Trends in Mobile Communication and Information Behaviours among Scottish
Teenagers

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ABSTRACT

As mobile information and communication technology continues to develop and evolve, the information behaviours of teenagers of young people are changing rapidly. Continued study is needed to identify trends in information seeking and attitudes in this discipline.

This exploratory study sampled 17 Scottish teenagers from two separate communities. The research methods involved semi-structured interviews with each participant. The collected data was analysed using a thematic approach.

A variety of themes are identified that relate to the use of technology, particularly mobile technology, among the participants. These include the widespread use of mobile technology and attachments made to the objects themselves; Facebook use and the incidence of bullying; posting behaviour and changing concepts of personal information; advice seeking and evaluation of sources; and issues of sexting and confidence in information seeking as compared to their actual capabilities in finding information were raised by key informants as points for further exploration.

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1. Introduction

The information world has changed dramatically in recent decades and is markedly different than it was even a few years ago. As a result of the expansion of the internet and innovations in information and communication technologies (ICTs), the amount and variety of information available for consumption today is multiplying rapidly. There have been dramatic changes and shifts over the past few years in both the portability of communication technology and the range of devices available (Dutton and Blank, 2011). These technologies have undoubtedly changed and shaped the social environments young people are immersed in; however, questions remain as to what extent this is significant and what lasting effects these changes might have on their social and intellectual development. This research project seeks to provide insight into the themes affecting information seeking behaviours of young people today and their feelings and attitudes toward information technology and electronic media.

1.1 Research Context

A variety of sociological and economic factors also affect the experience and ability teenagers have in accessing technology, and this is often overlooked in both academic and popular interest literature on adolescents. There is a growing need to understand not only how new technologies and devices are adopted and used as a part of young people's everyday information worlds, but also how they view and relate to these information channels and objects. Understanding young people's views and attitudes toward information and communication technology (ICT) can help library and information professionals better relate to communities of young people and address their information needs in the most appropriate ways.

Teenagers and young adults today are frequently characterised by many different labels, each highlighting the significance of information and communication technology in their lives: 'Digital natives' (Prensky, 2001), the Google generation (Rowlands et. al, 2008), millennials, the net generation, or 'born digital' (Helper and

Enyon, 2009). They are portrayed as constantly connected and avid consumers of technology, and therefore proficient seekers and consumers of information. This is a dangerous fallacy, as it does not take into account the variety of experiences and opportunities young people have to access technology. The assumption that all young people have wide and unfettered access has dangerous implications for continued digital exclusion, and also does not take into account how varied young people's views, experiences, and environments are. The abilities of young people to access digital technologies remain heavily influenced by socio-economic status, class, geography, gender, and other "… 'social fault lines' which remain prominent in early twenty-first century society" (Selwyn, 2009, p. 372). There is also some evidence that young people often have difficulty understanding their own information needs and have developed some troublesome search habits, resulting in the need for further research into how to address these problems (Rowlands et. al, 2008).

The organization of information has changed significantly as a result of digitisation and the internet, and information professionals must seek to understand how this affects young people that are forming their everyday life information seeking (ELIS) behaviours and habits in this media-driven age. They are increasingly exposed to information relating to the opinions, activities and habits of their peers via social media. When searching for information on the internet to solve an everyday-life information problem or answer a query, one may encounter any number of opinion-based sources. It is therefore up to the individual to evaluate the validity of each source when consulting unmediated search results, and decide which resource is most trustworthy and appropriate. The following research project investigates everyday life information practices of young people ages 13-17, and is designed to investigate both the integration of information and communication channels and devices into their everyday lives and habits as well as their thoughts and feelings toward them.

This study explores the adoption and use of ICTs and feelings and attitudes toward them among Scottish teenagers in two particular communities. One group was comprised of individuals from a small agricultural community in southwest Scotland,

and the other was from an urban community in Scotland experiencing a degree of socio-economic hardship. In conducting a study that includes two disparate communities, the researcher hopes to illuminate issues and trends that apply to a broader range of young people in Scotland regarding how they access information via mobile technology, attitudes toward mobile communication, and the effects of access issues on the adoption of and attitudes toward ICTs.

In identifying key information behaviours among adolescents along the lines of access to and use of technology, it is hoped that this research will inform library and information service professionals wishing to enhance the support they can offer to adolescents from a variety of backgrounds. This research project seeks to understand how students and school leavers are using technology to mediate communication and search for information to solve their everyday life problems. In the constantly changing information landscape we live in today, identifying trends in how teens communicate, access information and relate to the mobile devices they use can help information professionals better communicate with their users about their information needs, and deliver services that address any potential information literacy issues.

1.2 Research Questions

The research questions to be explored in this study are as follows:

1. What devices and information channels do teenagers use to access everyday life information?

2. What are key themes regarding their attitudes and feelings toward ICT use?

3. How do the information channels they use affect their daily lives and emotions? In what ways do their information behaviours affect the seeker's confidence and social lives?

1.3 Research Objectives

The purpose of this study is to determine the level of integration of mobile and other information and communication technology into the everyday life information seeking of both urban and rural Scottish teenagers, and highlight issues related to information literacy and access. Their feelings and attitudes toward the tools they use, as well as their own information behaviours and those of their peers, were recorded to illuminate potential problem areas and possible points of intervention for information and library service professionals. The findings and conclusions will inform library and information professionals of current trends among teenagers today and will identify key points for intervention in improving information literacy and well-being through education.

2. Literature Review

Understanding how individuals interact with and use information and devices is crucial to improving information services. This is especially true in today's information landscape, as the ways people interact with information and with each other is constantly evolving. The integration of digital tools and handheld technology into daily life has changed the information world, and as a result, the ways we look for information in our everyday lives. Young people born into this digital information world have developed their search habits using the internet and digital tools, and thus their information behaviours are frequently seen as fundamentally and distinctly different to those of previous generations (Selwyn, 2009; Prensky, 2001). There have been numerous studies of the information practices of young people, and many foundational theories focusing on information behaviours and how to conceptualise them. What these studies lack, however, is a thematic exploration of the current issues affecting teen information behaviour today, and possible ways and means to address gaps in information literacy as well as teen's own concerns about technology and the internet. In order to produce a thematic exploration of the issues surrounding teen internet use, it is first necessary to explore current literature on the topic as well as foundational theories on information behaviour.

2.1 The 'digital native' and social networking

Popular and political discourse often portrays young people as surrounded and constantly connected, multi-tasking, always with technology in hand, communicating frequently and entirely internet dependent (Selwyn, 2009). Many believe that these new technologies have revolutionised how young people socialise, communicate, learn and express themselves.

2.1.1 The 'digital native'

There is an underlying assumption that as a result of having developed their information behaviours in the digital age, teenagers today are proficient seekers of information and users of technology. Helsper and Enyon (2009) argue that this is a dangerous assumption, however, as the extent to which technology has shaped teenagers everyday lives is dependent upon many factors, including opportunities for education, experience, and self-efficacy (Helsper and Enyon, 2009, p. 1). Because young people today learn to use technology from a young age, it is easy to assume that they are somehow naturally proficient or inherently more adept at finding information on the internet – Helsper and Enyon (2009) point out that this is a dangerous fallacy, and further research is needed to investigate the realities of how teens search for, use, and consume information so that libraries and information providers can adjust or tune their search tools to suit the needs and desires of teens looking for information today (Helsper and Enyon, 2009). In their study investigating the significance of breadth of use, age, and experience in internet use, Helsper and Eynon (2009) seek to define what digital 'nativeness' is. While age is a straightforward variable, they define experience as the length of time in years an individual has been using the internet, and breadth of use as the variety and number of activities one uses the internet for. Their article concludes that a variety of factors involved affect digital 'nativeness' and it is not purely a generational gap. However, their study does seem to support Prensky's (2001) assertion that all young people are digital natives in many respects, widely adept at multitasking and using technology. They discuss experience and breadth of use in terms of the 'media richness' of their lives, but what is missing here is a discussion of the social context in which they form their internet habits (or lack thereof). They do not take into account the social worlds in which the formation of their information practices are embedded, which may very well affect their experience and breadth of use, and therefore their attitudes, toward ICT.

A potentially useful framework comes from this work, and that is the twelve uses of internet which they identify to break down the concepts of experience and breadth

of use. These twelve uses are as follows: fact checking, training, current affairs and Interests, travel, finance, shopping, entertainment, social networking, diary functions, person to person networking, e-government and civic participation.

Helsper and Enyon also argue that it is important to identify and distinguish between those internet users that are comfortable and confident with technology and those that are not. As studies tend to focus on internet users rather than non-users, it is especially important not to ignore the information needs and habits of those that are currently excluded (Helsper and Eynon, 2009). The assumption that all young people have wide and immediate access to technologies has dangerous implications for continued digital exclusion, and does not take into account how varied young people's views, experiences and environments are. As a result, much of the current literature does not investigate specifically how young people use social networking tools and technologies and the degree of integration into their everyday lives, but rather general practices and dispositions of younger generations (Selwyn, 2009). There is also a growing body of evidence that social networking and internet use can be associated with the development of self-confidence, self-worth and self-esteem, "although the positive or negative contributions of Internet use to psychological well-being are hotly debated" (Steinfield et al., 2008, p. 435).

There is some evidence that young people often have difficulty understanding their own information needs and have developed some troublesome search habits, resulting in the need for further research (Rowlands et al., 2008). When searching for information, young people often express themselves in natural language and have difficulty assessing the relevance of materials to their needs (Rowlands et al., 2008). Empirical studies show that use of technology among young people is much more complicated and complex than popular discourse on digital natives and millennials. The abilities of young people to access and use digital technologies remain heavily influenced by socio-economic status, class, geography, gender and other "… 'social fault lines' which remain prominent in early twenty-first century society," (Selwyn, 2009, p. 372).

2.1.2 Social media and communication

One area of particular interest to the researcher is social media, including Facebook, a popular global online social networking site; Twitter, a popular microblogging service based on 140 character posts or 'tweets'; and Snapchat, a photo sharing application with the option for users to set a time limit for friends to view the photos they send. The researcher seeks to gain insight into trends in teen communication, as well as an understanding of self-presentation or identity formation on these networking sites and how they may evaluate their peers online. Teenagers frequently post information about themselves, photos, statuses, and links using these social networking tools, and examining the decision making processes these teenagers undergo in presenting and curating these posts that represent their 'personalities' online is an area of particular interest to the researcher.

2.2 Studies of young people

2.2.1 Agosto and Abbas and Selwyn

In their investigation of US high school senior's attitudes about social networking and ICT use, Agosto and Abbas (2010) found that students had a much more pragmatic view of these technologies, viewing them as tools for building and maintaining relationships and as tools for communication. While their findings support claims that teens want to be constantly connected and are efficient at multitasking, preferring to use many technologies for different purposes at one time, they counter many claims that 'digital natives' only "use technology for technology's sake" (Agosto and Abbas, 2010, p. 4). Their research highlighted some contradictions in teen usage of social networking and ICTs. Their subjects frequently indicated that they wanted constant contact but were often suffering from communication overload. They similarly expressed preference for texting and messaging, but worried about the lack of face-to-face interaction (Agosto and Abbas, 2010, p. 8). The researchers conclude that there can be no complete and all-encompassing

picture of teen ICT use because, in reality, they are varied and continually evolving. They indicate that information professionals must communicate with teens as direct sources of data when seeking to understand their relationships to communication technologies (Agosto and Abbas, 2010).

The research questions in this project are very similar in scope; the goal is to determine general themes of preferences and concerns among high school students. The demographic for this study, however, is very different; Agosto and Abbas (2010) investigated these questions among US high school students that were 18 years of age in 2010, and their sample came from a highly technological school. The target demographic for the following research project was Scottish teenagers from both an urban context and a rural context, and the target age is 13-17. These teenagers are coming of age in a time when mobile internet connection is ubiquitous, even in rural areas of the country, and popular social networking sites are reaching a state of maturity. This will hopefully illuminate further areas that need exploration and identify more current problems and concerns teens are facing in terms of social networking.

Selwyn (2009) suggests gaps in research-based evidence in popular discourse regarding teens and their internet use and capabilities. They suggest that current discourse on this topic is based on largely untested assumptions and anecdotal evidence. Agosto and Abbas (2010) addressed this gap in their study of teens as 'digital natives', investigating their ICT usage and capabilities. They found general preferences and concerns through interviews and focus groups taking place at a US high school serving a "primarily white, middle- to upper-class population," (Agosto and Abbas, 2010, p. 2). The primary preferences they gathered from their participants were: simple interfaces and designs, high-speed use, constant connectivity, and multitasking. Their primary concerns included: information privacy, security, communication overload and a lack of face-to-face communication (Agosto and Abbas, 2010). Their research challenges the concept of the digital native, indicating a wider range of preferences and concerns among young people than current discourse allows them, and urges information professionals to take a flexible

approach as no definitive model of teen ICT use can be produced. Rather, they urge information professionals to pay close attention to the behaviours, preferences, and attitudes of teenagers, using them as direct sources of data, as these concepts are more illuminating and more likely to have longevity as technology and modes of communication continue to change and develop. This study is designed to investigate those behaviours and practices, and is tapping two relatively disparate communities to investigate the effects that social and economic contexts have on those behaviours and preferences. This strategy aims to highlight a wider range of preferences among teens and hopes to investigate these issues with teens coming from different socio-economic backgrounds.

2.2.2 Agosto and Hughes-Hassell

In their investigation into the information seeking behaviours of adolescents aged 14-17, Agosto and Hughes-Hassel developed a theoretical model of urban teenagers ELIS behaviours by combining Havighurst's (1972) typology of 11 tasks that describe the developmental changes occurring during adolescence with their own coding scheme describing the typology of urban teen's ELIS behaviours. The model that emerges is one that addresses seven areas of teen ELIS and the collection and processing of information to orient themselves in the environments they live in and to the world at large. Agosto and Hughes-Hassel identified ELIS behaviours that result from information seeking to support adolescent development and the maturation process, and grouped them into seven 'selves'. The theoretical model consists of ELIS behaviours that "support the development of the social self, the emotional self, the reflective self, the physical self, the creative self, the cognitive self, and the sexual self," (Agosto and Hughes-Hassel, 2005, p. 1399). They argue that each of the seven 'selves' are independent variables, influenced by their "way of life" and their unique situations. They are not separate entities but often overlap, and may hold varying degrees of significance to the individual as he or she matures. Meyers et al. (2009) feel that Agosto and Hughes-Hassel (2005) understate the importance of the social self for this age group, arguing that Agosto and Hughes-Hassel address the 'selves' with equal weight, however, as social beings, the

development of the social self informs the other 'selves' and constitutes the centre of all the other 'selves'. They argue that throughout adolescent development, literacy and use of ICTs are entrenched in the social sphere (Meyers et al., 2009). While examining how each of the 'selves' are informed by the use of social media and other communication tools in any depth is beyond the scope of this research project, the researcher does seek to understand how adolescents conceptualise and construct their social selves through the use of internet media tools. How teens conceive of their social selves and their outward identities is, at least in part, mediated through these social media. Their posting and broadcasting behaviour in public forums such as Facebook and Twitter can provide insight into how they wish to present themselves.

2.2.3 Meyers, Fisher and Marcoux

Meyers et al. (2009) investigated the ELIS behaviours of preteens aged 9-13 in the US. Their research produced a helpful snapshot of ELIS trends and information behaviours among three distinct communities. Their study was broad and full of wide-ranging research questions, based on a social constructivist metaphor of the developmental theory of Vygotsky, identifying adolescence as a key period in the formation of the individual's mental functioning in direct consequence of their social surroundings. They draw from a wide range of information behaviour theory, including Brenda Dervin's sense making theory, Elfreda Chatman's normative behaviour, Karen Fisher's information grounds. Meyers et al. (2009) investigated these questions using focus groups and interviews with their participants.

Their research questions were numerous and focused on tween's information needs, preferred sources, ideal social settings for information sharing, and potential barriers to information seeking. They found that in their developing social worlds, information seeking and relationship building were dynamic and intertwined. Supportive environments were crucial in the development of information seeking habits, as emotions often served as barriers to asking necessary questions. Formal channels of information seeking were less frequently used than informal sources and

interpersonal channels. They tended to rely more on people as sources of information rather than formal sources, and trust was an important factor in their information sharing behaviours (Meyers et al., 2009).

2.3 Theories of information behaviour

The following theories of information behavior have influenced the current study in terms of conseptualising information behaviour. They have also have aided in the formulation of the methodology and the analysis of data.

2.3.1 Savolainen's Everyday Life Information Seeking

As this research project seeks to examine everyday life information practices of young people, it is necessary to define what these practices consist of. Everyday life information practices can be "understood as a set of socially and culturally established ways to identify, seek, use, and share the information available in various sources such as television, newspapers and the Internet," (Savolainen, 2008, pp. 2-3). As Savolanien asserts of Everyday Life Information Seeking (ELIS), "the ways by which the individual monitors daily events and seek information to solve specific problems are determined by values, attitudes, and interests characteristic of their way of life," (Savolanien 1995, p. 267). It is precisely these values and attitudes that give information seeking in everyday life meaning. For Savolanien, information sources and channels are perceived as familiar or unfamiliar in the context of 'way of life', and their use will be natural or will appear to be self-evident depending upon the problem or issue at hand. For young people that have developed their information seeking skills in the information age, the particular sources or channels consulted and the habits they have formed around these channels (on the internet and otherwise) will reflect their values, attitudes, and interests and give us added insight into their information needs.

Savolainen (2008) asserts that the choices made by individuals are influenced by the ways in which they seek and use information. Because the ways in which we seek

and use information are frequently seen as self-evident or obvious and familiar, narrowing down what precisely is meant by 'information practice' can be difficult.

Savolainen rejects the concept of information practice as simply information behaviour, which posits the individual as a 'needy' seeker, actively searching for solutions to problems through various information and media sources and channels. He seeks to understand information practices through an alternative method, instead using a more sociologically-oriented line of research, suggesting that "the process of information seeking and use are constituted socially and dialogically, rather than based on the cognitive or mental models, needs, and motives of individual actors," (Savolainen, 2008, p. 4). This approach treats knowledge as inherently social, and information seeking, use and sharing as deeply embedded within social contexts (Savolainen, 2008, p. 4). This perspective fits well for the purposes of this study, as information arising particularly in social media contexts is fundamentally a social construct.

He uses the interrelated concepts of action, activity, habit and behaviour to shed light onto practices as comparative to 'structure' and 'meaning', embodied in human activities or actions organized around and within social context (Savolainen, 2008, p. 24). Practices cannot be simply understood as 'actions' or 'behaviours', but as a composite concept that is meaningful within social contexts (Savolainen, 2008, p. 25). Part of the reason practices are difficult to define is that they are often viewed as self-evident and obvious, when examined in detail they become elusive and ambiguous. For the purposes of this research, Savolainen's approach to information practice will be utilized, examining the information behaviours, actions, attitudes and habits of individuals within their social contexts. The goal for this study is to then discuss themes that arise while paying particular attention to these practices as they relate to social contexts.

2.3.2 Zipf principle of least effort

The Zipf Principle of Least Effort is not a theory of information seeking, per se, but rather a paradigm with particular relevance to information seeking research (Case, 2007). It is based on work by philologist George Zipf and while not a formal theory, it has been adopted as such in recent years.

Case (2007) states, "according to Zipf (1949), each individual will adopt a course of action that will involve the expenditure of the *probable least average* of his work," (p. 151). In other words, each person will take action that involves the least amount of effort while still attaining acceptable results. There is a large amount of evidence in a wide variety of research that supports this theory, and it is often best explained by examples. Case (2007) cites several: one in libraries and office systems, there is evidence that indicates people tend to use and cite the same documents over and over (p. 152). Another is apparent in work or office settings, when an individual asks a coworker whether new reports or updates have been published as opposed to searching for it him or herself, or perhaps citing an old text rather than an updated one simply because he or she has it handy (Case, 2007). It is often described as the weighing of costs and benefits to determine whether a particular course of action will be worth the quality of the result.

In an information behaviour context, this theory predicts that searchers will always take the easiest route, sacrificing quality for the least amount of effort (Case, 2007). It is the researcher's belief that this principle is strongly at work in teenage information seeking behaviour, predicting that teens will frequently consume the information that is most readily available, sacrificing information quality for effort.

2.3.3 Dervin's Sense making

Dervin's Sense making theory is assumes that information seeking is highly situational and addresses it as the drive to address gaps in human knowledge in order to make sense of the surrounding world. It views the world we live in as

inherently complex, diverse, incomplete and full of gaps. We as humans encounter problems in situations and address the gaps we come upon by making connections, building bridges, evaluating our work and moving onto the next. Dervin describes the fundamental concepts of Sense making as: "time, space, movement, gap; step-taking, situation, bridge, outcome," (Dervin, 1998, p. 39). According to Dervin, when we apply Sense making theory to studies of human beings, two predominant trends emerge: first, it is the users own conceptualisation of their action and behaviours in situations that best predicts sense making rather than the personal traits or organisational attributes; and second, when characteristics like economic status or demographic traits do predict sense making best, it is usually because there is a restrictive element operating in the situation and limiting potential, and needs to be addressed (Dervin, 1998, p. 40). She argues that "In this view, the sense making and sense unmaking that is knowledge is a verb, always an activity, embedded in time and space, moving from a history toward a horizon, made at the juncture between self and culture, society, organization," (Dervin, 1998, p. 36).

Dervin's theory of Sense making has been foundational in information behaviour research, as it regards information seeking in context and the construction of knowledge as an ongoing process, constantly in flux. If the library and information community understands the factors that shape information seeking behaviours of young people in their adolescence and as they transition from school to university, college or the workforce, they will be better equipped to tailor support services toward the real needs of adolescents and help them develop better search habits to improve their information literacy. The more information professionals know about the situations and contexts at work in the individual's information world, the better equipped they are to address the gaps head-on. This may extend so far as support their self-confidence and well-being as well; as Savolainen and Dervin argue, the divide between workplace (in this case, schoolwork) and personal life information seeking is arbitrary. Knowing more about the needs and habits of users can improve communication between users and information professionals, and can also help professionals to deliver improved services, supporting users during transitional periods in their lives.

2.4 Summary

The studies and theories explored above represent current trends, theories and research into information seeking behavours of young people. This study seeks to understand how emergent technologies such as tablets and mobile phones are integrated into teenagers' everyday information practices. In recent literature, there is a general lack of discussion on how teens conceive of and relate to the tools they use to find information, and of how they relate to the objects themselves. The researcher wishes to examine the technologies they use, what sites and tools they use most, and how they use these tools to aid in the construction of an outward-facing identity. The researcher also seeks to understand how teens conceptualise of media-rich sources of information and communication in terms of how they relate to the physical devices themselves. A broad understanding of how teens seek, digest, produce and information in their everyday lives can help information professionals integrate media outlets and mobile technology in their service delivery. The following section will describe the methodology used for the current study.

3. Methodology

The research questions proposed in this study were investigated using qualitative research methods and an iterative approach to data collection and analysis. Participants were recruited using purposive sampling, as the researcher selected the two sites and recruited the interviewees because of their relevance to the research questions (Bryman, 2012). The data was analysed using a thematic approach, identifying recurring and salient concepts within the interview data and exploring its implications.

3.1 Methodological approach

A qualitative approach to the research was adopted due to the social nature of the topic at hand; the researcher hoped to gain insight into the young person's perspective on their own information behaviours. As Hughes-Hassell and Agosto (2007, p. 27) assert, young people themselves are the best sources of data to consult about their own information needs. To understand the social world from the perspective of young people, it was crucial to use an interpretivist approach and gather their first-hand accounts of their own information behaviours. Lofland and Lofland (1995) argue that "face-to-face interaction is the fullest condition of participating in the mind of another human being and…you must participate in the mind of another human being…to acquire social knowledge," (Lofland and Lofland 1995, p. 16). This view supports Dervin's Sense making paradigm, that human knowledge is highly context driven and is situated in time and space requiring perspective (Dervin, 1998). This approach required a constructionist (or constructivist) view of social systems, which posits the social world we live in not as an externally existing phenomenon in which we live and operate, but as one that is continually being made and constructed by humans as social actors (Bryman, 2012). It suggests that the categories and structures people use to understand and define the world around them are social products themselves. This view demands that the researcher examine the ways in which humans build and construct the societal

structures that surround us, and "invites the researcher to consider the ways in which social reality is an ongoing accomplishment of social actors rather than something external that totally constrains them," (Bryman, 2012, p. 34). This again supports Dervin's Sense making paradigm in shifting the focus from 'knowledge' as a pre-existing and external thing to be obtained to 'knowledge' as something that is constantly in flux, being made, unmade and restructured. It is highly situational, requires both personal and historical context and perspective, and is in a constant state of change.

The methodological approach was an inductive one, with the researcher's thematic analysis arising from her observations and findings, and the design was cross-sectional, with many semi-structured interviews being conducted over three separate in-service sessions in two different locations (Bryman, 2012).

Choosing a structured or quantitative approach to the research would have been ill fitting for the questions at hand. A rigid structure to the data collection would have excluded a wealth of data that was freely volunteered during tangential explorations in the semi-structured interviews, and would have privileged the researchers point of view by forcing a predetermined information-seeking structure onto the subjects. Quantitative data sets would not have represented the interviewee's point of view, and could not express the richness of the data available. For these reasons, a qualitative and inductive approach was taken in addressing the research questions.

The overarching goal was not to develop a grand level theory of young people's information seeking behaviours, but rather to explore themes and concepts that arose from the investigation.

3.2 Sampling

Purposive sampling techniques were used in this study, both in the sampling of contexts and in the sampling of participants. The researcher was interested in gaining insight into the information seeking behaviours of teenagers from both a

rural farming community and teenagers in an urban community experiencing economic hardship. A purposive sample allowed for the selection of "information-rich cases," (Pickard, 2013, p. 64). To protect the identities of the participants in this study, exact location names will be omitted. In working with two distinct populations of teenagers, the researcher hoped to compare and contrast any trends that arose between or within the groups. It was hoped that trends would illuminate issues between the two groups of users, along gender or age lines, along lines of experience and breath of use, or highlight general trends arising from all interviews.

The two contexts used in the study, a local high school in a small Dumfries and Galloway community and a local library branch in Edinburgh, were selected because they were known to the researcher to fit the parameters of the research topic. The researcher chose a small community in Dumfries and Galloway with a population of approximately 4,000 residents, according to the 2011 census, to represent a rural farming community (National Records of Scotland, 2011). To represent an urban community with economic hardship, the researcher chose a neighbourhood in North Edinburgh with a high percentage of the population experiencing income deprivation, according to the Scottish Index of Multiple Deprivation, (Scottish Government, 2012). A professional contact of the researcher, a librarian at an Edinburgh City Library branch in the chosen neighbourhood, assisted with recruiting participants. The researcher also contacted a local high school in the selected Dumfries and Galloway community to help find appropriate participants.

The participants were selected according to the criteria set out by the research questions. Participants were between the ages of 13 to 17, and participants from the Dumfries and Galloway community were either active members or had attended events held by the local Young Farmers association. The purposive sampling of participants in this study followed what Pickard (2013) and Bryman (2012) refer to as 'snowball sampling', wherein key contacts are made that can point to participants that will be rich sources of information. Pickard (2013) quotes Erlandson et al., (1993, p. 82), arguing that "purposive and directed sampling through human instrumentation increases the range of data exposed and maximises the researcher's

ability to identify emerging themes,"(Erlandson et al., 1993, quoted in Pickard, 2013, p. 65). In this capacity, the research was supported in each community with the assistance of key informants, the branch librarian in Edinburgh and the Head Teacher of the local high school in Dumfries and Galloway. The librarian acted as an advocate for the research, garnering interest from the teens that attended the local youth group there through informal conversations. The Head Teacher at the Dumfries and Galloway school also acted as an advocate in recruiting participants, posting a call for interviewees in their daily newsletter and arranging the interviews themselves.

The number of participants needed for the study was not predetermined. A number of factors led to the final sample size of 17 participants. Due to the short time frame of the research, there was a pressing need to balance the need for detail and quantity in the interviews so as to maximise the data collected. Both Lincoln and Guba (1985) and Guest et al. (2006) suggest that thematic exhaustion and data saturation is reached by approximately 12 interviews. Therefore, 12 participants in each locale was the initial target, with a total number of 24. However, due to the slightly smaller number of available volunteers in each community and time constraints placed on the research, it was felt that the 17 interviews undertaken were sufficiently data-rich for a thematic analysis. Additionally, Guest et al. (2006) indicated that the basic structures for thematic exploration were often present after as few as 6 interviews, which the researcher found to be true in this case. Therefore, the researcher felt that a saturation point was sufficiently reached in each location to conclude the process of seeking new volunteers.

3.3 Data gathering

The primary method of data collection was an in-person, one-to one semi-structured interview with adolescent volunteers ages 13 to 17 in two different locations, at an Edinburgh City local library branch and a community high school in Dumfries and Galloway. A semi-structured interview guide was formulated and piloted during a practice interview, helping the researcher to revise the questions asked and refine

her interview techniques. Participants were recruited with the help of with the help of a key informant at each locale.

3.3.1 Piloting

Prior to the commencement of the interview process, a preliminary interview guide was formulated. The guide was to help the researcher address the research questions and was constructed so as to allow the researcher to both "glean the ways in which research participants view their social world," and maintain a degree of flexibility in the interviews themselves, (Bryman, 2012, pp. 473). The preliminary guide was centred around Helsper and Enyon's (2009) twelve uses of the internet: fact checking, training, current affairs and interests, travel, finance, shopping, entertainment, social networking, diary functions, person to person networking, e-government and civic participation. It was planned that in conversing with teenagers during the interview, the researcher could classify different types of internet use and elicit responses regarding their attitudes toward their online communications during the interview phase. It was originally thought that each individual interview should last approximately 30 minutes.

This preliminary interview guide was used to conduct a pilot interview. As the researcher had never conducted interviews of this type before, it was therefore necessary for her to practice interviewing techniques and test the guide. Pickard (2013) pinpoints such testing of the data collection instrument as a crucial step. The pilot interview was conducted with an 18-year-old female Scottish acquaintance from the same Dumfries and Galloway farming community. The interview was conducted via a Skype video call and lasted approximately 40 minutes. This piloting process proved to be invaluable to the researcher in several ways; she both gained experience conducting an interview of this type and had the opportunity to reformulate her interview guide. The pilot interview identified key issues with the guide itself, including pointing out problematic terms and also highlighted that the Helsper and Enyon (2009) twelve types of internet use was not a helpful framework around which to build the interview guide. The pilot participant indicated that many

of these types of internet use overlapped in her everyday life use of the internet, and several of the types were irrelevant. For example, she felt that 'current affairs and interests' was too broad and could also be described as 'entertainment'. She did not recognise the difference between 'social networking' and 'person-to-person networking', and argued that both of these functions can be accomplished using the same internet tools such as Facebook, Twitter and email. Additionally, she pointed out that many younger teenagers may not have occasion to participate in 'e-government and civic participation', 'travel', or the management of 'finances'. Through this conversation, it came to light that this framework did not sufficiently account for any internet research conducted as part of school work or any research conducted to find career advice and higher education options. As a result, the interview guide was altered to allow the interviewees to describe their internet activities without the rigid, imposed structure of the 12 types of internet use.

Prior to commencing the interviews at each location, an informal meeting was held with each key informant, the librarian at the Edinburgh branch library and the Head Teacher at the Dumfries and Galloway high school. The goal was primarily to describe the research problem to the key informants, discuss the best method for recruiting volunteers and gain any insights they could offer on the subject of information seeking in their particular community of teenagers. While these meetings were not intended to be formal data-gathering sessions, each key informant raised several interesting issues during each respective meeting that they felt particularly affected the youth community they interacted with. The issues raised by each key informant will be discussed in further detail in chapter 4, section 4.7.

During these meetings, the interview format for each locale was decided upon. The librarian at the Edinburgh branch suggested visiting the library during the same night that their youth group met and recruiting participants in person. He suggested this method would be more effective than scheduling formal interviews, as there were more teenagers in the library on these nights and there was no guarantee that a scheduled appointment would be kept. One drop-in session on a weekday evening

was arranged, and the librarian agreed to act as a mouthpiece for the research, advertising the session and generating interest.

The Head Teacher suggested a different approach, and a formal schedule was made for the researcher to attend one school day. A blurb outlining the research and calling for volunteers appeared in the school's daily newsletter several days prior to the scheduled visit. Students were asked to contact the Head Teacher or the researcher if they were interested. The Head Teacher also targeted a few students that he knew to be active members of the local Young Farmers association and asked them to participate. A formal schedule of 8 interviews throughout the school day was made.

3.3.2 Interviews

Case (2012) identifies the interview as the most common survey instrument, which lends the research transferability and reliability in responses, and applies itself well to comparison with other studies. The finalised semi-structured interview guide allowed the researcher to ensure that the same general topics were covered with each interviewee and covered the same details regardless of the order in which they were reached. This method focused the interview on the interviewee's views and opinions, and the wording and format of the questions remained flexible for the interviewees to both ensure that they understood what was being asked and also to elicit data-rich responses. This format allowed a higher degree of flexibility within the interview to allow the researcher the opportunity to explore particular points of interest in more depth, as well as the ability to prompt the interviewee for more information. This kind of flexibility led to the collection of richer qualitative data and an iterative approach, allowing issues arising in one interview to inform the rest of the interviews (Bryman, 2012). It ensured that the interviews could be directed in part by the interviewee, permitting the participants to "respond on their own terms and within their own linguistic parameters," (Pickard, 2013, p. 196).

Each interviewee was asked to sit down for a private interview one-to-one, with two notable exceptions, both in the Edinburgh branch library: one instance in which two participants preferred to be interviewed together, and one instance in which a participant preferred to have two friends present, one of whom had been interviewed previously. The research involved working closely with other people and ethics approval was obtained prior to the commencement of interviews.

The interviews were scheduled to last approximately 30 minutes and were recorded using a recording application on the researcher's computer. Prior to the interview, written consent was obtained from the interviewees. Each interviewee was presented with an information sheet detailing the basis for the research and how their personal information would be recorded, stored and used. However, every interviewee declined to read the information sheet and instead preferred an oral explanation from the researcher. After the information was explained, each interviewee had the opportunity to ask questions before the recording started. They then signed the consent forms and the recording began.

A total of 17 interviewees participated in the research; 10 participants in Edinburgh and 7 participants in Dumfries and Galloway.

Table 1. List of participants by age, gender, location and student status.

Number	Age	Gender	Location	Student status
1	16	Male	Edinburgh	School leaver
2	13	Female	Edinburgh	Student
3	16	Female	Edinburgh	School leaver
4	13	Male	Edinburgh	Student
5	14	Female	Edinburgh	Student
6	13	Female	Edinburgh	Student
7	13	Male	Edinburgh	Student
8	13	Male	Edinburgh	Student
9	13	Male	Edinburgh	Student
10	14	Male	Edinburgh	Student
11	17	Female	Dumfries and Galloway	Student
12	17	Female	Dumfries and Galloway	Student
13	17	Female	Dumfries and Galloway	Student
14	17	Female	Dumfries and Galloway	Student
15	17	Female	Dumfries and Galloway	Student
16	17	Female	Dumfries and Galloway	Student
17	17	Female	Dumfries and Galloway	Student

3.3.3 Edinburgh City Library branch interviews

The researcher held an open session in a quiet section of the library during one evening in late November 2013, when the local youth group was being held. The researcher and the librarian spoke to the teenagers present in the library, asking for volunteers and offering sweets and snacks. Many teenagers expressed disbelief and declined to be interviewed when they were told that the interviews could last 30 minutes. Several younger teens, under 13, were keen to participate, but did not fall within the sampling criteria. During the initial drop-in session, 7 teens participated in the research. One interviewee, number 8, requested that his two friends remain

present, one of whom had been interviewed earlier in the evening, number 4. All interviews took place at a table in a quiet corner of the library.

Minimal notes were taken during the interviews to encourage a more natural flow to the conversation. Following each interview, the researcher took some notes on salient points or issues and adjusted the questions and terminology according to what worked best in the previous interviews. There was not sufficient time or privacy between each interview for the researcher to listen to the recordings and take detailed notes; this was done for each interview following each drop in session.

Following the first drop-in session, the researcher felt that more interviews were needed to get a complete picture of the thematic elements at work in the community; data saturation had not yet been reached. Another drop-in session was held the following week when the youth group was not running. A further three participants were recruited during this session, with two teenagers requesting to be interviewed together, numbers 9 and 10.

Interviewees in Edinburgh were, on the whole, reticent to talk to the researcher. This resulted in a shorter interview length than had been previously estimated. Interviews lasted approximately 10 minutes rather than the allotted 30 minutes. This may have been due to the fact that the researcher was previously unknown to the teenagers at the library and was not yet a trusted adult, but rather an outsider. It may have also been due to the age or gender of the interviewees, although it is impossible to pinpoint the issue and could have been due to any number of factors. The majority of interviewees tended to be on the younger end of the selected age group, and there was a mix of male and female participants.

3.3.4 Dumfries and Galloway high school interviews

The interviews at the Dumfries and Galloway community high school took place during one school day at the end of February 2014. The researcher was located in an empty student support room and each participant came to the room at a scheduled

time. Interviews were scheduled by the Head Teacher, prior to the arrival of the researcher. 8 interviews were scheduled, however, one of these students was out for the day; 7 students were interviewed in total. The researcher had requested that each interview be scheduled into a 20-minute time slot, as the interviews previously done in Edinburgh had lasted a much shorter amount of time than originally thought. All interviewees were one-to-one. All participants were also female, 17 years old, and all were connected to the local Young Farmers association to varying degrees. They were all active members with the exception of 2 interviewees who were not full members but had attended several past events.

Minimal notes were taken again during each interview to allow for a natural flow. More detailed notes were taken following the conclusion of each interview, as the researcher frequently had a long enough break to listen thoroughly to the recording.

Interviewees in Dumfries and Galloway tended to be more talkative during the interviews than the teenagers in Edinburgh. Interviews lasted on average 13 minutes, and their demeanour tended to be more open and relaxed. This also could have been due to several factors, including their age, gender, and the location of the interviews.

3.4 Analysis

The data collected from the interviews was analysed using a thematic approach, one of the most common techniques of qualitative data analysis (Bryman, 2012). A thematic approach to analysis requires special attention to repetitions, local expressions, similarities and differences, linguistic connectors such as 'because' or 'since', missing data and theory-related material (Bryman, 2012, p. 580). In paying attention to these key concepts in thematic analysis, themes emerged both from single interviews and collectively from more than one interviews. Recurring motifs from the interview data were identified and explored in "thorough reading and rereading of the …field notes that make up the data," (Bryman, 2012, p. 579). The researcher felt that a thematic analysis fit the research questions and objectives best,

affording the analysis a high degree of flexibility and without fragmenting the data through constant comparative coding. Using an inductive approach, themes emerging from the interviews affected the subsequent interviews in the specificity of the questions about particular topics.

Agosto and Abbas (2010) used a similar approach in their investigation of teen ICT use, and quote Wildemuth's (2009) explanation of the thematic approach:

> *Qualitative content analysis usually uses individual themes as the unit for analysis, rather than the physical linguistic units (e.g. word, sentence, or paragraph) most often used in quantitative content analysis. An instance of a theme might be expressed in a single word, a phrase, a sentence, a paragraph, or an entire document (pp. 310).*

The emphasis on themes rather than on a linguistic analysis approach highlights the subjective nature of the research problem

Entire interviews were not transcribed due to time constraints; however, highly detailed notes were taken as soon as possible following the interview. Special care was taken during this note-taking process to preserve the original linguistic patterns of the interviewees. Quotes that the researcher felt were particularly important were transcribed verbatim, however, and will be used in the findings chapter to highlight the themes using the interviewee's own descriptive language.

A grounded theory approach to coding was not used. The researcher felt that this form of analysis would falsely fragment the data (Bryman, 2012) and would not allow for sufficient exploration of the recurring themes. The goal of the research was not to produce a model of teen information seeking, but rather to explore and report the variety of ways that teens today are conceptualising of their own activities on the internet. A constant comparative coding approach would have removed the natural and local linguistic elements from the analysis and thus was not used (Bryman, 2012).

Both Pickard (2013) and Bryman (2012) suggest transcribing the interviews and using a specialised software tool to analyse the data. The short timeframe and the relatively small amount of data collected made this a less feasible option, and a decision was made to only transcribe the interviews in part to analyse without the aid of specialised software. Partial transcription and note-taking was done using a word processor, then entered into spreadsheet software to organise emergent themes. Participants were each given a number to anonymise the data collected for analysis, and will be referred to by this number in the finidings chapter.

The collected data was also analysed in comparison to several similar studies. Agosto and Abbas (2010) study of high school seniors' preferences for and attitudes toward ICT use aided in analysing the research as it was similar in methodology. The preferences and attitudes of teenagers in a US technological high school that they identified and discussed in their analysis were compared and contrasted to the themes identified in this study. Similarities and parallels between the two studies are explored in chapter 4. Agosto and Hughes-Hassell (2005) study of the information seeking behaviours of urban teens in the US proved to also be a useful study for comparison, as they also used similar methods for analysis. Meyers et al. (2009) studied the information behaviours of preteens in a large-scale survey, which proved to be an interesting comparison. Several other studies were chosen that illuminated potential issues raised by the key informants but not directly addressed in the participant interviews.

3.5 Changes to the methodology

In the planning stages, it was thought that a focus group or group interview could be held in each locale, perhaps engaging the participants in a different way than the one-to-one interview. This was sacrificed in the interest of time and because of complications in the organising of such events.

It was not planned to include any data from the key informants in the analysis. However, their insights and experiences added an additional dimension to the data, and notes were taken following the meeting with each key informant. These were not formal interviews and were not recorded, however, detailed notes aided the researcher in recalling salient information.

3.6 Summary

The research questions and objectives for the study were investigated using a qualitative and inductive method. Contexts and participants were recruited using purposive sampling techniques, selecting for the criteria outlined in the research objectives. Semi-structured interviews were the main method of data-collection, and were conducted with the aid of an interview guide. A pilot interview led to the restructuring of the interview guide and was a crucial step in preparing for the interviews. Interviews were held at a local library branch in Edinburgh and at a community high school in Dumfries and Galloway; a total of 17 participants were recruited between these two separate locations with the help of a key informant in each, and meetings with each key informant brought to light additional themes for exploration. A thematic analysis approach was taken, drawing out key themes that emerged both from individual interviews and across several interviews.

4. Findings

This chapter presents an analysis of the data collected via the interviews as part of the research, following the methodology outlined in the previous chapter. The researcher had intended to compare the information needs of teenagers and how the disparate needs of different communities are met by the technologies that mediate their information seeking behaviours. However, what emerged from the data as it was collected was a snapshot of teenage experiences of communicating and seeking information in a media-rich society rather than a comparison of two teenage communities. The researcher identified the following themes during the data collection and analysis using the methods outlined in chapter 3. Data was organized with the aid of spreadsheet software, and two tables appear for the presentation of quantifiable data.

4.1 Differences in information seeking between the urban and rural communities

Several differences in information behaviour arose between the urban and rural participants. These will be mentioned here briefly, however, it should be noted that these differences could be due to any number of factors, and are not solely the result of their location or background. The main limitation of this research was the age and gender bias in the samples. All participants from the Dumfries and Galloway community were female and 17 years of age, whereas the participants from Edinburgh were generally younger, mostly 13 to 14, and evenly distributed amongst males and females. The main differences that arose between the two groups are explained below.

Among the students in Edinburgh, there was some general confusion of platforms. Many were not able to differentiate between websites or internet applications and texting. They generally regarded everything accomplished using their smartphones as 'using the internet' and regarded texting as an internet application, whereas the Dumfries and Galloway students made a clear distinction between text messaging or

calling and everything else done on the internet. There was also general confusion among the Edinburgh participants at the word 'website', as most participants did not consider social networking tools such as Facebook or video repositories such as YouTube to be 'websites'.

The use of personal email clients was a much more common occurrence in the Dumfries and Galloway group. This could have been for several reasons, and the researcher speculates that many of the rural students used it more often as they were slightly older and many of them were planning to enter university or apply for jobs.

All 7 of the respondents in Dumfries and Galloway reported that they frequently shopped online, whereas none of the Edinburgh students noted that they did any online shopping. This could also be due to several factors, particularly the remote location and lack of any available clothing shops in this particular Dumfries and Galloway town, and it could also be due to their ages or the amount of disposable income they have available.

Further research would be needed to determine the causes of any of these differences. The age and gender bias is a likely explanation for several of these differences. All data collected between the two groups has been aggregated in the findings and trends that follow.

4.2 Ubiquity of use and the reliance on the object itself

The first and most apparent theme was the ubiquity of smart mobile devices and computers that mediated the participants' communication. All but 2 participants had internet-enabled devices on them at the time of the interview; one young man reported having lost his (participant 1) and one young woman reported having broken hers (participant 5). Both noted that they were eager to get them back or replace them so that they could be better connected to their friends and families. Each interview covered the importance of having their devices on them at all times.

When asked how important her phone is to her, participant 6 remarked, "just, everything. Everything. Right when I'm bored I'll just go on my phone and talk to my pals."

4.2.1 Reliance on the object itself

Interviewees spoke of their phones and tablets as integral communication tools, invaluable for maintaining relationships. Several participants in both communities remarked on the importance of being able to communicate with friends and acquaintances from the comfort of their homes or bedrooms. The fact that almost every interviewee had their phone on them at the time of the interview, combined with several comments about feeling 'out of touch' and needing to borrow friend's devices when they had forgotten theirs at home indicated a deep and significant attachment to the object itself. Every participant reported that they only left their phones or devices at home when they had accidentally forgotten them. Participant 2 noted the monetary value of her phone; her current one was "not that nice" but she stated she was getting a new smartphone for Christmas from her mother, and "that one will be *really* important" to her. When asked how important her phone was to her, participant 16 responded "it's never out of my hand, basically, I feel quite lonely without it." The researcher found her use of the term 'lonely' significant in this context; she may be at school or in a social setting, potentially surrounded by classmates or friends, but is 'lonely' and may feel disconnected without constant contact with the individuals most important to her that is afforded to her when she has her phone. Many participants responded this way, indicating that they "feel kind of lost without it" (participant 12). The strong feeling of attachment that this statement expresses is typical of the responses elicited by this question in the interviews. One of the students in Dumfries and Galloway had some insight into why she felt the way she did about her mobile device:

> *It's like, security, but also like your friends and stuff...I think we've been*
> *brought up with it all the time, I'm not used to not having a phone and if it*

> *gets broken I have to use someone else's. It's endless, and you can't talk to*
> *your friends, (participant 14).*

Here, this particular participant acknowledges that she has grown up with handheld technology and therefore has a heavy reliance on it, not knowing how to socialise, navigate or communicate without it. This signifies an awareness that her generation is somehow different to generations prior that did not grow up with mobile technology, however, this type of response was not typical of most respondents; participant 14 was the only one that made this type of acknowledgement.

4.2.2 Ubiquity of use and the 'digital native'

The attitudes and feelings expressed by the participants both support and challenge the image of Prensky's (2001) 'digital native', constantly connected, always using technology. It is worth noting that when he wrote this work, mobile technologies such as the smartphone and tablet were not yet invented. The 'digital native', in popular view and in Prensky's (2001) work, is frequently seen as using technology simply for the sake of using technology (Agosto and Abbas, 2010). In the interviews, many teenagers acknowledged that they used technology constantly, which supports the popular reputation of digital 'nativeness'. These findings parallel Agosto and Abbas's (2010) analysis of 'digital natives', in that they want constant connectivity and feel lost or lonely without it; however, rather than using all communication applications that their peers subscribe to, they expressed real preferences in their communication habits. They often expressed self-awareness of their own usage habits and potential positive or negative implications of them, which challenges the image of millennials that is frequently projected.

Communication and social networking were by far the most frequently cited uses of the internet; they were mentioned simultaneously, and frequently no differentiation was made between messaging via social networking sites and messaging via text. There were two instances when a clear delineation between the two was made; two of the young women in Dumfries and Galloway said that they preferred to message

and chat with their friends via Facebook, but that was often impossible when they were out in town because data signal was previously poor in the area. They noted that their local area had just gained 3G-network capability, which meant that they could send free messages to their friends via the internet rather than use up texting credit.

While the conversation in the interviews supported the concept of the 'digital native', it is very important to note that several of the teenagers interviewed, particularly the older ones, were quite self-aware of their own internet use and frequently articulated their own internet use styles and preferences. When asked to estimate about how long they spend on the internet each day, either using their phones, tablets or laptops, the answers ranged from 40 minutes per day (participant 8) to 4-5 hours per day (participants 7 and 15). The interesting data here is related to how the teenage participants talked about how they conceptualised of the time they spent on the internet; participant 8 said that he spent approximately 40 minutes online every day, but spent a significant amount of time "playing, like, maths games and word puzzles and stuff," which were later determined by the researcher to be played via online platforms. The fact that he did not think of this kind of activity as part of 'the internet' is interesting to note.

Several participants expressed a self-imposed value judgment on the amount of time they spent with their devices; participant 15 said that she spent around 4 hours online everyday, which she then qualified by remarking, "you know, not that much." One other interviewee, participant 16, didn't give an estimate, saying "it's never out of my hand, basically, I'm quite bad for it." Participants 11, 12 and 13 said similar things to participant 16 about feeling that they spend too much time online, each estimating 1-2 hours on the internet per day but adding remarks such as "I'm always looking at it, putting it away, looking at it, putting it away, all the time" (participant 13), and "probably too many [hours]…it adds up, YouTube can be a black hole, you get sucked in easy," (participant 11).

The researcher did not have occasion to observe the interviewees or have the participants keep logs to note the actual length of time spent on the internet each day. The time limit of the study did not allow for this type of data collection technique, however, it would be an interesting exercise for further study. Observing the difference between teenagers perceived length of time spent on the internet versus the actual amount of time spent on the internet might produce some interesting data worthy of further exploration.

4.3 Social networking, Facebook and bullying: 'the good with the bad'

During the interviews, each participant was asked to list his or her top 5 most used websites or applications. Every respondent listed at least 2 social networking tools, most listing 3 or more. There was some variety in the tools they listed, which will be discussed below; however, every respondent, with the exception of participant 5, was a Facebook user. Participants had varying degrees of usership, some reporting doing nearly all of their social networking and communicating with it, while some reporting being occasional users. What was fascinating about the fact that nearly every person was a user of some description, however, is that many respondents said that cyber bullying and harassment was a significant problem on Facebook but were still avid users.

Table 2. List of the top 5 most used websites or applications by each participant.

Participant	Number 1	Number 2	Number 3	Number 4	Number 5
1	Facebook	Twitter	Google	YouTube	EdModel
2	Facebook	BBM	YouTube	Text	Google
3	Facebook	Hotmail	Skype	Google	YouTube
4	Facebook	Skype	YouTube	Google	none
5	Google	Gmail	Twitter	YouTube	none
6	Facebook	Twitter	BBM	Instagram	YouTube
7	Facebook	Minecraft	Roadblocks	YouTube	Twitter
8	Facebook	YouTube	Instagram	Games	Google
9	Facebook	YouTube	Twitter	none	none
10	Facebook	YouTube	Twitter	none	none
11	Twitter	Facebook	Snapchat	Instagram	YouTube
12	Facebook	Twitter	YouTube	Google	Dropbox
13	Facebook	Hotmail	Instagram	Twitter	Snapchat
14	Twitter	Facebook	YouTube	Instagram	Google
15	Facebook	Gmail	YouTube	Google	Candy Crush
16	Facebook	Snapchat	Instagram	Google	Games
17	Facebook	Twitter	Snapchat	WhatsApp	Google

4.3.1 Facebook and cyber bullying

3 respondents reported being targets of cyber bullying themselves, participants 3, 5 and 6. The exact circumstances and events surrounding the bullying were not divulged in the interviews, however, all cases were reported to be moderate or severe. Participant 5 reported being bullied severely via Facebook and via ask.fm, a social networking site with a question and answer format. As a result, she has since deleted her accounts on both networks and chooses not to use them; "so many people get bullied there every day, I just don't use it anymore, it was making me feel so bad." She said that had informed her teachers at school, which had made the problem worse, causing her bullies to harass her even more. Participant 6 reported being bullied via Facebook heavily, and her mother decided that she should change

schools. She deleted her previous Facebook account and set up a new one, which her mother has the password to should she have any future problems. Participant 3 reported being bullied some via Facebook as well; she stated that she "just ignored it…I didn't stand up for myself at all."

13 of 17 participants had either been bullied themselves or had known someone for whom cyber bullying had been a problem. There were two reports of a close friend being bullied severely from participants 4 and 11; participant 4 reported that a friend had been driven to deep depression and self-harm because of bullying. Participant 11 gave an anecdote of a friend whose Facebook pictures had been downloaded, "edited with horrible captions and stuff and posted…she missed school for weeks after that." She also reported that she and her friends had stopped using Facebook for a while after the incident in solidarity with her friend, but have since started again.

Mishna et al. (2009), in their survey of youth attitudes toward cyber bullying, report that prevalence rates of bullying range from 10% to 35% across studies, with some studies reporting much higher rates than those (Mishna et al., 2009, p. 1222). Kowalski et al. (2012) make an important point in their analysis of cyber bullying that while there may be discrepancies in the number of cases and incidents reported, the consistent conclusion that cyber bullying is a problem is significant. Numerous studies and reports have tried to define precisely what cyber bullying is and what makes it unique; for the purposes of this paper, cyber bullying will be defined as the purposeful and repeated intent to harm another individual through "the use of electronic communication technology as the means through which to threaten, harass, embarrass, or socially exclude…[and] can encompass the use of an electronic medium to sexually harass," (Mishna et al., 2009, p. 1222). Two unique features of cyber bullying are the potential anonymity of the bully, hiding behind user names or fake profiles on social networking sites, and the potential for it to happen anywhere, even in the comfort of one's home. Online bullying is not restricted to schoolyard settings like traditional bullying; it is pervasive in that it can follow the victim home and invade their private spaces (Kowalski, 2012; Mishna et al., 2009). The number of

academic studies devoted to bullying as well as the number of reports of it in the news have experienced a noticeable spike in recent years (Kowalski, 2012; Mishna et al., 2009).

4.3.2 'The good with the bad'

In the small group of teenagers in this study, there was a widespread awareness and several firsthand experiences of problematic bullying. However, nearly all of them still used Facebook, the same medium that facilitated the bullying. When asked what they do about it or how to handle it, the 13 respondents that identified cyber bullying as an issue gave responses akin to 'I just choose to ignore it' and 'I don't get involved'. Many of them reported that they liked being able to group chat on Facebook, see and post funny videos and liked that all of their friends were on it. They exhibited a 'good with the bad' attitude toward Facebook, acknowledging that there were drawbacks to it but chose to use it because the benefits outweighed the negative aspects. Participant 14 described the problem: "As long as you stay clear from all the bad stuff on Facebook, some people post videos that are bullying, but if you steer clear of that and don't comment or just block them it is ok." Participant 12 also had a similar explanation, stating that "it is a common thing, you get, like, bitchiness with people a lot, but I've never had it directed at me so it is easy to ignore."

The acceptance of this negative and damaging behavior from some individuals as an inevitable by-product of social media and the desire to just 'steer clear' of those people who engaged in it was an unexpected response. The response of participant 17 summed up the general attitude of the teenagers involved in the study: "It just depends how you use it, you have to look at what you like and avoid the rest." The need to belong is a powerful motivation for teenagers to participate in social networking, as is self-presentation in the form of photos, statuses and timeline content, (Seidman, 2013). In order to reap the benefits of belonging and the construction of social capital, (Steinfield et al., 2008), there are certain negative experiences that must be endured. Similarly, the Pew Research Center's Internet &

American Life Project found that teens are increasingly turned off by Facebook because of these negatives, but participate nonetheless because of their desire to belong and to participate (Madden et al., 2013).

There was one report of a negative Facebook experience of a different kind. Participant 13 conveyed her discomfort at seeing some unpleasant and upsetting videos appearing in her news feed. She stated, "did you see the Syrian protests and stuff? They were posting videos of beheadings and stuff…I didn't watch it but it came up in my news feed and I couldn't avoid it, it was awful." The lack of control over the type of information one is exposed to on social networks is also an area for further exploration, as teenagers may encounter information that they find disturbing.

Cyber bullying was an area that the researcher would have liked to explore further in the interviews. The participants may have been reluctant to discuss the particulars of cyber bullying in their lives and experiences with an outsider, and the researcher did not press the participants for more information than they were willing to volunteer. However, this 'good with the bad' attitude in social media use is a phenomenon that deserves further exploration in an information behaviour context.

4.3.3 Other social networking

The most commonly mentioned social networking site after Facebook was Twitter. Many interviewees enjoyed being able to follow their friends as well as celebrities and other agencies. There was a noticeable variation among respondents in the social networking sites and applications they preferred to use. Others showed preferences for Instagram, a photo-sharing application with novelty photo filter effects; Snapchat, a timed photo-chat application; Skype and WhatsApp for free messaging and calling.

This variation among respondents indicates that rather than using technology indiscriminately, such as Prensky's (2001) 'digital natives' are thought to do, they express preferences for particular formats and platforms like Agosto and Abbas's

(2010) interviewees. When asked if they used particular networking applications, they often qualified their responses with an explanation as to why they did or didn't use it. For example, participant 11 qualified her use of Instagram: "I like to nosey more than post, it's fun to see the pictures my friends put up and sometimes, like, celebrities and stuff post funny pictures and you can follow them too." Participant 6 expressed similar views of Instagram. Several participants reported using Twitter in a similar manner, using it to see what their friends and favorite celebrities and famous people are posting without having to post themselves. Participant 15 noted that she loved following and being involved with celebrities and gossip columnists on Twitter, as well as tweeting to friends.

There was variation not only in their preferences for social networks, but also in how they used particular networks for specific features. Participants 5, 6, 7, 12 and 14 reported using Twitter mostly for its direct messaging function rather than posting public messages. Several participants reported using Snapchat for its unique feature of deleting the picture messages they receive once they have been opened. Participant 7 expressed a preference for posting public tweets on Twitter, as he frequently played online games and liked to communicate with fellow gamers across the world. He felt that communicating publicly made it safer to exchange tips and tricks for playing games with strangers. Participant 17, however, said that she kept both her Twitter and Facebook accounts private so that only her friends could see what she posted.

The preferences expressed by the teenagers in this study indicate a deeper understanding of social networking. They are able to articulate their preferences and justify them on a deeper level according to their needs, citing which features they used or preferred not to use.

4.4 Posting behaviour

During the interviews, participants were asked about how frequently they post to social networking sites and what types of things they post. The variety of responses

received signals general trends among these teenagers about the nature of what is considered 'personal' information, and this requires more investigation. Regardless of the frequency of posts, whether they posted often or only once in a while, all interviewees said that what they posted was not 'personal' information.

4.4.1 Posting to social networks

Interviewees described the types of posts they made to the networks they used most. Several respondents reported posting infrequently or not at all; participants 2, 3, 6 and 8 reported posting nothing on Twitter or Facebook, only commenting or 'liking' things that others post. Participants 1, 5, 9, 10, 13, 15, 16 and 17 reported posting sometimes but not often, and a common theme among their responses was that the things they posted were not of a personal nature. Participant 15 reported posting only when "big stuff happens…like, exam results, and I just passed my driver's test, so I posted that. Nothing really personal though." The response given by participant 13 was extremely similar, posting "usually photos or when something big happens, exam results or somebody is getting married." Participant 5, however, reported posting links to videos and 'retweeting' things she liked on Twitter, and reported rarely posting her own opinions. She stated, "I'd rather just DM [direct message] my friends." Participant 16 also reported not posting often, but said she uploads photos of her friends on nights out when she does.

Some of the teenagers that reported posting frequently, participants 4, 7, 11, 12 and 14, also stated that their posts were not of a personal nature. When asked to describe what it was that they posted, many of these participants said that they uploaded photos and videos. Participant 14 said, "I Instagram everything, my friends, family, pets, food, whatever…sometimes I post them to Twitter, too." The interviewees most willing to talk about the items they post to social networks were 4 and 11. Participant 4 responded that he mostly posts funny videos, and when asked what the videos were of, he said, "just me and my pals doing dumb sh***. We did the salt and pepper challenge, the vinegar challenge, the cinnamon challenge, just whatever we do when we hang out." He explained these 'challenges' to the

researcher, wherein one person is filmed taking a spoonful of the spices or a cupful of vinegar and has to eat or drink it within a minute, which usually leads to coughing or vomiting. These videos usually lead to another person being challenged to try it and to upload their video as well. Participant 4 also noted that he and his friends sometimes post opinion videos. The latest one he posted at the time of the interview was a "5 things I like/hate about girls" video, wherein he told the camera the 5 things he most liked about females in general and the 5 things he most disliked about them.

Participant 11 noted that she posts very frequently and for several different reasons. She stated that her family had a pedigree livestock farm and she participated frequently in stock judging events and Young Farmer activities, for which she used her personal Facebook profile to post to her family farm's Facebook profile. She also stated earlier in the interview that she did not use her personal Facebook profile for much else due to the bullying incident discussed in section 4.2.1, but kept it for the farm and to communicate with the Young Farmers group in which she is very active. As for her personal posts via Twitter, her preferred platform, she said, "it's just random everyday thoughts really, just a load of rubbish to be honest…like what I had for my tea, or that I had a really stressful week this week." She later added to this statement, saying, "I don't really post personal enough stuff for it to bother me…I just post rubbish that doesn't mean anything to anyone rather than, like, intimate stuff."

The interviewees all perceived that what they posted to their preferred social networks did not constitute 'personal information', however, it is the opinion of the researcher that discussing family events, personal achievements and posting photos of oneself with friends does reveal 'personal information' to some degree. Teens are sharing more personal information now than they ever have, with the majority of teens sharing photos of themselves and their personal interests (Madden et al., 2013). It appears that concepts of privacy and what constitutes 'personal' information are changing. These attitudes and teen sharing behaviours are worth exploring in future studies; the more that information professionals, parents and

adults know about the types of information teens share, the better equipped they will be to handle cases of cyber bullying and other negative uses of social networking.

4.4.2 Family networks and Facebook

11 of the 16 participants on Facebook were friends with their parents, and none of them indicated having special privacy settings for them, restricting what they may see. Two of those participants that said they were not Facebook friends with their parents said that they were, however, friends with aunts, uncles, or other adult family members. One participant was Facebook friends with her grandmother, and all of those participants with siblings on Facebook were friends with them as well.

Participants that responded 'yes' to being Facebook friends with parents or other adult members of their extended family were then asked how they felt about it. Several of these teens responded positively to this and said that it didn't bother them, but there were mixed feelings about their relatives seeing what they do and post. Participant 7 said that it was OK, but "it just means that I can't post everything I want." When asked if it was a good thing that her parents were not Facebook users, Participant 12 responded, "it could be and it couldn't be…but maybe they should keep up with my litter sister. I'm friends with my auntie and my two older sisters, though, so it's not like I could get away with anything."

Facebook and other social networks were not the preferred method for communicating with parents, but participants noted frequently that they interacted and kept in contact with other relatives that way.

4.5 Advice seeking and sources

Another area explored in the interviews was the incidence of advice seeking and the sources teens used to find advice when they need it. Interviewees were asked a very general question about whether they sought advice online; the question was left open so as to allow them to interpret it how they saw fit. Most asked for clarification,

and the researcher elaborated, using the examples of advice about a health problem or advice about problems in school. Many participants noted that they sometimes seek advice online; 8 participants out of the 17 interviewed stated that they consult sources on the internet to solve information problems in their personal lives. Google was the most frequently cited place to search for information. Participants were also asked if they ever encounter information on the internet that they feel is incorrect or misleading. Several respondents indicated that they occasionally found untrustworthy information online, and were asked to describe how they evaluated whether or not they could trust the information.

4.5.1 Looking for advice

Those respondents who said they looked for advice on the internet tended to be older than those who said they did not consult the internet for advice. 4 of the 7 students in Dumfries and Galloway said they looked for advice about university applications, schoolwork, careers and gap years, and they were all 17 years of age and university-bound or intending to take a gap year before entering university. Of the 10 respondents at the Edinburgh branch library, 4 participants said they also looked for advice online; this included both school leavers that were looking for jobs and two other younger students that were still in school.

Careers and university advice were the most reported types of advice sought online, particularly among the students from Dumfries and Galloway. This could possibly be for several reasons, including that they were, on average, older than the participants from Edinburgh. Several other instances of advice seeking were reported; participant 8 reported using the internet to help with math problems, a subject he liked and in which he excelled. Participant 13 gave an anecdotal experience of her own advice searches:

> *My goldfish had something wrong with it, I typed that into Google…but they told me it was going to die and it's still alive, so that's good…little things like*

that. Like if I buy something from a shop, I'll try and find it in an outfit on
Google.

When asked if they sought health advice online, most respondents said that they would rather consult their families or a doctor. Participant 16, aged 17, summed it up by saying, "I might Google it but I'd rather just ask my mum first, she knows everything."

Advice seeking online was a more complicated subject to discuss with the participants than originally thought. The researcher thought that asking an open-ended question would allow the participants to interpret and answer how they saw fit; however, many did not understand what was meant by 'advice' or could not think of an example they wanted to share.

4.5.2 Sources and evaluation

Those participants that reported searching for advice online overwhelmingly reported using Google to find it. There was a general tendency to refer to Google as the 'source' of information rather than the tool used to find it. Participant 2, when asked where she looks for advice, said simply, "I just Google it."

Many participants expressed a preference for speaking to their friends or family first if they needed advice about something. Participant 14 remarked, "I look for advice about uni and stuff, but my friends are all doing the same thing so I'd rather just ask them." This trend was similar to the one expressed by the teens interviewed by Agosto and Hughes-Hassell (2005). Their participants expressed a real and dominant preference for people as information sources, such as friends and parents. While these people sources may be contacted through social media applications or other media, people remained the preferred sources nonetheless.

The subject of evaluating information was more complicated for the participants to discuss. The researcher asked the teenage participants if they ever encounter

information on the internet that they find to be wrong, misleading or untrustworthy. The responses were all positive, with the exception of participants 9 and 10. All other students indicated that they, at one time or another, had found information that they thought was wrong or untrustworthy. The researcher then asked the participants how they knew what was untrustworthy and what information they could rely on. Responses to this question were much more uncertain and vague, and most had a difficult time articulating how they knew they could trust information.

Participant 13, aged 17, described it as something she could feel or tell intuitively:

> *You can kind of tell sometimes if it's a bit far-fetched...if it's anything drastic I'll never follow it unless it comes from somebody who's reliable. I wouldn't, like experiment on myself or anything."*

Participant 1 said something similar, indicating, "I don't know, you can just tell if it's not right." Nearly every participant regarded evaluating sources of information as something they did intuitively and could not describe the process, but nonetheless regarded it as an important part in their information seeking process.

Participant 15, aged 17, spoke a bit more about the process, saying that if she needed help starting an essay for school or writing a CV, she would search for a few different sources online and if they all said the same thing, she decided she could trust it. However, "if there's something that tells you totally different, I can say, OK, that's just not right," (participant 15). Two participants, 3 (aged 16) and 5 (aged 14), expressed particular distrust for Wikipedia, explaining that "I used to use it all the time but then we found out that anyone can change it," (participant 3).

In relation to health information, some participants seemed particularly skeptical about using the internet to address any potential health problems. Many expressed preferences for asking their parents for help. Participant 17 said she'd rather ask her mother, and added, "If you looked up having a cold on the internet it would probably tell you that you had cancer."

The combination of these views shows and interesting mix of sophistication and naivety. There are some frequent misunderstandings regarding how and sites like Wikipedia works, as it is open to the public to change, however there is an approval and verification process those wishing to make changes must go through. On the other hand, there was often a healthy recognition of the pitfalls and dangers of looking for advice on the internet, which some participants conveyed clearly.

Purcell et al. (2012) identify some problematic trends in teen research online, indicating that speed is often a more important factor than quality in evaluating information. Teens frequently choose the top few results to cut down on time rather than evaluating the content of each result, and either do not take the time or have the ability to assess the quality of each resource (Purcell et al., 2012). From the data collected in this study, it appears that the Zipf principle of least effort is at work in their information seeking habits and evaluative processes (Case, 2007). They prefer to ask their friends for advice immediately rather than search for it themselves, and rely heavily on Google and other search engines to find, retrieve and, most importantly, evaluate the information they are looking for (Case, 2007). Because Google retrieves 'most relevant' matches first, users will often select those without checking the actual relevance to their needs or evaluate the credibility of the resource itself, minimizing effort at the expense of quality (Case, 2007). The ways in which teenagers evaluate sources is a particularly important area for further study. This particular study relied on self-report rather than on observation and repeated interviews and the data collected here is very limited in this respect, relying instead on what teens reported themselves. More data could to be collected via observations, logs and more in-depth interviews to examine their decision-making behaviours and identify points for intervention.

4.6 Entertainment versus information

Case (2007) speaks critically of the sharp distinction that still exists between what is considered 'entertainment' and 'information', in both popular and academic

literature on information behaviour. Academic investigations into entertainment media are a relatively recent phenomenon, and this tendency to put information and entertainment into discrete categories devalues those media that may be both (Case, 2007). Many informative sources can also be entertaining, and vice versa, particularly on the internet. Helsper and Enyon's (2009) twelve uses of the internet put entertainment in its own category, which does not leave room for those activities or sources that may be both; informative videos that one may watch for entertainment, shopping as entertainment, etc.

In conversation with the participants, it was clear that entertainment was an important function of their internet usage. Several participants noted that they like to "see what celebrities are up to, news, you know, see what's going on in the world" (participant 5) via Twitter and Facebook. Participant 14 said she frequently watched video blogs on YouTube that were both funny and taught her how to do things. She gave an example of her favorite video blogger, a woman that posts beauty tutorial videos on how to do hair and makeup. All of the respondents in Dumfries and Galloway said they did most of their shopping online due to the lack of stores in the area, and many enjoyed browsing shopping site for entertainment as well as ideas. Participant 8 noted that he liked playing math games and doing word puzzles online, activities that could be classified as both entertaining and informative.

Many websites and activities fall into both categories, and identifying activities as either one or the other does not lend enough credibility to those activities that capture attention by entertaining and informing.

4.7 Issues raised by key informants

Formal recorded interviews with each key informant were not held; however, meetings with both individuals raised issues that they felt affected the particular community they served. They are noted and explored briefly below as areas that need further research. A major limitation of this study was that the time frame did not allow for more than one interview with each participant or for observation, and

therefore sufficient trust and rapport was not built with each participant to address the potentially sensitive issues raised below.

4.7.1 Sexualised use

The head teacher at the Dumfries and Galloway local high school identified 'sexting' and the sexualised use of social networking sites as a major issue in the school community. He frequently had reports from students and parents of inappropriate content being generated and distributed by teenagers. He speculated that this was a particular problem in their rural community as young teenagers frequently came into contact with and developed relationships or friendships with older teenagers.

As technology has developed and 'sexting' has become a phenomenon in political and popular discourse, there has been an increase in academic literature about sexting in recent years. It is a broad issue with many viewpoints, and there is often conflict between existing or proposed legal and political frameworks and the role of sexting in the lives of adolescents (Campbell and Park, 2014). A distinction between consensual and nonconsensual sexting must be made, as nonconsensual sexting can be used for exploitative purposes or child pornography, and can be a particularly damaging component of cyber bullying behaviour (Kowalski et al., 2012). However, demonizing sexting as inherently negative and inappropriate for teenagers dismisses any validity it may have for teens as a part of the development of their social and sexual selves. The bulk of exploration of that kind is out of the scope of this study, however, more research is called for to investigate the pressure teens feel to sext, where it comes from and how sexts are conceived of in the context of teenagers lives.

4.7.2 Confidence, ability and exclusion in information seeking

The librarian at the Edinburgh branch library felt that there was a distinct difference in their teenage patrons confidence in using devices to seek information and their abilities to find what they needed. When asked how confident they were that they

could find something specific on the internet, such as a news article, almost all participants said that they were 'quite confident', with only one teen saying that she was "not that confident, but if I have enough time I can get there in the end," (participant 15). However, the key informant in Edinburgh indicated that they frequently asked for help finding articles or information for school that they were unable to find themselves. Clearly there is a discrepancy in how they perceive their searching capabilities and the reality of their actual ability to find what they are looking for.

An interesting quote came from one of the participants, 4, during the interview of participant 8 for which he was present. They referred to an ICT class they took in school, and remarked that they did not learn anything useful. He said that what they were learning was "the most useless sh***," like word processing and using the school's networking systems. They were not, however, taught about communication and privacy on social networking sites. It is also interesting to note here that one teenager, participant 5, did not have access to a home computer or laptop, and currently did not have a phone with access to the internet. While this rate of exclusion was lower than expected, the exclusion of even one student is a significant problem for continued information literacy issues.

The comments made by participant 4 and the discrepancies in abilities noted by the key informant lead the researcher to believe that the right skills are not taught at a young enough age. If teens were to be educated about bullying, privacy and how to do internet research at a younger age, they may develop better search habits for the future. While the researcher did not have the opportunity to study this particular issue, it is an important area to be explored further. The potential to improve habits by teaching relevant skills at the right age is powerful, and further study is needed to determine the current context and how it can be improved.

4.8 Summary

A variety of themes were explored that related to the use of technology, particularly mobile technology, among the participants. These included the widespread use of mobile technology and attachments made to the objects themselves; Facebook use and the incidence of bullying; posting behaviour and changing conepts of personal information; advice seeking and evaluation of sources; and issues of sexting and confidence in information seeking as compared to their actual capabilities in finding information were raised by key informants as points for further exploration. The next chapter will discuss conclusions drawn from the findings and recommend areas for further study, and will include reflections from the researcher on limitations of the study and thoughts about the research process.

5. Conclusions

This chapter summarises the key findings of the research and presents recommendations to information service professionals regarding potential topics to discuss and address with teenagers ages 13-17. Recommendations for further study and more intensive research are made based on the findings presented in the previous chapter. The researcher addresses the limitations of this study, and presents her personal reflections and thoughts on the research process.

5.1 Key findings

Key themes were identified that signaled issues in teenage use of the internet and mobile technology.

- Mobile technology is highly integrated into teen information behaviours. Teens have articulated preferences for a variety of social networks, and a heavy reliance on handheld devices for communication.
- Communication and social networking are the most important functions of teen mobile internet use.
- Feelings and attitudes toward social networking sites are varied, but usage is widespread despite knowledge of cyber bullying and other negative experiences.
- Posting behavior among teenagers varies, however, it is clear that perceptions of what constitutes 'personal' information is changing as teens post information about themselves.
- Teens are seeking advice on the internet on a variety of topics but still tend to rely on trusted people as sources of information.
- When using search engines to find information on the internet, the participants frequently relied on intuition to evaluate sources of information.
- Entertainment and information were not discreet categories for the teenage information seekers, the two overlapping and intersecting often in the same activity.

5.2 Recommendations for information professionals

Subsequent recommendations for information professionals and educators based on the key findings above are as follows:

- Better integration of mobile technology and social networking to communicate with younger students on their level and confront topics that matter to them.
- Examine and assess current information literacy education, including the process of conducting internet research and evaluating sources.
- More integrated education for young students on cyber bullying, sexting and social networking.

5.4 Limitations of the study

This study was undertaken to fulfill the requirements for an MSc, and was therefore subject to several limitations. The timescale of the project limited the level of involvement the researcher could pursue with the participants of the study, and issues of access to the selected demographic for the study led to sampling bias.

Trust and rapport are very important to the interview process as they allow for the collection of honest and data-rich responses (Bryman, 2012). The timescale of the project limited the number of interviews and types of interviews that the researcher could conduct. For most participants, the time of the interview marked the first time the participant met the researcher. The researcher was seen as an outsider, particularly in the Edinburgh context where the community suffered from several socio-economic problems, which potentially restricted how much the participants were willing to reveal.

The researcher relied on the professional contacts she had made to help her access and recruit participants, which they were willing and very kind to do. The researcher is incredibly grateful for their help and support. The two organisational contexts

were very different, however, one being a public library and the other a high school. Samples may have been more consistent and comparable had the organisational contexts been the same. Participants in Dumfries and Galloway were all female and all 17 years old, whereas participants in Edinburgh were more mixed and tended to be younger than the rural participants. A longer timescale may have allowed the researcher to make further contacts to explore both organisational contexts in both locations and recruit more evenly distributed ages and genders.

5.4 Reflections on the methodology

The success of the methodological approach will be assessed here, as well as the impact of the inexperience of the researcher on the study itself. This was the first self-directed research project of this scale undertaken by the researcher. The project was an invaluable learning experience, and the following section contains the reflections of the researcher on the process.

5.4.1 Research questions and interview guide

During the process of collecting data, the researcher realised that the scope of the research questions was quite broad. Each broad research question previously contained many smaller questions that needed to be revised in order to narrow the scope of the research. However, In the process of analysing the data, the researcher felt that the interview guide and the interview questions were still too broad. The broad questions did not produce rich data as previously hoped, but rather covered too many topics to delve into each one in depth. More specific and directed questions may have solicited richer responses.

One invaluable step in the process was the pilot interview. This afforded the researcher the opportunity to practice her interview skills and revise the interview guide. A subsequent practice interview with another individual would have afforded even more insight into potential interview pitfalls, as these were the first interviews of this type the researcher had conducted.

5.4.2 Interviews

The interviews were conducted without having previously met with the participants. Many were willing, however, they expressed dismay at the length of the interviews. The researcher did not previously take into account the potentially short attention span of the younger participants.

Participants were also very reticent in the interviews, frequently offering one-word answers and the researcher spent too much time talking and explaining the questions trying to fill in the gaps. Had the researcher potentially spent time getting to know the participants, introducing herself and having discussions about her research before asking for volunteers, the interviews may have been more relaxed. Trust takes time to build, particularly with adolescents, and the timescale of the project did not allow for sufficient time to build the kind of rapport needed to solicit more personal responses. Had time allowed, follow-up interviews may have been helpful in clearing up remaining questions and in addressing issues with the first interviewees that had not came up until the later interviews. It also may have allowed the researcher to build stronger trust with the participants.

Other data collection techniques were considered but were sacrificed for time. Focus groups have frequently been used in other information seeking studies of young people, and have been an effective data collection technique for many (Abbas and Agosoto, 2010; Agosto and Hughes-Hassel, 2005; Meyers et al, 2009). Focus groups may have allowed teenagers to express their feelings about social networks collectively and in the company of their peers in a low-pressure setting, rather than in the potentially high-pressure setting of the one-to-one interviews conducted. Using a wider variety of data collection techniques may have teased out issues that did not come up in the interviews, and would have given the researcher more experience and face time with the adolescent participants.

5.4.3 Data analysis

A thematic approach to analysis was taken, which the researcher found to best fit the data collected. A grounded theory approach using constant comparative coding would have been another useful technique, but may have fragmented the data. The researcher feels that the thematic approach allowed the data to be analysed in context and using the participant's natural language. The goal was not to produce an exhaustive model of information seeking and information needs, but rather to identify potential trends and problems. The approach taken allowed for more natural analysis.

5.4.4 Personal reflections and learning outcomes

Through the undertaking of this research project, the researcher attained a deeper understanding of current research and trends in information behaviour and gained familiarity with key theories and models. The researcher also gained valuable experience in interview techniques. The project was an excellent introduction to qualitative research, including the analysis of qualitative data, and the researcher attained a familiarity with a variety of research methods.

5.5 Recommendations for further study

Several issues that arose in the interviews, as well as both issues raised by the key informants in section 4.7, represent important areas for further study, which will be identified below.

Many studies into the information behaviours of teens have been conducted in recent years, and it is the researcher's opinion that continued investigation is needed for information professionals to keep abreast of the trends and attitudes of teens as mobile technology evolves and develops. Technology and platforms, particularly those involved in social networking, are constantly in flux, and, as a result, so are habits and behaviours. Continued work in this area will allow

researchers to make informed recommendations to information professionals and educators.

Further and continued studies into cyber bullying and its effects on teen development would be beneficial for educators and information professionals. This is a significant area for further exploration due to the potential severity of the effects on victims. Because of the constantly evolving nature of social networks, cyber bullying will also change. Continued investigation and exploration into this area is essential to help educators and information professionals stay on top of these developments.

Similarly, research into posting and broadcasting behaviour should be conducted in order to explore teenage perceptions of 'personal' information. Posting habits make for easily accessible data, and this may lend insight into other trends in adolescent behaviours.

While the issue of 'sexting' did not arise from the data collected in the interviews, it was pinpointed by a key informant, the head teacher in a Dumfries and Galloway community high school, as a serious issue that needs addressing. Investigations into teen motivations for sexting should be made, as well studies into legal and policy frameworks designed to handle such problems in an official capacity. This is an area that has seen a recent spike in academic studies, and further investigations should be carried out to explore its place in the development of teens social and sexual selves, as well as how it is handled currently in educational contexts.

In a similar vein, information literacy studies and investigations into continued digital exclusion should be conducted to examine teen's actual abilities to do self-guided research. The relationship between teen's confidences online and their abilities may produce worthwhile results and shed light onto continued information literacy problems.

5.6 Conclusion

The information behaviours of young people have been the subject of much study of the past few decades as digitisation and the internet have changed the way we search for, digest and conceptualise of information. Young people today are developing information behaviours in an entirely new world with mobile technology becoming more and more integrated into daily lives. The more information professionals and educators understand about emergent trends and issues in young people's information behaviours, the better equipped they are to communicate and meet their information needs. This study was designed to investigate current trends in information behaviours among Scottish teens ages 13-17 in both urban and rural contexts. The research questions and objectives were stated to investigate the channels and devices young people use to communicate and find information and their attitudes and feelings toward them.

The literature review outlined current research in the area of information behaviour of young people, identified similar studies with which to draw parallels, and applicable theories that informed the methodology. The methodology identified reasons for the chosen data collection tool, the semi-structured interview, and explained the process preparing for the interviews. It also outlined the purposive sampling methods and the selection of contexts for study, as well as the iterative process of data collection and analysis. The analysis took a thematic approach, fitting of the type of qualitative data collected, identifying key themes arising from the data.

The findings presented in this study were themes identified in the semi-structured interviews. They represent areas for further study, and have directly shaped the conclusions and recommendations made in this chapter. The findings pointed to specific areas for further research.

This study has been subject to many limitations and those have been noted where appropriate. Personal reflections on the study and the research process have also been made by the researcher.

This study has proved that further study into the information behaviour of young people is necessary to identify problems in information literacy. Continued research will improve communication with target demographics and maximise opportunities for better education.

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Appendix 1. Pilot interview guide

1. How do you access the internet?

    Phone, tablet, personal computer, laptop, public computer,school computer, gaming console

    What kind of device do you have?
    How many hours per day do you spend on the internet?
    How important is your device to you?
    When are you without it?

2. What top 5 sites or applications do you use most frequently?

    What do you most use the internet to do?

fact checking	entertainment
training	social networking
current affairs and	diary functions
interests	person to person
travel	networking
finance	e-government
shopping	civic participation.

3. What tools or applications do you use to communicate with:
    Your close friends? Your peers or classmates?
    Your parents? Are you friends with them on facebook?
    Your siblings (if any)? Your teachers?

4. When you are looking for an answer to a question or a problem, how do you decide if you can trust the information you find? Example: health problems, problems at school

    Do you look for advice online? Where?
    Do you ever find information on the internet that you think is wrong or misleading? What makes you think it is wrong?

5. How comfortable are you finding information on the internet?
    Do you feel confident in looking for specific things online and learning to use new devices and applications?

6. Are there things you feel bad about or are worried about when you use the internet?

What are some good things about using the internet or your favourite apps?

Appendix 2. Interview guide

1. How do you access the internet?

      Phone, tablet, personal computer, laptop, public computer, school computer, gaming console

      What kind of device do you have?

      How many hours per day do you spend on the internet?

      How important is your device to you?

      When are you without it?

2. What tools or applications do you use to communicate?

3. What top 5 sites or applications do you use most frequently?

4. Do you look for advice online? Ex: Health problems, problems at school

      Do you ever find information on the internet that you think is wrong or misleading? What makes you think it is wrong?

5. How confident are you about finding information on the internet?

6. Are there things you feel bad about or are worried about when you use the internet? What are some good things about using the internet or your favourite websites or apps?