthusiasm was for social media in other areas of life. However, when asked to consider the importance of social media outside of lessons to support learning those participants who perceived social media as least important in everyday life unexpectedly regarded it with greater importance for learning.

Further investigation is required to see whether this is because frequent users of social media do not see it as a special tool, and therefore fail to report it as being used for learning, or whether their patterns of behaviour are set by everyday use, whereas less-frequent users have less established patterns of behaviour and are thus more open to other uses.

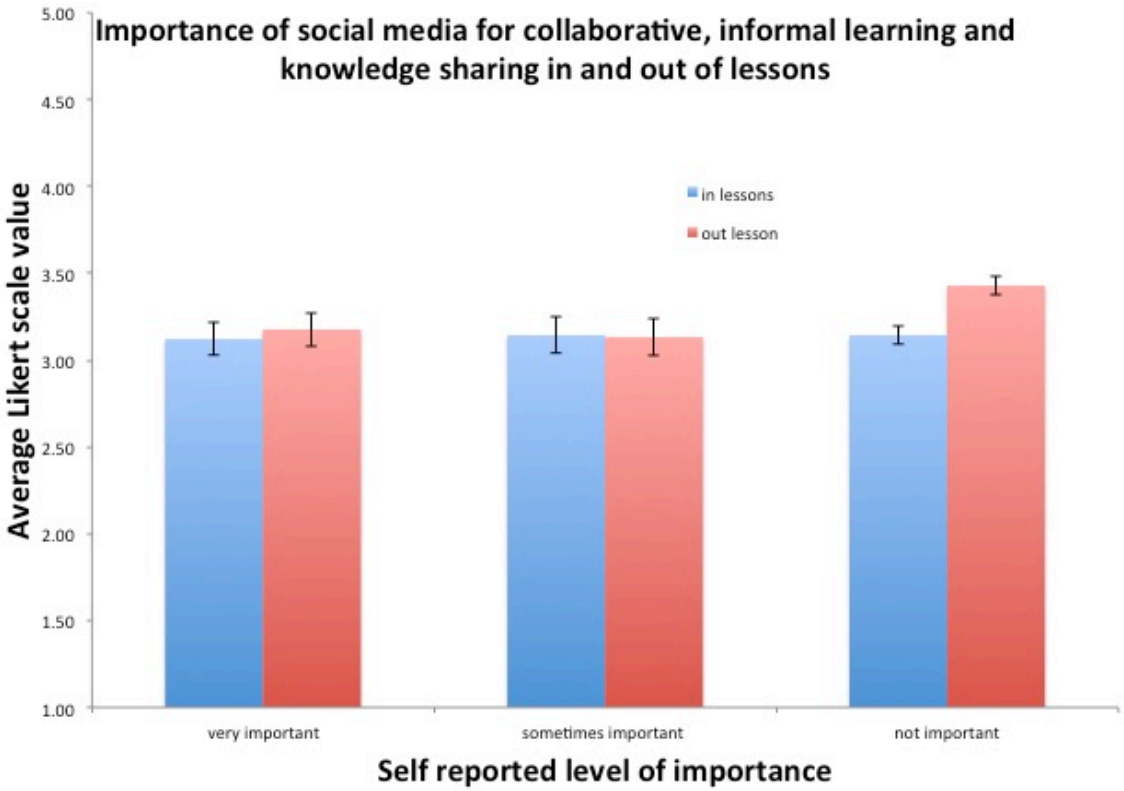

Figure 22. Perceived importance of social media in collaborative, informal learning and knowledge sharing

In additional to this quantitative data, we also gathered qualitative data directly about pupil's experiences. The participants were asked if they could give an example of an occasion they have been helped or had helped a peer through social media.

The participants were also directly asked their opinion about the use of SNS to support learning out of school. The optional responses were: 'it is a good idea', 'I'm not bothered', 'I don't mix school work with fun'. By crosschecking these responses with the examples given we can begin to see whether perceptions of usefulness (the direct question) are actually a good reflection of experiences (the examples).

Table 3 shows the data about how students responded and about how this maps to the examples they shared. As one would expect those participants who thought that use of social media to help with school work was a good idea reported relatively high instances[a] of receiving (64%) or providing (65%) help. Even amongst pupils who did not think social media should be mixed with schoolwork there was some reporting of examples[b] (8% for help given, 11% for help received). It is interesting to note that amongst those that reported that no help had been observed[c] (153 no help received, 139 no help given) a significant proportion[d] (62 no help received, 53 no help given)

still reported examples, this represents a certain ambiguity in self-reporting in 40% and 38% of cases respectively.

Participant responses: has helped or been helped by a peer	Helping with school work - what do you think about using social media to help with school work when you are not in school:			
	Total	It's a good idea	I'm not bothered	I don't mix school work with fun
# Initial responses	298	138	122	38
Received support (yes)	145 (49%)	88 (64%)[a]	50 (41%)	7 (18%)
Received support (no)	153[c] (51%)	50 (36%)	72 (59%)	31 (82%)
(yes) example given	52 (17%)	28 (20%)	21 (17%)	3 (8%)[b]
(no) example given	62[d] (21%)	18 (13%)	35 (29%)	9 (24%)
Offered support (yes)	157 (53%)	90 (65%)[a]	57 (48%)	10 (26%)
Offered support (no)	139[c] (47%)	47 (35%)	64 (52%)	28 (74%)
(yes) example given	60 (20%)	36 (26%)	20 (16%)	4 (11%)[b]
(no) example given	53[d] (18%)	14 (10%)	30 (25%)	9 (24%)

Table 3. Percentage of students who expressed an opinion about use of social media for learning when not in school and had received or provided help for learning

The examples provided by participants were coded in an effort to develop a general picture of how participants might be using social media to support non-formal learning. Comments referring to help received by participant were labelled 'in', and those for help that was offered were labelled 'out'. Initial codes which developed organically through participant choice of terms and topic, we identified two codes that were concerned with logistics (understanding tasks and accessing school systems materials):

- **administration**: examples related to practical matters associated with school activities (for example passwords and deadlines)
- **homework**: examples related to the support of homework tasks (for example, explaining requirements, passing on copies of materials)

We also identified two codes that were pedagogical and were about interpreting, understanding or discussing the actual material being learned:

- **understanding-homework**: examples related to the understanding of homework materials
- **understanding-lesson**: examples related to the understanding of lesson materials

Analysis of themes			
Themes	**Code**	**Responses (%)**	**Participant Comments**
Logistics (114)	Administration (5)	In 3 (2%)	"When Was The homework due in?"
		Out 2 (1.4%)	"what the password is for my maths"
	Homework (109)	In 68 (49%)	"They helped with homework as i wasnt here when we got a sheet and he/she told me the questions"
		Out 41 (29%)	"explanation of the homework given to us."
Understanding (78)	Understanding-homework (55)	In 13 (9%)	"have had French homework explained and maths homework explained over facebook."
		Out 42 (30%)	"they where stuck on some english homework and i gave them some helpful tips"
	Understanding-lesson (23)	In 8 (6%)	"they explained something to me which we did in a lesson that i didn't get in the lesson"
		Out 15 (11%)	"i explained something to them which we did in a lesson that they didn't get in the lesson"

Table 4. Development of codes and themes from qualitative responses

As the purpose for analysis of the qualitative data was to develop an understanding of how social media was actually being used by the participants, comments from the original (uncleaned) data set were included. The logic behind this being that although a participant may have selected more than one option thus invalidating their record with regard to quantitative data, it would not affect the validity of their qualitative answers. From the original data set 140 (36.5%) 'in' comments and 141 (36.8%) 'out' comments were analysed. Table 4 shows an overview of the themes, codes, and numbers, and includes examples of each code for both In and Out. What immediately stands out is that the majority of examples were about Logistics (114 total) rather than Understanding (78 total). It is also clear that help in understanding concentrates around homework (55) rather than lessons (23). This data indicates that although the primary use of social media is relatively straightforward and task orientated, there are plenty of examples where more advanced engagement is occurring. Understanding the nature of this engagement is important future work.

It could well be the case that the conversations occurring around the logistics of homework have established certain norms, and thus enabled secondary conversations around understanding, whereas this mechanism has not applied to other learning activities such as lessons.

4.5 Summary

Social media is perceived as holding great promise for learning, especially from a constructivist or connectivist perspective. The majority of work to date looking at how learners use social media for learning has concentrated on adult learners. In our work we have tried to examine how school-aged children engage with social media, perceive its value for learning, and use it for learning. Over a period of 12 weeks 383 pupils (aged 11-17) at six UK secondary schools took part in our online survey consisting internally and externally validated (p. 68) high-level and low-level questions, investigating their perceptions and use of social media in everyday life and for learning.

Whereas survey questions classed as high level were addressed directly e.g. “how do you perceive the use of social software in supporting informal learning?”, supporting low level questions asked pupils if they could think of examples such as “have you ever used social software to help a friend with something they didn’t understand in class?”. This was to determine whether reported perceptions matched the stated uses of social software. An example could be that the participant may answer that they do not perceive social software to be important in support of learning, if they then proceeded to give examples of having supported or been supported through the use of social software perhaps their understanding of the first question was inaccurate or the use of social software was commonplace and taken for granted. In an attempt to maintain participant interest, and as a measure of validation, the answer options varied through each section from simple yes/no to drop-down options, radio button or multiple choice/multiple selection. Participants were given the opportunity to add comments if they felt that an important point has been missed or comment upon the survey in general.

We set out to investigate three separate questions.

1. How do school children perceive their use of social software in everyday life?

Though school aged children report using social media extensively there is a significant minority (20%) who do not view it as important in their everyday lives. Different social media tools are regarded as having specific uses with only a handful of tools being used by a large number of pupils, and there appears to be very little difference of use irrespective of gender or age. There are gender differences in perceived importance, but these perceptions do not seem to effect actual engagement.

2. How do school children perceive their use of social software for *formal* and *informal* learning?

Findings show that low level uses (chatting to friends or relatives) were seen as the most important aspects over more complex uses (such as arranging events or sharing content). In support of learning social media is primarily used for logistical reasons (e.g. managing homework tasks), there is a strong secondary activity around engaging with the content itself, but this is primarily based around homework activity, rather than other school activities such as lessons. This may be because the use of social media for homework logistics provides a social expectation and framework around homework, which is missing for other school work.

3. Does practice match perception in Q1 and Q2 - how is social software actually used by school children?

There is some evidence that self-reported behaviour is not reliable, for example over 40% of students who reported that they did not receive support via social media, still reported examples of this occurring. There also appears to be a reporting bias, in that students reveal more examples of them helping others, than others helping them, and this shows how important it is to ask these kinds of questions from both sides.

Having investigated pupils use of social media in terms of which technologies are being used and what for through analysis of mainly quantitative data the next section will look at the 'why' of use. To do this the data collection method adopted will change from online survey to semi-structured focus group interview.

Chapter 5: Study 2 – Pupil Focus Group

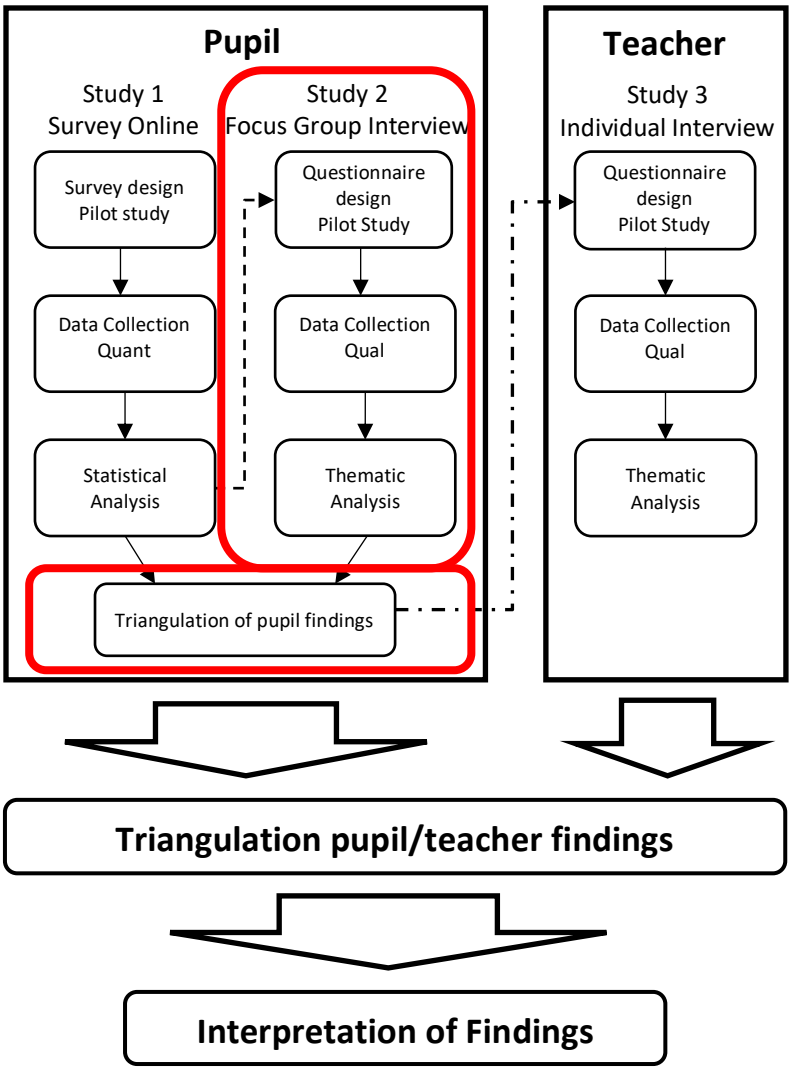

Figure 23. Figure 6. Study 2 overall position in research

5.1 Introduction

Investigating research questions informed by findings of the initial study the participants in study two (fig. 23) were school or sixth form college pupils in the age range 11-17. As previously mentioned gaining access to participants in this age range presents safety and security issues for institutions wishing to take part in the investigation. With ethics approval (University of Southampton #13464), school and college leaders known to the author through teaching and exam board moderation visits were invited to take part in the research project and supplied with all relevant project documentation. On acceptance of invitation to participate in the research project one independent school, five state funded schools and a sixth form college were supplied with participant information packs. As with the previous study and in line with Local Education

Authority Research Governance Frameworks school leaders acting *in loco parentis* could gave permission for pupils focus group interviews or parental /guardian permission forms were obtained.

Differing from the initial phase of research, study two consisted of eight semi-structured focus group interviews consisting 12 participants on average with male and female, mixed ability pupils in academic years 7, 8, 9, 10 and 12 conducted during a standard school day with at least one year-group per interview. Having collected quantitative data from 383 respondents in study one qualitative data was collected in study two through semi-structured focus group interview discussion in an informal fashion but with a specific focus (Krueger and Casey 2009; Stewart et al. 2014). Informed by the findings of study one this work sought to investigate two questions:

1. How are social media being used by school pupils to support non-formal learning?
2. Why do school pupils decide to use or not to use social media to support non-formal learning?

As the second study is guided by the findings of the initial study it may be assumed that social media and their alternatives are being used to some extent in support of non-formal learning.

5.2 Method

After a teacher introduction to the focus group setting the facilitator explained to participants their right to withdraw, making sure that each participant understood their rights and re-confirmed their informed consent to for interview participation. With administrative tasks completed the sessions started with a discussion regarding a definition of social media understood by the facilitator to determine if and how this differed from participant understanding. For the purpose of this study social media is regarded as a being web-based technology within which a user could develop and share a profile with deliberate connections within a bounded system. With all groups a different perspective was immediately put forward by participants suggesting for example, that email and text messaging should also be considered. When questioned about creating profiles on a popular image sharing application a participant in school FS responded:

> "Fac: ok, snapchat, can you create a profile on snapchat?
>
> Mixed: yeah, yeah, (general agreement)
>
> M: people can't see your date of birth and that though
>
> M: to a certain extent you can, but you can only post pictures"

(Fac: facilitator, F: female student, M: male student)

Through discussion and for the purposes of this study each focus group agreed to adopt the facilitators definition of social media.

5.3 Focus Group Questions

Having previously investigated pupil's perception and use of social media in support of non-formal learning this study set out to gain deeper insight into the self-reported participant use of social media. Looking at the factors which may influence the decision to use social media, how the technology is used in support learning, the use of alternatives and why they are selected this qualitative part of the overall study was also designed to support mitigation of possible negative aspects of data collection through self-reporting (Mao, 2014).

After agreeing upon a definition of social media the participants were asked to give examples of how they had used social media to offer or seek help in support of non-formal learning. With different age groups a slightly different range of supporting questions were required to stimulate discussion and involve all participants for example year eight students being asked in turn to list the social media accounts they used on a regular basis whereas year twelve students needed no prompting to engage with the discussion. At the start of the second part of each interview session participants were asked to recall an example of when they could have used social media in support of non-formal learning but decided not to, choosing a different method of finding information instead. Again, each group required a different level of stimulus before participants responded with examples. As with the survey instrument steps were taken to ensure internal validity (Gray, 2009), of the research questions through peer review (Cresswell, 2007). Upon review completion the questions were discussed with volunteer pupils at several schools at which the author was an exam board visiting moderator. Taking into account pupil comments the research questions were edited if deemed necessary.

Once the focus groups had been completed the recorded audio files were transcribed using freely available software 'Express Scribe'. The first two focus group audio files were transcribed verbatim with the latter three focus group audio files transcribed following intelligent verbatim procedures. With the verbatim transcription all audio data recorded was transcribed as spoken by both facilitator and participants. Following intelligent verbatim transcription procedure three recordings were transcribed with filters applied but without long pauses, repeated words or "ums", "ers" and "likes". Following transcription, a constant comparison thematic analysis (Onwuegbuzie et al., 2009; Strauss & Corbin, 1998, Flick, 2009; Guest et al., 2011) of the focus group data was conducted using QSR Nvivo software. In each of three passes of analysis codes

were attached to segments of data, coded data was then grouped into categories from which themes were drawn.

5.4 Results and Analysis

During the first section of the semi-structured focus group interview participants are asked “Can you think of examples of having offered or asked for help in your learning using social media?”. Analysis of the responses led to identification of the following high-level, pupil specific themes:

- Factor - criteria by which pupil decides to use or not use social media to support non-formal learning;
- Support - type of learning related activity facilitated by use of social media;
- Perception - positive, neutral or negative level of influence the sub-theme i.e. type of factor or support, would have on the participant’s decision to use social media.

A positive comment suggested the sub-theme mentioned would encourage the participant to use social media, a neutral comment would have no influence and a negative aspect would deter the participant from using social media to support learning. Through analysis of transcript the main themes identified included: ‘Factors’, which may act as barriers or inducements to the use of social media; ‘Types of Support’, referring to how social media was being used and what is was being used for and; ‘Perception’, did the participant report having a positive, neutral or negative perception of social media in support of learning (table 5).

Factors	Support	Perception
• Social capital • (network) affordance • Group facility • Confusion • Quick response • Cost effort availability • Distraction • School provision	• School related work • Homework Understanding • Homework Administration • Homework Answers • Project Support • Homework Comparison	• Positive • Neutral • Negative

Table 5. Study Two Focus Group Code Table

The chart below (fig. 24) provides an overview of factors (table 6) identified which may have an effect upon whether a participant will opt to use social media to support their learning. The chart indicates that the factors social capital, (network) affordance and group facility have the greatest

influence upon a participant's decision whether or not to use social media in support of non-formal learning.

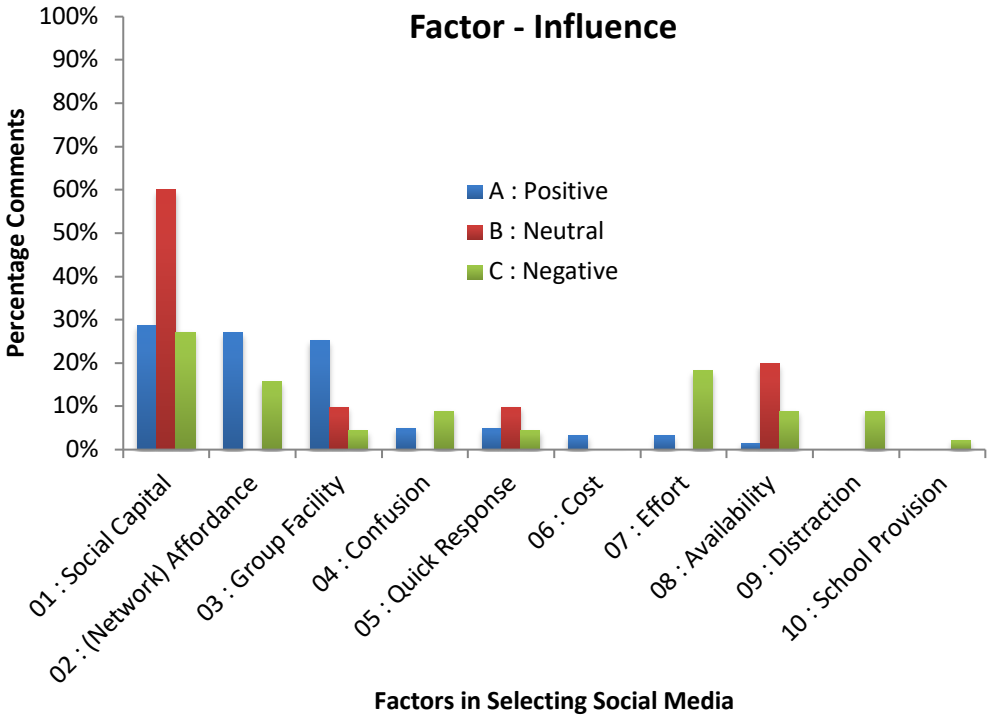

Figure 24. Percentage comments for factors effecting selection of social media to support non-formal learning

The factor social capital was identified each time a participant mentioned being influenced by the effect their interaction may have upon how they are perceived socially. With regard comments relating specifically to social capital 49% were positive, 17% were neutral and 34% were negative (29% of all the positive comments related to social capital, 27% to network affordance, etc..). An example of a positive comment is given by a year 12 pupil below:

> M: I'd only give it (help) to friends
>
> *fac: so, you'd only give help to people you consider to be friends does that mean you would only ask for help from people you consider to be friends?*
>
> M: probably not, I'd probably ask the people that are good at it to help, who I think are good at it.

This would suggest as the participant feels comfortable enough to seek help through social media from people he doesn't consider to be friends he does not feel his social capital will be disadvantaged or his social identity harmed. Conversely, a year 8 pupil reported:

> F: I wouldn't, (fac: you wouldn't?), because they might take it like to offense that you are just like using them for that, like so whenever you need something like for homework or

> something you're only like popping up to them and asking them that because you think they might know what you are on about.

In this instance the participant appears to be negatively influenced towards the use of social media by concepts of social capital as she does not wish to cause offence through what she considers to be unsocial behaviour. The next most influential factors suggested by the data are (network) affordance and group facility which differ as the first refers to accessing information or knowledge from known and unknown members of a network whilst the second entails formation of an invited group. An example of use of (network) affordance may be:

> M: but you can send it to that one person as well for snapchat, you can put it on your story where everyone can see, like facebook so like on your wall, but you can send it to that one person as well so it's just between you

in which the participant is placing his question on public display or similarly,

> M: when I've wrote it on my wall but no ones like commented on it like replying or when I've messaged someone like one of my mates, they haven't messaged back or they haven't seen it, so then I think I would like go to their house visit them or call them

An example of the group category would be:

> M: if it's facebook you create a group chat and ask a lot of people at once
>
> M: or if it's simple
>
> F: like they said it's like sometimes your like in a group chat so if you can like say in a group chat 'oh what is the homework, how do we do it?' then you can get different answers so you can sort of get idea, how to do it

It is interesting to note that the two factors confusion and effort are the only factors to have a greater number of negative comments than positive. With regard confusion it would appear that the very affordance which is thought to facilitate constructivist learning i.e. knowledge sharing by those more knowledgeable, acts as a constraint to its use:

> M: cause if you have loads of people talking back to you, you don't know who to listen to, you don't know who has the best idea.

The factor effort may be indicative of constraints of hardware rather than of social media as described:

> F: it's a lot of effort to type out so like most of the time you would just say it face to face, cause if it's a long explanation of how something works it is easier just to say it in speech, than type it out using social media, in my opinion anyway

The only factor to have no positive or neutral comments was that of distraction when using social media to support non-formal learning. Participants commented upon the opportunity for distraction most often coming from group work in which members go off topic taking others with them. This was also commented upon when the topic of social media use in the classroom was raised which might suggest an awareness and setting of priorities when in a learning situation. As suggested by the pupil comments below:

> Female: it's really annoying (*being contacted via a social media alert*), especially when you are trying to write something
>
> Male: I think people get distracted by (female - agree), things you could, other stuff you could do because if Facebook has something learning, to help you learn they would just say to your teacher 'I'm going to go on Facebook to learn this but you don't actually you just message friends (female/male agreement) - you get drawn away from this to something else
>
> Male: it's not that I don't want to do it it's just that when we, if we do do it, we forget it cause your distracted, as *** said earlier, we get distracted about the social media so if we are doing revision and then a friend just pops up with a message people just leave that (revision) and go on off that (message),

Analysis conducted using constant comparison method identifying and recording instances of unit code. Codes then grouped into categories from which general themes were drawn.

Factor	**Influence**					
	A: Positive		**B: Neutral**		**C: Negative**	
01: Social Capital	48.6%	*28.8%*	17.1%	*60.0%*	34.3%	*27.3%*
02: (Network) Affordance	69.6%	*27.1%*	0.0%	*0.0%*	30.4%	*15.9%*
03: Group Facility	83.3%	*25.4%*	5.6%	*10.0%*	11.1%	*4.5%*
04: Confusion	42.9%	*5.1%*	0.0%	*0.0%*	57.1%	*9.1%*
05: Quick Response	50.0%	*5.1%*	16.7%	*10.0%*	33.3%	*4.5%*
06: Cost	100.0%	*3.4%*	0.0%	*0.0%*	0.0%	*0.0%*
07: Effort	20.0%	*3.4%*	0.0%	*0.0%*	80.0%	*18.2%*
08: Availability	14.3%	*1.7%*	28.6%	*20.0%*	57.1%	*9.1%*
09: Distraction	0.0%	*0.0%*	0.0%	*0.0%*	100.0%	*9.1%*

10: School Provision	0.0%	*0.0%*	0.0%	*0.0%*	100.0%	*2.3%*

Table 6. Factors identified grouped according to their level of influence upon participant selection of social media to support non-formal learning

The second pupil specific theme uncovered through analysis of codes developed from the data (table 7) as shown in Fig. 25, was that of support i.e. in which ways were social media being used to support non-formal collaborative learning.

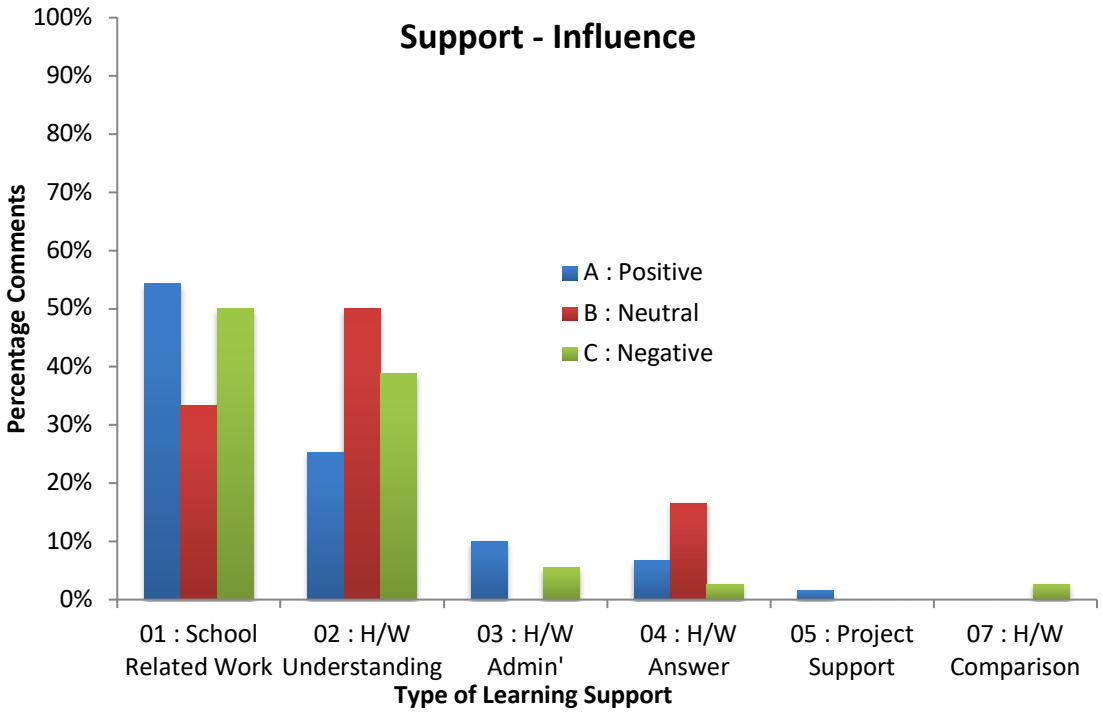

Figure 25. Percentage of comments for types of support influencing selection of social media to support non-formal learning

From the survey data collected in study one it was suggested that social media was being used to support non-formal learning but at a low level and with no clear indication how it was being used. In an attempt to determine if and how social media was being to support learning focus group participants were asked for examples of use which, again, proved elusive to obtain:

> F: - well I use tumbler quite a lot and um there's a lot, it's got quite a big art community on it and so there's sort of a lot of artists around and sometimes I use it to get like resources, like references or tips on how to draw stuff, as you can just look in the art tag, and so like I wouldn't put out a question to people like hunt down someone personally and ask them a question about but you can just go into the arts tips kind of like whatever and I can scroll down it and find resources and it's pretty useful

From this comment it may assumed that the participant is utilising the affordance of sharing knowledge enabled by social media though it is unclear whether this is for homework set by a

teacher or general school work which she wishes to pursue in her own time. Unless the participant has mentioned homework specifically the comment has not been coded as homework.

With this in mind it is interesting to note that though completing school related work was reported as having an overall positive influence on a participant's choice to use social media when homework (understanding) is considered the overall influence is neutral. An example of a negative influence is given by a year 9 student:

> M: - it really depends like because if it's like when your' thinking of asking for help for say like it's due like the next day you'd just say "can I have the answers", or if it's like if it's like say your' doing it all together like as in say a Skype call you would say "could you help me understand this" but if it was just a quick kind of have you got the answers you just obviously ask for the answers

Confirming that social media is being used in a supporting role these comments also seem to confirm that when used, the type of support may depend upon the urgency of support required. In this instance the participant will either utilise social media for collective support in developing understanding if there is no urgency otherwise seek an answer via face to face interaction or some other type of technology such as text. When analysed individually, as opposed to one of a range of support types, homework understanding has an overall positive influence of 43% compared to 17% neutral and 40% negative whilst using social media to resource an answer rather than an explanation as an influence provided 57% positive, 28% neutral and 14% negative responses.

Support	**Influence**					
	A: Positive		**B: Neutral**		**C: Negative**	
01: School Related Work	59.3%	*54.2%*	7.4%	*33.3%*	33.3%	*50.0%*
02: H/W Understanding	42.9%	*25.4%*	17.1%	*50.0%*	40.0%	*38.9%*
03: H/W Admin'	75.0%	*10.2%*	0.0%	*0.0%*	25.0%	*5.6%*
04: H/W Answer	57.1%	*6.8%*	28.6%	*16.7%*	14.3%	*2.8%*
05: Project Support	100.0%	*1.7%*	0.0%	*0.0%*	0.0%	*0.0%*
06: Quick Response	100.0%	*1.7%*	0.0%	*0.0%*	0.0%	*0.0%*
07: H/W Comparison	0.0%	*0.0%*	0.0%	*0.0%*	100.0%	*2.8%*

Table 7. Types of support identified grouped according to their level of influence upon participant selection of social media to support non-formal learning

A third theme developed from the code categories relates to the overall perception a participant might have with regard utilising social media to enable affordances which support learning. As seen in figure. 26, the overall perception reported was positive with 54% of comments associated with a willingness or desire to use social media to support learning (table 8). An example of this may be seen in the comment of a year 10 female pupil as she opts for social media to revise course material with a friend:

> F: I revise with my friends so like I help ** with stuff she doesn't get which I do and she helps me with stuff I don't get too, so we like work through all the different sections, especially like PE and stuff we work through (bit of a?) sections cause like she (understands?)

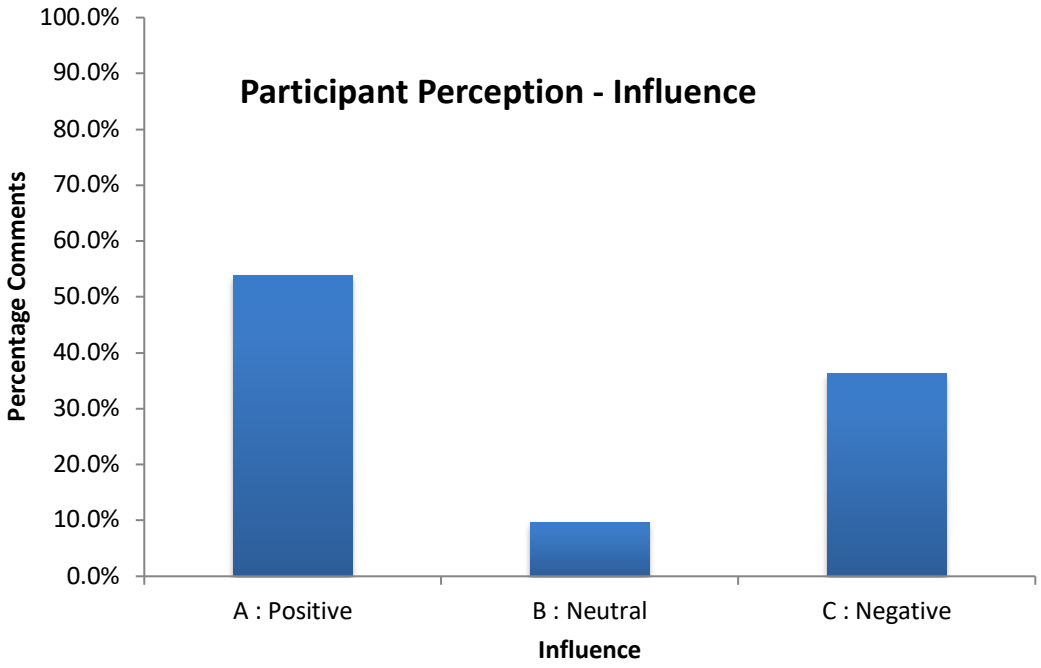

Figure 26. Percentage of comments for perception of social media effecting selection of social media to support non-formal learning

10% of comments were neutral in nature expressing neither a pro- or anti- sentiment towards the use of social media whilst significant minority of 36% of comments analysed were negative. Evidencing a negative perception, a year 8 participant gave the following reason to choose not to use social media to support learning:

> M: I didn't use it because I found out from a teacher the next day instead of bothering people because I don't normally like bothering people.

Hence, it would appear that the majority of comments describe participant's perception of social media as having a positive influence in the decision process to use social media to support learning.

Perception	Influence		
	A : Positive	B : Neutral	C : Negative
01 : Participant Perception	53.9%	9.8%	36.3%

Table 8. Level of influence upon participant selection of social media to support non-formal learning grouped by participant perception of social media

not identified as a specific theme an interesting aspect of social media alluded to by participants was that of interaction type.

The chart shown below (fig. 27), indicates the percentage of comments made by participants with regard the type of interaction they would describe as normally taking part in and the influence it would have on their decision to use social media in support of non-formal learning (table 9).

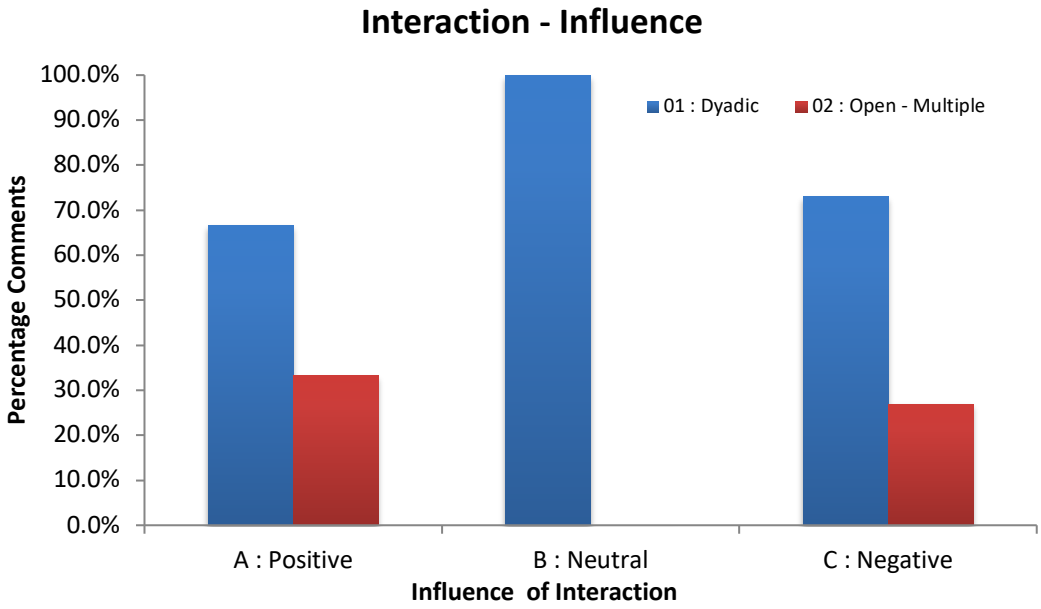

Figure 27. Percentage of comments for preferred type of interaction effecting selection of social media to support non-formal learning

Of the participant comments stating that type of interaction would have a positive influence nearly twice as many comments related to dyadic interaction than open or multiple interactions as afforded in a networked community.

Interaction	Influence		
	A : Positive	B : Neutral	C : Negative

01 : Dyadic	48.6%	*66.7%*	12.9%	*100.0%*	38.6%	*73.0%*
02 : Open - Multiple	63.0%	*33.3%*	0.0%	*0.0%*	37.0%	*27.0%*

Table 9. Level of influence upon participant selection of social media to support non-formal learning grouped by type of participant interaction

Again, more than twice as many comments describing a negative influence were dyadic in nature as were all of the neutral comments. These findings indicate that regardless of positive, neutral or negative influence the vast majority of responses were about dyadic rather than networked use of social media.

5.5 Summary

Informed by findings from an initial study this component of the research has tried to develop a 'richer' understanding of school pupils use social media to support non-formal learning, collaborative learning. Over eight-week period 96 pupils took part in semi-structured focus group interviews investigating how, when, why and with whom they used social media in support of learning. This second study set out to investigate two separate questions.

1. How are social media being used to support non-formal learning?

In line with findings of previous research (Blair et al., 2014), the majority of participant comments indicated their perceptions of social media would have a positive influence in their choice to support non-formal learning through social media. It is of interest to note that a significant minority (36%) of participant comments social media would not be the support mechanism of choice. Participants talked positively about using social media in various ways to support non-formal learning such as: school related work (54%); for understanding homework (25%); administration of homework tasks e.g. due dates, topics and resources (10%) and; seeking answers to homework tasks (6%). Though this would appear to show overall support for the use of social media half of participant comments were negative with regard school related work and over one third (39%) negative regarding use of social media to support homework understanding.

In deciding to use social media a number of factors were identified through analysis of participant comments. The three factors with most positive influence on participants use of social media were social capital (29%), (network) affordance (27%) and group facility (25%). Similarly, the three factors with most negative influence were social capital (27%), (network) affordance (16%) and effort (18%). Though social capital comments accounted for 29% of all positive factor comments and 27% of all negative factor comments it is of interest to note that of all the factor comments indicating a neutral influence social capital accounted for nearly two thirds (60%). When

considered in conjunction with a majority of comments indicating a preference for dyadic interaction when using social media, it may not be surprising that social capital, (network) affordance and group facility are not associated more strongly with a positive influence when choosing to use social media to support non-formal learning. When interacting with a friend, peer or relative the participant may be secure in their social standing and identity and though they may not be taking advantage of a large network of knowledge or experience it is a network they know and trust.

2. What alternatives to social media are being used to support non-formal learning

In response to an initial online survey school, pupils in the age range 11-17 self-reported the use of social media in support of non-formal learning. Though the majority of participants comments indicated that their perception of social media would have a positive influence on their choice of social media as a collaborative learning support mechanism a significant minority (36%) indicated their perception would have a negative influence. Several reasons given for not using social media include effort to access social media, time sensitivity, social manners or etiquette (social capital) and confusion due to quantity of advice from which to choose. One participant suggested that she would not use social media if she had decided to persist in attempting to understand and solve the problem whilst others stated that waiting to talk to the teacher at school would be their primary course of action. When faced with the need for support and choosing not to utilise social media the preferred option appeared to be approaching friends and family followed by looking online for resources such as subject specific websites. In considering the use of alternatives to social media in support of non-formal, collaborative learning an over-arching perspective suggested by participant comments was that of one to one conversation with known sources or investigation through use of anonymous, web-based resources.

Through analysis of data collected during semi-structured focus group interview with pupils this chapter has highlights perceptions held by along with use and non-use of social media to support non-formal, collaborative learning by school pupils. Informed by findings of study one and study two the following chapter describes the third stage of this investigation into perceptions and use of social media in support of non-formal learning by primary stakeholders in the learning process. Having investigated perceptions held and uses of social media in support of learning activities by pupils the complimentary group of primary stakeholders i.e. classroom teachers are introduced, analysed and discussed in Chapter 6.

Chapter 6: Study 3 – Teacher Interviews

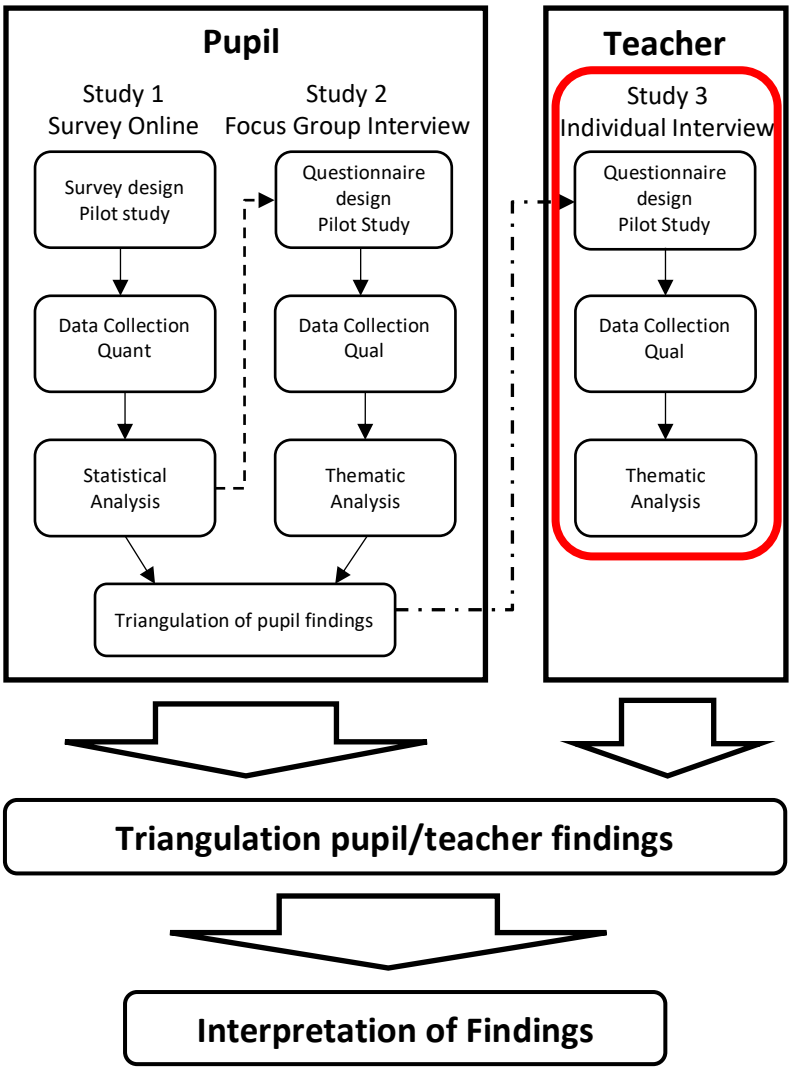

Figure 28. Study 3 overall position in research

6.1 Introduction

Having investigated pupil perceptions and use of social media in support of non-formal learning the third study in this work (fig. 28) focused upon the understandings held by teachers of these pupil perceptions and how they were using social media. Taking the form of a survey the first study consisted of collecting data via an online survey to which 383 pupils responded. The initial study data set consisted 312 completed and usable self-reported responses by pupils who use social media. Based upon analysis of this data a second stage of data collection was conducted employing the use of informal, semi-structured focus group interviews with pupils (Krueger and Casey 2009; Stewart et al. 2014). Having collected (self-reported) data about which technologies were being used coupled with *how* they were being used the focus of this second study was to

further investigate the use of social media by pupils and attempt to 'tease out' (Weber et al, 2013) pupil motivations i.e. *why* were social media being used.

The second study provided glimpses and understandings of how and why social media was being used by one of the two groups of primary stakeholders i.e. pupils, directly influencing teaching and learning process at the operational or classroom level. To identify and develop an holistic understanding of the issues and influences effecting the possible use of social media in support of non-formal learning the perceptions or understandings of the second group of primary stakeholders at the operational level where formal teaching and learning takes place were required. This second group of primary stakeholders i.e. teachers in the classroom, were investigated in a third study through semi-structured, individual interview conducted using telephone and an openly available Voice Over Internet Protocol (VOIP) technology (Hesse-Biber & Griffin, 2013; Hope, 2015; Seitz, 2106). Utilising a sample of convenience 18 teachers were approached and agreed to participate in the data collection process. Irrespective of subject taught the essential selection criteria were that the participant was a qualified teacher with a minimum of 12 months continuous teaching experience in the secondary education sector in the UK.

In the first and second studies a major obstacle to collection of data was the gaining of access to participants i.e. school pupils, due primarily to safety and security concerns then secondly to the time demands of subject curriculum and schemes of work. In study three it became apparent that access to participants would be an issue once more. In this instance, rather than safety or security the obstacle described by participants was that of a workload reported as increasing steadily through the academic year (Gibson et al. 2015; Barmby, 2006; Ferguson et al, 2012; Wells, 2015), one of the consequences of which being a reduction in time available for activity not directly related to teaching and learning activity. With ethics approval (University of Southampton #13464), school and college teachers known to the author were invited to take part in semi-formal, individual interviews. The rationale for an appropriate sample size for the teacher interview data collection was based upon the average class size and the number of usable data records collected in study one by survey. From a total of 383 completed responses the initial study yielded 312 usable data records hence to reflect an average UK national secondary school class size of 20.1 (rising to 20.4 in 2016 (DfE, 2015)), a sample of convenience of 18 teachers[6] were approached and agreed to be interviewed as part of the third study (Robinson, 2014). These teachers were supplied by email with electronic copies of information packs detailing the aims of the research project, participant rights, data protection plan and related material. The participants of this study were over 18 years of age and, in line with relevant Local Education

[6] 312 responses / 20.1 pupils per class average = 16 teachers

Authority Research Governance Frameworks, permission to interview the participants was not required of the participants Head Teacher. An information letter was also sent to each participants Head Teacher as a matter of courtesy.

Each participant was known to the author through participation with the Computing at School (CAS) organisation in their outreach support programme, the authors work as an exam board visiting moderator or through STEM outreach activities. Upon verbal agreement to participate in the research study teachers were contacted by email to schedule a semi-structured interview. When offered the option to take part in a face to face interview or an interview digitally mediated the majority of participants approached chose to be interviewed by telephone or using VOIP technology.

When designing the survey tool for the initial study the author was keenly aware of the demands placed upon time allocation in classroom teaching, as mentioned previously today's classroom teacher is (usually) required to have in place a lesson plan detailing pupil activity throughout the lesson period. With this in mind the survey tool was designed such that it could be employed as a lesson starter activity and would take between 5 and 15 minutes to complete. Conducted during the latter part of the academic year when demands placed upon teachers and timetables were reduced e.g. final year students undertaking study leave and the requirements of year group schemes of work had been met, pupil focus group interviews could be conducted for the majority of a timetabled lesson period which in practice translated to approximately 40 minutes. Though the constraints placed upon the amount of time for which pupils were available for interview in the classroom had reduced this was unique to the classroom, teacher workload outside of the classroom had remained. This continued demand upon teacher's time outside of the classroom was reflected in the format and duration of the interviews in that remote was preferred to in-person and an average interview duration of 25 minutes.

An interview medium once regarded with a certain amount of scepticism (Legard et al, 2003; Rubin & Rubin, 2011), acceptance of interview by telephone and other digital artefacts as a valid means of data collection appears to be increasing (Morgan and Symon, 2004; Seymour, 2001). Cogent arguments have been offered which suggest that many of the perceived limitations of data collection by telephone interview such as not being able to see facial expressions or read body language (Novick, 2008*;* Sweet, 2002) and an inability to develop an interviewer-interviewee relationship (Gillham, 2005), have reduced and indeed have little impact (Cachia & Millward, 2011; Block & Erskine, 2012, Irvine, 2011; Jacob & Ferguson, 2012; Lambert & Loiselle, 2008) in today's digitally mediated society in which 93% of the adult population in the UK possess mobile

telephone communication devices (Ofcom CMR, 2016) and over 75% of Adults in the UK are using the internet on a daily basis (Iacono et al, 2016). Concerns regarding the amount of time a telephone interview would take and participants willingness to engage in discussion or suffer fatigue have also shown to be largely groundless (Holt, 2010; Stephens, 2007). With this in mind the use of telephone or VOIP technology being the preferred means of communication, a recognition of limited participant availability and the cost effectiveness coupled with time efficiency (Miller & Salkind, 2012; Sobo et al., 2003), a semi-structured format of 20-40minute duration was selected as the procedure for conducting the teacher semi-structured interviews. Informed by the findings of study one and two the third study investigated two questions from the perspective of the teacher:

1. What are teacher understandings of pupil perceptions and use of social media?

2. Do school teachers decide to use or not use social media to support non-formal learning?

6.2 Method

As with the focus group interviews each teacher interview commenced with a reiteration of the participant's rights and confirmed that informed consent was in place. Once informed consent was confirmed a definition and relevance of social media in the interview was agreed in that social media would be regarded as a web-based technology, account holders of which could create, edit and share a profile with deliberate connections within a bounded system. It was also agreed that the relevance of social media to this work is based upon a shared understanding of learning is a socio-cultural event. In the same way that survey and focus groups participants were asked if they used social media to enable filtering out of participants whose input may be said to lack relevance, teachers were asked to describe a lesson they had taught in which both teacher and pupils agreed learning had occurred. The following interview extracts indicate a learning process based in a socio-cultural context was in place as importance was placed upon pupil discovery, collaboration and control of direction in the learning activity.

> P-9: I think the best lessons are those where you give the students just the smallest amount of information and then they discover their own ways of doing things, so in effect we're more facilitators than teachers..
>
> P-10: yeah, a successful lesson isn't one where students are just sat there writing stuff. It's one where students are kind of actively involved and also taking some responsibility for their own learning; asking questions of me, asking questions about the general subject matter. I teach History and Politics, for example; so particularly in Politics, students' awareness of kind of current events is really important and applying their knowledge of current events to the curriculum.

> P-14: yes, because pretty much they had a free rein, so they could, through their questioning they could lead the conversation in the direction they want about whatever topic they wanted, so it was pretty good..

Each interview was digitally recorded followed by the same intelligent-transcription process adopted to enable analysis of the majority of pupil focus group recordings.

6.3 Interview Questions

On completion of administrative activities and the confirmation of a shared understanding with regard the place of social media in this work the interviewee was given a broad overview of the topics to be covered during the interview and how their responses would contribute to research project. As with the survey instrument used in study one and the focus group interview questions of study two steps were taken to ensure internal validity (Gray, 2009), of the research questions through peer review (Cresswell, 2007). Upon review completion the questions were discussed with volunteer teachers attending training events hosted by the author as part of CAS teacher support. Taking into account teacher comments the research questions were edited if deemed necessary. Following the same procedure as used in study two the teacher interviews were divided into two sections.

In the first part of the interviews teachers were asked to consider what level of importance pupils placed upon social media in the pupils' everyday life and why they (the interviewee) believed this to be the case. Participants were then asked if they believed gender or age played a part in pupil perceptions or social media use. In support of these question participants were prompted for examples upon which their beliefs were based. This process was repeated for each interviewee to investigate understandings about pupil perceptions and use of social media in support of non-formal learning. The second part of the interviews focused upon the teacher's perceptions of social media in general, it's place in learning and whether or not the participant promoted the use of social media by their pupils in support of non-formal learning.

Once the individual interviews had been completed the recorded audio files were transcribed using the same freely available software 'Express Scribe' as used in transcription of the focus group data collected in study two. Following the focus group audio transcription interview audio files were transcribed using the same intelligent verbatim procedures with verbatim transcription all audio data recorded transcribed as spoken by both facilitator and participants. Following transcription, a constant comparison thematic analysis of the individual interview data was conducted until using QSR Nvivo software. Analysis of data continued until a point of 'saturation' was reached in that no new themes were emerging during the coding process. In each of three

passes of analysis codes were attached to segments of data, coded data was then grouped into categories from which themes were drawn.

Listed below are the high, mid and low-level questions put to the interviewee during a semi-structured individual interview.

6.3.1 Interview Questions:

Summary:

Data will be collected through semi-structured individual interviews. No personal information will be collected. Identification is limited to a participant by participant number and date and time of participation metadata.

Sect.1 Introduction

If participants consent to take part in interview they will be informed again of their rights to withdraw, how data will be stored and secured, anonymity and use of data.

Sect. 2 High level questions

- What are the existing perceptions of teachers around the use of social media by school pupils in support of non-formal learning?
- What are the current practices of teachers regarding use of social media in support of non-formal learning by their child(ren)?
- Do tensions exist due to a mis-alignment of teacher perception with pupil practice?

Mid-level question: To avoid the risk of introducing bias – as may be the case if participants were asked outright what their pedagogical stance was in that they may give the answers they believe are expected of teachers as professional educators - participants will be asked to provide an example of success in teaching a subject topic.

Low level questions

To gain an idea of your teaching style and methods please describe instances which you feel describe your different teaching styles and methods – year, topic, objectives and level of success academic level/year group.

- Which of these examples best describes your approach to teaching and learning
- Do you think social media supports or disrupts non-formal learning

Mid-level question: Perceptions of social media practices by pupils in everyday life

Low level questions

- How important to your pupils do you think social media is in everyday life
- What leads you to think this
- Is this true for all pupils or is there a variety of perceptions
- Do you think gender or age has an effect

Mid-level question: Perceptions of social media practices by pupils in support of non-formal learning

Low level questions

- How important to your pupils do you think social media is in helping with school work
- What leads you to think this
- Is this true for all pupils or is there a variety of perceptions
- If a variety – what is the distribution of this variety
- Do you think gender or age has an effect
- Should a 'social' tool be used to support school oriented activity

Mid-level question: How do practices manifest in teaching?

Low level questions

- Have you used social media in your teaching at any level
- If you have used social media in your teaching what were your objectives and how did you use social media
- Do you think the use of social media was successful in supporting learning
- Have you encountered practical difficulties hindering the use of social media to support non-formal learning.

Mid-level question: How do teachers embed practices?

Low level questions

- Do you think social media can contribute to non-formal learning?
- Have you encouraged students to take part in using social media to support non-formal learning – if so, how?

Mid-level question: Teacher use of social media

Low level questions

- Have you ever been encouraged or discouraged by colleagues to use social media to support learning?
- Do you use teaching materials created by yourself or others which encourage which the use of social media in support of non-formal learning?

Mid-level question: Institutional policy

Low level questions

- What is the school policy regarding the use of social media by teachers or pupils in support of non-formal learning?
- Does your school have a general social media policy?

6.4 Results and Analysis

As with the online survey conducted during the initial study of this research the participants were asked for the levels of importance they believed their pupils accorded to social media in their everyday lives and in support of non-formal learning. The chart below (fig. 29), indicates the range of perceptions reported by participants regarding levels of importance attributed to social media by pupils.

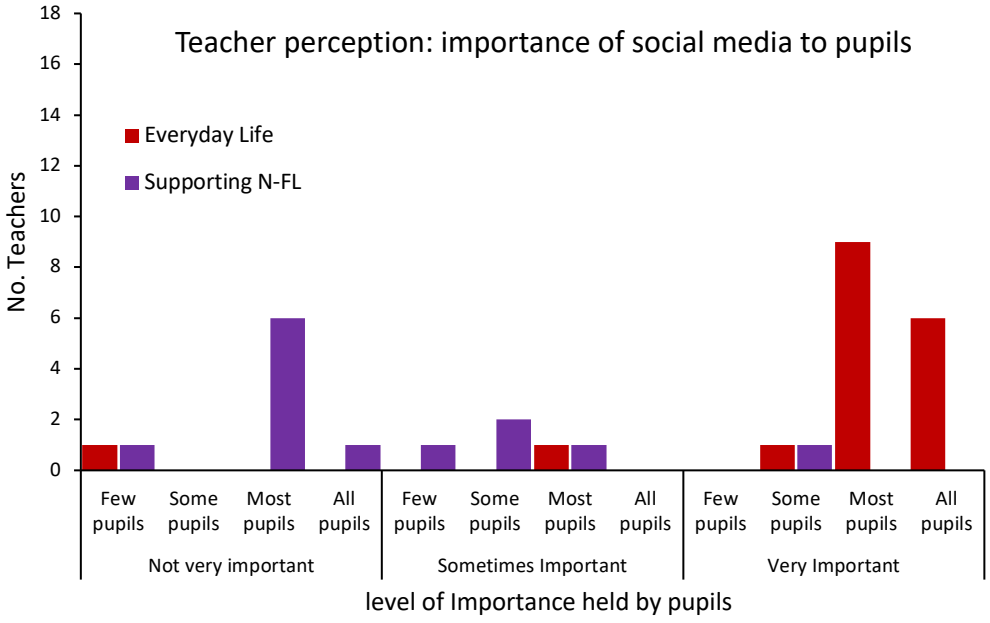

Figure 29. Teacher perception of levels of importance attributed to social media by pupils in their everyday lives and in support of non-formal learning (N-FL)

Level of importance

Analysis of interview transcripts indicates that participants believe or understand that social media is very important to most (9 participants), if not all (6 participants), of their pupils in their everyday lives as the following examples show:

> P-16: I think that it's a sliding scale – different students – because no two students are the same, and it' – it also is based on their home environment and so forth and the amount they are allowed to interact with social media. But I think generally speaking I just – I think most pupils would say that social media is very important to them in their lives.

the comment of participant 16 indicates teachers are aware of the constraints which may be placed upon pupils with regard their access and use of social media whilst appreciating the different attitudes and perceptions pupils may hold.

> P-11: I think it's very important. I think in those sort of – the ability to have their own personal space has moved from back in sort of hard copy forms of diaries and journals that, you know, so if people wanted to keep a secret they could keep logs – it almost became part of who they are and now it's become electronic. So they can have avatars, they can have bits about themselves online. In terms of the platforms, then sort of the platforms have changed but the premise in each case has always been the same. That sense of connection – there's a definite hierarchy in how many people, how many connections you have in social media and for the student that is really important. Also the thing that's changed, that makes it really important for students is the sort of – they say something that ultimately is going to be listened to by lots of other people. So it gives them a platform – this idea of publishing their thoughts, their ideas, their statuses. And the more people that like it the more they feel validated but that is, you know, that's an acceptable post or status for the information that they're putting out there. I think in terms of their standing in society social media is absolutely crucial.

With their mention of '*keep a secret*', a '*definite hierarchy*' and '*the more they feel validated*' it could be suggested that participant 11 explains their belief that social media is very important to most pupils in terms of identity management, social identity and social capital.

A comment made by participant 1 appears to indicate that though teachers may have strongly held opinions or perceptions:

> P-1: yes, I imagine, not necessarily all the students but a lot of the students are always in touch with people, outside the classroom outside the school, everywhere you go you see people with a mobile in their hand, looking at their.. and I think that is particularly the case with young people.

these perceptions do not appear to be based on evidence other than their own observations i.e. anecdotal evidence. Further to these comments a number of participants expressed that social media was not only very important but this was the case for all of their pupils:

> P-9: I think it's vitally important to (*all of*) them, that they probably couldn't survive without some form of social media.

With the majority of participants expressing a belief that social media was perceived by most of their pupils as being very important in their everyday lives the question was repeated as to levels of importance with a change of focus to use of social media in support of non-formal learning. Analysis of responses to this question suggest an inverted reflection of the levels of importance attributed to pupils in their everyday lives. Whilst one participant expressed the belief that *some* pupils perceive social media as being *very important* in support of non-formal learning:

> P-9: It is very important. It's mainly Facebook, some sort of – they use Twitter as well. It's very important – it's so important that they are almost unable to not use Facebook during lesson time; that is something I insist on. I do not allow using – use of mobile phones for private purposes during my lesson. So the answer is very, very important.

two participants stated their belief that *some* pupils found social media *sometimes important* in support of non-formal learning:

> P-11: I'd probably say sometimes important. It sort of – anecdotally with my own nieces I've seen sort of picture that have ((0:08:23.8?)) on their social media that maybe one of their friends have taken a picture of let's say, you know, brainstorm from a board that teachers and then they've taken that home and that's really helped them with some homework and then they'll use social media to distribute that image to help other people with their homework. So if someone says, how did you get on in your history? Oh dead easy, I've got something that will help you, and they'll send it across. So in terms of – and again, that in terms of helping and the demographic where again it's sort of learning is seen as important. In demographics where learning isn't held in such high esteem then it might change the use of social media; but it certainly isn't the driving force in the student's use of social media but I would say that quite a decent number of times, a significant number of times, it's important.

> P-13: I think there will be some students who will see it like that but as in that – the more mature students probably – not, not as in age but more kind of students who think about these things in more detail and I think they probably – I don't think they would think of it quite so black and white, so I think they'd be quite happy to combine them if they saw that as being useful.

It is interesting to note that participants emphasise the belief that pupils will utilise the technology only if they regard it as being 'useful' or learning as 'important'. As an apparent opposite to beliefs regarding levels of importance attributed to social media in everyday life by

pupils six interviewees described pupils as perceiving social media as being *not very important* in support of non-formal learning:

> P-12: I don't think they even consider it helps them with their schoolwork personally.
>
> P-13: I don't think, in my school I don't think they find that important and that's because I don't think we – we have anything – any sort of tools in our school that we would use to sort of suggest that they should be using or we don't kind of promote anything like that really I don't think in my school so I don't know whether some schools might find it more important but I think, in general I don't think students find it – would probably rate social media as a useful learning tool, no.
>
> P-5: I stay in the room I teach in in lunchtime, and sometimes I'm there to help people, other times it's just a place to sit, and there are kids just hanging out in there chatting, and that's where I've given you most of the information I've given you, it's coming in through osmosis more than anything else, and it's all, it's all trivial social stuff, some of it is local to them, people they are at school with, and some of it is international, but it's trivial stuff, it's celebrity stuff, it's still 'who said who did', but on an international scale as opposed to their own local scale, I've not seen any learning.

As with reporting of participant perceptions of levels of importance attributed by pupils the comments by participant 5 indicates the anecdotal basis for interviewee beliefs. Having investigated teacher perceptions of the levels of importance attributed by pupils to the use of social media participants were then asked if they believed that pupil age or gender impacted upon these same levels of importance. In this investigation age and gender are considered as constants in that gender does not (or rarely), changes and though pupils age changes the rate of change is constant.

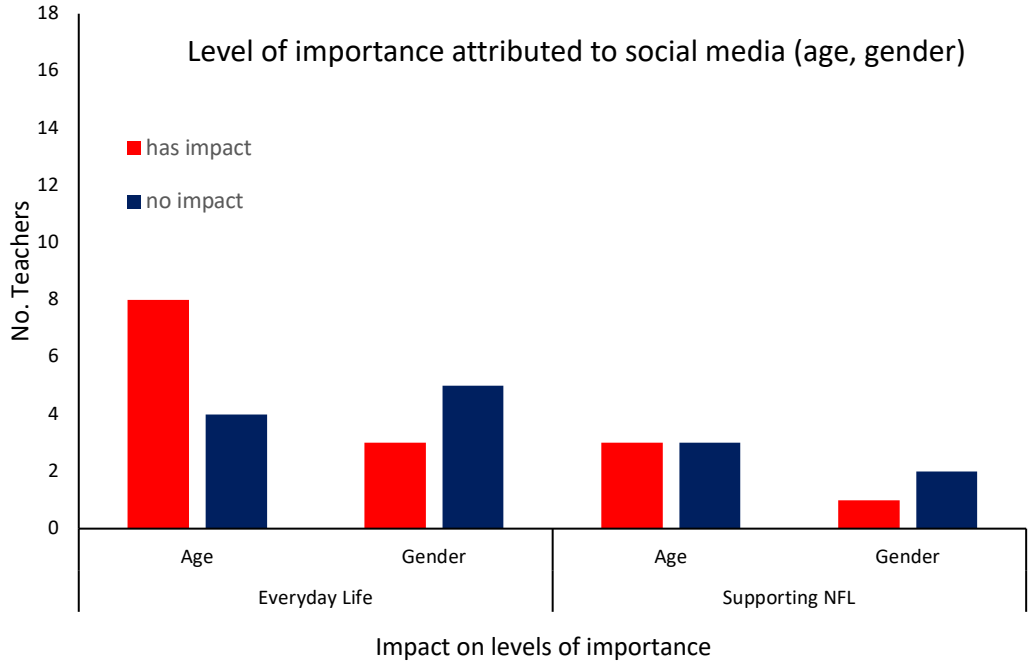

Figure 30. Teacher perception impact of age and gender on levels of importance attributed to social media by pupils in their everyday lives and in support of non-formal learning

Age and gender – Everyday Life

Of the comments relating to age (fig. 30) participants identified parental input and control as having direct impact upon the levels of importance pupils would attach to social media in their everyday life. Recognising the apparent contradiction of pupils in year 7 i.e. age 11, utilising social media accounts which require a registration the minimum age for which being 13, participants indicated an awareness of parental participation and control.

> P-3: yeah, it (*age*) does a little bit because we were actually teaching at the beginning of yr7.. about using social media effectively, and we were just doing a quick audit across the yr. group and we were asking them how many of them had accounts with things like Instagram, and I think the minimum age for something like that is 13, and those students are 11, if their parents know about it and had helped them set up the account then that is okay but there were quite a few of those students who did have accounts but not all of them, whereas if you were to ask a year 11 group how many of them had FB and Instagram it would be a much higher percentage, and I think they do tend to have more parental controls obviously because they are younger, again, I don't think what they are using is different I just think maybe how they are using it is slightly different, I think they would obviously post slightly different things but I think the younger ones are still, it's still quite new to them having a FB or IG account at 11

> P-11: No, not so much – I mean definitely more so once they are sort of you know, Year 8 and above. Year 7 we're still just at a level I think where there's a level of parental control that still is fairly widely adhered to; certainly, in our demographic at the school we're in here. If parents here say, no, we don't want our students on social media at the

> age of 11, then a lot of the type of student that we've got here would probably adhere to that. There would be a fairly small number who would go on anyway. But certainly, with Year 8 and Year 9 when it becomes fairly saturated then I would say, no, and in terms of gender nothing at all. I don't see any kind of gender split in the use of social media.

The mention of parental control is of interest as this would appear to indicate that some teachers believe parents are taking an active part in their children's use of social media as they enter secondary education, if not before. Arising from the notion of parental control it may be reasonable to ask the question whether teachers could consider working with parents to promote the use of social media for knowledge sharing amongst pupils.

When asked for other reasons why age impacted upon levels of importance held by pupil's participants referred to the growth process pupils were undergoing i.e. the onset of adolescence and the changing priorities accompanying this onset.

> P-14: it's less so but sort of getting a little bit younger each year, in terms of stepping onto what was the FB, around year 8 but obviously with their rules and things on FB being 13, the majority stepped onto that a little bit early, and now obviously FB isn't the pre-dominant platform that for a small minority, it seems to be Instagram, snapchat and .. Whatsapp, obviously, these things change but they obviously use them quite pre-dominantly but, I'd say more so as they hit teenage years, more sort of the end of year 8, is when it starts more it's when they become more socially active, when they sort of the hormones kick in and they and they hit that time, yr8 yr9

> P-16: Age definitely comes – I would say the – later in the school, after Key Stage – it grows incrementally as you go up through the school. So Key Stage 3 going into Key Stage 4 it just becomes more and more important I think.

> P-2: I think it's getting more and more spread, I think that before it was maybe key stage 4 mainly but now, because parents give access to phones to their kids from a very early age, it's everywhere

Though several teachers mentioned parental control and the impact this may have upon the level of importance pupils attach to social media one participant turned this around by considering the position of the parent.

> P-15: it tends to be negative, they are quite defensive in terms of protection of their kids, we do a lot in terms of getting them in and giving them evening sessions and people coming in, like Childnet coming in once to do talks to parents and we do some workshops and put information out, I think there is a bit of wariness with social media purely because it's at the age where parents start to relinquish more control, in terms of going form primary where they are quite close, controlled and directed by parents, whereas they start to have that less and less in secondary, as of course has been the case

> for many hundreds of years, but obviously with social media now it's a closed area, some parents will want to have logins to these things so they can see or think they can see the only way they (offspring) are communicating, … it's a closed system and I think parents worry more than they think it's a brilliant thing generally, obviously there's variances but I think there is more of a worry because they can't control and they can't see it, so they do worry about what's going on, what's being said, I think there's more concerns because it's a relatively new thing.

Here, participant 15 comments upon an aspect which may be easily overlooked when considering use of technology i.e. the change in circumstance of the user in that parental control or guidance is being replaced by an apparent burgeoning independence.

Whilst analysis of the interview data indicated more participants believed that age had an impact upon the level of importance their pupils attached to social media in their everyday life the opposite appeared to be true when considering gender.

> P-4: I don't think there's any difference in importance I just think used in different ways I would imagine, I don't see any difference between boys and girls in their use of FB for example

> P-3: I haven't noticed a massive difference, when you see them all on their phones at lunchtime and things they are all using the same types of apps and different media, so I haven't seen a massive difference, I think boys tend to use it in a slightly more crude way and possibly to be a bit negative or rude towards each other slightly more, girls tend to be a bit more pleasant to each other but I don't think there is a massive difference, in what they do I think they are all using the same sorts of things

Though more participants commented that they did not believe gender would impact upon level of importance the responses highlighted participant perception about use. Participants indicated the belief that whilst the same social media applications and platforms were being used by boys and girls they were being used in markedly different ways. It is of value to note that these differences highlighted may have implications for the design and implementation of future socio-technical systems for use in support of non-formal learning.

Age and gender - non-formal learning

When questioned about levels of importance attached to social media in support of non-formal learning participants did not appear to have given the idea much thought.

> P-11: Yeah, I don't think, no I think the actual – the distinction between that work platform and that social platform actually extends – it doesn't – gender has no impact on it at all I don't feel and certainly age has no impact on it all the way through to staff.

Unlike reported perceptions of pupil use in everyday life a dominant perception regarding age was not indicate whereas the influence of gender was considered to be a repeat of the influence in everyday life.

Following analysis of individual interview data collected it was noted, perhaps unsurprisingly, that though the high-level themes developed in study two were applicable and relevant to the study three findings few of the codes developed were common to those developed from the focus group data in study two. When codes were common, they did not occur in sufficient volume or participant emphasis to become categories contributing to themes supporting the notion a marked difference in consideration and motivation.

Shared codes

The low-level codes which both stakeholder groups commented upon could be described as those of which both groups were aware yet over which neither group seemed to have direct control or influence. With regard possibility of distraction from task and social capital fig. 31 below, shows number of teachers and percentage of focus group pupils who commented in either a positive or negative manner.

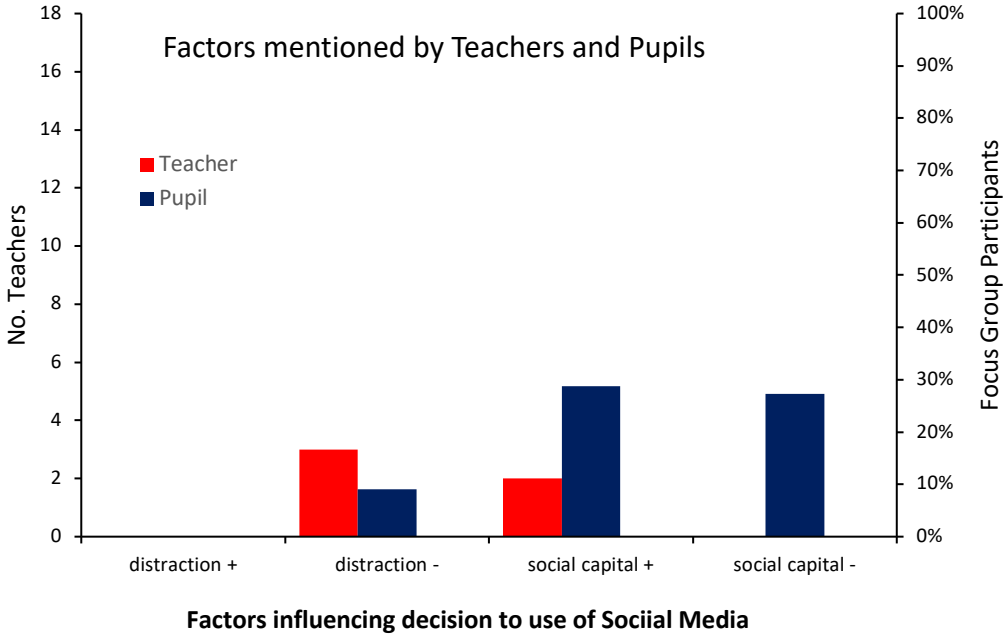

Figure 31. Factors highlighted through analysis of focus group and interview data

Though three (17%) of the teachers and 9% of the focus group participants commented upon the possibility of distraction from task occurring through the use of social media appears in a negative fashion it is something about which both teachers and pupils are aware. Whereas the possibility of distraction was commented upon in a negative fashion by both groups the influence of effect

on social capital was reported as being positive from the perspective of two teachers (11%) but both positive (29%) and negative (27%) from the perspective of the pupils commenting in the focus group interviews.

Distraction

In discussion regarding use of network or web technologies in general and social media in particular participants commented positively about the possibilities for support of learning and sharing knowledge. It would appear that one reason teachers became wary of promoting social media as a tool for knowledge sharing and learning when pupils freely admitted that the temptation to be distracted off topic may be too great.

> P-13: I think there's lots of social media websites, which you can use for learning; so obviously you could follow – you know, some students do follow those Twitter accounts and there are – of course, the ability to speak to other students and you will ask them about your homework, I'm sure that happens but at the same time it's also a disruption in the sense that, oh, instead of doing my homework I could be chatting about something else, etc.

> P-11: I've had some very frank conversations with students about it and some of the most honest students, students have told me that they wouldn't be trusted to ultimately on a long-term basis use it purely – a platform purely for school work.

> P-17: I think there is a fear of cyber bullying, mobile phone texting, kids being distracted by their mobile phones in class when they should be paying attention to the teacher and that sort of thing, that's really what the key argument is it's a distraction

This awareness and apparent acceptance of distraction from task is reinforced by focus group comments in which pupils seem to accept distraction as an inherent part of social media over which they have no control (p. 93).

As mentioned it is interesting to note that pupils and, to a certain extent, teachers seem to regard distraction as being inevitable which may beg the question as to why this should be the case.

Social Capital

Discussed in greater detail in chapter 7 (p. 144), from the perspective of pupils and teachers on how social capital is perceived as contributing to the existence of barriers to the use of social media to support non-formal learning the second code or topic mentioned by both pupils and teachers was that of social capital. Whilst teachers gave perceived examples of displacement, shyness, acceptance, trust and the beginnings of networked publics in a positive fashion interview participant did not appear to consider the negative aspects which were identified through analysis of the pupils focus group data.

Teacher view

An example of the displacement of the social hub of the pupil's experience from their family at the start of secondary education to their friends and peers participants commented upon the rate at which this transition occurs and how acceptance is sought through an increasing number of 'friends'.

> P-12: I would think probably more Year 9 – 11; I think the sort of older age group it is essential, you know, they can't live without social media. I think the younger ones, Year 7, in my experience, are just starting to come across it so they are just starting to – to work out what it is and enjoy using it. So I think maybe not so essential for Year 7s but I definitely feel Year 9 and upwards it's the centre of their world.
>
> … Yeah, so generally sort of observation but yeah and generally talking – because they'll come in and say, oh I was on Facebook last night and so and so and so did this and so and so said that. It's a general conversation that you'll hear every single day, every single day, and certainly in Year 9, 10 and 11
>
> P-14: yeah, I think it's more relevant to them as they get older, I think because they obviously seem to fight for the most number of friends they have on there, they contact each other through FB or other social media, TW or SC or whatever, Instagram, and I think it's a big part of their lives, outside of school

Another positive aspect facilitated by social media identified by teachers was the opportunity for pupils to be 'heard' when elsewhere they may lack the confidence or social capital to contribute to discussion with their thoughts or opinions.

> P-6: maybe, you know, it's like someone who's – you know, you are having a group discussion and they daren't pipe up and say something because, you know, they are shy or they don't really know what to say and it's the same thing that goes on social media. They are all on it – you'll just get the louder ones who post every day, everything they're doing and let the whole world know what they're doing. But then you'll get those who are on it but they quietly don't say much and it's no different to being in a group conversation; the quiet one doesn't get involved in the topic debate and the loud ones make it quite clear who they are and what they have to say.
>
> P-9: it tends to be their own sort of social cliques inside school that's extended out into the social media, I wouldn't say they are crossing the boundaries of this group who are friends and that group who are friends and joining the two together

This last comment describing boundaries and the joining of groups speaks to a move towards the creation of networked publics (Boyd, 2010) in which communities of shared interest (Wenger, 2002) may develop.

Pupil view – place in chapter 7 for comparison

Included here for comparison with the perceptions of teachers as evidenced in the following section, in a positive vein pupils commented upon their willingness to utilise social media to seek support in a limited fashion i.e. unlike the previous teacher comment this pupil does not seek to cross group boundaries seeking help only from those regarded as friends. This may indicate a dissonance of perceptions with regard network affordances teachers assume pupils are taking advantage of and the limited way in which networked social media are actually being used (p. 91).

The different meaning of social capital for different pupils may be seen if one compares the previous positive comments with the following inferring negative perceptions. Both comments come from pupils in the same focus group with the first comment showing a reluctant confidence to utilise a network facility by seeking help from an acquaintance not regarded as a close friend. In contrast the second comment infers that rather than risk any accrued social capital the pupil would not ask for help as they might be considered 'rude' (p.92).

Through analysis of data collected during the third study the topics or codes 'distraction' and 'social capital' were identified as being common to beliefs expressed by teachers and pupils. The fact that these topics were identified by both groups of stakeholders may be indicative of the importance of these topics especially as they are described from both groups involved i.e. teachers and pupils.

Thus far we have sought to gain a clearer understanding of how teachers perceive levels of importance pupils attach to social media in the everyday lives and in support on non-formal learning and the views shared between the stakeholder groups. Following on from this we look at the topics or codes identified through analysis of data collected through individual interview to identify those unique to the teacher participants. Similar to the findings of the focus group study, analysis of the remaining interview codes led to identification of a set of high-level themes relevant to the teacher perspective:

- Factors – why the participant would (positive) or would not (negative) promote or use social media in support of non-formal learning
- Support – type of learning related activity for which pupils use of social media
- Perceptions – would the participant support the use of social media in support of non-formal learning

Prior to discussing the factors teachers commented upon which may influence their decision to promote the use of social media in support of non-formal learning we will determine if teachers believe that the use of social media is warranted followed by if and how they believe social media

is being used by pupils to support learning activities. It is suggested that an understanding of teacher perceptions is required if comments regarding support and factors are to be understood in context e.g.

> P-6: Again it comes down to – for me social media, if you're talking about your personal social media like the Facebook's and the Twitters and things, no – I'm not really – I'm not convinced that has a part to play in terms of the, you know, enhancing their education. It certainly enhances their social skills but not their education. I mean I'm much more a believer that Google Classroom and those educational sites are far more involved in you know helping with their education.

though this participant appears to be in favour of utilising networked technologies to support learning they do not believe that social medial is one of those technologies. This apparent negative perception may help to explain that while the participant does not offer any evidence they go on to mention:

> P-6: I think they are when it's managed and controlled in the classroom. So photography and art and media – all the creative subject, computer science, ICT – I think Maths obviously – I think it has got – it has developed problems outside of the classroom – lunchtime, break times, that sort of thing.

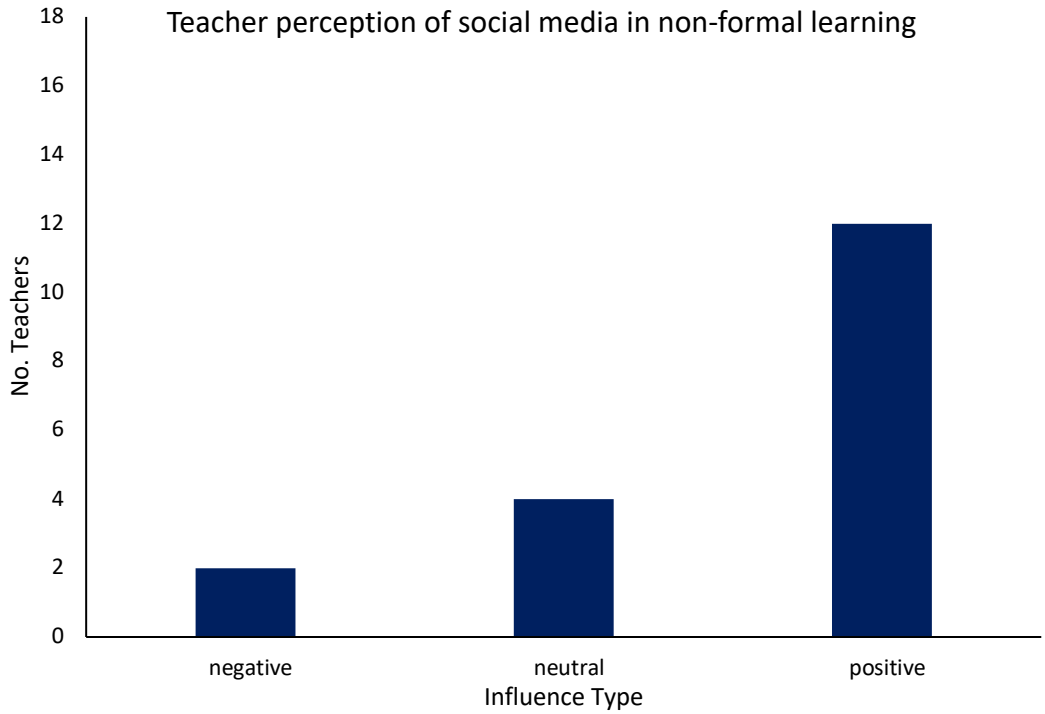

Figure 32. Analysis of responses to question - "Do you think social media can contribute to non-formal learning?".

Perceptions

For the majority of participants analysis of their comments suggested an overall positive perception (fig. 32) of social media in support of non-formal learning though often with a caveat or condition for success e.g.

> P-15: yes I think these things can work it's just that it depends on the culture and the environment of the school

Though describing a personal belief that social media could, and should, be used to support non-formal learning each participant mentioned different aspects of pupil use of social media which they considered important. The most common of these were the place of social media in the pupils' lives, training and social capital. Both importance to pupils and social capital are regarded as contributing to the positive perceptions held by these participants. An example of this can be found in the following comment in which a participant stresses their belief regarding the central position of social media in pupils lives and the need to leverage that position for educational purpose.

> P-12: I think it could be used – I think it should be used because that's – like I say I believe that the students – it's the centre of their world so actually if we can – if we can encroach on that as educators I think it would be very useful because again I think it would mask the fact that they are learning, or it would be something that they are comfortable with using in order to maybe provoke discussion on something.

Participant four alludes to social capital in the following comment indicating an awareness of pupil reluctance to participate in classroom discussion as they may lack confidence i.e. do not want to endanger their social capital, which can be overcome through on online forum in which their identity, and hence social capital, may be protected.

> P-8: not necessarily pointless trying to reach them but you can't, you have to think about all the students, you have to, we often think about the student who tells us to 'f-off', or never does homework or actually if you stop and think about that the students are in a very small minority, whilst they may impact on your day more significantly than any other student, the vast majority of students are there sitting in the classroom never ever being told off, always doing their homework, without too much problems and they're the students who actually respond to that sort of thing, so actually I think in some cases, where a student isn't confident enough to speak out in class having a forum where you could speak out a bit more informally is quite useful

Of interest was the mention by several participants of inappropriate use of social media due to a lack of understanding or training both of pupils and teachers themselves e.g.

> P-3: yeah, I think it does, I think social media is evolving and developing so much on a daily basis, that it is really hard to keep up with that and as soon as you implement something into a school, kind of environment, it's changed again because there are so

> many loop holes to jump through you know, it's not just a case of "*oh, I'm going to set up a FB page for my class*", you'd have to ask certain permissions, you'd have to send letters home, you'd have to do all these things before you could even think about doing that, and often the work involved with it, by the time you've actually done it, the need has gone or something else has come along, I do think social media plays a part in it, I personally don't feel comfortable using it on a day-in-day-out basis with all my students, because I don't know how so I just use in a very basic way, maybe with a bit of twitter sometimes

though having a positive perception of social media in support of non-formal learning this participant admits that they would feel uncomfortable in trying to use social media with their students due primarily to a low level of understanding i.e. a lack of training in the use of social media. The same participant goes on to emphasise this point at the end of the interview whilst also touching on the issue of safety, both pupil and teacher, through monitoring:

> P-4: {end of session comment} I guess it is literally just that thing of, I would love to be able to use social media more, either in lessons or out of lessons with the kids just to engage them a bit more, but it's knowing how to do it, which social media to use, and trying to avoid those issues of, arising, I think I'm probably asking a question which is a bit more like how long is a piece of string, because there is no real answer to it, it's just knowing how to embed it properly, at the moment I just tend to use twitter I don't use anything else, whereas I think I could be, I could be podcasting and things like that, so I think there is definitely a call for it, actually I know a few teachers who have set up YouTube channels and they do a bit of podcasting, but again it's the monitoring that's needed with that and just making sure that it's all okay so.

With regard pupil use of social media participants mentioned trust as an issue commenting "*they can be a bit silly*", in as much as the students have not been shown or trained in how to use the technology in an appropriate manner.

> P-14: I think it would need to be monitored, we don't have an issue using the internet, for flipped learning and accessing material whatever and doing research, but it is a trust thing with students because they can be a bit silly, and I think it's a ... can we trust them to use this responsibly or not, and it would need to be monitored initially and that would be tricky, I think

Moving on from these comments of teachers who hold a positive perception of using social media for the support of non-formal learning the following comments suggest that the participant holds a neutral view or believes that social media should not be used.

When asked if they believed that social media could be disruptive or supportive of non-formal learning one participant responded with the following comment:

> P-2: I think it can be both, I think it can support non-formal learning if you use it appropriately, and if you make sure that students understand the meaning of them learning at home, and creating that social media,

suggesting that both options were true appears to indicate that this participant holds a neutral perception of social media. On being asked why they thought social media was very important to pupils the following neutral viewpoint was offered:

> P3: I think both for good and for bad reasons, I think that it is the key method of communication because it's cheap, in many cases it's free it doesn't cost them anything, it's immediate and they get to use a lot of slang that their parent and adults wouldn't necessarily understand, it's very easy now to attach all sort of media - pictures, video, animations - and it's very good for being able to share with other groups of people.

Conceding that there may be possibilities for the use of social media in support of non-formal learning a participant gave the following comment to explain their negative perception.

> P-5: I would have thought there were possibilities but I can't see what, .. my son is now, he has just turned 13 and he uses snapchat much to my disgust, do you know how snapchat works?

The main objection here appears to be the transient nature of the communication method in that after a message, in this case an image, which exists for a short period of time before self-deleting. As a parent and a teacher the negative perspective of this participant suggest that the issue is that of control and monitoring rather than the technical features of the technology, in that their child's communication can proceed unchecked i.e. unmonitored.

Support

When considering the activities for which participant believed social media was currently being used by pupils it may be perhaps surprising to note that, of the twelve participants expressing a positive perception of social media only one participant recalled having deliberately promoted the use of social media for their pupils.

> P-18: I've been using Twitter from the beginning when it came out, eight or ten years ago. I've never used Facebook really, I've got an account to – just to see how it works and what it does and so on but it was Twitter I was early into and I – I decided to test how Twitter can be used in lessons as a replacement – not as a replacement to a lesson. So I set up an experiment where I told my student, instead of coming to the next lesson, you are somewhere, I don't care whether you are on the bus, on the train, at home, or the library, but you have a Twitter account. I set up the college – I did a Twitter account, they had this – they had Twitter accounts as well and I conducted the whole teaching, one and a half hours via Twitter.

However, though a relatively novel use of social media two points are worth mentioning with regard this example. The first is that the pupils partaking in this experiment were aged 16 or over at the time and secondly, the participant may not be considered to be promoting its use in support of non-formal learning as the use of the technology was structured and the pupils were instructed to utilise the technology. These points are of relevance as a focus of this study was teacher promotion of social media such that pupils would use it in support of non-formal learning i.e. the motivation or rationale to use the technology would be endogenous rather than exogenous.

Having developed a picture of how social media is being used by pupils in their own words through analysis of data collected in the pupil centred studies one and two, for later comparison we will look at teachers' beliefs about if, and for what, social media is being used to support learning activities by their pupils. On analysis of interview comments a noticeable feature is that a third of the participants commented that they could think of no evidence to suggest that pupils were using social media in any way to support non-formal learning activities. Interestingly, this number approximates to the number of participants responding in a negative or neutral manner when asked "Do you think social media can contribute to non-formal learning?", an example of which is given below.

> P-3: I haven't seen any evidence of it, that doesn't say it doesn't happen, I would probably say that if it did they'd be more inclined to just use the school email system because I've seen them sharing bits on that before, 'oh, I sent this to Joe the other day and he has a look at it' and things like that, I would probably say at the moment they, I know that they occasionally, and it's just a handful of students probably, that they do sometimes use the email system, but I've not seen any evidence of them using social media, but I wouldn't know because I don't have access to their accounts so I don't know about that

When asked specifically about social media contributing to non-formal learning this participant touches upon an apparent understanding recurring in interview responses in that participants immediate thoughts run to technology provided by the institution e.g. email. Whilst this may not be regarded as surprising when one considers institutional investment in technologies such as Virtual Learning Environments (VLE's) and the expectation of teacher utilisation of these technologies it may be indicative of a narrow or 'blinkered' view of affordances enabled through technologies commonly available.

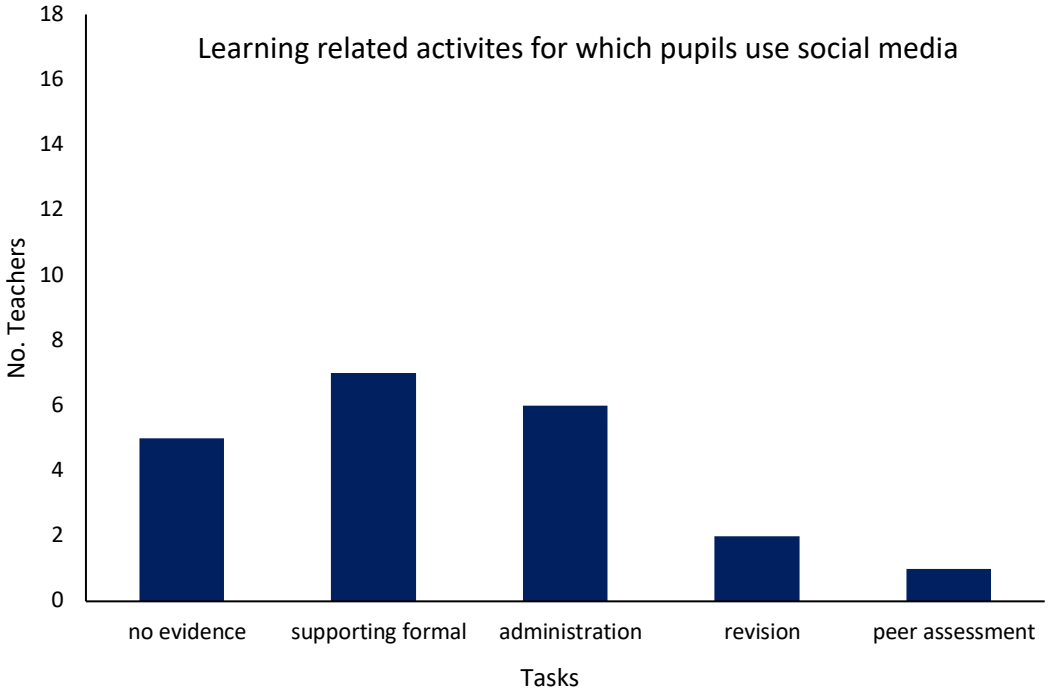

Figure 33. Perceived uses for which social media by pupils in support of learning

Similar to the findings of the second study based on focus group interviews in which approximately half of pupil participants (54%) reported using social media in a fashion which could be thought of as supporting non-formal learning (*work completed at home set by school - not necessarily homework*), half of the teacher participants (7 formal + 2 revision) expressed a perception of social media being used by pupils in such a fashion. This comparability of numbers may suggest an awareness and acceptance by a substantial number of both stakeholder groups of the affordances enabled by social media which in turn support the sharing of knowledge. In the following comment the participant highlights aspects of social affordance enabled through use of technology for knowledge sharing:

> P-9: of course they do, yes you notice that when, the experience I've heard them talking about is, especially when it comes to deadlines, that they're Skyping each other, they are almost working on the work whilst they are Skyping with each other, so whilst they might be geographically remote it's like we probably used to have at university, study groups, it's like they are using a virtual study group and they want to know how to do something they want to work on their maths, they are combining each other's ideas to come up with teaching themselves how to do it, but that's off their own back as opposed to being set (work) by a member of staff

In line with this understanding of social media as a tool to support non-formal learning teacher interview participants seem to concur with pupil perception with regard social media use in support of administrative tasks. Of the teachers interviewed one third (fig. 33) expressed a belief

that pupils used social media to support administrative tasks linked to learning activities with one participant commenting upon use of social media for peer assessment. Classing these uses of social media as support and administration it can be seen that the figures are not too distant form those reported on analysis of the pupil focus group data. With 25% of pupils reported use of social media for understanding of homework task objective and 10% on use of social media for logistic purposes e.g. due dates, topics and resources once again the numbers of teachers and pupils are relatively comparable.

On inspection it would appear that of the teacher participants interviewed at least half expressed a belief that social media was being used by pupils for activities to support learning or the administration of learning tasks. Coupled with a similar number of participants reporting a positive perception regarding the possible use of social media by pupils in support of non-formal learning it may be reasonable to suppose that at least half of the teachers interviewed should have been able to give examples of using or promoting the use of social media with their pupils. As analysis of collected data did not appear to indicate this was the case the next section will look at positive, neutral and negative factors identified through analysis of this data which may explain why this belief in the potential of social media to support non-learning had not been acted upon.

Factors

Previously in this chapter data collected by interview was analysed to determine perceptions held by teacher regarding the potential of social media for use in supporting non-formal learning in general. As the factors Social Capital and Distraction commented upon by participants as having a positive and negative influence respectively have been discussed in the section dealing with shared codes, these factors will not be included for further consideration at this point.

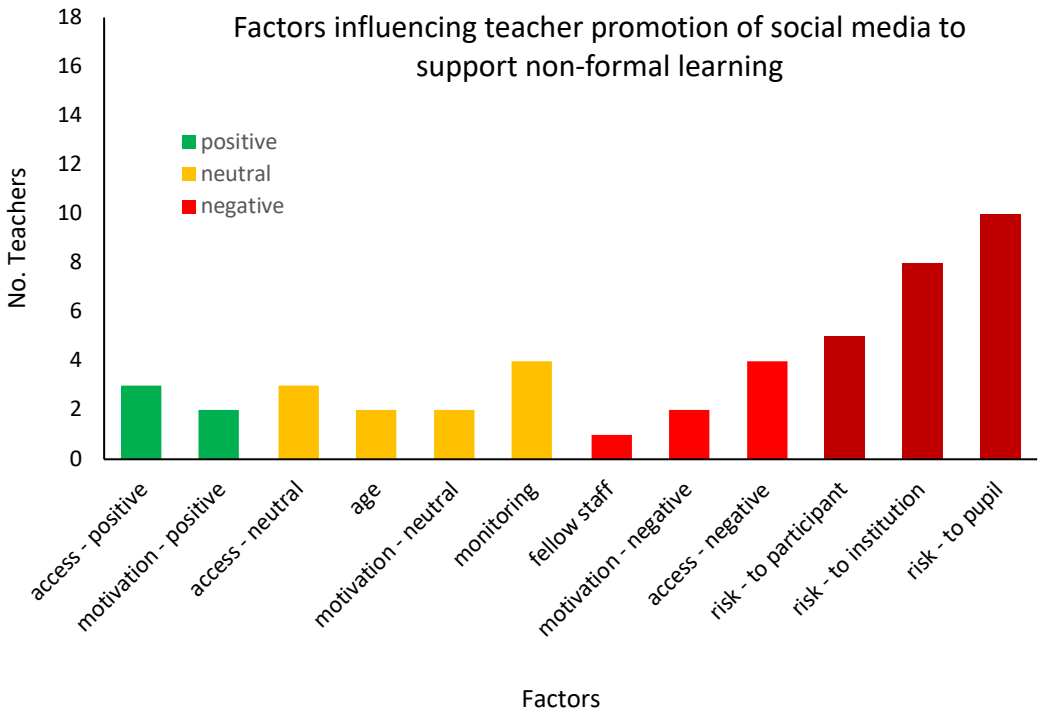

Figure 34. Factors in teachers decision to promote social media in support of learning

In this section we look at positive, neutral and negative comments regarding specifically mentioned aspects relating to use social media which participants indicated would influence their decision to promote or use social media in support of non-formal learning (fig. 34). Though 12 of the 18 participants interviewed expressed a positive perception of social media in a supporting role for learning, it is noticeable that three times as many participants commented upon aspects or influences which would have a negative influence upon their decision to promote social media in support of non-formal learning as participants commenting in a positive fashion. As the factors of access and (pupil) motivation have been commented upon as having positive, neutral and negative influence these will be discussed initially followed by factors described as having only one type of influence.

Motivation and access (positive, neutral, negative)

Of the two factors access and motivation commented upon as having positive, neutral and negative influences the first, access, includes comments regarding permission for pupils to use their own devices in school premises. This use being enabled through access to school internet connection (access) or supply of devices and connection service provided by the school (institutional provision). These comments are combined under the term 'access' whilst the second factor commented upon as having all three influences being that of pupil motivation ('organic' and/or ownership), which participants perceived as having hedonic or non-work use as an apparent foundation.

Influencing participants in a positive fashion social media was commented upon by participants when the internet was made available to all students through wired or wireless access possibly supported by provision of equipment. This was reported as encouraging (makes it easier for) pupils to coordinate and collaborate as well as search for resources and support their peers. The following comment suggests a recognition that social media is being used in a positive manner for administrative purposes when access is provided to social media during school hours or in tutor groups.

> P-15: I think they use it as and when necessary, so they'll physically get together and talk to each other on the bus about homework's or something in the morning or tutor group or group based, if they need help to do something, it depends how busy, I guess, their schedule is, ..

Whilst recognising the support opportunities enabled through use of social media the participant also highlights the positive nature of institutional provision as one of equality through accessibility.

> P-6: Ah well, I mean my argument is they can bring their own device, but unfortunately at our school we are close to town and our, you know, catchment is one of quite a lot of deprived areas; so it is – a lot of these students wouldn't have – and not every, you couldn't guarantee every student would have a mobile phone here and if they did have a mobile phone they certainly wouldn't have a smart phone so it's just location here.
>
> The other reason we wanted it accessible to every student, every student should be – should have the same accessibility towards technology. When they built the new school, we've only got four ICT suites and it's just not enough. So it – the cost of kitting out more rooms with – as ICT suites was just far more than giving them -. We have toyed though with between tablets, I-pads, laptops, all of that – but that's something to ask the IT Co-ordinator; they've done lots of research and found that I-pads were what they were going to go for.

These positive comments may be contrasted with the neutral and negative comments also recorded during interview. Comments were considered to describe a neutral influence if they described limited access to networked application being afforded, usually through blocking activities carried out by the organisation providing internet access to the school e.g. an LEA. In this instance the teacher would have promoted social media to their pupils were it not for perceived limiting activities of their institution.

> P-14: I don't know, it's a bit of a contradiction in some ways because we (the school) have got a twitter account, but we don't allow them to access Twitter or FB or Instagram

> through the school environment (network), which comes through Hampshire (LEA), so the LEA bans it through their filtering system
>
> P-3: they're allowed their devices at break and at lunchtime, there is not restrictions on that,... we've got student Wi-Fi across the school though it is heavily monitored, the same restrictions apply to if they were using a computer,

A further example of neutral influence was that of commenting upon a perceived *contradiction* of prohibiting student use of social media in school whilst promoting the use of social media for knowledge sharing out of school hours to support non-formal learning. In situations where an institution was attempting to prohibit the use of social media or personal digital technology such as web-enabled mobile devices during school hours participants commented upon this as having a negative influence.

> P-1: I'd have to say that I'm not aware of one, I mean we're supposed to discourage students, in fact they are not supposed to have for instance their phones switched on during lessons, during school time, now this is a constant issue, some students you see them with their phones out so you have to keep telling them to put them away and so on,
>
> P-11: Well in the school day it would be no, we have a blanket ban on mobile devices in the school; so we have a lot of resources in terms of school-based electronic devices from tablets to laptops to – so a huge host of IT suites, but that sort of keeps control on sort of the electronic nature of what the students are doing.
>
> P-2: no, the only thing is that the school is trying very hard to stop them using their phones at all times during the day, not for learning purposes, so they are not even allowed to use their phones during breaks for facebook or other social media

Further to the direct negative influence upon teacher decision to (not) promote use of social media to support learning activities an indirect influence was highlighted by participant P-1. The participant comments upon the 'constant issue' of trying to enforce a policy which seemed to generate much pupil resistance. Evidence[7] suggests that pupils regard use of social media as a pleasurable activity i.e. in a positive fashion for hedonic purpose, suggesting this 'constant issue' or resistance to the enforcement of policies which limit access to social media during school hours may be considered as negative. In turn this negative perception may be considered to contribute directly to a negative pupil perception of combining social media and learning or school based tasks and hence indirectly to pupil motivation.

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The negative influence on teachers in their decision whether or not to promote social media is given by participant two in their comment describing how they perceive pupil negative motivation towards the use of social media when associated with learning.

> P-2: we as everyone, adults and children, so it's strictly seen as a social - on the name itself - it's a social .. em ..(F - social event?), yeah exactly, so trying to introduce any learning that, I don't think it would be successful, to be honest …. (0:38:06.9) that's why they are not using them properly during lessons, that is a total distraction just because they associate that with having fun or, you know, nothing to do with school nothing to do with learning, they don't associate facebook with learning

Explaining their understanding of why pupils may have little or no motivation i.e. a negative motivation to use social media for learning tasks participant eleven comments upon their belief that as it is difficult to convince adults to use social media for 'work' tasks children will be no different.

> P-11: Well in the school day it would be no, we have a blanket ban on mobile devices in the school; so we have a lot of resources in terms of school-based electronic devices from tablets to laptops to – so a huge host of IT suites, but that sort of keeps control on sort of the electronic nature of what the students are doing. It's a difficult one because I think ultimately what I end up doing as a computer science teacher is I end up using the tools and resources that I have but in a social media fashion. So I end up – we end up almost having resources that can be shared. We end up sort of having distribution groups by e-mail very similar to groups of friends or bits and pieces like that. We end up trying to replicate the viable nature of social media sometimes but within the school environment without having to say, okay I want to do it so I have to use one of the media, which is normally used in a social context, and try and say to the students, okay, use this not in a social context but in a work context. And I don't think the students – it's hard enough for adults to do that and I think to expect a 12, 13, 14-year old to – when it's something they would normally use for social purposes to use it for work, I think it's too much of an ask. But if we use a school-based system in a social media way, then they are more happy to do that.

Being neither negatively nor positively influenced by pupil motivation the following participant comment describes the need to somehow harness existing pupil motivation to use social media.

> P-5: I'd like it to work, it's based on motivation, isn't it? I mean they are motivated to use SC and FB, and it's nothing to do with their studies, their motivation is nothing to do with their learning, so I suspect, that they would have to be motivated to do well to bother with something like what you are suggesting, rather than the other way round, I don't know, I'd have to see what it was that would do it, I can't see a social media that's any different to a VLE type thing,

Commenting upon the positive influence their perception of pupil motivation would have on participants decision to promote social media as a tool for learning support topics such as accessing an enhanced network of peer support, geographical location and social attitude were mentioned. The only participant to mention student access to a national network specifically talks about 'year 12' students offering no comment about use by younger students.

> P-5: well stuff like 'student room', that probably doesn't come under what you talking about (social media), ..., well my year 12 this year have used that a lot, for finding out stuff, they do an exam - it's gone badly - they go to student room to see if everybody else thinks it's gone badly (nationally), they don't know how to do this particular question they go to student room to see if somebody has tried that previously

As the influence of age upon pupil motivation is implied by one participant the benefit of using social media to overcome barriers of distance between pupils is described by another. Foregrounding their comment once more with reference to age the spontaneous use of social media to facilitate virtual study groups is highlighted as an example of positive pupil motivation which would encourage the participant to promote use of social media.

> P3: I haven't, I know it goes on especially in the upper school when they are doing things like their coursework they communicate with each other …

> P-9: of course they do, yes you notice that when, the experience I've heard them talking about is, especially when it comes to deadlines, that they're Skyping each other, they are almost working on the work whilst they are Skyping with each other, so whilst they might be geographically remote it's like we probably used to have at university, study groups, it's like they are using a virtual study group and they want to know how to do something they want to work on their maths, they are combining each other's ideas to come up with teaching themselves how to do it, but that's off their own back as opposed to being set (work) by a member of staff

A somewhat tangential outcome of pupil positive motivation to use of social media may be that of influencing (local) social attitudes towards learning. In describing peer support via social media between pupils with backgrounds varied in the importance attached to learning it is suggested that this support may raise perceived levels of importance attached to learning.

> P-11: I'd probably say sometimes important. It sort of – anecdotally with my own nieces I've seen sort of picture that have ((0:08:23.8?)) on their social media that maybe one of their friends have taken a picture of let's say, you know, brainstorm from a board that teachers gave them and then they've taken that home and that's really helped them with some homework and then they'll use social media to distribute that image to help other people with their homework. So if someone says, how did you get on in your history? Oh dead easy, I've got something that will help you, and they'll send it across. So in terms of – and again, that in terms of helping and the demographic where again it's

> sort of learning is seen as important. In demographics where learning isn't held in such high esteem then it might change the use of social media; but it certainly isn't the driving force in the student's use of social media but I would say that quite a decent number of times, a significant number of times, it's important.

So far in this chapter we have looked at the two factors of access and motivation which have been identified as having positive, neutral and negative influence upon participant decision to promote the use of social media for learning tasks and knowledge sharing. In the next section factors identified as having a neutral influence will be discussed.

Monitoring and age (neutral)

Participants identified the factors access, age, motivation and monitoring as having a neutral influence upon decisions they may make about promoting the use of social media in support of non-formal learning. Though considered as not having an influence or having a neutral influence it is worthwhile mentioning these factors as the participants have considered them important enough to introduce. In addition to the factors of access and motivation previously mentioned by participants and covered in the previous section, the function monitoring is introduced.

> P-14: I think it would need to be monitored, we don't have an issue using the internet, for flipped learning and accessing material whatever and doing research, but it is a trust thing with students because they can be a bit silly, and I think it's a .. can we trust them to use this responsibly or not, and it would need to be monitored initially and that would be tricky, I think

The comment above suggests the participant and the institution within which they work have a positive attitude regarding pupil use of the internet which is neutralised by a lack of ability to monitor pupil use. Asking "can we trust them to use this responsibly or not", suggests that the participant is undecided, or neutral in whether to promote the use of social media with pupils. Related to the issue of monitoring two of the participants interviewed commented upon age and associated maturity.

> P-16: They pretty much stay the same – they are not exactly Amish but they just kind of go, they've gone no, don't like that. Too much – they just – they just realised early doors that children in the playground are fairly cruel but if you're just sat at a screen you feel anonymous and every year, every few months, people are up in the Head Teacher's office saying, did you write this? Yes – why did you do that? Did you not – did you not hear every - because the first kind of six weeks of Year 7 and right across the – right across the rest of the curriculum we are telling them that what goes on the Internet stays on the Internet and – you know, this is a crime and that is a crime and don't do that but they just forget – they are children.

Lamenting the seeming inability of pupils to remember and act upon advice and warnings regarding internet behaviour this teacher appears to rationalise pupil behaviour as to be expected due to age or maturity in commenting “but they just forget - they are children”. Commenting further upon age as a factor the following comment suggests a possible method of mitigation for behaviours thought to be affected by pupil age or level of maturity.

> P-2: sorry, it doesn't depend on the age, I mean I'm thinking of age if we started introducing it now, but if we introduce it from primary school then it could work perfectly alright, because the students would have that habit already, you need to implement it as soon as possible, so students get used to it and don't get wrong ideas

Whilst some participants mentioned the factors of monitoring and age as having a neutral effect upon their decision making other participants appeared to regard these factors as contributing in a negative fashion. Leading on from factors which were identified as having positive and neutral influences factors described as having a strong negative influence whether participants would or could promote the use of social media for learning support are examined.

Fellow staff and risk (negative)

Mentioned by a single participant this brief comment regarding negative perceptions held by work colleagues and their influence may speak to a need to address not only pupil perception and use of social media but possibly also those in some sectors of the teaching community. Issues including classroom authority, ‘power’ balance and lower levels of self-efficacy may all contribute to the introduction of new processes being regarded as a threat.

> P-2: some of them are not happy at all some of them are very old fashioned, and they see it as a threat instead of seeing at a possible and very useful tool for them (students) to learn,

Moving on from the possible perception of threat to the position of participant as a locus of knowledge and by extension authority and power it may not be surprising then, to find that the factors commented upon most frequently by participants were those perceived to have the greatest potential for danger or risk in some form.

Having analysed participant comments to identify recurring, and hence considered important themes the factor foremost in participant discussion was that of risk. Unlike the factors of risk commented upon by pupils, for teachers the level of importance attributed to risk was discussed in relation primarily to pupils (ten participants), followed by risk to institutions (eight participants) and finally to themselves (five participants).

Of interest and perhaps reflecting an understanding shared with pupils of social media as an 'immediate' tool was the apparent assumption of participants that they were being asked to consider interaction with pupils themselves via social media. An example of this assumption is given in the following comment by a participant who, while appreciating the possible benefits of using social media to support learning also perceived current inadequacies with regard monitoring and security features:

> P-4: that's what I'd use, I'd want something like FB, firewalled up and locked down so I'm secure for my ease and (won't have any or from) any accusations or anything like that, and the kids are secure, so, something like that which had exactly the feel of FB would be very handy.

Expanding upon this a participant commented upon the professional risk stemming from societal perception, and moral 'outrage' over possible inappropriate behaviours conducted via social media. Teachers are placed in a position of care i.e. a duty of care for their pupils (*in loco parentis*), which adds to sense of moral outrage expressed when teachers are believed to have transgressed a moral code or taken advantage or placed pupils in harm's way.

For a teacher to have been perceived as having broken an ethical or moral code the result could be a loss of employment and the possibility of further in employment in their chosen field. Further to this an individual, at the most may face civil or criminal charges or the least suffer severe damage to their professional and personal reputation.

> P-9: I've got to think of it as a professional, as not without the constraints of that, the bottom line is my career and my pension, I am 'linking in' with students - that could be taken in a very negative way between parents, or if a student says something, we are at this level, I don't know whether it is factually correct, but it's along the lines of, if they (students) makes an allegation against us in some way (without) being proven innocent, we have to think about that, so the idea of a teacher talking directly through some form of social media, at the moment with the current views on that by the school to some extent and society, it is frowned upon, the closest we get to that is with or VLE, we have tried to encourage them to use VLE to communicate but, to be honest, that's probably about three years behind the most up to date social media devices they are using

The same participant goes on to talk about the practical use of social media as a support for learning during periods when pupils cannot attend school e.g. 'snow days'. Though recognising the positive aspects, the participant reiterates the risk of allegation and the damage this could have

> P-9: most definitely, I've never said to them 'you should be using (that)', the only time I've come to something slightly like that was a few years ago when we had the old 'snow

> days', it was project time but within our VLE we had some form of messaging system, it was very crude, we could do a chat and I said "I'll be online this hour, if you've got any issues you could (ask me questions)", imagine if that was broken down in the ideal world and I said 'well we got a snow day, this is my Skype address" we could these sort of conversations, or comes to project deadline dates, we could have these conversation, that would be ideal, but as I 've sort of already hinted, with child safety protection there is absolutely no way I would put in that position of potential any allegation against me

Commented upon by five participants the potential risk to teachers based on the assumption of teacher - student interaction via social media was however mentioned less frequently than the perceived risks to institutions and pupils. Eight of the participants highlighted the possible risk to the institutions at which they taught as a cause for not promoting social media as a tool to support learning activities to their pupils. A common theme in the perception of risk was that of institutional responsibility as described briefly by participant 10:

> P-10: Yeah, and if school encourages more use of social media then maybe it becomes – the responsibility becomes more weighted towards school and – that's a sensitive issue.. .

Expanded upon by participant 14 the issue of trust appears to contribute strongly to institutional perception of risk. One aspect of this perceived risk appears to be that though pupils may use social media inappropriately outside of school hours and the school day the school itself may be held responsible for any harm to pupils arising.

> P-14: no, we basically told them how to use it cause we know that they use it outside, we discuss how it should be set up, in order to protect themselves, .. we haven't gone down the route of using it, I think it's more, you know, the responsibility of the children, whether we can trust them to use it responsibility, because obviously you get lots of issues where the kids occasionally bully each other and things like that, there's stuff on there that might not be appropriate so the schools, I think, don't want that responsibility of having to police it, if it's inside school as well

Compounding the issue it would appear that a lack of technical understanding or full awareness of affordances enabled by different technologies may cause school management to have a 'knee-jerk' reaction to pupil use of technologies provided by schools and for which they are accountable. Rather than focusing upon the overall positive uses to which pupils generally put social media the following comment gives an example of how an institution mitigated pupil eagerness to utilise an affordance for their own ends. Seeking to reduce possible risk by immediately closing down the feature enabling networked sharing of information the school management also stymied any possibility of promoting social media as a tool for supporting learning activities.

> P-17: I don't think it would work because the school would then want complete control of what they (the students) are saying to each other via social media, ..., I'll give you an example, I think it was last year, we switched over from server based email to cloud based email, we went over to Microsoft, they (senior management) bought in their (Microsoft) services, and so all the students got given an office 365 account, now when they set it up school didn't realise that it came with a social media feature to it, and before too long I realised that - just by walking around asking students to put their email accounts up (on screen), that they could actually communicate with each other, as soon as the school found that out that was it, that feature was immediately closed down, because again they're worried about inappropriate use during class time, cyber bullying, all of that sort of thing, and maybe they are concerned about complaints from parents as well, rather than have that they just closed it down all together as it was seen as being an additional headache, but the school hadn't spotted it before hand, the kids of course they are very quick, they found that feature almost immediately, and were very quickly not texting but sending facial ... to each other creating groups, it happened in less than five days, it was incredibly rapid and we noticed it in class I think, some idiots were sending inappropriate messages to other people, so that was it. it was closed down virtually immediately.

Adding to barriers to the promotion of social media raised by the perception of risk held by institutions and in what might be regarded as a somewhat ironic outcome, is the inclusion of 'eSafety' as part of the UK Governments Office for Standards in Education (Ofsted) School Inspection Criteria (Ofsted, 2015; Ofsted, 2016). Regarded as adding another criteria against which they may be judged institutions may take what they regard as a 'safe option' by precluding social media from teaching and learning or other forms of school activity as mentioned below.

> P-17: - I think it's dangerous territory, I think it's great in theory but in practice there are just so many things that can go wrong, I think schools are very wary of it, plus (number 2), esafety is now part of the Ofsted framework and how schools are judged, I think that is an additional reason - come to think of it - why schools are taking a very very hard line with the use of technology and social media, I think that is part of the problem, esafety is now part of Ofsted's framework and they do judge a school when they come to visit on their use of esafety, how well it is integrated into the curriculum, where there seems to be some sort of programme throughout the school, and I think if there were to be something like that (institutional encouragement of use of social media) if it went wrong, if it hit the local papers I think school would be terrified of the consequences

> P-17: if you look at the Ofsted framework esafety was not part of the Ofsted framework I think up until 3 or 4 years ago, but it's suddenly moved up the agenda and it's a key part of how a school is judged

Continuing with the theme of perception of demands being placed upon schools an aspect not often mentioned is that of meeting success or performance criteria. With the following comment participant four eloquently describes their understanding of why social media is not being considered as a tool to support learning.

> P-4: I think the school doesn't have much to do with it because I think the schools bogged down in its day to day trying to save it's arse from sinking into the mire results wise, I don't think it's on our radar at all, it really isn't, it's just a case of 'christ, we've got to get these results and how can we best to do it, and it's just (headless) chicken time I think most of it, actually sitting down and actually starting to think "ooh, what nice thing can I do to sort of take education forward in the school?" in terms of technology or anything I don't think is happening, I don't think the environment is conducive to that, it may well be at schools where they are getting constantly rated as outstanding, or maybe they've got a bit more time to focus on those things but - yeah, it's the headless chicken thing really

With regard the perception of risk acting as a barrier to the promotion of social media as a tool for supporting non-formal learning the facet mentioned most often by participants and hence deemed of greater importance was that of risk to pupils. The placing of risk to pupils as a main concern when deciding whether or not to promote social media as a tool to support learning activities is perhaps not surprising when one considers the moral and ethical values inherent in the vocation of teaching (Bullough, 2011; Campbell, 2008; Colnerud, 2015).

In attempting to describe the moral and ethical values inherent and expected as part of teaching as knowing when to 'do the right thing' participants were equally vague or inexact when questioned further about risk to pupils. Though a dominant issue was not identified a number of concerns regarding use of social media by pupils were raised ranging from cyber-bullying:

> P-10: Well I mean – I don't know if it is in any way related to your research but I think one big concern I have is cyber-bullying and that is a concern I would have generally about them using phones or social media generally in school more. Because we've had instances for example of Facebook accounts being set up just to bully someone and I know our Heads of Year, our pastoral team, spend hours upon hours dealing with issues that have arisen because of social media use - usually out of school but obviously upset kids come into school and it affects their learning in school and I think that to me is probably the biggest consideration in terms of it being used more particularly with younger students.

to inappropriate capturing and use of images both in the classroom and out.

> P-3: yeah, ridiculously so, everything they do is FB, TW, SC or Instg, whenever you see them at lunchtimes and at break times that's all they are doing, and sometimes they can be sat with a group of friends and they are communicating through their phones so they

> are sending pictures and snap chatting each other, you are sat right there looking at the same thing, so that can be a bit frustrating, from a school point of view I know we've had a, like a lot of schools, massive increase in issues because of social media, because there is that such hazy area that if students are involved out of school parents automatically assume that the school will deal with it, whereas in actual fact they are using social media they are doing it out of school, unfortunately then it kind of spills over then into more a police matter which is where we try and get them involved, because unless it is actually happening in school there's not lot we can do about it especially with social media such as SnapChat where the image just goes, and then there is no evidence, so there is definitely an increase in issues because of social media

Other issues mentioned included sexting, abusive messages, audio recording, radicalisation, general inappropriate use by pupils, parental disinclination to believe their child will behave inappropriately and a willingness to allocate of blame to schools.

> P-3: no, purely because they might start out talking about the work but if anything else then cropped up in the conversation or there were issues parents could quite easily come back and say 'my child had this abusive message last night and they were told they had to do this on FB or something', whereas in actual fact, yes they might have been told to communicate on that but they weren't told to be nasty to each other, so I think it could probably open up a quite a big can of worms

Through analysis of interview data the perception of risk to pupils was identified as being the prime concern of participants when considering the promotion of social media as a tool to support learning activities. It is of interest that in supporting these views several participants highlighted technical features of social media which, if not actively removing, certainly hinders the allocation of responsibility and hence accountability when inappropriate use of social media occurs.

> P-15: it tends to be negative, they are quite defensive in terms of protection of their kids, we do a lot in terms of getting them in and giving them evening sessions and people coming in, like Childnet coming in once to do talks to parents and we do some workshops and put information out, I think there is a bit of wariness with social media purely because it's at the age where parents start to relinquish more control, in terms of going from primary where they are quite close, controlled and directed by parents, whereas they start to have that less and less in secondary, as of course has been the case for many hundreds of years, but obviously with social media now it's a closed area, some parents will want to have logins to these things so they can see or think they can see the only way they (offspring) are communicating, … it's a closed system and I think parents worry more than they think it's a brilliant thing generally, obviously there's variances but I think there is more of a worry because they can't control and they can't see it, so they

> do worry about what's going on, what's being said, I think there's more concerns because it's a relatively new thing

Having investigated pupil perceptions and use of social media in studies one and two this third study comprising individual interviews with teachers provided a rich seam of information analysis of which enabled a glimpse of how social media is regarded by the second group of primary stakeholders. The following section summarises these findings to subsequently inform an overall research discussion.

6.5 Summary

Having investigated perceptions held and use of social media in support of non-formal learning by the first of two groups of primary stakeholders (pupils), this third study has focused upon the understandings held by the complimentary group of primary stakeholders in teaching and learning i.e. teachers, of these pupil perceptions and use social media. Over a three-month period 18 teachers participated in semi-structured, individual interviews to investigate if, how and why teachers believed social media was perceived and used by their pupils in their everyday lives and in support of non-formal learning activities and how this effected participant decision to promote social media as a tool for learning. To support this investigation two questions were asked from the perspective of the teacher namely, how are pupils perceiving and using social media and whether teachers promote the use of this technology to support learning activities.

At this stage there are two points worth noting, the first being that all teacher participants expressed the belief of social media being perceived as highly important in everyday life for most if not all pupils whilst of little importance to the same pupils for supporting learning activities. The second point of note is that all participants also commented that social should be used as a tool to support learning as it is central to pupils lives and will, they believed, become central to learning.

The following section of this summary will look at the themes of teacher beliefs or understandings of pupil perceptions and use, whether or not teachers promote the use of social media as a tool to support learning activities and the forms this takes. Aspects of these themes and the influences exerted by them are described to better facilitate understanding the impact of these themes on the research questions of this study listed below.

1. What are teacher understandings of pupil perceptions and use of social media?

As mentioned previously each participant expressed the belief that social media is perceived by pupils as being very important in their everyday lives and of little importance in support of learning activities. When questioned as to why they believed this none of the participants could offer any form of evidence other than anecdotal. No teacher interviewed could describe instances

of having discussed with pupils their use of social media in any form, instead participants explained their beliefs as being 'obvious', based upon observation of pupil use of social media outwith classroom teaching or discussion overheard. Though all participants interviewed stated a belief that social media was regarded with little importance in support of non-formal learning anecdotal evidence was given for pupil use of social media in a logistical fashion.

When asked why the topic of using social media to support learning activities had not been raised with pupils the interview participant described a general feeling that this would be overstepping an unwritten boundary. Rather than focusing upon the positive contribution which the technologies of social media could make and the affordances which may be enabled participant focus appeared to rest upon negative aspects such as the possible perception of unprofessional behaviour. This focus upon negative aspects is echoed and expanded upon in themes identified in response to the second research question for study three.

2. Do school teachers decide to use or not use social media to support non-formal learning?

Though an overall positive perception of social media as a tool for supporting non-formal learning was reported only one participant could give an example of deliberately setting the use of social media to support learning which, in this case was part of a distance learning activity. Whilst describing the benefits of using networked technology to support learning this participant also commented upon the likelihood that this may only have been possible due to the students being over the age of sixteen. The main theme developed through analysis of interview data with regard the second research question was that of an general unwillingness of participants to promote the use of social media due to a perception of risk.

Identified as the primary barrier to promotion of social media in support of non-formal learning the risk perceived by participants was categorised in ascending order of importance as: professional i.e. risk to the individual participant; institutional, described as risks posed to institution in which the participant taught and; risk to pupils. Initially, in what may be described as a technologically deterministic fashion in that social media can only be used in one way, the risk to participants appears to stem from an assumption that use of social media to support learning activities would be based upon teacher - pupil interaction. The technological determinism (MacKenzie & Wajcman, 1999; Oliver, 2011), in this instance exists as the participants appear to only consider affordance of social media for communication between themselves and pupils rather than between pupils themselves.

Shared across the theme of risk to the individual and the risk to institution the effect of inappropriate behaviour by pupils was highlighted. Participants foresaw themselves being held accountable by parents or guardians for pupil distress which may arise from inappropriate behaviour between pupils e.g. online bullying, as parents would argue that such incidents would not have occurred if the teacher had not instructed use of social media. In addition to the much-researched risk of possible online danger to pupils from external sources there was also described an apparent extension of the professional risk posed by inappropriate behaviour by pupils towards pupils. Participants reported a risk perceived by institutions due to the same factor with the addition that in this instance the issue was described as being the lack of control and monitoring of the social media being used by pupils with the argument that without, at least monitoring facilities institutions would be leaving themselves open to the accusation of facilitating the opportunity for harm to pupils to arise.

Of the those identified by participants the risk reported as having greatest impact upon any decision to promote social media as a tool to support non-formal learning was that of risk to pupils themselves. Evidencing an implicit understanding of the effect social media interaction can have upon and the importance of social capital for pupils and the need to ensure no harm comes to pupils form external sources e.g. radicalisation, participants placed the safety of their pupils as foremost in their decision not to promote social media as a tool to support non-formal learning.

Having discussed the outcomes of the three research studies separately the next chapter will combine, compare and contrast themes which have emerged. By comparing and contrasting these themes a set of recommendations are developed to facilitate the use of social media by schools in support of non-formal learning.

Chapter 7: Discussion and Recommendations

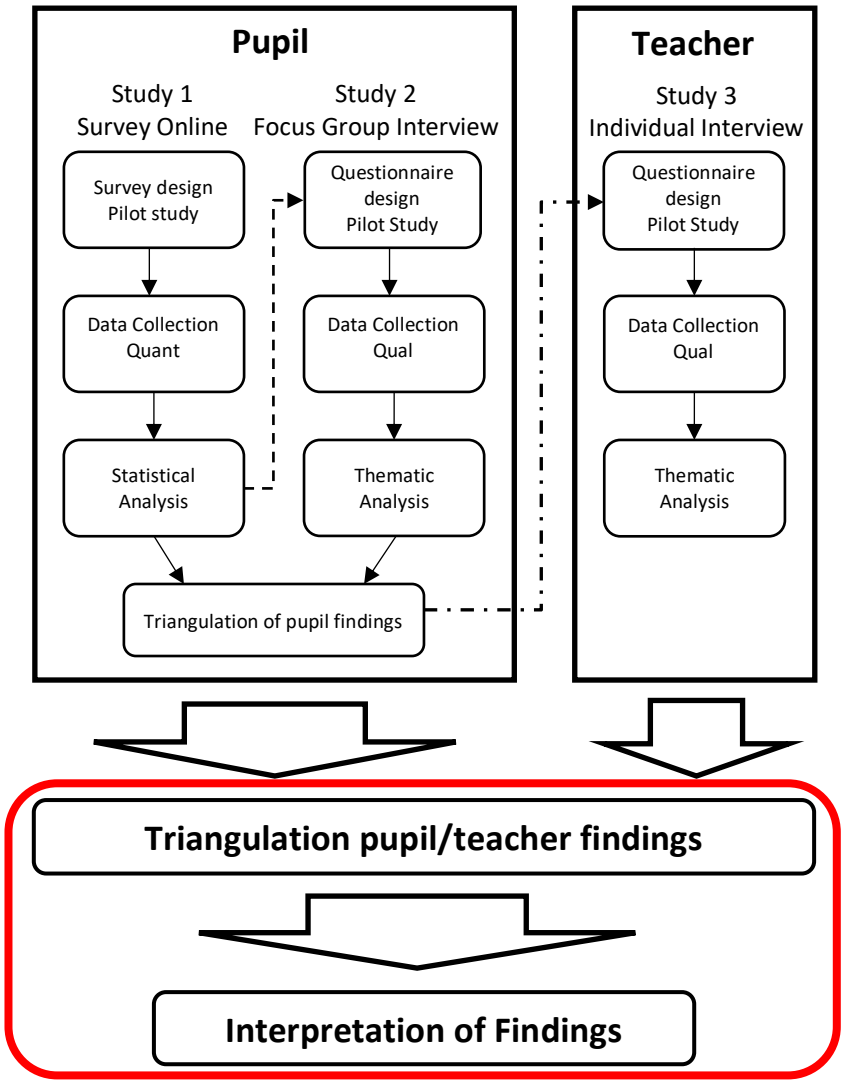

Figure 35. Triangulation of overall research findings

Chapter 7 Expand the discussion to reference the literature where the results support **previous finding**, and where the results provide new insights on previous work.

This thesis has Investigated the role of social media in support of non-formal learning for school pupils in the age range 11-18, presenting findings (fig. 35) from a number of research studies focused upon primary stakeholder perception and use. The primary stakeholders are identified as classroom teachers and pupils, being those most directly impacted by the promotion and use social media in support of non-formal learning.

The findings indicate an overall acknowledgement of potential and a willingness by pupils and teachers to use social media in support of learning activities, however a contradictory hesitancy to do so was also apparent. When questioned about perceptions and use of social media a number of assumptions (held by both stakeholder groups) emerged. For example, although the purpose and context of the research were clearly explained prior to interview both pupils and teachers immediately commented upon the use of social media in a formal classroom setting (formal learning rather than non-formal). This may suggest a 'fixed' view of the use of technology to support learning, held by both groups, as something which takes place predominantly in the classroom in support of structured learning activities. Another assumption was that when describing the use of social media both groups appeared to consider or assume that social media has one purpose only, the development and maintenance of social relations. This assumption is perhaps not surprising if one considers the majority of social media is designed with the purpose of promoting a convivial environment supporting homophilic relations rather than the constructively critical environment often integral to the learning process (Friesen & Lowe, 2012; Selwyn, 2012).

7.1 Themes & Perceptions

In order to understand the role of social media according to each stakeholder group participant perceptions were identified using an inductive coding process of focus group and interview transcripts, where the codes were iteratively developed into seven high level themes. The number of participants from each stakeholder group commenting upon the themes negatively are shown below (table 10)

Theme	time (pupil)	interface (pupil)	social capital (pupil)	trust (pupil)	professional (teacher)	institutional (teacher)	pupil safety (teacher)
Participants	3	8	12	4	5	8	10

Table 10. Percentage of participant groups commenting upon themes

In the following sections identification and examples of themes arising from both pupil and teacher negative perceptions are described. Through analysis of these themes it is then argued that there currently exist two major barriers to the promotion and use social media to support non-formal learning.

7.1.1 Pupil perceptions

In discussion with pupils (combined with self-reporting of an online survey) it is apparent that the majority of pupils regard social media as having a high level of importance in their everyday lives however, a significant minority of pupils self-reported regarding social media as having a low level of importance (chapter 4. summary). Though according a high level of importance to social media in their everyday lives the majority of pupils went on to report attaching a high level of importance to such tasks as speaking with friends and relatives or organising social events but a low level of importance for learning related tasks. The learning related tasks consisted (mostly) of meeting logistic and administrative requirements e.g. asking class members when homework should be submitted. Whilst the level of importance accorded to social media did not appear to change with gender or age pupils aged 16 and older indicated development of use of social media to support learning activities through sending and receiving photographs of completed work rather than explanations to promote understanding. It is possible that the extra steps required in photographing written work then sending, receiving and analysing these images may extend beyond the limit of effort younger pupils are willing to make.

Comments by pupils age 16 and older also indicate a nascent Community of Practice described by the serendipitous support for non-formal by learning when participating in group gaming environments (Cole & Engestrom, 2007; Wenger et al, 2002). Whilst a minority, sharing of knowledge was identified as taking place with a small group of male participants over age 16 with a shared interest in gaming in which support was offered and knowledge exchanged.

A number of themes emerged from the analysis as to why social media was not being better used for non-formal learning, including response time, social etiquette, trust and social capital. Each of these reasons is listed below along with their impact upon pupil decisions to promote or use social media in support of non-formal learning.

Theme 1 - Time: commented upon by 14 pupils, one of the first points raised was the impact of a presence of urgency when choosing to use (or not use) social media with 4 pupils commenting this would have a positive influence, 10 commenting that the importance of response time depended upon the situation and 3 pupils commenting negatively. In an age in which children and young adults are thought of as being constantly in communication with each other through social media it is interesting to note that a common reason for not using social media was the asynchronous nature of communication via social media as opposed to the immediacy of synchronous communication such as face to face or voice calls. Though a relatively small percentage of pupils commented upon the issue of response time in each instance participants

qualified their comment with a preference for communication through waiting to physically meet or converse with the source of support in real time. If one considers the amount of time commonly allotted to pupils for task completion this state of urgency may speak to a lack of forethought or planning when attempting to complete learning supportive tasks.

Theme 2 - Interface: building upon the need for immediate response, another issue which arose in conversation with 10 pupils was that of the usability and design of social media interface (2 positive, 8 negative). Unless a participant was seeking help with a text-based topic the difficulty or 'extra step' required in conveying meaning in any format other than text acted to exclude social media as a choice of communication. Further to this and to overcome interface difficulties encountered, older pupils of age 16+ described the sending and receiving of photographs, most usually taken with a 'smart phone' when seeking or offering support.

Theme 3 - Social capital: findings indicate that the views of acceptable behaviour (not necessarily online) held by participants, with regard to utilising online friendship or acquaintance for learning, appear to change over time. Pupils in their first or second year of secondary education cited their interpretation of social norms as a reason not to utilise their available social network for existing knowledge and experience. Possibly due to increasing levels of confidence, or as part of a 'maturing' process, those in their final year of compulsory study expressed a growing willingness to access knowledge and support which may be available through a social network by approaching others with whom they may not necessarily have a strong relationship. Though the effect of perceived online social norms appears to change over time there is no evidence of difference in perceptions by gender. In addition to the influence of social norms, and possibly of greater importance, is the effect of using social media for non-formal learning upon pupil social capital. Though the term 'social capital' was not used by participants the frequency with which the effects upon pupil 'place' or standing within a group or social setting appears to indicate the attachment of a high level of importance to these effects with 17 of 35 pupils commenting positively, 6 commenting that the influence of social capital would be neutral and 12 of the 35 pupils commenting that it would have an negative influence on their choice to utilise affordances enabled through social media. When questioned further on this topic it became evident that nearly half of pupils commenting upon this topic would regard seeking support through the use of a social media 'wall' or message board with which they might gain access to a greater number of information sources akin, as one participant commented, to standing up in front of their peers in a classroom and shouting '*I am stupid!*'. It could be argued that whilst to an adult or an older student the risk to social standing may be considered as being outweighed by the possible benefit of accessing knowledge from a network source, to a pupil whose social centre may be changing from the family to friends and peers the risk is too great.

Theme 4 - Trust: was mentioned briefly by a small but not insignificant number of pupils as a reason for not considering social media as a means by which to seek support (3 positive, 4 negative). When discussing trust pupils referred to the possibility of being offered invalid information or of being deliberately misguided. This awareness which may be due to the inclusion of the key stage 3 requirements in the English National Curriculum for Computing of the attention to trustworthiness, design and usability of digital artefacts. What may be considered surprising is the lack of comments by participants regarding pupil safety, which has also been long part of the UK National Curriculum.

Having looked at reasons indicated by pupil comments the following section discusses reasons indicated by teachers for the same non-use of social media for non-formal learning.

7.1.2 Teacher perceptions

The assumption of the intention to utilise social media to support non-formal learning through teacher - pupil interaction resulted in an initial strong negative reaction by all interviewees. On clarification the majority of teacher participants went on to indicate some neutral or positive perceptions of the use of social media. However, this overall positive perception was still outweighed by neutral and negative perceptions. Broadly these fell into three themes: the possible effect upon the teacher, the school and most importantly the pupil.

***Theme 5 - Professional*:** 5 of the 18 teacher participants cited concerns for their professional safety as a reason not to encourage the use of social media in support of non-formal learning. Whether this encouragement took the form of advising pupils to communicate with networked sources of knowledge such as peers, friends and communities of interest through social media, or by direct communication with pupils through social media, participants were concerned about possible negative results. The negative perception of encouraging pupils to utilise social media to share knowledge was described as based upon the fear of being held responsible for any harm which may befall the pupil due to inappropriate behaviours such as online bullying or behaviour of a sexual nature. Though parents may allow their children access to social media participants expressed the opinion that any harm arising to a pupil would be considered the fault of the teacher.

Extending the use of social media from communication between pupils and peers, friends and other information sources to that between pupils and teachers raised concerns over any unsupervised and unmonitored one-to-one communication whether during or out of school hours. Participants feared that they might be putting themselves in the untenable position of

being open to unfounded accusations of wrongdoing by pupils with no means to defend themselves.

Theme 6 - Institutional: moving on to perceptions of risk to the institution within which they taught 8 of the 18 teachers interviewed commented upon the perception of accountability or blame but continued in the institutional context. Though not claiming to be actively discouraged from promoting social media as a tool to support formal or non-formal learning participants appeared to suggest that it's use may be regarded as adding to the existing burden of responsibilities already borne by school teachers, administrators and management. Advised by the Byron Review (Byron. T, 2008) and the "The safe use of new technologies" report (Ofsted, 2010), schools are required by the UK Government's Office for Standards in Education, Children's Services and Skills (Ofsted) to ensure that measures are in place to guarantee pupil e-safety. Rather than open what may be considered a 'can of worms' entailing expenditure on equipment, time and training for the safe promotion and use of social media to support non-formal learning, schools may decide to avoid the potential issue entirely. It could be argued that to do this many schools choose from a range of options such as barring access to social media website through school provided networks to banning all forms of unsupervised internet activity during the school day. To promote or use social media in formal and non-formal learning activities participants suggested the minimum requirement imposed by institutions would be a means of moderating pupil communication not available to schools in the majority of current popular social media platforms.

Theme 7 - Pupil safety: just over half of the teacher participants (10), cited the perception of possible harm befalling pupils through interaction with others via social media as the main reason for not promoting its use to support learning. Unlike the concern held by pupils that harm may be inflicted upon their status or social capital teacher participants indicated most concern for pupil safety in relation to issues such as cyber-bullying, inappropriate behaviours by other pupils, and predatory behaviours by adults. To counter this concern participants once more raised the possibility of monitoring pupil activity on social media as a means to ensure pupil safety which immediately raised the question of who would be responsible for that monitoring.

With an understanding of the themes which appear to influence pupils and teachers in their choices with regard to the promotion and use of social media to support non-formal learning two clear barriers which describe this lack of promotion have emerged. These barriers and their basis are described in the following section.

7.2 Barriers

Analysis of themes indicated two main barriers to pupils and teachers promoting or using social media to support non-formal learning, the primary barrier being *Risk* (or the perception thereof), and the secondary barrier consisting *Technological Affordance*. The following table describes the relationship between stakeholders, themes and the barriers based upon the analysis of stakeholder perceptions.

		Themes by stakeholder	
		Pupil	Teacher
Barriers	Risk	Frame 1. 3. Social capital, 4. Trust (misinformation, validity, credibility)	Frame 2. 7. Pupil welfare, 6. Institutional responsibility, 5. Professional status & trust
	Affordance	Frame 3. 2. User interface, 1. Response time	Frame 4. 6. Institutional moderation

Table 11. Stakeholder themes and barriers

To provide an overview of how the themes listed in frames 1-4 of table 11 contribute to each of the barriers identified, the remainder of this section contains a brief summary of evidence for each barrier preceded by the theoretical background adopted for each barrier to support understanding.

7.2.1 Risk

Identification of risk as a primary barrier to use and promotion of social media in support of non-formal learning was based upon analysis of data collected from pupils and teachers in institutions of secondary education. Pupils responses to an online survey and participation in focus group interviews were compared then contrasted with teacher responses given during individual interview to determine possible recurring themes. In agreement with findings from previous studies (Andersson et al. 2014; Greenhow & Lewin, 2016; Sobaih et al., 2016; Manca & Ranieri, 2016; Whitty & Anane, 2014), though holding different origin or cause for each group the primary

aspects most frequently mentioned or given particular emphasis by participants had in common the possible outcome of danger or risk.

To support understanding of the notion of risk or more accurately, the *perception of risk* identified as a barrier to use and promotion of social media by pupils and teachers to support non-formal learning a definition for risk and its perception is adopted based upon Cultural Theory (Douglas & Wildavsky, 1982). Unlike the views of risk as: singly negative and generative of anxiety developed through 'reflexive modernisation' as defined by Beck's Risk Society approach (1987); the empirical approach to risk based upon individual rationality (Slovic, 1992), and it's measurement described by the Psychometric Model (Fischhoff et al., 1978; Sjöberg, 1998; Sjöberg et al., 2004); or the strategies of Governmentalism (Dean, 1999) developed through 'complex form(s) of power' (Foucault, 1991) to manage risk to groups within organisations and institutions, Cultural Theory views risk and the perceptions of risk as not being formed independently of social.

In applying a view of risk and its perception as proposed by Cultural Theory to themes developed through analysis of pupil and teacher comments the place and importance of social context becomes apparent in that:

> "the views of any particular individual on matters are shaped by the nature of social groups of which they are a part, i.e., various organisations, peer group influences or other sources of authority, and by the degree to which individuals feel bonded to larger social groups" (Tansey & O'Riordan, 1999)

Hence, by considering the group or organisational memberships of, and influences upon participants when considering themes arising from participant comments an understanding of the motivation for these comments is supported.

Pupil - Analysis of pupil data indicated a conceptualisation of danger or risk with regard to the themes of social capital and trust. A high level of importance accorded social capital may be inferred if one considers the findings of study 1 in which 90% of pupils (149) reported spending at least 3 hours per week using social media with this figure rising to over 10 hours per week for 60% of the survey participants. When this apparent enthusiasm for the use of social media the importance of social capital to participants may be suggested if one considers the claim of 65% of pupils to have 151+ social media 'friends' and 35% of pupils reporting to belong to 2-5 social media groups. Social capital defined by Putnam and Bordieu both identify group or network membership as being central to the concept of social capital hence the greater number of 'friends' or group memberships claimed by participant may be indicative of an effort to increase social capital and hence a high regard for its value.

Having identified social capital as a theme of importance to pupil participants through analysis of data collected during the first study the link to risk was highlighted in the analysis of pupil comments gathered in the focus group interviews of the second study. When asked about perceptions of use of social media to support non-formal learning almost 54% of focus group pupil participant comments indicated that their perception would have a positive and 10% being neutral. These figures appear to indicate that the majority of participants hold a perception which would influence them positively to use social media, but when questioned about type of interaction 66% of participant comments indicated a preference for dyadic interaction over 34% of comments promoting interaction with multiple possible sources of support. When interacting in a dyadic fashion with a peer, friend or relative participants may consider that their social standing, social identity and hence social capital is at a lower level of risk as when interacting with a wider circle.

The themes developed through analysis of data supplied by teacher participants supported the identification of risk as a barrier to promotion and use of social media to support non-formal learning. Only two teacher's comments suggested an awareness of the importance of *social capital* to pupils (this was not deemed sufficient to be identified as a theme or this group of participants), and these comments indicated that participants viewed social media as having only a positive influence on pupil decision to use social media to support learning activities. This suggests a dissonance between teacher and pupil perceptions of social media.

Teacher - Whilst 12 of the 18 teachers interviewed expressed a belief that social media could and should be used as a tool to support learning activities almost as many (10 participants), commented that the possibility of online risk to pupils overshadowed any positive contribution the use of social media could make to support non-formal learning. Perhaps unsurprisingly the next most influential factors **(**fig.34**)** identified were risk to institution (8 participants) in the form of accountability and liability, followed by risk to teachers (5 participants) being open to accusation of unprofessional conduct.

Though it may seem 'natural' for teacher participants to rank the risk to themselves as less than the risk to their institution and then pupils i.e. have greatest concern for pupils, it is worthwhile to consider why this may be. One reason may be moral and ethical values inherent in the vocation of teaching (Bullough, 2011; Campbell, 2008; Colnerud, 2015), though reported as often causing conflict for teachers when addressing triple loyalties to societal, institutional and pupil considerations (David & Cuban, 2010) a teacher will prioritise the needs of the pupil (Darling-Hammond, 1995). Another reason for identifying risk to pupils as being greater than that to

institutions or themselves may be the effect of optimistic or unrealistic optimism (Weinstein, 1987), cognitive optimism (Metcalfe, 1998) or optimistic bias (Chambers & Windschitl, 2004; Sjoberg et al., 2004).

Independent of theoretical foundation for risk subscribed to and irrespective of grid/group typology (Douglas, 2083) the concept of optimistic bias describes the belief of the individual that given a particular risk the probability of the individual experiencing the risk is lower than that for immediate family of social group which in turn is lower than that for the general public (Montgomery, 1989; Sjoberg, 2001). One reason offered to explain this optimistic bias is that of individual control i.e. perception of risk increases with feeling of uncontrollability (Sjoberg, 2002; Slovic, 1992), which would help to explain why teacher participants report varied levels of risk for different parties. Teacher participants reported risk at a minimum for themselves, a situation over which they have maximum control and maximum risk for pupils and their behaviour over which they have minimum control.

The primary barrier to promotion and use of social media in support of non-formal learning by pupil and teacher participants was identified as risk, but a set of secondary themes led to the identification of a second barrier in the form of technological affordance.

7.2.2 Affordance

Discussed in the literature review the functions or features of social media which enable a participant to perform an action or activity are considered as offering a 'technical affordance', hence if a participant comments that they cannot perform a particular action when using social media then affordance is considered a barrier. Aligning with findings of previous studies (Au et al., 2015; Kale & Goh, 2014; Mao, 2014; Smith, 2016), and as with the barrier of risk different themes emerged on analysis of data collected from each the participant groups with response time and interface use commented upon by pupils and an inability to moderate pupil interaction as the main concern for teachers.

In terms of positive and negative comments recorded during pupil focus group interviews the factor 'effort' accounted for 4% of positive and 18% of negative comments followed by 'availability' (2% positive, 10% negative) and 'response time' (5% positive, 4.5% negative). Comments were also recorded concerning availability or access to social media (2% positive, 9% negative) but as it is not an inherent trait of the technology this was not considered as contributing to the barrier of affordance.

When referring to the factor of effort the main reason cited by pupils for not using social media when seeking or offering support for learning and understanding was the length of time taken in seeking support for a specific purpose using text messages compared to the time taken to ask a question in conversation. It is possible that pupil preference for direct, spoken communication may also contribute to the second theme contributing to the barrier of affordance in the form of response time. Not as widely commented upon was effort required to communicate questions using social media due to limited social media interface features. Considering the features and functions of social media the findings appear to indicate that though pupils welcome the opportunity to use social media to communicate with friends and peers, preferably in a dyadic fashion, difficulties in communicating more complex education-based topics may act as a primary barrier to use in seeking learning support.

For teachers the affordance sought before they would promote the use of social media in support of non-formal learning is that of communication oversight or moderation. Though less than 20% of teacher participants commented specifically upon monitoring of social media when questioned about perceptions of risk all of the teachers described moderation capability as being required to mitigate for these risks.

7.3 Mechanisms for mitigation

This thesis has queried whether social media is used by school children in support of non-formal learning and if so what is the form of this activity, is the much-discussed potential of social media for learning being realised, and if not, how could this possibly be achieved.

Based upon an investigation involving the two primary stakeholder groups of pupils and teacher's findings indicate that although the majority of both stakeholder groups agree there is a role for social media as a technology to support learning its promotion and use is constrained by the barriers of risk and technical affordance. As it is not within the scope of this work to offer specific detailed recommendations to overcome these constraints this thesis instead offers a strategic framework, linking existing problems to be addressed with potential solutions, that could be developed further in future work.

7.3.1 Strategic Framework

A number of mechanisms exist which could mitigate the themes identified, but an interdisciplinary approach based on socio-technical discipline of Web Science which seeks to "better understand the complex, cross-disciplinary dynamics driving development on the Web"

(Hendler et al, 2008; Hooper et al, 2013) is suggested. The following table indicates which of the themes identified are addressed by the different mechanisms.

Ideally the resulting solution will not only mitigate for each of the barriers identified through analysis of participant data but also result in the 'emergent properties' (ibid) of stakeholder investment and empowerment. Employing the concepts of participatory design (Kensing & Blomberg, 1998; Fitton et al., 2013; Mazzone et al., 2008), from the discipline of Computer Science stakeholders are considered integral and essential to the design process. As such their opinions, preferences and choices are accorded importance and acted upon, developing participant investment and ownership as their 'voice' is heard and listened to. Supporting this participation in the design process is a deeper and wider stakeholder understanding of the use of technologies in support of learning activities through a burgeoning knowledge of Digital Literacy (Calvani et al., 2011; Ng, 2012, Pangrazio, 2016). The methods of mitigation and the barriers addressed are described and explained in the following sections.

Digital Literacy – add the finding of being 'safe' to the digital literacy debate

	Perceptions						
	Pupil				Teacher		
	temporal	usability	social capital	trust	professional	institutional	pupil
Digital Literacy		Photo-visual	Socio-emotional	Information		Socio-emotional	Socio-emotional

Table 12. Perception mitigation - Digital Literacy

The notion of digital literacy (table 12) is informed by the revised conceptual framework proposed by Eshet-Alkalai (2012). When considered in the context of the themes the relevance of these cognitive skills becomes apparent. The barrier of risk is founded upon a danger to social capital and lack of trust for pupils and professional reputation, institutional accountability and pupil safety for teachers. Similarly, for pupil's, technical affordance acts as a barrier in the form of usability and response times whilst for teachers the function lacking is that which enables the moderation and oversight of pupil communication. From the perspective of digital literacy, the inclusion of cognitive skill development may support mitigation of these barriers is described as follows.

Risk - to deal with the risk or danger to their social capital in the 'real world' pupils learn how to interact with others as they grow and mature, gaining experience, learning from their successes and mistakes. In doing so pupils obtain often intangible resources including emotional and practical support, friendship, social identity and esteem through social networks and group

membership i.e. social capital (Baerveldt et al. 2003; Bourdieu, 1986; Lin 2001; Crosnoe 2004; Flap, 2004). To mitigate for this possible risk to this social capital a strategy which supports development of the cognitive skill of socio-emotional literacy in pupils is suggested with the objective of promoting responsible citizenship, constructive social action, understanding of sharing emotion in digital environments, identify deception and avoidance of traps. A strategy incorporating the cognitive skill of *Socio-Emotional Literacy* (table 7) could also have a positive, although indirect, outcome for teachers as it addresses the apparent immaturity of behaviour of pupils, and may help assuage teacher fears for pupil safety and institutional accountability as pupils become more digitally responsible citizens (Hobbs, 2010; Martins, 2005; Tornero, 2004). Overall, a cognitive skill such as that of socio-emotional literacy would give pupils the skills and ability to be safe and "survive" in digital environments by "understand(ing) the rules of the game" (Bruns, 2008; Calvani et al., 2010; Jenkins et al., 2009; Roblyer et al., 2010).

The second theme upon which the barrier of risk for pupils and teachers is based is that of trust. Whilst for pupils this risk realises in the form of questioning the validity of information content supplied and the credibility of source, for teachers the risk is to the trust essential to their professional standing and reputation. To mitigate for some of these sources of risk inclusion of the cognitive skill of *Information Literacy* as described in Alkalai's revised framework (2006) as part of a strategic framework is suggested. Described as "The Art of Always Questioning Information" (Aviram & Eshet-Alkalai, 2006), the focus of information literacy as a cognitive skill is to support the user in developing the ability to filter information by identifying that which may be subjective, invalid, erroneous or irrelevant (Glister, 1997; Hobbs, 2010; Mardis, 2002; Van Dijk, 2005). Unfortunately, introducing the cognitive skill of information literacy may have little effect upon the barrier of risk for teachers, so this must be addressed through other means.

Technical affordance - moving from the informational to operational dimension (Van Dijk, 2005), the second barrier to the promotion and use of social media in support of non-formal learning is one of technical affordance, i.e. the enablement of an affordance through use of the technical features of a system. Although analysis of comments from both participant groups identified technical affordance as a barrier, as with the barrier of risk for each group the concerns were different. The comments of pupil participants focused upon the issue of usability and response time i.e. time taken by those from whom support is being sought to respond coupled with an uncertainty as to whether the request has been received or acted upon. In this instance the cognitive skill of relevance within Eshet-Alaklai's revised holistic framework is that of *Photo-Visual Literacy*. Designed to support users in development of intuitive understanding of information presented in the form of icons and symbols as found in the design of graphic user interfaces

(Opperman, 2002), development of this literacy could help pupils take greater advantage of different digital environments within which they operate, although this will not necessarily impact response time. For teacher participants the benefits of supporting pupils to develop the cognitive skill of photo-visual literacy could be considered as indirect as the need for moderation of pupil communication via social media may reduce with increased pupil understanding of digital environments.

Although promotion of the cognitive skills of socio-emotional literacy, information literacy and photo-visual literacy may have a positive impact upon certain of the themes identified (table 7) they do not address all of the themes. The following sections suggest mechanisms for mitigation of the remaining aspects in the form of 'off the shelf' and bespoke software solutions.

Free Social Network Software

	Perceptions						
	Pupil				Teacher		
	temporal	usability	social capital	trust	professional	institutional	pupil
Computer Science Free Software	Notifications - alerts	Settings edit (ltd)				Monitoring	

Table 13. Perception mitigation - Free Software

In addition to developing and implementing a digital literacy strategy an institution may wish to consider employing one of the readily available and well proven social networks such as Facebook, Twitter or Instagram which are 'free' to access and offer a limited amount of control. As no evidence for this occurring emerged during the studies conducted as part of this research it would appear that institutions are somewhat reluctant to employ these resources to support non-formal learning. Whilst this hesitancy may arise from such issues as limited levels of control and monitoring and issues of data ownership a number of alternatives to the centralised, corporate owned social media as mentioned which appear to overcome some of these issues (table 13) are becoming available (Kalodner et al., 2015; Paul et al., 2014).

Available free software in the form of federated or distributed decentralised online social networks (DOSN) such as 'Diaspora', 'Steemit', 'Friendica' or 'Akasha' run on distributed networks of servers which offer the potential for users to access, and in some cases set up and administer a 'local' social network (Bielenberg et al. 2012; Koll et al. 2017) such as for a school population. Both Steemit and Akasha are designed to be censorship free and offer contributors the opportunity to be recompensed as text content is stored in a blockchain enabling reward for participation (Kosba

et al. 2016; Pilkington. 2016; Zyskind & Nathan. 2015). As an alternative to Facebook the application Friendica offers much of the same functionality with the essential difference that the user maintains control of their data, extending this the platform Diaspora is designed around the concept of hubs such that a local server hosts a hub which can then link to other hubs locally or globally. Depending upon application a range of features can be implemented such as: notifications/alerts; limited editing of settings; membership and data ownership.

Though implementing and offering a decentralised social network such as those mentioned would incur 'up front' costs such as installation and set-up, these applications would seem to offer a technical solution for mitigating the barriers of risk and technical affordance through limiting access and limited editing or customising of interface. Whilst the risk to social capital alluded to by pupils may be reduced by virtue of placing greater control of data in the hands of users, the possible negative aspect of this may be an increased cognitive load for those users as more control gives rise to more decisions. Temporal issues in the form of response times to requests for support may be reduced as pupils have access to status of requests through log files which, though not mitigating the issue may remove uncertainty in the request process i.e. pupils will know if and when their requests have been viewed, and the aspect of usability commented upon by pupils may be addressed as developers of DOSN's implement attractive functionality in their applications (Narayanan et al., 2012). Though an improvement upon the functionalities offered by such social media networks as Facebook, etc., issues such as monitoring and anonymity would remain. To address these issues an institution may decide to invest in having a bespoke social network developed in conjunction with users for its specific use incorporating the required technical functionalities.

Bespoke software

	Perceptions						
	Pupil				Teacher		
	temporal	usability	social capital	trust	professional	institutional	pupil
Computer Science Bespoke Software	Notifications - alerts	Participatory design			Recording, ownership of data	Monitoring - moderation	Monitoring

Table 14. Perception mitigation - Bespoke Software

Implementing access to or hosting a decentralised social media network may partially mitigate several of the perceptions which translate as barriers to the promotion and use of social media in support of non-formal learning. Customised functions such as user notifications and editing of interface features would meet pupil temporal and usability requirements whilst having limited control over access to a network may satisfy the acceptance criteria for institutional oversight at a basic level. An alternative solution to the use of free software's such as those mentioned earlier is the development of a bespoke social media network (table 14). With the aim of fully identifying the needs of both stakeholder groups a participatory design process (Bevan et al. 2015; Muller & Kuhn, 1993; Muller, 2003) is recommended. Following a participatory process in which "mutual learning" takes place between designer and user and amongst the user group (Cederman-Haysom & Brereton, 2006; Winschiers-Theophilus et al. 2010) there is greater opportunity for designers to understand issues from the perspective of pupils and teachers (Mazzone et al, 2010) whilst the end users develop an appreciation of the capabilities of the social media produced.

In developing an 'in house' or bespoke social media platform the limitations of free software can be overcome with such as functionalities and features which offer: notifications and alerts; user designed interface; network gatekeeping; ownership of data; monitoring, recording and moderation of interaction; and ownership of platform.

Alongside the advantages which may be gained through the design and development of a bespoke solution to mitigation of perceptions as barriers the main disadvantage will be costs incurred. These costs may take the form of initial software development, ongoing platform maintenance and system administration along with training of staff and pupils. Considered as an investment these costs could be offset by collaboration between schools and between different local education authorities or through sponsorship in the form of donation of developer time by organisations in the technology sector.

Though the development of bespoke software will satisfy more requirements than the previous options being a technical solution, it cannot satisfy all of them. To achieve this mitigation of all themes and hence the two barriers a combination of solutions may will be required.

7.4 Summary

The following table suggests methods by which the themes contributing the barriers of risk and technical affordance may be mitigated, by the three strategies discussed above.

	Perceptions						
	Pupil				Teacher		
	temporal	usability	social capital	trust	professional	institutional	pupil
Education Digital Literacy		Photo-visual	Socio-emotional	Information		Socio-emotional	Socio-emotional
Computer Science Free Software	Notifications - alerts	Settings edit (ltd)				Monitoring	
Computer Science Bespoke Software	Notifications - alerts	Participatory design			Recording, ownership of data	Monitoring - moderation	Monitoring

Table 15. Strategic Framework

As described at the beginning of this chapter the aim of this work has been to understand the role of social media is support of non-formal learning by school pupils in the age range 11-18. Based upon analysis of information collected through three studies of pupil and teacher perceptions themes were developed leading to identification of barriers to the promotion and use of social media in support of non-formal learning by the primary stakeholder groups. Risk and Technological Affordance were identified as the primary and secondary barriers to use of social media which lead to the development of a set of suggested mechanisms offered for mitigation of these barriers.

In developing and implementing a strategy promoting the cognitive skills of digital literacy a school may address the issue of usability, social capital and trust through steps taken to develop the cognitive skills of photo-visual, information and socio-emotional literacy (table 7). Promotion of socio-emotional literacy in pupils may also address the concerns expressed by teachers over dangers to their institution and to pupil safety as pupils are taught how to become responsible digital citizens. Adopting a technical approach, a school may offer the facilities of a distributed

online social network incurring limited upfront cost in term of installation and training offset by a solution which does not require teaching time in an already full timetable (table 13). Lastly, not requiring precious teaching time mitigation of the barriers would be achieved to a greater extent by employing bespoke distributed online social network software developed through a co-participatory design process (table 14). The drawback in this instance being the cost both financially and in terms of time for software development, installation and training involved.

Whilst individually each of these mechanisms may address some of the themes constituting the barriers identified, to fully mitigate for these barriers an interdisciplinary approach combining a strategy for digital literacy with technical functionality is required. Whilst combining a strategy introducing digital literacy with the features of a freely available distributed social online network may satisfice the majority of themes to fully address the barriers identified, implementation of a digital literacy strategy combined with development of a bespoke distributed online social network through co-participatory design (table 15) is required to satisfy them all.

The following and final chapter of thesis work describes conclusions which may be drawn from this research, limitations of the work, applicability of findings and the suggested scope and direction for future research in this area.

Chapter 8: Conclusions and Future Work

8.1 Conclusions

The use of social media in support of learning activities, both formal and informal has been gaining interest over recent years. Though the majority of work published relates to use by students and teachers in further and higher education the use of social media in the secondary education sector is becoming the subject of increasing attention. In contribution to this burgeoning sector of research this work sets out to identify the role of social media and possible barriers to its use in the under-investigated area of support for non-formal learning in the Secondary Education sector in the UK through addressing the following research questions:

RQ1. How do school pupils perceive and use social media

RQ2. How is social media used by school pupils to support non-formal learning

RQ3. How do teachers believe social media is used by school pupils

In identifying this role and whether indeed one exists, this research enhances existing knowledge and understanding of the perceptions and use of social media in support of non-formal learning by pupils and teachers. The value of enhancing the existing knowledge base is in the provision of a foundation for understanding upon which strategies and technologies for the utilisation of affordances enabled by social media technologies in non-formal learning may be built.

8.2 Results Recap

To address the research questions this thesis has presented three studies into the perceptions and use of social media in support of non-formal learning by pupils and teachers. An initial online survey investigated pupil perception and use of social media in their everyday lives followed by use in support of learning activities before finishing with a comparison between perceptions and use. To gain a deeper and richer understanding of pupil perceptions and use of social media a second study was conducted in which pupils attending schools which had taken part in the survey were invited to participate in semi-structured focus group interviews investigating use of social media to support non-formal learning and the process followed by pupils when deciding whether or not to do so. To complete this picture of social media use to support non-formal learning a final study was conducted in which teachers were invited to take part in semi-structured individual interviews to ascertain their understanding of pupil perceptions and use and teacher attitudes towards the promotion of social media as a supporting technology. In the context of the research

questions the findings of each study are presented below followed by limitations of this work, opportunities for future work and final conclusions.

8.2.1 Research Question 1 - How do pupils perceive and use social media

The broad findings of first study (S1) indicate that pupils perceive social media as being very important in their everyday lives with talking to friends being the most popular activity. On further analysis of data collected though social media is indeed perceived as being very important in most pupils' everyday lives this is not true for all of them. Findings of the first study (S1) indicate that a significant minority (20%) of pupil respondents report a perception of social media as not being very important at all in their everyday lives, supported by comments from the third study (S3) in which 83% of teachers reported beliefs in the same vein. Though these perceptions and uses do not appear to be influenced by age, perception initially appears to be affected by gender with reported levels of importance increasing for female pupils from 20% of sample in year 8 (12 years old) to 70% in year 10 (14 years old) whereas for male pupils the opposite in indicated with 45% of male pupils in year 8 reporting perception of social media as being very important in their everyday lives in year 8 dropping to 20% in year 10 before rising again in year 11. Of interest is the fact that difference between reported perceptions of importance accorded to social media over year groups in that this does not appear to translate into changes of reported use.

Whilst statistical analysis of survey quantitative data suggests that self-reported perceived level of importance does have an effect upon the amount of time spent online by participants both daily ($\chi^2(10, N = 313) = 16.919$, $p = 0.076$), and weekly ($\chi^2(2, N = 313) = 9.693$, $p = 0.008$), this is not indicated for number of friends or group memberships. Analysis suggests that self-reported level of importance has no effect upon the number of friends a participant self-reported ($\chi^2(2, N = 166) = 22.205$, $p = 0.001$). The story is similar when group membership is considered, though level of importance appears to have little effect within groups analysis suggests that an effect does take place across membership of ranges of groups ($\chi^2(2, N = 149) = 54.617$, $p = 0.001$). However, although nearly 40% of the sample responded that they were not a member of any group, in the most popular 2-5 groups range the percentage of those who apparently perceived social media as not important in everyday life was, surprisingly, almost 20% greater than for other groups.

As mentioned earlier it is clear that 'talking to friends' was regarded as significantly more important than 'talking to relatives', and almost twice as important as 'organising events', 'sharing knowledge', 'taking part in discussions' or 'helping with schoolwork' with analysis of responses by gender and year group yielding comparable results with few significant differences noted. This

would appear to indicate that pupils are either not using social media for more advanced interactions (such as learning), or are not aware that they are doing so.

8.2.2 Research Question 2 - How is social media used by school pupils to support non-formal learning

Moving on from considering perceptions of social media in their everyday lives, for the second research question pupils were asked to consider how important they perceived social media to be in support of non-formal learning i.e. undirected learning outside of the classroom with the purpose of supporting formal learning objectives. As with identification of a significant minority of pupils attaching a low level of importance to social media in their everyday lives reported in S1, when asked about willingness or desire to use social media to support non-formal learning in S2 over one third (39%) of pupil negative comments were in regard of use of social media to support homework understanding compared to 54% of positive comments. Of those positive comments 50% related to school work, 25% for understanding homework, 10% were for administration of homework tasks e.g. due dates, topics and resources and 6% seeking answers to homework tasks. When analysed individually, as opposed to one of a range of support types, homework understanding had an overall positive influence of 43% compared to 17% neutral and 40% negative whilst using social media to resource an answer rather than an explanation i.e. seeking support material online rather than asking for help, as an influence provided 57% positive, 28% neutral and 14% negative responses. In deciding to use social media to support non-formal learning pupils indicated a number of influencing factors.

The three factors with most positive influence on pupil decision to use social media to support non-formal learning were social capital (29%), (network) affordance (27%) and group facility (25%). Similarly, the factors with most negative influence were social capital (27%), (network) affordance (16%) and effort (18%). The identification of social capital as an influencing factor - both positive and negative - is supported by the findings of S1 in which level of importance accorded to social media in everyday life by pupils did not appear to have an effect upon number of friends or group membership. Continuing with the theme of social capital, of the participant comments stating that type of interaction would (S2) have a positive influence nearly twice as many comments related to dyadic interaction than open or multiple interactions as afforded in a networked community. Again, more than twice as many comments describing a negative influence were dyadic in nature as were all of the neutral comments. These findings indicate that regardless of positive, neutral or negative influence the majority of responses were about a

preference for protection of social capital through dyadic interaction rather than using the networked affordances of social media. It is this indication of the importance of social capital to pupils which leads to identification of risk to social capital as a major theme for consideration.

8.2.3 Research Question 3 - How do teachers believe social media is used by school pupils

Analysis of data collected as part of the third study (S3), investigating beliefs and understandings held by teachers about pupil perceptions and use of social media indicated that the majority of teachers (15 of 18 interviewed) believed that most, if not all pupils regarded social media as being very important in their everyday lives. In line with the results of S1 the comments of 2 of the teacher participants interviewed as part of S3 indicated an awareness based upon their own observations that this high level of importance would not be accorded by all pupils in that a minority will regard social media as being not very important in their everyday lives. Similarly, in agreement with findings of S1 just over 1/3 of teachers interviewed (7) commented their belief that most or all pupils attached low level of importance to social media in support of non-formal learning.

Whilst teachers' beliefs about impact of gender on pupils' perceptions and use of social media agree with the findings of S1, with regard pupil age unlike the findings of S1 there appears to exist a perception held by teachers that age is an influencing factor. Nearly half of teachers interviewed (8) commented their belief that whilst pupil use and perceptions of social media in their everyday lives change over time their perceptions of social media in support of non-formal learning remains constant i.e. not important at all. When asked about evidence for the use of social media by their pupils whilst nearly 1/3 (5) of teachers could offer no evidence in support of non-formal learning more than 2/3 (13 total, 7 formal, 5 administrative) of teacher participants (in line with findings of S1), cited examples of pupil use of social media to support administration of formal learning activities. This is similar to the findings of the S2 in which approximately half of pupil participants (54%) reported using social media in a fashion which could be thought of as supporting non-formal learning (work completed at home set by school - not necessarily homework), half of the teacher participants (7 formal + 2 revision) expressed a perception of social media being used by pupils in such a fashion. This comparability of numbers may suggest an awareness and acceptance by a substantial number of both stakeholder groups of the affordances enabled by social media which in turn support the sharing of knowledge.

8.2.4 Summary

Analysis and triangulation of findings collected from each study indicate there exists a willingness to incorporate and utilise affordances enabled by social media to support non-formal learning on the part of both pupils and teachers. Findings suggest that whilst technology is being used by pupils to support non-formal learning activities this is mostly in an administrative capacity. In considering comments by both pupils and teachers it becomes apparent that though the willingness to promote and use social media in the support of non-formal learning exists there also exists barriers to this implementation

8.3 Limitations

Adopting an investigative approach, the focus of this work has not been on how social media may be used to support non-formal learning but rather whether this support is possible or would be accepted by the two primary stakeholder groups at the operational level. Whilst examining the current state of the promotion and use of social media by pupils and teachers has afforded consideration of a number of areas of influence, the findings produced are subject to inherent limitations. Primarily, there existed no scope within this word to measure the impact or value added to learning activities for pupils through the use of social media - for example identification of increased academic progress by pupils.

In conducting an investigation with a relatively narrowed field of focus on the perceptions and use of social media by pupils and teachers at the operational level, there has been relatively little focus on participant perceptions and use at the tactical or strategic levels. It may be possible that examples of perceptions and use at the tactical and strategic levels may indicate an impact upon academic outcomes desired. Nevertheless, this work has addressed several factors, understanding of which is fundamental to the successful introduction and reliable assessment of social media as a tool to support non-formal learning thus filling an important gap in left in many previous studies. The choice of this approach was based upon the methodological decision to develop a more thorough understanding in the area which this thesis describes.

In utilising survey as a method of data collection there existed a reliance upon self-reported behaviours which may be somewhat subjective by nature effecting the accuracy of any findings, an example of which is highlighted when considering that amongst those pupils that reported that no help had been observed (153 no help received, 139 no help given) a significant proportion (62 no help received, 53 no help given) still reported examples which represents a certain ambiguity in self-reporting in 40% and 38% of cases respectively. Taking step to mitigate for the possible

impact of subjective reporting by participants the methodological choice was taken to triangulate findings whilst also offering an alternative mechanism by which to assess sample size large enough to be representative of the entire population of primary stakeholders in secondary schools located in small to medium sized towns and cities.

Compared and contrasted with findings derived from pupil data the findings from the teacher interviews may also be considered as limited to a certain degree. Though indications were drawn from these responses the indications may not necessarily be generalisable to the population of teachers as the sample of teachers may not be wholly representative. Based upon these findings however there is considerable potential for a survey of teachers similar to that upon which pupil interviews were based, to be employed across the country in order to obtain a much larger data set which may provide greater insight. By doing so more conclusive claims may be made with regard current use of social media by teachers and if further perceptions as barriers exist to its promotion and use. To complete this picture a longitudinal survey of both pupils and teachers would provide indication of how participant perceptions and use may change over time reflecting a change in the role of social media.

8.4 Contribution

In identifying the current role of social media in support of non-formal learning by school pupils this thesis presents a number of contributions. As explained throughout the investigation assessing the role of social media from the perspective of pupils and teachers is difficult, but a number of procedures have been developed in this research that can support insight into participant perspectives and used together offer an increased and deeper understanding of the area. The results of the research presented include a breakdown of how pupils perceive social media in their everyday lives as well as in support of non-formal learning, the type and purpose of social media use in both instances and, possibly more importantly why pupils do not use social media for knowledge sharing to support non-formal learning. For a more complete view of contributing factors and influences the results also include teacher understandings of pupil perceptions and use. Through triangulation of results the contributions of pupil and teacher findings provided the basis by which identification of risk and technical affordance as the main barriers to employment of social media by both groups could be achieved. Finally, having identified the main barriers to utilisation of social media as perceived by both stakeholder groups a framework consisting suggested mitigation strategies to overcome these barriers was developed as shown in table 15.

This investigation has identified barriers to the use of social media to support non-formal learning by pupils in compulsory education and developed a framework of suggested mitigation strategies

through an interdisciplinary approach for use by schools seeking to harness this resource. The overall objective of this work i.e. to increase knowledge and understanding of the complex relationships which children and young adults in the age range 11-18 have with social media in the arena of learning was achieved through the following contributions to the field of knowledge:

- Creation of a methodology for data acquisition that can also be used as part of a lesson plan
- Establishment of how important social media is for young people in life across peer groups, locations and uses
- Identification of social capital as a main issue and highlighting the concepts of risk and affordance as main barriers
- Determining the role of social media for educators as a tool for education, particularly the effect of risk and affordance
- Identification of barriers for social media in learning for pupils in the form of
    - risk to social capital and false information
    - affordance with regard immediacy of need when seeking support
- Identification of barriers for social media in learning for teachers in the form of
    - risk to professional status
    - risk to institution
    - risk to pupil safety
    - affordance of control of pupil interaction with social media through moderation and monitoring

8.5 Publications

- best paper award IJEL conference 2014

  Perceptions of school children of using social media for learning

  Blair, Robert, Millard, David and Woollard, John (2014) Perceptions of school children of using social media for learning at *E-LEARN 2014 - World Conference on E-Learning, United States*. *27 - 30 Oct 2014.* 10 pp.
- full journal paper published 2017

  Perceptions of school children of using social media for learning

  Blair, R., Millard, D., & Woollard, J. (2015). Perceptions of school children of using social media for learning. *IJEL-International Journal on E-Learning*.

8.6 Future work

Based upon the outcomes of this research thesis there exists interesting opportunities to take the findings of this work forward, as such two opportunities for building upon the findings of this research are described.

8.6.1 Nature of engagement

This data indicates that although the primary use of social media is relatively straightforward and task orientated, there are plenty of examples where more advanced engagement is occurring. Understanding the nature of this engagement is important future work. It could well be the case that the conversations occurring around the logistics of homework have established certain norms, and thus enabled secondary conversations around understanding, whereas this mechanism has not applied to other learning activities such as lessons.

8.6.2 Stakeholder perceptions at tactical and strategic levels

Based upon the findings of this work one future direction for research suggested is that of development of a broader understanding through investigation of stakeholder perception at the tactical and strategic levels. Though not directly involved in classroom teaching, stakeholders at the tactical level such as headteachers, school governors and members of the local education authority will each hold perceptions of social media which may positively or negatively influence the possibility of its adoption in schools. In the same vein perceptions held by those in decision making positions at the strategic level may have greater impact hence require identification and understanding. Suggested research questions for future investigation at the tactical and strategic levels are:

1. Is social media perceived as a tool to support non-formal learning at the tactical and strategic levels?

2. Does a dissonance exist between stakeholder perceptions at these levels and pupil use

    a. What impact might such a dissonance have?

8.6.3 Mitigation strategy implementation

A second direction for future work would be that of development of a mitigation strategy for the successful promotion and use of social media by stakeholders in the secondary education sector. A number of mechanisms for the mitigation of perceived barriers to the use of social media to support non-formal learning have been suggested. From a social perspective the discipline of

Education offers the possibility of promoting digital literacy strategies for both pupils and teachers. From the discipline of Computer Science, a participatory design approach may be utilised to overcome technical affordance barriers identified by both of these stakeholder groups. Combining aspects from both disciplines an interdisciplinary approach offers the additional opportunity of benefitting from possible emergent properties such as user empowerment and investment.

8.7 Concluding remarks

The stated aim of this thesis research was to identify possible barriers to the use of social media as a technology to support non-formal learning followed by development of strategies for mitigation of these barriers if they exist. Though much research has been conducted in this area the challenge in this instance was to be two-fold in that one of the two primary stakeholder groups being investigated consisted of school pupils under the age of 18, entailing legal and ethical requirements for personal safety through anonymity and, secondly the investigation would be conducted during school hours on school premises. In developing tools and procedures to overcome these challenges this work will be of practical use to those seeking to investigate further in this area. As a result of this research a framework consisting mitigation strategies for secondary schools in the UK has been developed consisting implementation of a Digital Literacy strategy, hosting and implementation of a De-Centralised online social network, development of a technical solution through Co-Participatory Design involving all participants or a combination of these strategies. It is the ambition of this work that implementation of a combination of these mechanisms for mitigation of the barriers identified will enable schools to utilise the much-lauded potential of social media to support teaching and non-formal learning in the UK secondary education sector.

Appendix A Focus group: Further data analysis

Year School	Influence					
	A : Positive		B : Neutral		C : Negative	
01 : Yr08-FS	48.1%	*22.4%*	3.7%	*10.0%*	48.1%	*32.5%*
02 : Yr09-CA	55.0%	*19.0%*	10.0%	*20.0%*	35.0%	*17.5%*
03 : Yr09-PE	25.0%	*6.9%*	18.8%	*30.0%*	56.3%	*22.5%*
04 : Yr10-AH	76.2%	*27.6%*	9.5%	*20.0%*	14.3%	*7.5%*
05 : Yr12-LR	58.3%	*24.1%*	8.3%	*20.0%*	33.3%	*20.0%*

Table 16. Level of influence upon participant selection of social media to support non-formal learning grouped by year group/school

Gender	Influence					
	A : Positive		B : Neutral		C : Negative	
01 : Female	50.0%	*46.0%*	10.3%	54.5%	39.7%	*56.1%*
02 : Male	59.6%	*54.0%*	8.8%	45.5%	31.6%	*43.9%*

Table 17. Level of influence upon participant selection of social media to support non-formal learning grouped by gender

Gender	Interaction			
	A : Dyadic		C : Open - Multiple	
01 : Female	76.4%	*56.0%*	23.6%	*43.3%*
02 : Male	66.0%	*44.0%*	34.0%	*56.7%*

Table 18. type of interaction participants report when using social media in support of non-formal learning grouped by gender

Appendix B Ethics: Guidance

B.1 Ethics guidance

EPSRC

https://epsrc.ukri.org/research/ourportfolio/themes/healthcaretechnologies/strategy/toolkit/home/integrity/ethics/

ESRC

https://esrc.ukri.org/funding/guidance-for-applicants/research-ethics/our-core-principles/

University of Southampton

https://www.southampton.ac.uk/about/governance/policies/ethics.page

Appendix C Ethics: Requirements

C.1 Ethics requirements

Cambridgeshire

https://www.cambridgeshire.gov.uk/residents/working-together-children-families-and-adults/strategies-policies-and-plans/research-and-data/

Hampshire

http://www3.hants.gov.uk/adultservices-professionals/research/research-governance-framework.htm

Norfolk

http://www.norfolkcommunityhealthandcare.nhs.uk/Downloads/Document-finder/Research%20and%20Development/Research%20strategy%20v1%20approved.pdf

Suffolk

https://www.suffolk.gov.uk/adult-social-care-and-health/about-adult-and-community-services/research-governanc

Appendix D Study 1 – Online survey documentation

D.1 Study 1 Survey Documentation

Study 1 Protocol

FoPSE Ethics Committee

ERGO application form

FoPSE EC Study Protocol **Ver 6.4**

Refer to the *Instructions* and to the *Guide* documents for a glossary of the key phrases in **bold** and for an explanation of the information required in each section. The *Templates* document provides some text that may be helpful in presenting some of the required information.

Replace the highlighted text with the appropriate information.

Note that the size of the text entry boxes provided on this form does **not** indicate the expected amount of information; instead, refer to the *Instructions* and to the *Guide* documents in providing the complete information required in each section.

Reference number: **ERGO/**FoPSE/**5942**	Version: 1	Date: 2013-10-25
Name of **investigator**(s): Robert Blair		
Name of supervisor(s) (if student **investigator**(s)): Dr. David Millard Dr. John Woollard		
Title of study: School Student Peer Assisted Learning Through Online Social Network		
Expected start date: 05/11/13	Expected end date:20/11/14	

The investigator(s) undertake to:

- Ensure the study Reference number ERGO/FoPSE/5942is prominently displayed on all advertising and study materials;
- Conduct the study in accordance with the information provided in the Study Protocol, its

appendices, and any other documents submitted;

- Conduct the study in accordance with University policy governing research involving human **participants** (http://www.southampton.ac.uk/corporateservices/rgo/);
- Submit the study for re-review (as an amendment through ERGO) if any changes, circumstances, or outcomes materially affect the information given;
- Promptly advise an appropriate authority (Research Governance Office) of any adverse study outcomes, changes, or circumstances (via an adverse event notification through ERGO);
- Seek FoPSE EC advice in the event of material changes to the study following approval.
- Submit an end-of-study form as may be required by the Research Governance Office upon completion of the study.

Refer to the Instructions document when completing this form.

Pre-study

Characterise the proposed **participants:**
Students in age range 11 - 18 attending secondary schools in the United Kingdom.

Describe how **participants** will be approached:
School selection - The investigator has worked with several schools for a number of years as an exam board visiting moderator. In discussion of the research project several Heads of ICT Department have expressed interest in their school taking part in the survey. The participant sample is a sample of convenience and only schools where ICT Department Heads have expressed an interest will be contacted. Local Education Authority - Research governance Framework Before approaching schools the Local Education Authority (LEA) for the relevant counties have been approached with regards current research governance frameworks. In line with research governance frameworks in place each LEA stipulated that decision to take part in the survey lies with the headteacher. On attainment of headteacher consent the school will approach pupils to participate.

Appendix D

Parental/Guardian Consent

Depending upon the acceptable usage policy of the school the headteacher may or may not require parent or guardian consent for their child to take part in the survey.

Some schools have 'I give consent for my child to participate in surveys' as part of the school acceptable usage policy which pupils and parents must sign before the pupil can use the school computing facility.

If parent or guardian consent is given as part of the school acceptable usage policy the consent for pupil participation in the survey will be given by the Headteacher.

If parental or guardian consent is not part of the school acceptable usage policy the required number of consent forms will be sent to the school. These will be issued to pupils in an ICT lesson one week before survey participation is scheduled. The pupils will have one week to have forms signed by parent or guardian.

If a consent form is required the completed consent forms will be returned to the class teacher of ICT at the start of the next lesson. Only those pupils who have returned a consent form signed by a parent or guardian will be asked to complete the online survey. Completed consent forms will be retained by the school.

If requested by the school the researcher will digitise the signed consent forms by scanning and saving in 'pdf' format to reduce storage requirements.

Digital copies of the signed consent forms will be made available to the researcher if required.

Survey participation

Participants selected by the school will be asked to complete an online survey as part of an ICT lesson during normal school hours.

The class teacher will read aloud the purpose of the survey.

Participants will be informed that they have the right to withdraw at any time, this is also explained on introduction page of survey.

The investigator will have no contact with participants.

Describe how inclusion and/or exclusion criteria will be applied (if any):

Participants included will be those whose parents or guardians have not opted their child out of the survey.

Describe how **participants** will decide whether to take part:

Full description of objectives and use of data will be made available to participants.

Participants have opportunity to ask further questions prior to survey.

Access to data will be made available to participating schools at the end of the survey.

Participants can access a relevant limited data set upon request by supplying age, gender, date and time of participation.

Participant Information

Provide the **Participant Information** in the form that it will be given to **participants** as an appendix.

Consent Form

Provide the **Consent Form** (or the request for consent) in the form that it will be given to **participants** as an appendix.

During the study

Describe the study procedures as they will be experienced by the **participant**:

As *starter activity* for part of an ICT subject lesson students will be given the URI for the online survey.

Students will be asked to access the survey and read the introductory information.

Once participant has agreed to take part in survey and that they understand their rights they are directed to the first page.

The participant will work through 7 sections or pages of questions

For each question the participant will be asked to select from a range of options

Participants given opportunity to type text comments to describe help given or opinions

Participants can miss questions as none of the questions are compulsory

Participants can return to previous page or skip to next page

At end of survey participants are thanked and given opportunity to comment on use of social media

Identify how, when, where, and what kind of data will be recorded:

Summary:

Data will be collected through an online survey consisting 11 questions with yes/no type answers, 9 questions with Likert Scale type responses and 4 (voluntary) text box comment answers. No personal information will be collected. Identification is limited to a group by gender and year group survey data and date and time of participation metadata.

Sect.1 Introduction

If student consents to take part in survey they will be informed again of their rights to withdraw, how data will be stored and secured, anonymity and use of data.

Sect. 2 Limited demographic data / use of social networking sites

Limited demographic data - participants asked for ***year group*** and ***gender***. Identification of individual participant will not be possible with this information. When matched to *date* and *time* of survey response from survey log a batch of data can be deleted if a participant, parent or guardian changes their decision to take part after survey completion.

Use of social networking site - participant directed to relevant section of survey.

Sect.3 Reason for not using social networking sites

Participant use of social networking sites, selects ***yes/no*** - If participant does not use social networking sites they are asked to choose possible reasons which might apply. Participant is given opportunity to add further ***text comment*** which may not be listed.

Directed to section 8 - participant thanked for taking part in survey and given opportunity to add ***text comment***.

Sect. 4 Social media - everyday use

Student perspectives about the use of social media in everyday life.

High level question

Participant select level for their perception of level of importance of social media in everyday life

Participant select from scale of importance - ***very, sometimes, not***

Low level questions

Physical access to social media - ***select options*** which apply to describe how social media is accessed

Social media accounts - ***select length of time*** participant has had an account with social media which apply

Frequency of using social media - participant ***selects best description*** for their use of applicable social media

Connectiveness - participants ***select appropriate range*** for number of network links (friends)

Groups - participants ***select appropriate range*** for number of network groups they are a member of (clusters)

Reason for use of social networking site - ***select most appropriate reason*** for using social network sites, rank importance of use

Time spent using social networking sites - ***participants select appropriate range*** for amount of time spent using main social media

Sect. 5 Social Media - educational (in school)

Getting online

Participants select ***yes/no*** accessing social media through school internet outside of lessons

Getting online

Participants select ***yes/no*** accessing social media through school internet during lessons

Usefulness in lessons

Participants ***select subjects*** they think social media night be helpful in

Helping me learn

Participants select ***yes/no*** - asked if encouragement given to use social media to help learning

Learning

Participants select ***yes/no*** - do students think social media can help with learning

Sect. 6 - educational (out of school)

High level question

Participants ***select level of importance*** of social media in collaborative, informal learning and knowledge sharing

Low level questions

Being helped by peers

Participants select ***yes/no*** for being helped by peers with school work - if yes, given opportunity to explain in **text box**

Helping peers

Participants select ***yes/no*** for helping peers with school work - if yes, given opportunity to explain in **text box**

Being helped

Participants ***select subject*** in which they were given help by peer

Helping

Participants ***select subject*** in which they gave help to a peer

Helping with school work

Participants ***select best description*** of their opinion about using social media to help with school work

Sect. 7 Social media - learning and sharing knowledge

School use

Participants select ***yes/no*** - should use of social media for learning and knowledge sharing be encouraged by schools

Pupil use

Participants select ***yes/no*** - should pupils use of social media for learning and knowledge sharing without being instructed

Teacher help

Participants select ***yes/no*** - have pupils ever been assisted by a teacher through use of social media for learning and knowledge sharing

Pupil/Peer help

Participants select ***yes/no*** - have pupils ever used social media for learning and knowledge sharing

What do you think ?

Participants select ***yes/no*** - can social media be helpful in learning and sharing knowledge

Sect. 8 Survey finished

Participant thanked for taking part in survey

Participant given opportunity to comment on survey or use of social media

Question type

Yes/no - 11

Text box comment - 4 (not compulsory)

Range - 9

Participant questionnaire

If there is a **participant** questionnaire, reproduce it in the form that it will be given to **participants** as an appendix.

Post-study

Identify how, when, and where data will be stored, processed, and destroyed.

All data initially stored on Southampton University iSurvey server.

Data will be stored and processed on password protected, encrypted laptop computer belonging to researcher.

Metadata associated with date and time of participation will be destroyed at end of study following recommended isurvey procedure.

If Study Characteristic M.1 applies, provide this information in the **DPA Plan** as an appendix instead.

Study characteristics

(L.1) The study is funded by a commercial organisation: ~~**Yes**~~**/ No**

If 'Yes', provide details of the funder or funding agency:

(L.2) There are **restrictions** upon the study: ~~**Yes**~~ **/ No**

If 'Yes', explain the nature and necessity of the **restrictions**:

(L.3) Access to **participants** is through a third party: **Yes /** ~~**No**~~

If 'Yes', provide evidence of your permission to contact them as an appendix. *See headteacher consent form / parent consent form (if headteacher deems necessary)*

(M.1) **Personal data** is collected or processed: ~~**Yes**~~ **/ No**

Data will be processed outside the UK: ~~**Yes**~~ **/ No**

If 'Yes' to either question, provide the **DPA Plan** as an appendix.

(M.2) There is **inducement** to **participants**: ~~**Yes**~~ **/ No**

If 'Yes', explain the nature and necessity of the inducement:

(M.3) The study is **intrusive**: ~~**Yes**~~ **/ No** If 'Yes', provide the **Risk Management Plan** and the **Debrief Plan** as appendices, and explain the nature and necessity of the intrusion(s) here:

(M.4) There is **risk of harm** during the study: ~~**Yes**~~ **/ No** If 'Yes', provide the **Risk Management Plan**, the **Contact Information**, and the **Debrief Plan** as appendices, and explain the necessity of the risks here:

(M.5) The true purpose of the study will be hidden from **participants**: ~~**Yes**~~ **/ No** The study involves **deception** of **participants**: ~~**Yes**~~ **/ No** If 'Yes' to either question, provide the **Debrief Plan** as an appendix, and explain the necessity of the deception here:

(M.6) **Participants** may be minors or otherwise have **diminished capacity**: **Yes /** ~~**No**~~ If 'Yes', AND if one or more Study Characteristics in categories M or H applies, provide the **Risk Management Plan** and the **Contact Information**, as appendices, and explain here the special arrangements that will be put in place that will ensure informed consent:
Participants are pupils attending secondary schools in England. As per governance framework of relevant county authority (Hampshire, Norfolk, Suffolk, Cambridgeshire) permission required is that of the headteacher. Requirement for parental consent is at the discretion of the headteacher of the school.

Headteachers will be sent a full description of the project, its objectives and procedures along with headteachers consent forms and parent/guardian consent forms if the headteachers deems necessary. The number of headteachers approached is limited to schools where the head of ICT department has expressed an interest.

As the survey will be conducted during a timetabled school subject lesson the risk management plan developed by the school will be followed.

(M.7) **Sensitive data** is collected or processed: ~~**Yes**~~ **/ No**

If 'Yes', provide the **DPA Plan** as an appendix.

(H.1) The study involves: **invasive** equipment, material(s), or process(es); or **participants** who are not able to withdraw at any time and for any reason; or animals; or human tissue; or biological samples: ~~**Yes**~~ **/ No**

If 'Yes', provide further details and justifications as one or more appendices. Note that the study will require separate approval by the Research Governance Office.

Technical details

If one or more Study Characteristics in categories M.3 to M.7 or H applies, provide the description of the technical details of the experimental or study design, the power calculation(s) which yield the required sample size(s), and how the data will be analysed as appendices.

Appendices (as required)

While it is preferred that this information is included here in the Study Protocol document, it may be provided as separate documents.

If provided separately, be sure to name the files precisely as "Participant Information", "Questionnaire", "Consent Form", "DPA Plan", "Permission to contact", "Risk Management Plan", "Debrief Plan", "Contact Information", and/or "Technical details" as appropriate.

If provided separately, each document must specify the reference number in the form ERGO/FoPSE/xxxx, its version number, and its date of last edit.

Appendix (i): **Participant Information** in the form that it will be given to **participants.**

Appendix (ii): Questionnaire in the form that it will be given to **participants.**

Appendix (iii): **Consent Form** in the form that it will be given to **participants.**

Appendix (iv): **DPA Plan.**

Appendix (v): Evidence of permission to contact **participants** or prospective **participants** through any third party.

Appendix (vi): **Risk Management Plan**.

Appendix (vii): **Debrief Plan**.

Appendix (viii): **Contact Information**.

Appendix (ix): Technical details of the experimental or study design, the power calculation(s) for the required sample size(s), and how the data will be analysed.

Appendix (x): Further details and justifications in the case of **invasive** equipment, material(s), or process(es); **participants** who are not able to withdraw at any time and for any reason; animals; human tissue; or biological samples.

D.2 Letter to Headteacher

Informal learning through social media:

Exploring pupil perceptions and use of social media for learning

Dear

My name is Robert Blair, I am an MSc student from the University of Southampton working within the Web Science Doctoral Training Centre. I am interested in exploring pupil perceptions of the use of social networking technologies such as Facebook, Instagram or Twitter in support of informal learning. I am specifically looking to examine any difference between perceptions of everyday use and 'school learning' use.

For this investigation I wish to conduct data gathering which would involve pupils completing an online questionnaire. This online survey should take 10 - 15 minutes depending upon reading level and could be used as a starter task for a discussion on use of social media. The questions are multiple choice with options for comments and are designed such that triangulation of participant identity is not possible. For ease of use the questions are written in 'student speak'.

As the survey is online I do not need to visit your school as part of the data collection. Every participant has the right to withdraw at any point during the survey. Individual participants input may be removed from the data set if requested by deletion of all records with matching participant age, gender, date and time of participation.

I will follow up this letter with a phone call within the next week to discuss the possibility of participation of your students in my research project.

In the meantime, if you have any questions relating to this study please do not hesitate to contact me directly via email or Dr. David Millard (project supervisor) within the Web Science Doctoral Training Centre on 02380 595567or email dem@ecs.soton.ac.uk.

Yours sincerely

Robert Blair

MSc student Web Science

University of Southampton

Robert.Blair@soton.ac.uk

D.3 Head-teacher Consent Form

Exploring pupil perceptions and use of social media for learning

Name of school ……..

Name of Headteacher.…….

☐ I confirm that I have read and understood the information regarding the current research on exploring pupil perceptions on the use of social media and have had the opportunity to ask any questions.

☐ I agree to let the pupils within my school take part in the study, providing parents have not returned information stating that they do not want their child to take part.

Signature: _____

Date: _____

[please return using prepaid, addressed envelope provided]

D.4 Parent Opt-Out Form

Parent Opt-out Slip

Dear Parent/Guardian,

My name is Robert Blair, I am an MSc student of Web Science from the University of Southampton and I am undertaking research within your child's school. I am interested in exploring pupil perceptions of social media such as Facebook, Twitter, Snapchat, etc. The aim is to find out if secondary pupils use social media to help in their education through sharing of knowledge and informal learning. I am therefore writing to parents of pupils in schools which have agreed to participate in an online survey of pupil perceptions about social media.

Why might my child have been chosen to take part?
All pupils in your child's school have been asked to participate in the research survey.

What will my child be asked to do?
Your child will complete an online survey which consists of questions with multiple choice answers and the opportunity to add further information if they want to. The survey is designed to take between 10 and 15 minutes and all effort have been made to cause as little disruption to the school day as possible.

Will my child's participation be confidential?
All data will be dealt with in accordance with the Data Protection Act and University of Southampton policy. Information will remain anonymous and will only be used for the purpose of this research.

What do I have to do if I am happy for my child to take part?
If you are happy for your child to take part in this study you do not need to take any action.

What happens if I change my mind?
The participation of your child is voluntary and you or they may withdraw consent at any time. If your child has participated in the survey any records matching their age, gender, date and time of participation will be deleted.

What if I am not happy for my child to take part?
If you do not want your child to take part, please fill out the form below and return it to your child's form tutor.

What do I do if I have any questions?
I hope that the experience will be enjoyable the children and informative for you. If you have any questions please contact myself or my supervisor: Dr. David Millard within the Web Science Doctoral Training Centre on 02380 595567or email dem@ecs.soton.ac.uk

Yours faithfully

Robert Blair
MSc student Web Science
University of Southampton
Robert.Blair@soton.ac.uk

D.5 Parent Consent Form

Informal learning through social media

Robert Blair, MSc Web Science

My child cannot take part in the project exploring pupil perception informal learning through social media.

Childs name _____Date of Birth ___/___/___

Parent/Guardians name _____ Date ___/___/____

[Note for tutors: please pass on to Head of ICT]

……

D.6 Participant Information

Ethics reference number: ERGO/FoPSE/5942	Version: 1	Date: 2013-10-25
Study Title: School Student Peer Assisted Learning Through Online Social Network		
Investigator: Robert Blair		

Please read this information carefully before deciding to take part in this research. If you are happy to participate your parent / guardian may be asked to sign a consent form. Your participation is completely voluntary.

- What is the research about? This is a student project which aims to investigate if and how school pupils use social networking sites for helping with learning. The objective of the investigation is to find out what students are using social networking sites for and what they think of using sites to help with learning. The knowledge gained will be used to help build a social tool for students which will help with learner collaboration and making learning easier.

The study is supported by the University of Southampton. At the end of the study, you may request a copy of the study findings and see how your data was used by contacting the investigator by email: Robert.Blair@soton.ac.uk.

- Why have I been chosen? You have been approached because your class being asked to take part in this survey.
- What will happen to me if I take part? You will be asked to complete and online survey. It will take about 15 mins in total. You do not have to answer all of the questions, only the ones which apply to you. If you leave a question unanswered it is assumed that it doesn't apply to you.
- Are there any benefits in my taking part? By looking at how students view the use of social networking sites or social media the study will add to current knowledge about peer assisted learning. It is hoped that this information will help in designing a tool which will help make learning easier for pupils.
- Are there any risks involved? There are no particular risks associated with your participation as you will be asked to complete the survey at the start of a normal school ICT lesson with your usual subject teacher.
- Will my participation be confidential? All data collected is anonymous and your data will be kept confidential. It will be held on a password protected computer, and used only for the purposes of this study. All *metadata* which is the information about the school name and the date and time of participation will be destroyed at the end of the study.
- What happens if I change my mind? You may withdraw at any time and for any reason during the survey. You may withdraw your data at any time and for any reason prior to its destruction at the end of the project. All data records matching your age, gender, date and time of participation will be withdrawn.
- What happens if something goes wrong? Should you have any concern or complaint, contact me if possible (robert.blair@soton.ac.uk) otherwise please contact the FPSE Office (C.Wyatt@soton.ac.uk) or any other authoritative body such as Dr Martina Prude, Head of Research Governance (02380 595058, mad4@soton.ac.uk).

D.7 Participant Consent Form

Ethics reference number: **ERGO/FoPSE/5942**	Version: 1	Date: 2013-10-25
Study Title: School Student Peer Assisted Learning Through Online Social Network		
Investigator: Robert Blair		

Please initial the box(es) if you agree with the statement(s):

I have read and understood the Participant Information (version 1 dated 2013-10-25) and have had the opportunity to ask ☐

I agree to take part in this study and agree for my data to be ☐

I understand my participation is voluntary and I may withdraw at ☐

Data Protection

I understand that information collected during my participation in this study is completely anonymous / will be stored on a password protected computer and that this information will only be used for the purpose of this study.

Name of participant (print name) .....

Signature of participant .....

Name of parent / guardian (print name) .....

Signature of parent / guardian .....

Date .....

D.8 Survey Questions

Informal collaborative learning through social software Quick Introduction

Can social sites help pupils share knowledge online to MAKE LEARNING EASIER?

Key Points

- Lots of school pupils use SOCIAL MEDIA like Facebook, SnapChat or InstaGram.
- It would seem to be a good thing for pupils to share knowledge. Long Introduction Today the internet and the world wide web seems to be everywhere. One of the most popular uses is for keeping in contact with friends and relatives through social networking sites such as Facebook, MySpace or Twitter. We want to know? can this be used to make learning easier? The purpose of this research is to try to find out how, if at all, social software is being used by school pupils. With a better understanding of how it is being used the next step is to design a way in which the use of social software can make learning less difficult and pupils can achieve more. Thank you for taking part. Your Rights - PLEASE READ Anonymity: The survey is designed so that when you have submitted your answers they cannot be used to identify you or any other pupil. Use: The information which you give will only be used for research and will not be passed on to anybody else.

Security: All data collected will be stored securely at Southampton with access limited to project researchers.

Right to withdraw: if at any time during the survey you can stop (withdraw). The data will not be collected is pressed.

Section 1. Introduction - using social media

Instructions

By completing this survey you will be giving pupils and of how social media is being used now and how it might be used in the future to help pupils achieve more by sharing knowledge and understanding.

Please read the following information and choose an answer.

It really helps if you answer as many of the questions as possible, the survey should take you no longer than 15 minutes. Most questions have a multiple choice answer but a few give you the chance to give reason which are not listed.

If you see a message in red at the bottom of the page it means that you have not given an answer to every question - If you don't think the question applies then press the 'save and proceed' button.

the University of

don’t want to continue until the submit button

teachers a better idea

Question 1.1

Use of data: I agree to take part in this research project and agree for my data to be used for the purpose of this study.

Right to withdraw: I understand my participation is voluntary and I may withdraw at any time without my legal rights being affected.

Data Protection: I understand that information collected about me during my participation in this study will be stored on a password protected computer and that this information will only be used for the purpose of this study. All files containing any personal data will be made anonymous.

Yes No

Section 2. Participant information (anonymous)

The following information will give an idea about how different kinds of pupils use social software.

Question 2.1

Question - please select the school year you are in: 7 8 9 10 11 other Question 2.2 Question - are you male or female ?:

Male Female

Question 2.3

A lot of people use social media like Facebook, Twitter, Snapchat, Instagram for lots of different reasons.

There are also a lot of many different reasons.

Question - do you use a

Yes No

Section 3. Social media

people who don't want to use social media for just as social networking site ?

- I don't use it

please answer the questions below to help us understand why lots of people don't use social software.

Question 3.1

There are a lot of people who don't use social media and there are many different reasons why.

Below are listed a few reasons which might describe why you don't use social software.

Question - please select any of the reasons which apply.

* My parents or guardian don't think it is a good idea * I don't think it is safe * None of my friends or relatives use social software * I have no reason to use social software

* I don't like to use computers * It's all too complicated * I don't have access to the internet / web

Question 3.2

Question - If there any other reason you would like to mention? please write in box

Section 4. Social media - everyday use Question 4.1 Your perspective Question - do you think that social media is important in everyday life ? is very important sometimes not important at all

Question 4.2

Getting online Question - how do you access social media ?

* smartphone (mine) * smartphone (not mine) * laptop (mine) * laptop (not mine) * desktop computer (mine) * desktop computer (not mine) * tablet (mine) * tablet (not mine) * other (mine * other (not mine)

Question 4.3

My social media accounts

Question - do you have an account with any of the following social media? if you have please choose how long:

* MySpace * Facebook * Twitter * Bebo * Instagram * Pinterest

* Tumblr * Flickr * SnapChat * Ask.fm * Minecraft * YouTube

Question 4.4

Using social media Question - how often do you use any of the following:

* MySpace *Facebook *twitter *Bebo *Flickr *Pinterest *Tumblr *Instagram *SnapChat *Ask.fm *Minecraft

Question 4.5

Using social Question - how many friends do you have on the main social media that you use:

- 0 - 10 friends
- 11 - 20 friends
- 21 - 50 friends
- 51 - 100 friends
- 101 - 150 friends
- 151 + friends Question 4.6 Groups Question - are you a member of any groups on the main social software site that you use: No, 1 group, 2 - 5 groups, 6 - 10 groups, 11 + groups Question 4.7 What I use social media for Question - please list the reasons you use social software. Give a value of 5 for the most important and a value of 1 for the least important. * talking to friends * talking to relatives * organising events * sharing knowledge

media

* taking part in discussions * helping with schoolwork

Question 4.8

My social media time Question - how much time do you spend using your main social media?

* less than 30 minutes per day * up to 3 hours per day * more than 3 hours per day * less than 3 hours per week

* between 3 and 10 hours per week * more than 10 hours per week

Section 5. Social media - educational (in school)

Question 5.1

Your perspective

Question - do you think that social media is important in collaborative, informal learning and knowledge sharing when in lessons ?

is always important is often important is important sometimes of little importance not important at all

Question 5.2

Getting online

Question - do you have access to social media through the school internet outside of lessons ?

Yes No

Question 5.3

Getting online

Question - do lessons ?

Yes No

Question 5.3b

Question - in

you have access to social media through the school internet during

which subject(s) do you have access to social media ?

Science Languages ICT - Computer Science History Geography PE

Could social media be useful in lessons ?

English Maths Technology other

Question 5.4

Question - please select any subject(s) that you think having access to social media might be helpful:

English Maths History Geography Modern Foreign Languages Science ICT - Computer Science PE Technology other

Question 5.5

Helping me learn Question - are you encouraged to use social media in your learning either in

lesson or out

Yes No

Question 5.5b

Question - in learn ?

English Maths other

Question 5.6

Learning Question - do Yes No

of school ?

which subjects are you encouraged to use social media to help MFL Science Geography History ICT - Computer Science PE Technology

you think social media can help with your learning ?

Section 6. Social media - educational (out of school)

Question 6.1

Your perspective

Question - do you think that social media is important in collaborative, informal learning and knowledge sharing ?

is always important is often important is important sometimes of little importance not important at all

Question 6.2

Outside lesson time Question - have you ever had something explained to you by a peer through social

media which you didn't understand in a lesson ? Yes

No

Question 6.2b

Question - can you give a short example of help you got from a friend or peer ?

Question 6.3

Outside lesson time Question - using social media have you ever explained to a friend or peer

something which they didn't understand in a lesson ? Yes

No

Question 6.3b

Question - can you give a short example of how you have helped a friend or peer ?

Question 6.4

Being helped

Question - please select any subject(s) which a friend or peer has helped you with through social media:

English Maths Science - Physics Science - Biology Science - Chemistry History Geography ICT / Computing PE MFL - French MFL - German MFL - Spanish MFL - other

Question 6.5

Helping

Question - please select any subject(s) which you have helped a friend or peer with through social media:

English Maths Science - Physics Science - Biology Science - Chemistry History Geography ICT / Computing PE MFL - French MFL - German MFL - Spanish MFL - other

Question 6.6

Helping with school work

Question - what do you think about using social media to help with school work when you are not in school:

it is a good idea I'm not bothered I don't mix school work with fun

Section 7. Social media - learning and sharing knowledge

Almost there !! only a few more questions - should social software be used out of school ?

Question 7.1

School use

Question - do you think use of social media for learning and sharing knowledge should be encouraged by schools ?

Yes No

Question 7.2

Pupil use

Question - do you think pupils should use social media for learning and sharing knowledge without being told to ?

Yes No

Question 7.3

Teacher help

Question - have you ever been assisted by a teacher in your learning using social media:

Yes No

Question 7.4

Pupil / Peer help

Question - do you ?

Yes No

Question 7.5

What do you think

Question - do you knowledge:

Yes No

Section 8. Survey

ever use social media for learning and / or sharing knowledge

? think that social media can be helpful in learning and sharing

Finished

You have reached the end of the survey as you either don't use social software and have jumped from section 2 or you have answered the questions in each section.

Whether you do or don't use social software your answers to this survey are very important.

Thank you for taking the time to complete this survey.

Question 8.1

Thanks for taking the survey

Question 8.2

Please write any comments about the survey or what you think about social software and learning in the box below.

You have reached the end of the survey as you either don't use social software and have jumped from section 2 or you have answered the questions in each section.

Whether you do or don't use social software your answers to this survey are very important.

Thank you for taking the time to complete this survey

Appendix E Study 2 – Focus Group Documentation

E.1 Study 2 Protocol

FPSE Ethics Committee

FPSE EC Application Form **Ver 6.6d**

Refer to the *Instructions* and to the *Guide* documents for a glossary of the key phrases in **bold** and for an explanation of the information required in each section. The *Templates* document provides some text that may be helpful in presenting some of the required information.

Replace the highlighted text with the appropriate information.

Note that the size of the text entry boxes provided on this form does **not** indicate the expected amount of information; instead, refer to the *Instructions* and to the *Guide* documents in providing the complete information required in each section. Do **not** duplicate information from one text box to another.

Reference number: **ERGO/**FPSE**/13464**	Version: 1	Date: 2015-02-15
Name of **investigator**(s): Robert Blair		
Name of supervisor(s) (if student **investigator**(s)): Dr. David Millard Dr. John Woollard		
Title of study: School Student Peer Assisted Learning Through Online Social Network		
Expected study start date: 15/03/15	Expected study end date: 20/12/15	
Note that the dates requested on the "IRGA" form refer to the start and end of *data collection*. These are not the same as the start and end dates of the study for which approval is sought. Note that approval must be obtained before the study commences; retrospective approval cannot be given.		

The investigator(s) undertake to:

- Ensure the study Reference number ERGO/FPSE/13464 is prominently displayed on all

advertising and study materials, and is reported on all media and in all publications;

- Conduct the study in accordance with the information provided in the application, its appendices, and any other documents submitted;
- Conduct the study in accordance with University policy governing research involving human **participants** (http://www.southampton.ac.uk/ris/policies/ethics.html);
- Conduct the study in accordance with University policy on data retention (http://www.southampton.ac.uk/library/research/researchdata/);
- Submit the study for re-review (as an amendment through ERGO) or seek FPSE EC advice if any changes, circumstances, or outcomes materially affect the study or the information given;
- Promptly advise an appropriate authority (Research Governance Office) of any adverse study outcomes, changes, or circumstances (via an adverse event notification through ERGO);
- Submit an end-of-study form as may be required by the Research Governance Office upon completion of the study.

Refer to the Instructions document when completing this form.

Pre-study

Characterise the proposed **participants**
Students in age range 11 - 18 attending secondary schools and sixth form centres in the United Kingdom.

Describe how **participants** will be approached
School selection - The investigator has worked with several schools for a number of years as an exam board visiting moderator. In discussion of the research project several Heads of ICT Department have expressed interest in their school taking part in the survey. The participant sample is a sample of convenience and only schools where ICT Department Heads have expressed an interest or lead schools within the Southampton University 'Talk to US!' project will be contacted.

Appendix E

Local Education Authority - Research governance Framework

Before approaching schools the Local Education Authority (LEA) for the relevant counties have been approached with regards current research governance frameworks. In line with research governance frameworks in place each LEA stipulated that decision to allow pupils to take part in semi-structured focus group interviews lies with the headteacher. On attainment of headteacher consent the school will approach pupils to participate.

Parental/Guardian Consent

If requested by the headteacher a parent/guardian consent will be sought for their children to take part in the research focus groups. The pupils will have one week to have forms signed by parent or guardian.

Some schools have 'I give consent for my child to participate in educational research' as part of a school contract which pupils and parents sign.

If parent or guardian consent is given as part of a school-pupil-parent/guardian contract the consent for pupil participation in a focus group may be given by the Headteacher.

If a consent form is required the completed consent forms will be collected by the pupil registration teacher one week after issue. Only those pupils who have returned a consent form signed by a parent or guardian will be asked to join a focus group. Completed consent forms will be retained by the school.

If requested by the school the researcher will digitise the signed consent forms by scanning and saving in 'pdf' format to reduce storage requirements.

Digital copies of the signed consent forms will be made available by the researcher if required.

Focus group participation

Participants selected by the school will be asked to participate in a semi-structured focus groups interview during normal school hours.

The facilitator will read aloud the purpose of the focus group, an explanation of the questions, what is meant by 'social media' and an example of the information sought.

Participants will be informed that they have the right to withdraw at any time, this is also explained on introduction page of the focus group information sheet .

Pilot focus group

A pilot focus group will be conducted by the lead researcher in a secondary school in order to determine suitability of focus group questions and identify possible issues with interview format or procedure.

Facilitators

The facilitator will be either a trainee teacher working in the school or the lead investigator. All facilitators will possess an enhanced DBS check. Trainee teachers acting as facilitators will be given facilitator training by the lead researcher. The facilitator training will be based upon the course "Interviewing in health–related research", as offered by the Researcher Development & Graduate Centre, University of Southampton. Training content will address issues identified during the pilot focus group interview.

Describe how inclusion and/or exclusion criteria will be applied (if any)
Participants included will be those whose parents or guardians have not opted their child out of the survey. School will be asked to select at random participant by year group.

Describe how **participants** will decide whether to take part
Full description of objectives and use of data will be made available to participants. Participants have opportunity to ask further questions prior to a focus group interview. Access to data will be made available to participating schools at the end of the survey. Participants can access a relevant limited data set upon request by supplying year group and date of participation.

Participant Information

Provide the **Participant Information** in the form that it will be given to **participants** as an appendix. All studies must provide **participant information**.

Appendix E

Consent Form

Provide the **Consent Form** (or the request for consent) in the form that it will be given to **participants** as an appendix. All studies must obtain **participant** consent. Some studies may obtain verbal consent, other studies will require written consent, as explained in the *Instructions* and *Guide* documents.

During the study

Describe the study procedures as they will be experienced by the **participant**
• Once a participant has agreed to take part in a focus group the following week they will asked to choose a school meal which will be delivered to the focus group location. • On receipt of a consent if required participants will be brought to the focus group session by a member of school staff after having their identities checked by the school. • Participants will be asked to read the introductory information. • Once participants have agreed to take part in focus group interview and that they understand their rights the focus group will begin with a brief, 5 minute discussion of what 'social media' is. • The facilitator will start the interview by asking the group for examples of when and how they have used social media to help with school work. • As participants respond the facilitator will ask the participants to expand the comment with more detail and then repeat back to the participant their (facilitators) understanding. • After thirty minutes the facilitator will draw the conversation to a close by recounting how some of the participants have used social media to help with school work. • The facilitator will move on to ask participants to give examples of when they may have had the option to use social media to help with school work but chose an alternative e.g. a phone call and why they chose the alternative. • After approximately a further five minutes the facilitator will bring the session to an end with a brief recap of the purpose of the interview and ask if participants have any questions. • At end of the focus group interview participants are thanked and given opportunity to comment on their focus group experience.

Identify how, when, where, and what kind of data will be recorded (not just the formal research data, but including all other study data such as e-mail addresses and signed consent forms)

Summary:

- Data will be collected during semi-structured focus group interviews consisting two qualitative questions.
- Participant responses will be audio recorded for transcription.
- No personal information will be collected. Identification is limited to by year group and date of participation metadata.

Headteacher Consent forms will be collected and securely stored by the principal researcher in accordance with Southampton University policy.

Parent consent forms will be collected and stored by participating school following DPA and school procedures.

Sect.1 Introduction

If student consents to take part in survey they will be informed again of their rights to withdraw, how data will be stored and secured, anonymity and use of data.

Sect. 2 Examples of use of social media to help with school work

Please give some examples of how you have used social media to help with your school work.

(facilitator might give examples of how they have used social media in their own studies)

The facilitator will prompt participants for further detail by asking such questions as –

- What was the school work you needed help with?
- Describe the problem you wanted help with.
- Did you get the help you wanted?
- Which social media have you used to help with school work?
- How often might you use social media to help with school work in a typical school week?
- Do you ever use social media to help with school work at weekends?
- Why use a particular social media?
- Have you used social media for help in mostly one subject or for a range?
- If for a range please list the different subjects.
- Has help been given in the form of answers to questions, information which helped you to answer a questions, how to complete coursework, other?
- Have you been helped through social media only by close friends or classmates?

- Have you been helped through social media by a classmate or peer that isn't a close friend, maybe somebody you wouldn't normally talk to in school?

Sect. 3 Examples of choosing an alternative to social media to help with school work

Please give some examples of how you could have used social media to help with your school work but chose a different method e.g. a phonecall, visiting a friend.

- Which social media were you thinking about using?
- How did you get the help you wanted – what *tool* did you use?
- Describe the help you got?
- Why did you use an alternative to social media?
- When might you suggest to a somebody to not use social media?
- What was it about the alternative that helped you choose it?

High level question

- Do pupils have sufficient vocabulary to describe high level use of social media to support learning as described in Bloom's taxonomy?
- At what level do pupils use social media to support informal learning?

Low level questions

- Why is social media being used by school pupils to support self-directed, collaborative learning?
- How is social media being used by school pupils to support self-directed, collaborative learning?
- Why is social media not used to support self-directed, collaborative learning?
- Is collaborative learning being supported by existing methods?
- Which alternatives to social media are being used to support collaborative learning?

~~Participant questionnaire~~

As an appendix, if using a questionnaire, reproduce any and all **participant** questionnaires or data gathering instruments in the exact forms that they will be given to or experienced by **participants**. If conducting less formal data collection, provide specific information concerning the methods that will be used to obtain the required data.

Post-study

Identify how, when, and where data will be stored, processed, and destroyed
All participant response data initially stored on Southampton University audio recording device. Data will be stored and processed on password protected, encrypted laptop computer belonging to researcher. Metadata associated with date and time of participation will be destroyed at end of study following recommended isurvey procedure. If Study Characteristic M.1 applies, provide this information in the **DPA Plan** as an appendix instead and do not provide explanation or information on this matter here.

Study characteristics

(L.1) The study is funded by a commercial organisation: **No** If 'Yes', provide details of the funder or funding agency here

(L.2) There are **restrictions** upon the study: **Yes** If 'Yes', explain the nature and necessity of the **restrictions** here
As participants are pupils attending secondary schools in age range 11-18 they are considered as minors. Access to participants is limited to holders of an enhanced Disclosure and Barring Service (DBS) check. Access to participants requires permission of headteacher who may then seek further permission of parents or guardians of pupils. Data collection is designed such that triangulation of participant identity is not possible.

(L.3) Access to **participants** is through a third party: **Yes** (delete or highlight one)

If 'Yes', provide evidence of your permission to contact them as a separate appendix. Do not provide explanation or information on this matter here

See headteacher consent form / parent consent form (if headteacher deems necessary)

(M.1) **Personal data** is collected or processed: **Yes**

Data will be processed outside the UK: **No**

If 'Yes' to either question, provide the **DPA Plan** as a separate appendix. Do not provide information or explanation on this matter here. Note that using or retaining e-mail addresses, **signed consent forms**, or similar study-related **personal data** requires M.1 to be "Yes"

(M.2) There is **inducement** to **participants**: **No**

If 'Yes', explain the nature and necessity of the inducement here

(M.3) The study is **intrusive**: **No**

If 'Yes', provide the **Risk Management Plan** and the **Debrief Plan** as appendices, and explain here the nature and necessity of the intrusion(s)

(M.4) There is **risk of harm** during the study: **No**

If 'Yes', provide the **Risk Management Plan**, the **Contact Information**, and the **Debrief Plan** as appendices, and explain here the necessity of the risks

(M.5) The true purpose of the study will be hidden from **participants**: **No**

The study involves **deception** of **participants**: **No**

If 'Yes' to either question, provide the **Debrief Plan** as an appendix, and explain here the necessity of the deception

(M.6) **Participants** may be minors or otherwise have **diminished capacity**: **Yes**

If 'Yes', AND if one or more Study Characteristics in categories M or H applies, provide the **Risk Management Plan** and the **Contact Information**, as appendices, and explain here the special arrangements that will be put in place that will ensure informed consent

Participants are pupils attending secondary schools in England. As per governance framework of relevant county authority (Hampshire, Norfolk, Suffolk, Cambridgeshire) permission required is that of the headteacher. Requirement for parental consent is at the discretion of the headteacher of the school.

Headteachers will be sent a full description of the project, its objectives and procedures along with headteachers consent forms and parent/guardian consent forms if the headteachers deems necessary. The number of headteachers approached is limited to schools where the head of ICT department has expressed an interest or the school is part of the Southampton University 'Talk to US!' project .

As focus groups will be conducted during a timetabled school lunchtime session on the school site the risk management plan developed by the school will be followed.

(M.7) **Sensitive data** is collected or processed: **No**

If 'Yes', provide the **DPA Plan** as a separate appendix. Do not provide explanation or information on this matter here

(H.1) The study involves: **invasive** equipment, material(s), or process(es); or **participants** who are not able to withdraw at any time and for any reason; or animals; or human tissue; or biological samples: **No**

If 'Yes', provide further details and justifications as one or more separate appendices. Do not provide explanation or information on these matters here. Note that the study will require separate approval by the Research Governance Office

Technical details

If one or more Study Characteristics in categories M.3 to M.7 or H applies, provide the description of the technical details of the experimental or study design, the power calculation(s) which yield

the required sample size(s), and how the data will be analysed, as separate appendices. Do not provide explanation or information on these matters here.

Appendices (as required)

While it is preferred that this information is included here in the Study Protocol document, it may be provided as separate documents.

If provided separately, be sure to name the files precisely as “Participant Information”, “Questionnaire”, “Consent Form”, “DPA Plan”, “Permission to contact”, “Risk Management Plan”, “Debrief Plan”, “Contact Information”, and/or “Technical details” as appropriate.

If provided separately, each document must specify the reference number in the form ERGO/FPSE/xxxx, its version number, and its date of last edit.

Appendix (i): **Participant Information** in the form that it will be given to **participants.**

Appendix (ii): Data collection plan / Questionnaire in the form that it will be given to **participants.**

Appendix (iii): **Consent Form** in the form that it will be given to **participants.**

Appendix (iv): **DPA Plan.**

Appendix (v): Evidence of permission to contact **participants** or prospective **participants** through any third party.

Appendix (vi): **Risk Management Plan**.

Appendix (vii): **Debrief Plan**.

Appendix (viii): **Contact Information**.

Appendix (ix): Technical details of the experimental or study design, the power calculation(s) for the required sample size(s), and how the data will be analysed.

Appendix (x): Further details and justifications in the case of **invasive** equipment, material(s), or process(es); **participants** who are not able to withdraw at any time and for any reason; animals; human tissue; or biological samples.

E.2 Participant Information

Ethics reference number: ERGO/FoPSE/13464	Version: 1	Date: 2015-02-15
Study Title: School Student Peer Assisted Learning Through Online Social Network		
Investigator: Robert Blair		

Please read this information carefully before deciding to take part in this research. If you are happy to participate your parent / guardian may be asked to sign a consent form. Your participation is completely voluntary.

1. What is the research about? This is a PhD research project which aims to investigate if and how school pupils use social media for helping with learning. The objective of the investigation is to find out what students are using social media for and what they think of using social media to help with learning. The knowledge gained will be used to identify and overcome barriers to the use of social media to support learning for students. This will help pupils to become self-directed, collaborative leaners making learning easier.
2. The study is supported by the University of Southampton. At the end of the study, you may request a copy of the study findings and see how your data was used by contacting the investigator by email: Robert.Blair@soton.ac.uk.
3. Why have I been chosen? Your school has been asked to select pupils from at random from each year group.
4. What will happen to me if I take part? You will sit in a group with several other students (no more than 10). You will be asked for examples of how you have or have not used social media to support learning. The group interview will last about 40 minutes and, as this is during your lunchtime, a school dinner of your choice will be supplied. You do not have to write anything as your responses will be recorded using a microphone and digital recorder.
5. Are there any benefits in my taking part? By looking at how students view the use of social networking sites or social media the study will add to current knowledge about collaborative peer learning. This information will be used in designing a tool which will help make learning easier for pupils.
6. Are there any risks involved? There are no particular risks associated with your participation as you will be asked to participate in a focus group interview during a normal school lunchtime in the school.
7. Will my participation be confidential? All data collected is anonymous and your data will be kept confidential. It will be held on a password protected computer, and used only for the purposes of this study. All *metadata* which is the information about the school name and the date and time of participation will be destroyed at the end of the study.
8. What happens if I change my mind? You may withdraw at any time and for any reason during the survey. You may withdraw your data at any time and for any reason prior to its destruction at the end of the project. All data records matching your age, gender, date and time of participation will be withdrawn.
9. What happens if something goes wrong? Should you have any concern or complaint, contact me if possible (robert.blair@soton.ac.uk) otherwise please contact the FoPSE Office (C.Wyatt@soton.ac.uk) or any other authoritative body such as Dr Martina Prude, Head of Research Governance (02380 595058, mad4@soton.ac.uk).

E.3 Participant Consent Form

Ethics reference number: ERGO/FoPSE/13464	Version: 1	Date: 2015-02-15
Study Title: School Student Peer Assisted Learning Through Online Social Network		
Investigator: Robert Blair		

Please initial the box(es) if you agree with the statement(s):

I have read and understood the Participant Information (version 1 dated 2015-02-15) and have had the opportunity to ask ☐

I agree to take part in this study and agree for my data to be ☐

I understand my participation is voluntary and I may withdraw at ☐

Data Protection

I understand that information collected during my participation in this study is completely anonymous / will be stored on a password protected computer and that this information will only be used for the purpose of this study.

Name of participant (print name)……

Signature of participant……..

If Requested:

Name of parent / guardian (print name)……

Signature of parent / guardian……..

Date……

E.4 Head-teacher Consent Letter

Self-directed, collaborative learning through social media:

Exploring pupils perceptions and use of social media for learning

Dear Headteacher / Principal

My name is Robert Blair, I am a PhD student from the University of Southampton working within the Web Science Doctoral Training Centre. I am interested in exploring pupil perceptions of the use of social media in support of informal, self-directed, collaborative learning.

For this investigation I wish to conduct data gathering which would involve pupils participating in semi-structured focus group interviews. Ten pupils from each year group, selected at random by the school, will be invited to a focus group interview. The interviews will be facilitated by myself (or a trainee teacher of your school), are designed to last approximately 40 minutes and will be conducted during a lunchtime. Participants will be provided with a school lunch of their choice.

Pupils will be asked two questions:

1. How have you used social media to support your school work?
2. When a choice is available why have you used an alternative to social media to help with school work?

The questions are designed to elicit pupil comments about the 'how' and 'why' in their use of social media in support of school work and specifically that triangulation of participant identity is not possible.

Every participant has the right to withdraw at any point during the interview. Individual participants input may be removed from the data set if requested by deletion of all records with matching participant year group, gender, date and time of participation.

I will follow up this letter with a phone call within the next week to discuss the possibility of participation of your students in my research project.

If you have any questions relating to this study please do not hesitate to contact me directly via email or Dr. David Millard (project supervisor) within the Web Science Doctoral Training Centre on 02380 595567or email dem@ecs.soton.ac.uk.

Yours sincerely

Robert Blair

B.Eng, PGCE (Physics/Maths), MSc (Inf Sys), MSc (Web Sci)

Web Science Centre for Doctoral Training, Building 32

University of Southampton

Robert.Blair@soton.ac.uk

E.5 Head-teacher Consent Form

CONSENT by Headteacher / Principal

Exploring pupils perceptions and use of social media for learning

Name of school ……..

Name of Headteacher……..

☐ I confirm that I have read and understood the information regarding the current research on exploring pupil perceptions on the use of social media and have had the opportunity to ask any questions.

☐ I agree to let the pupils within my school take part in the study, providing parents have not returned information stating that they do not want their child to take part.

Signature: _____

Date: _____

[this form will collected by the lead investigator]

E.6 Parent Opt-Out Letter

Dear Parent/Guardian,

My name is Robert Blair, I am a PhD student of Web Science from the University of Southampton and I am undertaking research within your child's school. I am interested in exploring pupil perceptions of social media such as Facebook, Twitter, Snapchat, etc. The aim is to find out if secondary pupils use social media to help in their education and how we can make this learning easier. I am therefore writing to parents of pupils who have agreed to participate in a semi-structured focus group interview about pupil perceptions about social media.

- Why might my child have been chosen to take part?

A number of pupils in your child's school year group have been asked at random to participate in the research focus group.

- What will my child be asked to do?

As part of a group of between ten and fifteen participants your child will be asked about and to give examples of how they have used social media to help with their school work. The focus group is designed to last approximately 40 minutes and will be conducted during a scheduled lesson. All efforts have been made to cause as little disruption to the school day as possible.

- Will my child's participation be confidential?

All data will be dealt with in accordance with the Data Protection Act and University of Southampton policy. Information will remain anonymous and will only be used for the purpose of this research.

- What do I have to do if I am happy for my child to take part?

If *you are happy* for your child to take part in this study you do not need to take any action.

- What happens if I change my mind?

The participation of your child is voluntary and you or they may withdraw consent at any time. If your child has participated in the focus group any records matching their year group, gender, date and time of participation will be deleted.

- What if I am <u>not</u> happy for my child to take part?

If you *do not want* your child to take part, please fill out the form below and return it to your child's form tutor.

- What do I do if I have any questions?

Appendix E

I hope that the experience will be enjoyable for pupils and informative for you. If you have any questions please contact myself or my supervisor: Dr. David Millard within the Web Science Doctoral Training Centre on 02380 595567or email dem@ecs.soton.ac.uk

Yours faithfully

Robert Blair

Web Science PhD Researcher

University of Southampton

Robert.Blair@soton.ac.uk

E.7 Parent Opt-Out Form

Informal learning through social media

Robert Blair, PhD Web Science

My child **cannot** take part in the project exploring pupil perception informal learning through social media.

Childs name _____Date of Birth ___/___/___

Parent/Guardians name _____ Date ___/___/____

[Note for tutors: please pass on to school reception]

……..

E.8 Focus Group Questions

Summary:

- Data will be collected during semi-structured focus group interviews consisting two qualitative questions.
- Participant responses will be audio recorded for transcription.
- No personal information will be collected. Identification is limited to by year group and date of participation metadata.

Headteacher Consent forms will be collected and securely stored by the principal researcher in accordance with Southampton University policy.

Parent consent forms will be collected and stored by participating school following DPA and school procedures.

Sect.1 Introduction

If students consents to take part in survey they will be informed again of their rights to withdraw, how data will be stored and secured, anonymity and use of data.

Sect. 2 Examples of use of social media to help with school work

Please give some examples of how you have used social media to help with your school work.

(facilitator might give examples of how they have used social media in their own studies)

The facilitator will prompt participants for further detail by asking such questions as –

- What was the school work you needed help with?
- Describe the problem you wanted help with.
- Did you get the help you wanted?
- Which social media have you used to help with school work?
- How often might you use social media to help with school work in a typical school week?
- Do you ever use social media to help with school work at weekends?
- Why use a particular social media?
- Have you used social media for help in mostly one subject or for a range?
- If for a range please list the different subjects.
- Has help been given in the form of answers to questions, information which helped you to answer a questions, how to complete coursework, other?
- Have you been helped through social media only by close friends or classmates?
- Have you been helped through social media by a classmate or peer that isn't a close friend, maybe somebody you wouldn't normally talk to in school?

Sect. 3 Examples of choosing an alternative to social media to help with school work

Please give some examples of how you could have used social media to help with your school work but chose a different method e.g. a phone call, visiting a friend.

- Which social media were you thinking about using?

- How did you get the help you wanted – what *tool* did you use?
- Describe the help you got?
- Why did you use an alternative to social media?
- When might you suggest to a somebody to <u>not</u> use social media?
- What was it about the alternative that helped you choose it?

High level question

- Do pupils have sufficient vocabulary to describe high level use of social media to support learning as described in Bloom's taxonomy?
- At what level do pupils use social media to support informal learning?

Low level questions

- Why is social media being used by school pupils to support self-directed, collaborative learning?
- How is social media being used by school pupils to support self-directed, collaborative learning?
- Why is social media not used to support self-directed, collaborative learning?
- Is collaborative learning being supported by existing methods?
- Which alternatives to social media are being used to support collaborative learning?

E.9 Contact Information

Ethics Approval Application #13464 - Semi Formal Focus Group Interviews

1. Information about relevant emergency services

The emergency services – The Fire Brigade, Police, Ambulance service can be contacted by dialling 999.

2. How to contact them

The emergency services can be contacted using any landline or mobile phone or by informing staff at the school reception

3. Contact information for the investigator(s) and supervisors (if any) which secures access at any time and on any day, 24/7.

The lead researcher can be contacted up to two weeks after the end of the study

Email: robert.blair@soton.ac.uk

Telephone: 023 8059 2738

Telephone (m): 07825 214 333

The primary supervisor can be contacted up to two weeks after the end of the study at any time and on any day, 24/7.

Email: DEM@ecs.soton.ac.uk

Telephone: 023 8059 5567

The secondary supervisor can be contacted up to two weeks after the end of the study at any time and on any day, 24/7.

Email: J.Woollard@soton.ac.uk

Telephone: 023 8059 2998

Appendix F Study 3 – Interview Documentation

F.1 Study 3 Protocol

FPSE Ethics Committee

FPSE EC Application Form **Ver 6.6d**

Refer to the *Instructions* and to the *Guide* documents for a glossary of the key phrases in **bold** and for an explanation of the information required in each section. The *Templates* document provides some text that may be helpful in presenting some of the required information.

Replace the highlighted text with the appropriate information.

Note that the size of the text entry boxes provided on this form does **not** indicate the expected amount of information; instead, refer to the *Instructions* and to the *Guide* documents in providing the complete information required in each section. Do **not** duplicate information from one text box to another.

Reference number: **ERGO/**FPSE**/18578**	Version: 1	Date: 2015-12-15
Name of **investigator**(s): Robert Blair		
Name of supervisor(s) (if student **investigator**(s)): Dr. David Millard Dr. John Woollard		
Title of study: School Student Peer Assisted Learning Through Online Social Network		
Expected study start date: 2016/01/11	Expected study end date: 2016/07/31	
Note that the dates requested on the "IRGA" form refer to the start and end of *data collection*. These are not the same as the start and end dates of the study for which approval is sought. Note that approval must be obtained before the study commences; retrospective approval cannot be given.		

The investigator(s) undertake to:

- Ensure the study Reference number ERGO/FPSE/18578 is prominently displayed on all advertising and study materials, and is reported on all media and in all publications;
- Conduct the study in accordance with the information provided in the application, its

appendices, and any other documents submitted;

- Conduct the study in accordance with University policy governing research involving human **participants** (http://www.southampton.ac.uk/ris/policies/ethics.html);
- Conduct the study in accordance with University policy on data retention (http://www.southampton.ac.uk/library/research/researchdata/);
- Submit the study for re-review (as an amendment through ERGO) or seek FPSE EC advice if any changes, circumstances, or outcomes materially affect the study or the information given;
- Promptly advise an appropriate authority (Research Governance Office) of any adverse study outcomes, changes, or circumstances (via an adverse event notification through ERGO);
- Submit an end-of-study form as may be required by the Research Governance Office upon completion of the study.

Refer to the Instructions document when completing this form.

Pre-study

Characterise the proposed **participants**
Teachers of students in age range 11 - 18 attending secondary schools and sixth form centres in the United Kingdom.

Describe how **participants** will be approached
School selection - The investigator has worked with several schools for a number of years as an exam board visiting moderator and is currently working as CAS Southeast Computer Science Education Lead. In discussion of the research project several Heads of ICT Department and members of CAS (Computing at Schools), have expressed interest in taking part in the research. The participant sample is a sample of convenience and only schools where ICT Department Heads or other subject teachers have expressed an interest, or lead schools within the Southampton University 'Talk to US!' project will be contacted. All interviews will take place on school premises or be conducted via a 'Skype' type technology. Local Education Authority - Research governance Framework

Before approaching teachers, the Local Education Authority (LEA) for the relevant counties have been approached with regards current research governance frameworks. In line with research governance frameworks in place each LEA a headteachers permission is not required to interview teachers.

Interview participation

Participants will be asked to participate in face-to-face semi-structured individual interviews during the working hours of a normal school day or a 'Skype' type interview in their own time.

The facilitator will explain the purpose of the interview, an explanation of the topic and what is meant by 'social media' and 'non-formal learning' for the study.

Participants will be informed that they have the right to withdraw at any time, this is also explained on introduction page of the interview information sheet .

Pilot individual interviews

Pilot interviews will be conducted by the lead researcher with research students at the University of Southampton and professional colleagues who are current secondary school teachers in order to determine suitability of interview questions and identify possible issues with interview format or procedure. The wording of the low-level questions may undergo minor change based upon the feedback gained from pilot interviews.

Facilitator

The facilitator will be the lead researcher who possesses an enhanced DBS check. The facilitator has undertaken training based upon the course 'Interviewing in health–related research', as offered by the Researcher Development & Graduate Centre, University of Southampton. Training content will inform, as relevant, to any issues identified during the pilot interviews.

Describe how inclusion and/or exclusion criteria will be applied (if any)
Participants included will be members of teaching staff who have read the studies information guide and agreed to take part in the research. Members of staff unwilling to take part will not be approached. Interviews will take place only on school premises or via 'skype' type technologies.

Describe how **participants** will decide whether to take part
Full description of objectives and use of data will be made available to participants. Participants have opportunity to ask further questions prior to a semi structured individual interview. Access to data in transcript form will be made available to participants prior to interview data analysis if requested. Participant right to withdraw will be fully explained.

Participant Information

Provide the **Participant Information** in the form that it will be given to **participants** as an appendix. All studies must provide **participant information**.

Consent Form

Provide the **Consent Form** (or the request for consent) in the form that it will be given to **participants** as an appendix. All studies must obtain **participant** consent. Some studies may obtain verbal consent, other studies will require written consent, as explained in the *Instructions* and *Guide* documents.

During the study

Describe the study procedures as they will be experienced by the **participant**
• Once a participant has agreed to take part in a semi-structured individual interview a time, date and location will be agreed between the participant and the facilitator. • Facilitator will attend school at which teachers is member of staff or commence 'Skype' type interview at agreed date and time. • Participants will be asked to read the introductory information. • Once participants have agreed to take part in individual interview and that they understand their rights the interview will begin with a brief, 5 minute discussion regarding the research study definition of what 'social media' and 'non-formal learning'. • The facilitator will start the interview by asking the participant for examples of when and how they have used social media to help with school work.

- As participants respond the facilitator will ask the participants to expand the comment with more detail and then repeat back to the participant their (facilitators) understanding.
- After 45 minutes the facilitator will draw the conversation to a close by recounting participant comments regarding perceptions of the use of social media by pupils to help with school work.
- After approximately a further 10 minutes the facilitator will bring the session to an end with a brief recap of the purpose of the interview and ask if participant has any questions.
- At end of the interview participants are thanked and given opportunity to comment on their interview experience.

Identify how, when, where, and what kind of data will be recorded (not just the formal research data, but including all other study data such as e-mail addresses and signed consent forms)

Summary:

- Data will be collected during semi-structured individual interviews consisting three qualitative questions.
- Participant responses will be audio recorded for transcription.
- No personal information will be collected. Participant information is limited to range of years of teaching experience e.g. 0-5, 6-10, etc., main teaching subject and date of participation metadata.

Informed Consent

Participant consent forms will be collected and stored by participating school following DPA and school procedures.

Sect.1 Introduction

If teacher consents to take part in interview they will be informed again of their rights to withdraw, how data will be stored and secured, anonymity and use of data.

Sect. 2 **High level question**

- What are the existing perceptions of Teachers and Parents (secondary stakeholders), around the use of social media by school pupils in support of non-formal learning?
- What are the current practices of teachers regarding use of social media in support of non-formal learning by pupils?
- Do tensions exist due to a *mis*-alignment of teacher perception with pupil practice?

Mid level question: To avoid the risk of introducing bias – as may be the case if participants were asked outright what their pedagogical stance was in that they may give the answers they believe are expected of teachers as professional educators - participants will be asked to provide an example of success in teaching a subject topic.

The facilitator will prompt participants for further detail by asking such low level questions as –

- To gain an idea of your teaching style and methods please describe instances which you feel describe your different teaching styles and methods – year, topic, objectives and level of success academic level/year group.
- Which of these examples best describes your approach to teaching and learning
- Do you think social media supports or disrupts n-f learning

Mid level question: Perceptions of social media practices by pupils in every day life

Low level questions

- How important to your pupils do you think social media is in everyday life
- What leads you to think this
- Is this true for all pupils or is there a variety of perceptions
- Do you think gender or age has an effect

Mid level question: Perceptions of social media practices by pupils in support of non-formal learning

Low level questions

- How important to your pupils do you think social media is in helping with school work
- What leads you to think this
- Is this true for all pupils or is there a variety of perceptions
- If a variety – what is the distribution of this variety
- Do you think gender or age has an effect
- Should a 'social' tool be used to support school oriented activity

Mid level question: How do practices manifest in teaching?

- Have you used social media in your teaching at any level
- If you have used social media in your teaching what were your objectives and how did you use social media
- Do you think the use of social media was successful in supporting learning
- Have you encountered practical difficulties hindering the use of social media to support non-formal learning.

Mid level question: How do teachers embed practices?

- Do you think social media can contribute to non-formal learning?

- Have you encouraged students to take part in using social media to support non-formal learning – if so, how?

Mid level question: Pupil

- Have you encountered attitudes or perceptions of pupils about use of social media to support non-formal learning (positive or negative)?
- Have you come across evidence of pupils use of social media to support non-formal learning?

Mid level question: Teacher

- Have you ever been encouraged or discouraged by colleagues to use social media to support learning?
- Do you use teaching materials created by yourself or others which encourage which the use of social media in support of non-formal learning?

Mid level question: Institution

- What is the school policy regarding the use of social media by teachers or pupils in support of non-formal learning?
- Does your school have a general social media policy?

~~Participant questionnaire~~

As an appendix, if using a questionnaire, reproduce any and all **participant** questionnaires or data gathering instruments in the exact forms that they will be given to or experienced by **participants**. If conducting less formal data collection, provide specific information concerning the methods that will be used to obtain the required data.

Post-study

Identify how, when, and where data will be stored, processed, and destroyed
All participant response data initially stored on Southampton University audio recording device. Data will be stored and processed on password protected, encrypted laptop computer belonging to researcher. Metadata associated with date and time of participation will be destroyed at end of study following recommended iSurvey procedure. If Study Characteristic M.1 applies, provide this information in the **DPA Plan** as an appendix instead and do not provide explanation or information on this matter here.

Study characteristics

(L.1) The study is funded by a commercial organisation: **No** If 'Yes', provide details of the funder or funding agency here

(L.2) There are **restrictions** upon the study: **No** If 'Yes', explain the nature and necessity of the **restrictions** here

(L.3) Access to **participants** is through a third party: **No** (delete or highlight one) If 'Yes', provide evidence of your permission to contact them as a separate appendix. Do not provide explanation or information on this matter here

(M.1) **Personal data** is collected or processed: **Yes** Data will be processed outside the UK: **No** If 'Yes' to either question, provide the **DPA Plan** as a separate appendix. Do not provide information or explanation on this matter here. Note that using or retaining e-mail addresses, signed consent forms, or similar study-related **personal data** requires M.1 to be "Yes"

(M.2) There is **inducement** to **participants**: **No** If 'Yes', explain the nature and necessity of the inducement here

(M.3) The study is **intrusive**: **No** If 'Yes', provide the **Risk Management Plan** and the **Debrief Plan** as appendices, and explain here the nature and necessity of the intrusion(s)

(M.4) There is **risk of harm** during the study: **No**

If 'Yes', provide the **Risk Management Plan**, the **Contact Information**, and the **Debrief Plan** as appendices, and explain here the necessity of the risks

(M.5) The true purpose of the study will be hidden from **participants**: **No**
The study involves **deception** of **participants**: **No**

If 'Yes' to either question, provide the **Debrief Plan** as an appendix, and explain here the necessity of the deception

(M.6) **Participants** may be minors or otherwise have **diminished capacity**: **No**

If 'Yes', AND if one or more Study Characteristics in categories M or H applies, provide the **Risk Management Plan** and the **Contact Information**, as appendices, and explain here the special arrangements that will be put in place that will ensure informed consent

(M.7) **Sensitive data** is collected or processed: **No**

If 'Yes', provide the **DPA Plan** as a separate appendix. Do not provide explanation or information on this matter here

(H.1) The study involves: **invasive** equipment, material(s), or process(es); or **participants** who are not able to withdraw at any time and for any reason; or animals; or human tissue; or biological samples: **No**

If 'Yes', provide further details and justifications as one or more separate appendices. Do not provide explanation or information on these matters here. Note that the study will require separate approval by the Research Governance Office

Appendix F

Technical details

If one or more Study Characteristics in categories M.3 to M.7 or H applies, provide the description of the technical details of the experimental or study design, the power calculation(s) which yield the required sample size(s), and how the data will be analysed, as separate appendices. Do not provide explanation or information on these matters here.

Appendices (as required)

While it is preferred that this information is included here in the Study Protocol document, it may be provided as separate documents.

If provided separately, be sure to name the files precisely as “Participant Information”, “Questionnaire”, “Consent Form”, “DPA Plan”, “Permission to contact”, “Risk Management Plan”, “Debrief Plan”, “Contact Information”, and/or “Technical details” as appropriate.

If provided separately, each document must specify the reference number in the form ERGO/FPSE/xxxx, its version number, and its date of last edit.

Appendix (i): **Participant Information** in the form that it will be given to **participants.**

Appendix (ii): **Data collection plan** / Questionnaire in the form that it will be given to **participants.**

Appendix (iii): **Consent Form** in the form that it will be given to **participants.**

Appendix (iv): **DPA Plan.**

Appendix (v): Evidence of permission to contact **participants** or prospective **participants** through any third party.

Appendix (vi): **Risk Management Plan**.

Appendix (vii): **Debrief Plan**.

Appendix (viii): **Contact Information**.

Appendix (ix): Technical details of the experimental or study design, the power calculation(s) for the required sample size(s), and how the data will be analysed.

Appendix (x): Further details and justifications in the case of **invasive** equipment, material(s), or process(es); **participants** who are not able to withdraw at any time and for any reason; animals; human tissue; or biological samples.

F.2 Participant Information

Ethics reference number: ERGO/FoPSE/18578	Version: 1c	Date: 2015-12-15
Study Title: School Student Peer Assisted Learning Through Online Social Network		
Investigator: Robert Blair		

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form. Your participation is completely voluntary.

1. What is the research about? This is a student research project which aims to investigate if and how school pupils use social media for helping with learning. The objective of the investigation is to find out what students are using social media for and what they think of using sites to help with learning. The knowledge gained will be used to identify and overcome barriers to the use of social media to support learning for students. This will help pupils to become self-directed, collaborative leaners making learning easier.
2. The study is supported by the University of Southampton. At the end of the study, you may request a copy of the study findings and see how your data was used by contacting the investigator by email: Robert.Blair@soton.ac.uk.
3. Why have I been chosen? You have been asked to take part in this research in your role as an active classroom teacher.
4. What will happen to me if I take part? You will take part in a semi-structured interview lasting no more than 60 minutes. You will be asked for examples of how you have or have not used social media to support teaching and learning. The interview will be conducted in a location, date and time of your choice within your school. You do not have to write anything as your responses will be recorded using a microphone and digital recorder.
5. Are there any benefits in my taking part? By looking at how students view the use of social networking sites or social media the study will add to current knowledge about peer assisted learning. It is hoped that this information will contribute to informing institutional response to use of social media by pupils and in designing a tool which will help make learning easier for pupils.
6. Are there any risks involved? There are no particular risks associated with your participation as you will be asked to participate in an interview during a normal school day in the school.
7. Will my participation be confidential? All data collected is anonymous and your data will be kept confidential. It will be held on a password protected computer, and used only for the purposes of this study. All *metadata* which is the information about the school name and the date and time of participation will be destroyed at the end of the study.
8. What happens if I change my mind? You may withdraw at any time and for any reason during the survey. You may withdraw your data at any time and for any reason prior to its destruction at the end of the project. All data records matching your age, gender, date and time of participation will be withdrawn.

What happens if something goes wrong? Should you have any concern or complaint, contact me if possible (robert.blair@soton.ac.uk) otherwise please contact the FoPSE Office (C.Wyatt@soton.ac.uk) or any other authoritative body such as Dr Martina Prude, Head of Research Governance (02380 595058, mad4@soton.ac.uk).

F.3 Participant Consent Form

Ethics reference number: ERGO/FoPSE/18578	Version: 1	Date: 2015-12-15
Study Title: School Student Peer Assisted Learning Through Online Social Network		
Investigator: Robert Blair		

Please initial the box(es) if you agree with the statement(s):

I have read and understood the Participant Information (version 1 dated 2015-12-15) and have had the opportunity to ask questions about the study.	☐
I agree to take part in this study and agree for my data to be used for the purpose of this study.	☐
I understand my participation is voluntary and I may withdraw at any time and for any reason.	☐

Data Protection

I understand that information collected during my participation in this study is completely anonymous / will be stored on a password protected computer and that this information will only be used for the purpose of this study.

Name of participant (print name)……

Signature of participant…….

Date……

F.4 Heat-teacher Courtesy Letter

Self-directed, collaborative learning through social media:

Exploring pupils perceptions and use of social media for learning

Dear Head-teacher

My name is Robert Blair, I am a PhD student from the University of Southampton working within the Web Science Doctoral Training Centre. I am interested in exploring pupil perceptions of the use of social media in support of informal, self-directed, collaborative learning.

For this part of the investigation I wish to conduct data gathering which would involve teachers participating in semi-structured individual interviews. I am writing to inform you that several members of your staff (*insert name*), have agreed to participate by being interviewed. The interviews have been scheduled so as to cause no disruption to the member of staffs duties or cause any disruption to teaching

For your information the high level research questions are listed below:

Teachers will be asked three questions:

3. What are the existing perceptions of Teachers and Parents (secondary stakeholders), around the use of social media by school pupils in support of non-formal learning?
4. What are the current practices of teachers regarding use of social media in support of non-formal learning by pupils?
5. Do tensions exist due to a *mis*-alignment of teacher perception with pupil practice?

The questions are designed to elicit participant comments about their perceptions of the 'how' and 'why' of pupils use of social media in support of school work.

If you have any questions relating to this study or foresee any problems these interviews may cause please do not hesitate to contact me directly via email or Dr. David Millard (project supervisor) within the Web Science Doctoral Training Centre on 02380 595567or email dem@ecs.soton.ac.uk

Yours sincerely

Robert Blair

B.Eng (Mech Eng), PGCE (Physics/Maths), MSc (Inf Sys), MSc (Web Sci)

Web Science Centre for Doctoral Training, Building 32

University of Southampton

Robert.Blair@soton.ac.uk

F.5 Interview Questions

Summary:

Data will be collected through semi-structured individual interviews. No personal information will be collected. Identification is limited to a participant by participant number and date and time of participation metadata.

Sect.1 Introduction

If participants consent to take part in interview they will be informed again of their rights to withdraw, how data will be stored and secured, anonymity and use of data.

Sect. 2 High level question

- What are the existing perceptions of teachers around the use of social media by school pupils in support of non-formal learning?
- What are the current practices of teachers regarding use of social media in support of non-formal learning by their child(ren)?
- Do tensions exist due to a *mis*-alignment of teacher perception with pupil practice?

Mid-level question: To avoid the risk of introducing bias – as may be the case if participants were asked outright what their pedagogical stance was in that they may give the answers they believe are expected of teachers as professional educators - participants will be asked to provide an example of success in teaching a subject topic.

The facilitator will prompt participants for further detail by asking such low level questions as –

- To gain an idea of your teaching style and methods please describe instances which you feel describe your different teaching styles and methods – year, topic, objectives and level of success academic level/year group.
- Which of these examples best describes your approach to teaching and learning
- Do you think social media supports or disrupts non-formal learning

Mid-level question: Perceptions of social media practices by pupils in <u>everyday life</u>

Low level questions

- How important to your pupils do you think social media is in everyday life
- What leads you to think this
- Is this true for all pupils or is there a variety of perceptions
- Do you think gender or age has an effect

Mid-level question: Perceptions of social media practices by pupils in support of non-formal learning

Low level questions

- How important to your pupils do you think social media is in helping with school work
- What leads you to think this
- Is this true for all pupils or is there a variety of perceptions
- If a variety – what is the distribution of this variety
- Do you think gender or age has an effect
- Should a 'social' tool be used to support school oriented activity

Mid-level question: How do practices manifest in teaching?

Low level questions

- Have you used social media in your teaching at any level
- If you have used social media in your teaching what were your objectives and how did you use social media
- Do you think the use of social media was successful in supporting learning
- Have you encountered practical difficulties hindering the use of social media to support non-formal learning.

Mid-level question: How do teachers embed practices?

Low level questions

- Do you think social media can contribute to non-formal learning?
- Have you encouraged students to take part in using social media to support non-formal learning – if so, how?

Mid-level question: Teacher

Low level questions

- Have you ever been encouraged or discouraged by colleagues to use social media to support learning?
- Do you use teaching materials created by yourself or others which encourage which the use of social media in support of non-formal learning?

Mid-level question: Institutional policy

Low level questions

- What is the school policy regarding the use of social media by teachers or pupils in support of non-formal learning?
- Does your school have a general social media policy?

F.6 Contact Information

Ethics Approval Application #18578: Semi-structured Individual Interviews

1. Information about relevant emergency services

   The emergency services – The Fire Brigade, Police, Ambulance service can be contacted by dialling 999.

2. How to contact them

   The emergency services can be contacted using any landline or mobile phone or by informing staff at the school reception

3. Contact information for the investigator(s) and supervisors (if any) which secures access at any time and on any day, 24/7.

   The lead researcher can be contacted up to two weeks after the end of the study

   Email: robert.blair@soton.ac.uk

   Telephone: 023 8059 2738

   Telephone (m): 07825 214 333

   The primary supervisor can be contacted up to two weeks after the end of the study at any time and on any day, 24/7.

   Email: DEM@ecs.soton.ac.uk

   Telephone: 023 8059 5567

   The secondary supervisor can be contacted up to two weeks after the end of the study at any time and on any day, 24/7.

   Email: J.Woollard@soton.ac.uk

   Telephone: 023 8059 2998

Appendix G Recommendations Matrix

	Education	Computer Science	
Pupil	**Digital literacy**	**Free Software**	**Bespoke Software**
temporal: lack of planning, support required immediately or urgently		notifications, calendar update	co-design, notifications, calendar update, personal alarms, etc..
usability: inability to communicate question unless text based, understanding of technical features and functionality		pupils involved in selection, selection of suitable interface	co-participatory design of user interface, features and functionality
social capital: unwilling to threaten social place or capital (anonymity), social manners or etiquette, dyadic relations	socio-emotional		
trust: validity of information source, being directed to false or invalid information	information,		
Teacher			
professional: experience of teachers with technology, loss or transfer of power in learning relationship, protection against allegation			recording of interaction
institutional: costs, time, training, expertise, accountability, inappropriate use (pupil or staff), filtering, monitoring and moderation	socio-emotional	monitoring	meeting needs of management (Ofsted), monitoring, interdiction, control of data, gated access, filtering, access to records
pupil: online safety	socio-emotional		network gatekeeping

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