Engaging digital literacy learners in the

constructivist environment of Web 2.0 technologies:

An examination using a blog as a learning support

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Declaration

I declare that the work described in this dissertation is, except where otherwise stated, entirely my own work and has not been submitted as an exercise for a degree at this or any other University.

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Abstract

Society has changed in the digital age with an increased dependence on digital technologies leaving some people in danger of exclusion (Devins, Darlow, & Webber, 2008). Attending digital literacy classes provides an opportunity for such people to participate in the digital age yet all too often these courses fail to engage the digital literacy learners resulting in insufficient continued use of technologies outside the classroom (Hsieh, Rai, & Keil, 2011). Tutors and administrators need to design and deliver digital literacy courses that engage and motivate learners.

A blog, one of many Web 2.0 technologies central to the internet today, has the potential to achieve positive learning outcomes by engaging adult digital literacy learners in meaningful tasks in a real-world setting (Howland, Jonassen, & Marra, 2011, p. xi). A blog can meet some of principles essential to creating a constructivist learning environment: active engagement, social interaction and multiple perspectives on learning material. While there is little research into blog deployments for digital literacy, lessons can be learnt from blog research in other educational settings including, and of most significance to this study, that the technical skills needed to engage in a blog are not insignificant (Sim & Hew, 2010).

A case study, using a blog as a core learning support for an already established digital literacy course, was used for this research. The learning experience was carefully designed to address the learners' needs, promoting engagement in a supportive environment. Data from a single sample was collected over thirteen weeks: pre- and post- learning experience questionnaires, tutor's observations, learners' interaction with the site and finally, one-to-one interviews with the learners.

The study finds the blog to be a useful core learning support for digital literacy, meeting some of guiding principles required for constructivist learning. The blog encouraged active participation in all learners and presented the learning material from multiple perspectives. The level of social interaction promoted from the blog was limited however and a number of improvements to the learning experience are suggested that may contribute to more social interaction. The study finds that many learners expressed the intention of continued use of digital technologies and a number expected to return to the blog as a reference resource - further research would be required to establish if this did in fact occur.

The findings support the contention that using a blog as a core learning support for adult digital literacy goes some way to providing a constructivist learning environment. The deployment of the blog must be carefully thought through: while more active engagement of the learners, particularly in teams, is advisable, care must be taken to not discourage learners by forcing engagement. The potential positive outcomes for learners make the choice of a blog as a learning support for adult digital literacy tutors and administrators worth considering but the blog must be carefully supported by the tutor and this requires on-going attention and effort.

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Chapter 1 Introduction

1.1   Background and Context

Society has changed in the digital age with the expansion of and increased dependence on digital technologies and the internet. Statistics for Ireland in 2012 show an upward trend in access and connectivity with 83% of households now having access to a PC and 81% connected to the internet (CSO, 2012).   Daily usage rates reflect this upward trend although significant differences are observable between age groups (16-29 year olds report 78% daily usage, while 60-74 year olds report 21%) and between employment statuses (those at work report 70% daily usage, while the unemployed report 50% and those retired, 29%). Such differences are seen elsewhere worldwide (Allen, 2010) and, while not unexpected, indicate that some people may be in danger of exclusion from the changing society (Devins, et al., 2008).

Any digital divide today is less about access and more about participation (Jaeger, Bertot, Thompson, Katz, & DeCoster, 2012) and some people still have difficultly developing their digital skills (Hsieh, et al., 2011). Many resources are being used to address this within schools (ECDL, 2010) and within the workforce (eSkills, 2012) often with positive outcomes. This study, however, is concerned with those adults outside of the school system or the workforce. NALA (National Adult Literacy Agency) has identified the need for its increased role in digital literacy (NALA, 2011) but has yet to adopt any policies. Both Solas (formerly FÁS) and the VECs provide a wide range of back-to-education initiatives incorporating digital skills at level 2 and level 3 (NFQ, 2009) with anecdotally variable results.

Adult digital literacy educators need to design and deliver courses that engage and motivate learners (Redecker, Kirsti, Bacigalupo, Ferrari, & Punie, 2009) and lead to continued use of digital technologies outside the classroom (Hsieh, Rai, & Keil, 2008). While recognising that adult digital literacy learners have different individual needs and interests (Jimoyiannis & Gravani, 2011), best met with a choice of options (Casey, 2009), digital literacy today requires that learners develop the skills and abilities needed to access available technologies and to participate in an online environment (Jaeger, et al., 2012).

The online environment, having evolved to what is often termed Web 2.0 (Anderson, 2007), encourages interaction and participation, is inherently social in nature and provides access to a broad range of data (J. Williams & Chinn, 2009). These characteristics meet some of the guiding principles identified as being essential to create a **constructivist learning environment** (Carsten et al., 2008) and indicate that incorporating Web 2.0 technologies into a digital literacy learning experience has the potential to help learners construct their knowledge whilst developing proficiency in real-world web applications (Buigues-García & Giménez-Chornet, 2012).

Learning in a constructivist environment, where the learner builds mental models which may then be adapted and become more detailed and sophisticated as new data or situations are encountered

(Talja, Tuominen, & Savolainen, 2005) has the potential to equip leaners to deal with ever-evolving technology. Constructivism recognises the importance of knowledge construction over the simple acquisition of information and engages learners in meaningful tasks in an authentic setting (Howland, et al., 2011, p. xi).

A **blog** is one Web 2.0 technology that offers good potential to digital literacy learners. Blog deployments have been researched in numerous educational settings (Sim & Hew, 2010) yet there is little research into using a blog to support digital literacy. Naturally, digital literacy learners require significant scaffolding to benefit from such learning but it is expected that using a blog can encourage learners' engagement and enhance their self-confidence in mastering digital technologies.

This research examines the learning experience of adult digital literacy learners engaged in a constructivist learning environment facilitated though the deployment of a blog as a core learning support.

1.2   Research Question

This research examines:

> Does using a blog as a digital literacy learning support encourage learners to construct their own knowledge?

This is assessed through analysis of learners using a blog as a core learning support, to determine whether their behaviour reflects the response expected in a constructivist learning environment, specifically whether the blog:

- Encourages active participation
- Enables learners to access learning material from multiple perspectives
- Facilitates social interaction
- Promotes continued use of digital technologies

A blog was used in an already established digital literacy course with careful attention paid to the design of the learning experience to ensure the needs of the adult learners were met.

This research is targeted at adult digital literacy tutors and administrators and is intended to contribute insights into the use of Web 2.0 technologies to improve learning outcomes.

1.3   Document Roadmap

A review of the literature is provided in Chapter 2 where digital literacy as it relates to this study is defined. The literature is further examined to explore why constructivism is considered to be beneficial to learners and to determine the applicable guiding principles needed to create a constructivist learning environment. The claim in literature that Web 2.0 technologies create a constructivist learning environment is then examined, and blogs are selected as a Web 2.0 technology that is potentially beneficial to digital literacy learners.

The design of the learning experience is explained in Chapter 3. The learning experience uses a blog as a core learning support for an already established 8 week digital literacy course. The learning experience is planned over 13 weeks, divided into phases to scaffold the learners appropriately while encouraging active engagement.

The research methodology, including the selection of a case study using one single sample, the choice of collecting mainly qualitative data and the method of analysis of that data, is described in Chapter 4.

The findings of this study are given in Chapter 5. The data was first organised into quantitative and qualitative data sets and analysis then carried out on data from each different source. The analysis concludes that while the blog goes some way to creating a constructivist learning environment, more might be achieved with improved social interaction.

Finally, Chapter 6 concludes that using a blog as a core learning support goes some way towards encouraging learners construct their knowledge and therefore has a place in adult digital literacy learning. Further research is needed however to determine if strategies to further enhance social interaction have the expected benefits and whether using a blog has encouraged longer term continued use of digital technologies.

Chapter 2 Literature Review

2.1   Introduction

Adult digital literacy learners are faced with a myriad of digital technologies and they need to be empowered to master at least some of them (Jimoyiannis & Gravani, 2011). A constructivist learning environment has the potential to equip these learners with the knowledge and self-confidence to incorporate digital technologies into their personal and professional lives.

This chapter first describes what is meant by digital literacy, identifies adult digital literacy learners and examines how their needs may be met in a constructivist learning environment. Constructivist learning, and the principles needed to provide a constructivist learning environment, are then explored. The characteristics of Web 2.0 technologies are then examined to determine if these do indeed meet the principles of constructivist learning. From the various Web 2.0 technologies available, blogs are chosen as the most appropriate for digital literacy learning. An examination of the literature finds that although blogs have been used widely in education, there is little research into the use of blogs for digital literacy learning. Lessons can be learnt from other educational settings however, particularly regarding the scaffolding needed to support adult digital literacy learners in the use of blogs as a learning support.

2.2   Digital Literacy Learners

2.2.1   What is meant by digital literacy

What is meant by digital literacy is being re-evaluated in light of emerging technologies (Buckingham, 2010, pp. 59-71) and a range of digital literacies have been identified. At a basic level, digital literacy means having the ability to perform tasks effectively in a digital environment (Jones-Kavalier & Flannigan, 2006). Once able to use digital technologies, digital literacy requires more higher order thinking skills for active participation in web-based environments (Kist, 2009, pp. 1-3). For some, more specialized digital literacy skills are needed to enable the design and development of complex digital media such as games (Gee, 2012). This study however is concerned with the digitally literacy of **older adults** and for the purposes of this study digital literacy is defined **as having the skills and abilities necessary to access available technologies and to participate in the online environment** (Jaeger, et al., 2012). Participation in the online environment, now deemed a necessity for civic engagement (Jaeger, et al., 2012), also promotes continued use of technology outside of the classroom, an essential learning outcome if digital literacy learners are to keep a-pace with ever-changing digital technologies (Hsieh, et al., 2011).

2.2.2   The needs of adult digital literacy learners

Adult digital literacy learners vary in age and profile - they may be early-school leavers returning to education or older adults wanting to participate more actively in the digital world – however, they share some common characteristics:

- They are likely to have difficulty connecting digital literacy skills to their existing practices (Hsieh, et al., 2011).
- They often lack self-confidence when using technology (Redecker, et al., 2009).

These characteristics present the teacher with the challenge of teaching the skills needed to participate in our digital age whilst providing the necessary scaffolding to enhance the learners' self-confidence.

In addition, when teaching adult learners, the 6 core principles of andragogy, identified by Knowles (Knowles, Holton, & Swanson, 2005, pp. 64-69), must also be considered:

1. Adult learners need to know what learning is happening and why.
2. Most adults are self-directed learners.
3. The new learning must be connected with the adult learners' prior experiences.
4. The readiness to learn is determined by the adult learners' life experiences.
5. Adult learners are better oriented to learning where they sense that the learning will help them in real-life situations.
6. Adult learners' motivations are more likely to be intrinsic i.e. tasks will be done for inherent satisfaction (Ryan & Deci, 2000).

At least some of these needs can be met within a **constructivist** learning environment (Knowles, et al., 2005, p. 192) where learners are engaged in meaningful learning through active engagement in authentic learning tasks (Howland, et al., 2011, p. xi). Literature claims that Web 2.0 technologies provide a constructivist learning environment (Baxter et al., 2011; Carsten, et al., 2008) suggest that placing Web 2.0 technologies at the core of a digital literacy learning experience can provide learners with an authentic setting in which to develop the skills needed to engage actively with the internet.

The next section examines the principles of constructivist learning after which the characteristics of Web 2.0 technologies are examined to determine if these do indeed meet those principles.

2.3   Constructivist Learning

Mayer states that: "Constructivist learning occurs when learners actively construct meaningful mental representations from presented information" (Mayer, Moreno, Boire, & Vagge, 1999, p. 638). Dewey is credited with being the first to identify that learning is the active construction of knowledge based on the learner's prior experience (Koohang, Riley, & Smith, 2009). Further works by Piaget developed the theory of **cognitive constructionism**, that is, that knowledge cannot be given but rather must be constructed by the individual. The individual builds mental models which may then be adapted and become more detailed and sophisticated as new data or situations are encountered (Talja, et al., 2005). Cognitive constructionism emphasises that new knowledge must be related to other existing knowledge in order for the learner to retain it (Knowles, et al., 2005, p. 192) and that learners must become **active participants** in their own learning by seeking their own solutions to problems (Talja, et al., 2005). Knowledge construction is the process of internalisation and reconstruction of the external reality through the individual's activities (Wang, 2009).

Vygotsky recognised the importance of social-cultural factors in learning (Au, 1998) and is credited, along with Bruner, with theories supporting **social constructivism** (Koohang, et al., 2009; Talja, et al., 2005). Vygotsky stated that understanding is social in nature and that the development of mental models takes place in a socio-cultural context. Thus the individual's construction of knowledge derives from **social interactions** within which cultural meanings are first shared by a social group and then internalised by the individual (Talja, et al., 2005). Social construction recognises that learning occurs best in a social setting where learners construct knowledge through interaction, collaboration and negotiation with others (Wang, 2009).

To promote constructivist learning, therefore, a constructivist learning environment must be established. Numerous researchers have established guiding principles required for constructivist learning environments (Koohang, et al., 2009) of which the most relevant, to this study, are:

- **Active Participation**

  Learners must be supported in active engagement with their learning through their interaction with the environment in an authentic setting (Carr cited in McPherson & Nunes, 2004, p. 46; Savery & Duffy, 1996).

- **Social Interaction**

  The learning must be embedded in a social setting (Koohang, et al., 2009) providing support to the learners to communicate and negotiate with others (Carr cited in McPherson & Nunes, 2004, p. 46)

- **Multiple Perspectives**

  The learner's construction and internalization of knowledge occurs through their experience of and interaction with information from multiple sources (McPherson & Nunes, 2004).

Other considerations described in literature concern more the design of tasks to set learners working in a constructivist learning environment but many are also relevant when seeking to establish such an environment, including:

- Anchoring learning activities to a larger task or problem (Savery & Duffy, 1996).
- Giving the learner ownership of the process to develop a solution (Savery & Duffy, 1996)
- Encouraging testing of ideas against alternative views and contexts (Savery & Duffy, 1996)
- Focussing control at the learner level (Carr as cited in McPherson & Nunes, 2004, p. 46)
- Encouraging collaboration between learners, not competition (Carr as cited in McPherson & Nunes, 2004, p. 46)

The next section considers whether Web 2.0 technologies can provide a constructivist learning environment through meeting some of these principles.

2.4   Web 2.0 technologies

2.4.1   What are Web 2.0 technologies

Web 2.0 technologies are distinguished from previous generations of the web for being inherently social and open thus encouraging interaction and participation (Carsten, et al., 2008). Anderson provides a useful categorization of Web 2.0 technologies (Anderson, 2007) and as the technologies have evolved other researchers have added to these categorizations (Baxter, et al., 2011; Buigues-García & Giménez-Chornet, 2012; Grosseck, 2009). These categorizations, described in more detail in the appendix (Appendix A: Categorization of Web 2.0 Technologies), are listed here with some common examples given:

- Social networks (e.g. *Facebook*, *Twitter*)
- Blogs (supported by, for example, *WordPress*, *Blogger*)
- Wikis (e.g. *Wikepedia*)
- Online Forums (e.g. *Mumsnet*, *Boards*)
- Content Syndication (e.g. *RSS* feeds and aggregators)
- Tagging and Social Bookmarking (e.g. *del,.icio.us*, *Stumple-upon*)
- Multimedia sharing (e,g, *YouTube*, *Flickr*)
- Podcasts (e.g. distributed by *BBC* or *MIT*)
- Others (e.g. *Skype*, *Prezi*)

Web 2.0 technologies are continuously evolving and becoming ever more integrated into how users access the internet. The next section examines the characteristics of Web 2.0 technologies and considers how these characteristics make them good for learning.

2.4.2   Why Web 2.0 technologies are good for learning

Tim Berners-Lee, the inventor of the web, is credited with having, even in the early nineties, a vision of what the web has now become, that is, a web where everyone can write and edit content (Carsten, et al., 2008). Anderson, by developing the themes from O'Reilly (O'Reilly, 2005), defined the six "big-ideas" behind Web 2.0:

1. *Individual production and user generated content*
2. *Harnessing the power of the crowd*
3. *Data on an epic scale*
4. *Architecture of participation*
5. *Network effects, power laws and the long tail*
6. *Openness*   (Anderson, 2007, pp. 14-26)

Carsten further developed these ideas and defined the characteristics behind Web 2.0 technologies (Carsten, et al., 2008) with a view to understanding what contribution Web 2.0 technologies can have to technology enhanced learning. Many of the characteristics identified by Carsten match those

principles identified in section 2.3 as being central to constructivist learning, the most relevant of which are discussed here:

- **Active Participation**

  Active participation of each user is enabled and facilitated by Web 2.0 technologies (Carsten, et al., 2008). Active participation can range from simply following directed hyperlinks connecting different areas of the web, to contributing on blogs and social networks via comments; from sharing own ideas and opinions, to creating and sharing own digital content. The learner is thus acquiring knowledge in an authentic setting and connecting that knowledge to the bigger picture (Baxter, et al., 2011). While it may prove difficult to ensure that the intended material is being learnt simply by encouraging participation on the web, the Web 2.0 environment encourages active learning through exploration and evaluation (J. Williams & Chinn, 2009).

- **Social Interaction**

  Individuals construct knowledge from internalising experiences first shared by a group (Talja, et al., 2005). Some claim in literature that the nature of Web 2.0 makes each user immediately a member of a community (Carsten, et al., 2008) and while there appears to be little empirical evidence that this translates to enhanced learning, the social interaction inherent to Web 2.0 can provide a socio-cultural context in which learning occurs (Baxter, et al., 2011). Perhaps more significantly, many Web 2.0 technologies facilitate collaboration and teamwork providing opportunities for knowledge construction (Howland, et al., 2011, p. 133).

- **Multiple Perspectives**

  Web 2.0 enables access to data on an unprecedented scale (Anderson, 2007) and while this can present challenges regarding the reliability and quality of the data, users are afforded multiple perspectives in both the angle from which they access data and in the range of data available. Learners can benefit from accessing real-world data, placed there not merely for instruction, but by people dealing with real situations (Carsten, et al., 2008). When users access Web 2.0 to seek information they potentially benefit from actively learning using data generated by previous users (J. Williams & Chinn, 2009).

These characteristics suggest that Web 2.0 technologies have the potential to meet many of the principles needed to create a constructivist learning environment, the next section considers which Web 2.0 technology is most appropriate to use in for digital literacy learning.

2.5   Which Web 2.0 technology for Digital Literacy Learners?

2.5.1   Choosing a blog

Although proficiency in the use of Web 2.0 technologies is essential to digital literacy today and the placement of such technologies at the core of learning provides an enhanced learning experience (Carsten, et al., 2008), there is little research into which Web 2.0 technologies are best deployed for

digital literacy learners. Analysis of the various technologies suggests that blogs might well provide a good learning support:

- Individual blogs or class blogs can be created and blogs can be made public or private (Baxter, et al., 2011).
- Blogs can be used by the student to record what they learn or by the teacher to record what they teach (Curran & Marshall, 2011)
- Blogs are considered easy to use, allowing people with little technical knowledge to publish their thoughts and opinions online (Deng & Yuen, 2011).
- A blog can provide a useful resource for conducting classes and, perhaps more importantly, can provide a reference to be returned to after the course thus enabling the needed continued use (Hsieh, et al., 2011).

Whilst a review of the literature reveals little in terms of where blogs have been used in supporting digital literacy, blogs have been used elsewhere in education. This is explored next to see what lessons have been learnt.

2.5.2 Lessons learnt from usage of blogs in education

Research shows that blogs have been used in educational settings for a considerable time and in many different ways (J. B. Williams & Jacobs, 2004). Sim conducted an empirical study into the use of blogs in higher education and identified six main, non-mutually exclusive, ways that blogs were being used (Sim & Hew, 2010):

- Individual student blogs used as a learning journal
- Individual student blogs used as a personal journal
- Blogs used by students to express emotions
- Blogs used by students to communicate with each-other
- Blogs used by teachers as an assessment tool
- Blogs used by teachers as a task management tool

Sim's study examined available research to determine the effects of blogging both on performance outcome (on learning and thinking) and on affective outcome (attitudes and engagement). The study concluded that the question of whether the blog can improve performance outcomes remains unresolved as the data presented was mostly self-reported. The affective outcome data also varied: while generally most students responded positively, there were a number of negative responses. These included reported dislike for writing, concerns over privacy, time-constraint issues, unfamiliarity with the technology and discomfort in giving other students feedback. While Sim's study did not compare blog usage with prior digital literacy skills, the study comments that the technical skills needed to engage with a blog are not be under-estimated.

Top examined the sense of community and the perception of learning and collaborative learning afforded through the use of blogs in a class of pre-service teachers (Top, 2012). The students were organised into groups of between 2 and 4 and a dedicated blog space established for each group in

which they communicated on assigned projects. The students found the blog useful for sharing knowledge and ideas and for enhancing communication outside of the classroom but, while generally happy with the collaborative learning afforded by the blog, expressed a preference for face-to-face encounters. The students used in this study were reasonably digitally literate as all were also engaged in other ICT modules. Top did however note that students prior computer knowledge influenced their engagement with the technology (Top, 2012)

Freeman studied the structures needed to promote student engagement on a blog used by students enrolled in an online course on technology and learning (Freeman & Brett, 2012). The blog was used to support the development of the students' personal voice on topics of interest to them. Each student had an individual blog, could comment on other student blogs and could moderate comments from others. All blogs were aggregated into a class blog. Engagement was encouraged by timely prompts and through course grading. Freeman found that leaners expressed an initial difficulty in understanding the concept behind blogging but as the course progressed engaged better with the system. While there was no analysis given of the students' prior digital literacy skills, Freeman noted that more structure was needed at the time of introducing the blogs and concluded that students would have benefited from more experimentation at the start.

Halic conducted a study of blogs being used over a number of different undergraduate classes to determine how blogs affected the students perception of their learning and their sense of community (Halic, Lee, Paulus, & Spence, 2010). Halic found that students generally responded positively to blogs, acknowledged the role the blog played in facilitating the sharing of knowledge with their peers and felt the blog enhanced the sense of a learning community. While the digital literacy of the students was not analysed, Halic did conclude that technical instruction and guidance at the start of the course was needed so that the students could gain confidence in using the blog.

The literature warns that using a blog does not automatically lead to improved learning and cautions that the blog must be used to effectively support the course content (Halic, et al., 2010; Hong, 2008). A blog's role as a learning tool is also questioned by Deng (Deng & Yuen, 2011), who concludes that blogs seem better suited for enhancing social presence and the socio-emotional dimension of a learning community.

The impact of a blog on learning can be difficult to quantify. It is difficult to measure the impact a blog has on connecting students to other online resources (Churchill, 2009) and if participation in the blog itself is used as a measure of success, the important role of blog-reading may be missed. Deng observes that "behind the façade of non-participation might be an important process of internalization, inquiry and critical thinking" (Deng & Yuen, 2011, pp. 449-450).

2.6   Scaffolding digital literacy learners in using a blog

There are many different ways a blog can be used to provide an enhanced learning experience for digital literacy learners. Their needs must be carefully considered, and the necessary scaffolding provided, to make that experience beneficial. Vygotsky's concept of scaffolding has long been accepted for its importance in helping learners achieve more than would be possible for them in the absence of support (Wood & Wood, 1996). Scaffolding refers to the supports provided to the learners ranging from support materials to assistance given by peers and tutors. Vygotsky defined the term the "Zone of Proximal Development" [ZPD], identifying the gap between that which the learner can achieve alone and that which can be achieved through the guidance of a more able other. Scaffolding is used to assist the learner find their own solutions and to confirm their own individual achievements (Murray & McPherson, 2006). With careful scaffolding, gradually withdrawn as the learner's competency grows, the learner is supported in the development of their ability to complete tasks independently (Murray & McPherson, 2006).

At the start of any course using blogs, clear technical instruction and guidance are needed to enable the learners gain confidence and develop an understanding of the concept of a blog (Freeman & Brett, 2012; Halic, et al., 2010). The technical skills needed to engage with a blog are not insignificant (Sim & Hew, 2010) and this must be of particular concern for learners of digital literacy. A number of recommendations to improve the effectiveness of a blog as a learning tool supported are found in the literature, including the use of an ice-breaker exercise to get students starting to use the blog (Sim & Hew, 2010). Freeman found that while the use of timely and relevant prompts helped establish to use of blogs amongst the leaners, careful withdrawal of prompts was needed to allow learners develop their own voice (Freeman & Brett, 2012).

The design of a digital literacy learning experience using blogs as a learning support must address these considerations and provide the appropriate scaffolding to ensure connections are made to prior learning (Hsieh, et al., 2011) and to develop learner's self-confidence (Redecker, et al., 2009).

2.7   Conclusion

One of the most significant challenges facing teachers of adult digital literacy is the need to engage learners in real-life tasks from which they will derive self-confidence and to which they will return outside of the class-room (Redecker, et al., 2009). Providing learners with a constructivist learning environment through the use of Web 2.0 technologies has the potential to engage them in meaningful learning in an authentic setting (Buigues-García & Giménez-Chornet, 2012). Blogs can provide such an environment but care must be taken as the technical skills needed to engage with a blog are not to be under-estimated (Sim & Hew, 2010). Careful scaffolding is required to ensure that learners engage with a class blog and have a positive experience of Web 2.0 technologies.

The design of a class blog to provide a constructivist learning environment is described in the next chapter.

Chapter 3 Design & Implementation

3.1   Introduction

The choices made in the deployment of a blog as a learning support for digital literacy leaners are described first in this chapter.   How this blog deployment provides a constructivist learning environment while meeting the learner needs is then explained. The design of the technology enhanced learning experience is then described including the blog layout and the learning experience delivery plan.   The scaffolding necessary to support this learning experience is then discussed and finally the implementation, hosting and testing is detailed.

3.2   Using a blog as a digital literacy learning support

A blog was selected to enhance the learning experience of leaners enrolled in a digital literacy course already developed, and delivered on four previous occasions, by the researcher. This course, entitled "Digital Age Skills" and delivered over eight classes (two hours per class), helps learners make better use of their computers at home and covers a number of topics including email, browsing, *YouTube*, podcasts, *iTunes*, digital photos, *Skype*, *Facebook* & *Twitter* etc. Learners attending these classes tend to be older adults with basic computer skills (from the researcher's prior experience).

The blog provides an ideal instrument to connect learners with other Web 2.0 technologies whilst actively engaged in the use of a specific Web 2.0 technology embedded in a social setting (Howland, et al., 2011, pp. 170-176).   However, while there is a perception that using a blog is easy (Deng & Yuen, 2011), care is needed with older adult learners who may have little prior experience of the interactive nature of Web 2.0 technologies.   Other researchers have warned that the technical skills needed to engage with a blog are significant (Sim & Hew, 2010) and that careful technical instruction and guidance is needed (Halic, et al., 2010).

These considerations are dealt with in the following sections, firstly in what choices were made for blog deployment, secondly how these choices provide a constructivist learning environment and finally in how the leaners needs are met.

3.2.1   Choices taken for blog deployment

In considering the best way to deploy a blog for a group of digital literacy learners, two prior trials revealed some of the limitations that could be anticipated:

- A trial conducted from October 2011 – December 2011 used a blog embedded on the researcher's own web-site and found no interaction from the learners with the blog, suggesting a need to connect the learners to the blog through their existing email activities.
- A trial conducted in October 2012 with a group at a high- to middle-digital literacy level found that the learners experienced confusion when assuming the role of author of a class blog as this required having, and logging in to, their own blog account before contributing.

These trials helped in the anticipation of how the system would be used and thus influenced the decisions taken in how the system was set up (Salmon, 2004). These decisions are explained further in Table 1 (shown in order of significance):

	Option	Reason behind decision
1.	Individual blog or class blog	A **class blog** was determined to provide the best introduction to blogging for the digital literacy learners. The leaners could participate in a blog without being responsible for the content themselves allowing them build up their knowledge and self-confidence in using the blog without pressure (Redecker, et al., 2009).
2.	Learners as authors or contributors	From trials it was determined that setting up the leaners as authors could deter their participation in the blog both from a technical perspective (Sim & Hew, 2010) – the learners would require their own blog account and would need to log in to submit a post – and from the motivational perspective (Freeman & Brett, 2012) – the leaners would need a subject to blog about. Thus leaners were instead instructed to become **contributors** to the blog at the start of the course through an ice-breaking exercise. This allowed the learners to submit comments to the posts by merely providing their email address. Only comments from approved contributors, restricted to members of the class, were allowed.
3.	Public blog or private blog	Consideration was given to whether the blog should be public or private (Sim & Hew, 2010) and, as the content of the blog was not expected to be of a sensitive nature, ease of access was determined more important, thus the blog was made **public**.
4.	Learners as followers	Most learners at the expected digital literacy level have some experience of email, thus having the learners as **followers** of the blog (and receiving an email for each new post) connects their prior learning to this new experience (Knowles, et al., 2005, pp. 64-69) and increases their opportunity for engagement.
5.	Blog used to host class notes	By having the **class notes** on the blog the learners are given another perspective on the course content (Baxter, et al., 2011) and a resource to return to after the course (Hsieh, et al., 2008).
6.	Classes supported through the use of regular posts	The blog was used to support the class structure through **regular posts** (Freeman & Brett, 2012). Posts generated weekly, or more frequently, provided hyperlinks to other Web 2.0 technologies on areas that were covered in class.

Table 1: Choices taken for blog deployment

3.2.2 Creating a constructivist learning environment

A number of guiding principles important in establishing a constructivist learning environment are described in Chapter 2. How a blog, deployed as outlined in Table 1, meets these principles is described here:

- **Active participation**

  The learners are engaged with an online Web 2.0 technology customised to their needs. The posts provide links to other areas of the internet and by following hyperlinks they are actively building their own knowledge (J. Williams & Chinn, 2009).

- **Social Interaction**

  The blog places a link to the wider world of the internet into the social context of the classroom (Koohang, et al., 2009). The blog is available for class members to access both inside and outside the classroom re-enforcing class cohesion (Halic, et al., 2010). Observing how other class members contribute to the blog acts as an encouragement to others to also make contributions (Freeman & Brett, 2012).

- **Multiple Perspectives**

  The blog provides multiple perspectives for accessing the course materials (McPherson & Nunes, 2004, p. 46): from traditional class notes to online tutorials, from textual descriptions of twitter to online aggregated twitter feeds on topical news stories.

3.2.3 Meeting the needs of the adult digital literacy learners

In addition to the adult learners' needs identified by Knowles, adult digital literacy learners often lack self-confidence when using technology. These needs were considered when devising strategies for the deployment of the blog as shown in Table 2.

Learners' Need	How met
Know what is happening and why (Knowles, et al., 2005, p. 64)	Timely demonstrations – at the start of the course and regularly throughout - ensuring that leaners understood 'how to' use the blog and demonstrating how the blog links to useful resources.
Self-direction (Knowles, et al., 2005, p. 65)	The blog is a resource that the leaners can return to anytime thus enabling learners pursue their own topics of interest in their own time and at their own pace.
Use of prior experience (Hsieh, et al., 2008; Knowles, et al., 2005, pp. 65-66)	Initially all leaners' prior experience was evaluated to ensure that all learners have email addresses and some proficiency in using email. The use of the blog then builds on, and connects to, this skill through emails sent for each updated post.
Readiness to learn (Knowles, et al., 2005, p. 67)	Over the course the learners were provided with many opportunities to engage with the blog and were facilitated to do so at whatever level they were comfortable with – from reading tutor posts and/or other learners' comments to making their own contributions via comments.
Application to real-life situations (Knowles, et al., 2005, p. 67)	The blog connects to real-world data: from tutorials posted on *YouTube* to live social media communications.
Intrinsic motivation (Knowles, et al., 2005, p. 68)	Interaction with the blog and with other Web 2.0 technologies is presented as a fun and enjoyable experience with an effort made to include links to topical and potentially useful resources.
Developing self-confidence (Redecker, et al., 2009)	Progression in the use of the blog was built up gradually over the course. Thus the learners were presented initially with a few blog posts and, as the learners self-confidence grows, more posts actively encouraging contributions via comments.

Table 2: Mapping learner needs to deployment strategies

3.3   The Learning Experience

3.3.1   Blog set-up and roles

A blog was set-up to support an already devised (and delivered on four previous occasions in Dun Laoghaire College of Further Education) digital literacy course entitled **Digital Age Skills**.   This course is targeted at any adults wishing to make better use of their computer at home and covers contemporary digital technologies including email, *Google*, *YouTube*, podcasts, *iTunes*, digital photos, *Skype*, *Facebook* & *Twitter*.

A **wordpress.com** blog was selected to provide the blog requirements described in section 3.2.1 under the web address: http://digitalageskills.wordpress.com/.

The researcher was set up as the Administrator of the site.   This site was public but contributions were restricted to the class members, a feature facilitated by *WordPress.*   Contributions were limited to comments on posts and required simply that the user provide a valid email address and a name along with the comment.

All class members became **followers** of the site, a feature supported by *WordPress* and requiring a valid email address.   Being a follower meant that the user received an email for every new post.

3.3.2   The blog layout

The *Pilcrow* template (see http://theme.wordpress.com/themes/pilcrow/) provided by *WordPress* was used and customised for this class.   The customisations are highlighted in the following screen-shots.

The Main Page (Figure 1)

A. A **photo** of the local area makes the blog feel relevant to the learners' specific learning experience (Knowles, et al., 2005, pp. 64-69).

B. A link to a page with the **class notes** presents the notes from a different perspective: online PDF rather than paper-based (McPherson & Nunes, 2004).

C. A link to a page **using the blog** explains the purpose and relevancy of the blog (Knowles, et al., 2005, pp. 64-69)

D. **& E** Links to **recent posts** and **recent comments** emphasize the chronological nature of the blog and provide references to other learners' activities.

F. Previous posts organised into topic **categories** (reflecting the course subjects of interest) provide a resource for future reference.
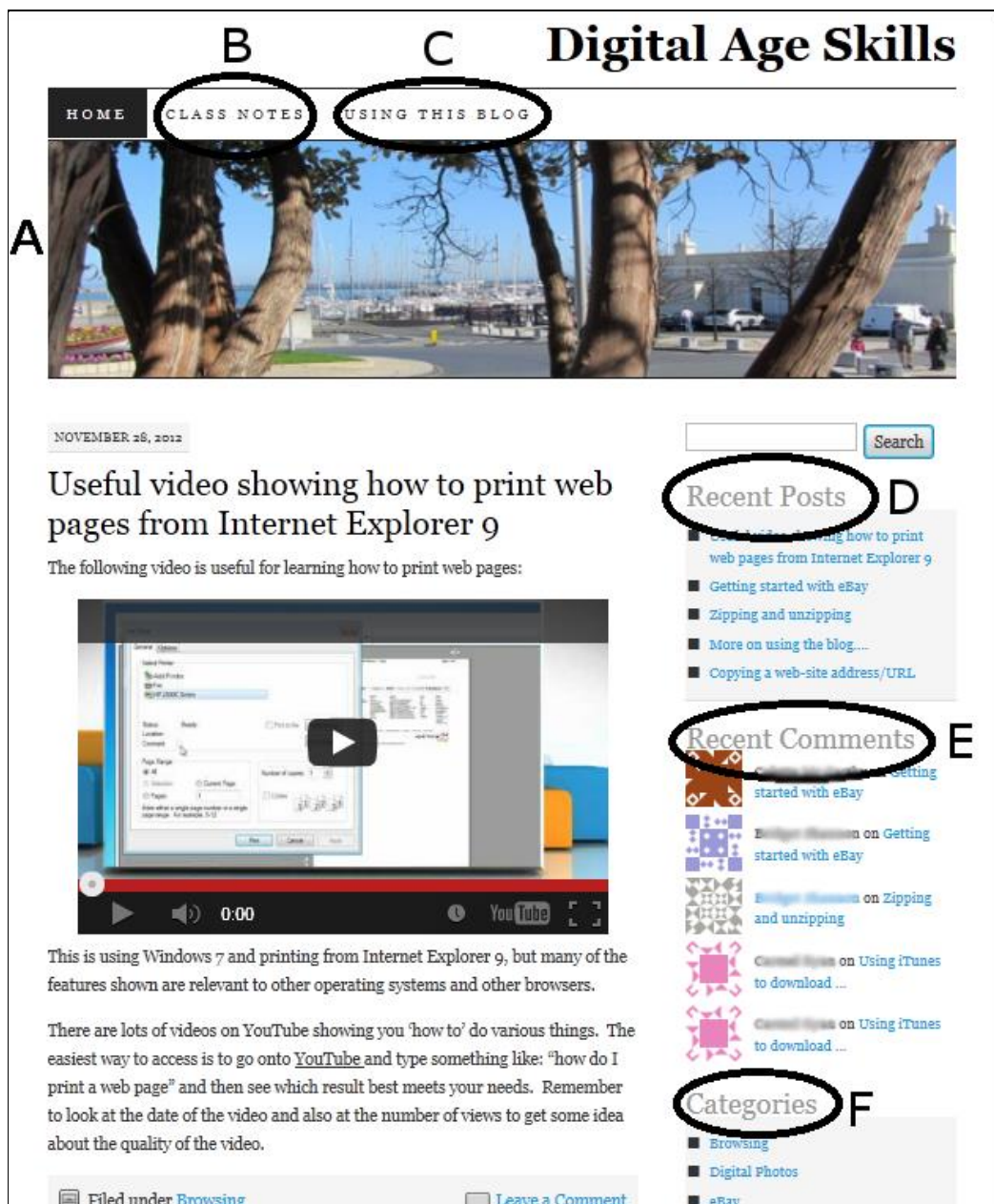

Figure 1: Screen shot of blog home page

The Class Notes Page (Figure 2)

Accessing the **class notes** for viewing and printing engaged the leaners in an authentic learning task that could be returned to outside of class time and after the course ended

Figure 2: Screen shot of blog page - class notes

Categories (Figure 3)

Categories are used in *WordPress* to help organise related material and are displayed on the blog page using the *WordPress* category widget. As this blog was started from scratch i.e. the first post was the introductory post on the first day of the course, the categories increased as the course progressed. By selecting any category the student accesses any blog posts and comments made on that subject.
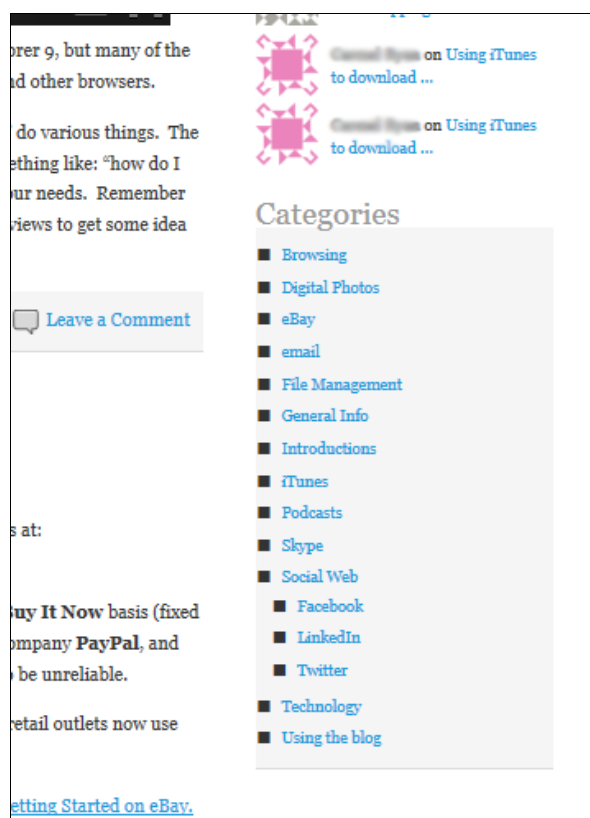
Figure 3: Screen shot of blog categories

3.3.3   The learning experience plan

Table 3 illustrates the strategies devised to deliver the eight week course plan using the blog as a learning support. The course duration extends over nine weeks (incorporating one week mid-term) and four weeks are included at the end to facilitate post-course engagement.

Phase	Weeks	What	Activities
1.	1,2	**Induction**	**Ice-breaker Exercise:** • All learners invited to introduce themselves on blog **Leaners become 'Followers' of blog:** • Students shown how to 'follow' blog, thus connecting their knowledge of emailing to blog usage **Demonstrations & Assistance:** • Blog usage demonstrated during class • Leaners assisted in their completion of the introductory posts **Access from outside of the class-room:** • Course notes hosted on blog and referred to • Post sent following classes to encourage follow-up activity
2.	3,4,5,6	**Familiarisation**	**Regular Posts** • Posts generated weekly providing links to other areas of the internet for more information on topics covered • Learners invited to comment on posts **Regular Demos** • Class time used to demonstrate access through the blog and answer any questions **Continued Use** • Course breaks for 1 week (mid-term for week 6) but posts continue to promote continued use outside the classroom
3.	7,8,9	**Enhanced Interaction**	**Questions and Answers** • Students encouraged to ask questions via comments which are then answered via new posts. These answers students direct students to areas of the internet for more information.
4.	10, 11, 12, 13	**Post course engagement**	**Continued Use** • A new post is generated in Week 10, 1 week after course ended and another in Week 12 • Blog remains accessible to all students after the course is completed

Table 3: Learning Experience Delivery Plan

3.4   The learning scaffolds

Providing scaffolds to support the learning is crucial for adult digital literacy learners to ensure they have a positive experience and develop the skills and self-confidence to work independently (Murray & McPherson, 2006). Table 4 illustrates how scaffolding was designed: at the start, with demonstrations and assistance in the class-room and through classroom activities; throughout, connecting with prior learning via emails when learners were outside the classroom; latterly, encouraging independent activity where learners were encouraged to use the blog to post questions.
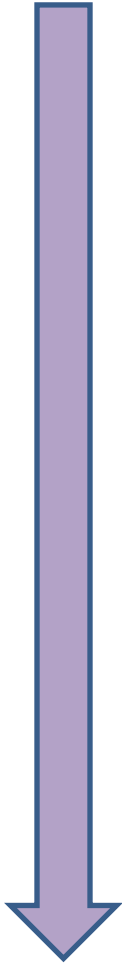
	Type of Scaffold
Demos & Assistance	During the **induction phase**, clear demonstrations on the blog were given (Halic, et al., 2010) and assistance provided for the ice-breaker exercise where all learners introduced themselves (Sim & Hew, 2010). The learners were encouraged to access the blog from outside the classroom to access class notes and read new posts.
	As learners different abilities emerged over the **familiarisation phase**, learners were actively encouraged to learn from their peers by giving and/or receiving assistance during class time (Knowles, et al., 2005, p. 66).
	Throughout all phases, connections were made to the learners' prior knowledge though posts sent via emails (Redecker, et al., 2009). These were sent as relevant and timely prompts to the learners outside of class time (Freeman & Brett, 2012). This encouraged both independent access and continued use (Hsieh, et al., 2011).
	As the course progressed from **familiarisation** to **enhanced interaction** more regular posts were made to further encourage the learners to access the blog at home thus promoting independent activity (Murray & McPherson, 2006) while still providing support as needed when learners returned to the classroom.
	Independent activity was further promoted in the **enhanced interaction** phase when learners were encouraged to ask questions via comments on the blog (Murray & McPherson, 2006).
Independent Activity	Finally, independent activity was supported during the **post-course engagement phase** where learners' interaction was encouraged with timely responses (Murray & McPherson, 2006).

Table 4: The Learning Scaffolds

3.5   Blog Implementation, Hosting and Testing

Implementation & Hosting

The free and accessible blog site **wordpress.com** was used to host this blog which was developed, using standard templates and style sheets, under the name http://digitalageskills.wordpress.com/. This blog was customised to give a local look & feel and to include a page linking to class notes (hosted externally to blog, on researcher's own website http://www.niamhlestrange.com/images/PDF) and a page providing help with using the blog.

Testing

Templates and style sheets from **wordpress.com** were used and these have already been tested across all standard browsers. Additionally, usability was verified on the following platforms/browsers:

- Windows XP – IE8
- Windows 7 – Firefox 11, IE9 and Chrome
- iPod/iPad/iPhone – Safari OS
- Android OS (V 4) and Android wordpress.com app (V 2.2.5)

3.6   Summary

This chapter describes the selection of a blog as an appropriate learning support for digital literacy learners. Various options for blog deployment were considered, with particular attention paid to the learning needs of older adult digital literacy leaners. A strategy was devised to best deploy the blog from an initial ice-breaker exercise, through a period of familiarisation, followed by a supported question and answer activity, until finally, leaving the blog as an available online reference resource. Throughout the learning experience the necessary scaffolds were considered, ensuring that the required supports were provided through demonstrations and assistance during class time while independent access and usage was available outside of the classroom through the internet. The blog implementation, hosting and testing are supported through *WordPress.*

The next chapter describes the research methods used to assess the digital literacy learners' experience of using a blog.

Chapter 4 Research Methodology

4.1   Introduction

This chapter describes the research methods used to determine whether deploying a blog as a core learning support does indeed encourage learners to construct their own knowledge. The questions assessed to determine this are outlined first. The research methodology is then explained, covering:

- the choice of using a case study;
- the four main sources of data collected: a pre- and post-learning experience questionnaire, observations, site interactions and post learning experience interviews;
- the iterative analysis of the collected data from the outset, used to improve both the data collection and the delivery of the learning experience;
- the organisation of the data into quantitative and qualitative groups;
- the code and theme technique used to better understand the qualitative data;
- how triangulation of the analysed data was applied to draw the most reliable conclusions from the various data sources.

The ethical issues are then addressed and finally, the possibility of researcher bias is noted.

4.2   Research Question

This research examines:

> Does using a blog as a digital literacy learning support encourage learners to construct their own knowledge?

This is assessed through analysis of learners using a blog as a core learning support, to determine whether their behaviour reflects the response expected in a constructivist learning environment, specifically whether the blog:

- Encourages active participation
- Enables learners to access learning material from multiple perspectives
- Facilitates social interaction
- Promotes continued use of digital technologies.

4.3   Research Methodology

4.3.1   Case Study

A **case study**, defined by Yin (cited in Merriam, 1998, p. 27) as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context" and by Cresswell (Cresswell, 2005, p. 439) as an "in-depth exploration of a bounded system (e.g. an activity, event, process or individuals) based on extensive data collection" was deemed an appropriate method to answer the research question. A case study was selected over other methods (for example, a survey) as it allowed for an in-depth

understanding of the system - using a blog as a digital literacy learning support - and its meaning for those involved - the adult digital literacy learners (Merriam, 1998, p. 19).

The case study used was **particularistic**, focussing on a particular Web 2.0 technology, a blog, and determining its effectiveness as a learning support for adult digital literacy leaners (Merriam, 1998, p. 29) with a view to understanding how deploying Web 2.0 can help digital literacy learning.

A mainly **qualitative**, rather than quantitative, case study was used both for reasons of practicality (a single small sample was available and the study was conducted in a short time-frame) and to better understand the participants' views of the particular exercise (Cresswell, 2005, p. 43). Some quantitative data was collected and used to better interpret the qualitative data (Silverman, 2009, p. 133).

The case study was limited to a single sample - a group of older adults ranging in age from late forties to late seventies. The sample was selected both on a **purposeful** and **opportunistic** basis: the sample was typical of what was needed for the research (older adults engaged in digital literacy learning) and was available to the researcher (Cresswell, 2005, p. 403). The research started with the intention of using three samples in the case study, from three independent learning groups, to provide richer data from which to triangulate conclusions (L. Cohen, Manion, & Morrison, 2007, pp. 141-144), however, due to circumstances outside the researcher's control, the research proceeded with only one sample and thus required, and allowed time for, a far deeper analysis of the data from each data source.

4.3.2 Data Collection

Data was collected from four sources:

4.3.2.1 Pre- and Post- Learning Experience Questionnaire

A self-devised questionnaire was administered pre- and post- learning experience to assess the learners' level of digital literacy and determine if any improvements occurred (Appendix B: Participants Questionnaire). The areas determining digital literacy were derived from the researcher's previous experience of learners attending similar digital literacy classes and from the intended behavioural changes following the learning experience (Corbin & Strauss, 2008, p. 80).

No suitable questionnaire was found in the literature. Two studies however, although directed at a different target group (so-called 'digital natives' (Prensky, 2001)), influenced the design:

- Nasah et al. devised a Digital Propensity Index (DPI) to measure the digital literacy of university students and placed an emphasis on the **frequency** of use of a range of digital technologies. (Nasah, DaCosta, Kinsell, & Seok, 2010).
- Wecker et al. used three scales from the 'Computer Literacy Inventory' to measure procedural computer knowledge, familiarity with computers and, significantly, **self-confidence** in using computers (Wecker, Kohnle, & Fischer, 2007).

An online survey from the ECDL Foundation (ECDL, Survey) was considered but deemed inappropriate in favour of a paper based survey to better suit digitally inexperienced learners. In addition, the ECDL survey focussed more on areas covered by the ECDL programme rather than on those areas of interest to leaners normally attending these classes.

Categories

The questionnaire assessed digital literacy in three different categories, selected for relevancy to digital literacy and to support the questionnaire analysis (Leeuw, Hox, & Dillman, 2008, p. 156): (i) the frequency and scope of digital technologies accessed; (ii) the ability and self-confidence in solving problems arising when accessing digital technologies and (iii) the perceptions others have of the learners' expertise.

Scales

A four point scale, styled on the Likert scales, was used in each of the categories. A four point scale was chosen both to remove the bias sometimes evidenced when a mid-point is available (Garland, 1991) and as four steps provided the most appropriate responses. The scales were labelled with words to elicit more consistent responses (Leeuw, et al., 2008, p. 151). For rating frequency, the scales presented were: *Never, Once, A few times and Often.* For rating self-confidence and perception of ability, the scales presented were: *Very True, True, Sometimes and Not True.*

Scores

The scales were scored from 0 to 3 where 0 indicated a novice and 3 an expert. Over the 19 questions this resulted in a total expert score of 57. The scoring scheme was verified by piloting on a reference group of 33 learners engaged in a FETAC level 5 digital technology course (Leeuw, et al., 2008, p. 423). This group provided an average score of 38 suggesting a mid to high level of digital literacy. As the scores were merely to provide an approximation of digital literacy before the course and a means of assessing whether there was any change in digital literacy after the course, this scoring system was considered to be sufficiently indicative.

Question Order & Style

Structured questions were used to gather specific information about the learners' behaviour when it came to using digital technologies (Merriam, 1998, p. 74). The questions were kept simple and specific (Hague, 1993, pp. 64-71) and while all questions were answerable using the scale, space was given for the respondents to add any comments (Hague, 1993, p. 56). The order of questions presented was not deemed to be of any significant importance (Hague, 1993, p. 45) however for questions in two of the categories the scales were reversed to avoid the respondents answering without thinking.

4.3.2.2 Observations: Objective & Subjective

Over the course of the learning experience, both during classes and between classes, the researcher made observations and recorded as **field notes**. A field note template was devised (Appendix C: Researcher's Observations) to capture descriptive or **objective** observations (e.g. number of participants who contributed) and reflective or **subjective** observations (e.g. how did the participants respond) (Cresswell, 2005, pp. 211-214). Answering the research questions influenced the field note template, however, scope was allowed for any relevant observations to be recorded as the learning experience proceeded.

Field notes were recorded for the entire duration of the learning experience, including the weeks outside of the classroom. When observing within the classroom, the researcher, as tutor, was a **participant as observer**. While this can result in a trade-off between what will be revealed by participants and what confidentiality they feel, it had the added benefit of providing insights into the response of the tutor to the system (Merriam, 1998, p. 101).

4.3.2.3 Site Interactions

The leaners interactions with the blog site were also collected, both in the frequency of comments and in the text of the comments made (Denzin & Lincoln, 2011, p. 473).

The **blog site statistics** supported these observations and provided additional data including the number of views of the blog site, the user clicks outside of the site, the number of comments per user, the number of site followers. This data on views is somewhat unreliable for two main reasons: (i) not all views of the site come from class members and (ii) class members often followed the blog posts from their emails without viewing on the blog site. However, while accepting that this view data is not entirely reliable, it can be used in conjunction with other data and observations to understand the patterns of blog site access.

4.3.2.4 Interviews

At the end of the learning experience participants were interviewed on a one-to-one basis (Appendix D: Post Exercise Interview). One-to-one interviews were chosen as, although time consuming, better insights into the individual responses would be obtained than what could be expected from a group interview (Cresswell, 2005, p. 215). The interviews were **semi-structured** containing a mix of closed and open-ended questions (Merriam, 1998, p. 73) and designed to allow the pursuit of areas deemed relevant by the interviewee (Freebody, 2003, p. 133). The interview was designed with probes or prompts to garner additional information, especially seeking suggestions of improvements as a means of better understanding the learners response to the learning experience (Cresswell, 2005, pp. 217-219). After each interview an initial analysis was conducted on the interview data to determine better probes and prompts for subsequent interviews (Corbin & Strauss, 2008, p. 57). The interviews were conducted at the convenience of the interviewees and audio recorded for later transcription for data analysis.

4.3.3 Data Analysis

Analysis of the data started as soon as the first set of data was collected, that is, after the first class, and this approach of continuous data collection and analysis was used throughout the research. This allowed the researcher to identify areas of relevance, follow through on any issues raised and to observe more sensitively (Corbin & Strauss, 2008, p. 57). The collected data was organised into two main groups - quantitative and qualitative - to aid triangulation between different data sets.

4.3.3.1 Quantitative Data

The quantitative data came from the questionnaires, the objective observations and site statistics. Each data set was analysed as follows:

1. The data from the **pre-learning experience questionnaire** was collated, tabulated and analysed at the start of the exercise. This data provided information about the digital literacy level of the learners and thus informed the deployment and the delivery of the learning experience as well as influenced the subjective observational data to be collected (Merriam, 1998, pp. 161-163).
2. The data from the **post-learning experience questionnaire** was collated, tabulated and compared to that taken at the start of the exercise. This provided another perspective when interpreting participants' responses during interviews (Silverman, 2009, p. 133).
3. The **objective observations** were collated and tabulated at the end of the learning experience and used, in conjunction with the **site statistics,** to support the interpretation of the subjective observations in order to alleviate researcher bias (L. Cohen, Manion, L., Morrison, K., 2007, pp. 150-155).

4.3.3.2 Qualitative Data

The qualitative data came from the researchers' subjective observations, the learners' interaction with the blog and from the interviews at the end of the learning experience. Each set of data provided insights into different perspectives and hence were analysed independently. All were analysed using the open coding technique recommended by Cresswell (Cresswell, 2005, pp. 237-247). This involved a **preliminary exploratory analysis** of all the data followed by a detailed analysis of one text from which **codes** were derived. These codes were then grouped to determine **themes** and all the data was revisited to find supporting codes or new codes. The texts were selected based on varying levels of participation, cycling from mid- to low- to high. As expected this required a number of iterations though each set of data, with the objective of discovering a reduced set of emergent themes.

1. The **subjective** observations made by the researcher provided insights in the system deployment from the tutor's perspective (Corbin & Strauss, 2008, p. 30).
2. Analysing the leaners' **interaction with the blog** provided an insight into the learners' perspective and while not as rich as data derived from face-to-face interviews provides another perspective on the learners response (Denzin & Lincoln, 2011, p. 473).
3. The one-to-one **interviews** focussed on the individual learners' experiences (Silverman, 2009, pp. 189-191).

4.3.3.3 Triangulation

Triangulating from multiple data sources enhances the validity and reliability of any conclusions (L. Cohen, et al., 2007, pp. 150-155). However, Silverman cautions that the aggregation of data from multiple sources may not produce a more complete picture and recommends a detailed inspection of each of the data sets rather than simply moving to the next (Silverman, 2009, pp. 133-134). This technique was followed: each of the data sets was analysed and some conclusions drawn. Once satisfied with each data set, data from all sources was then drawn together to derive answers and draw conclusions from any emergent themes (L. Cohen, et al., 2007, pp. 141-144).

4.4   Ethics

This research was conducted with adults only. All participants were informed of the research (Appendix E: Information Sheet For Participants) and gave their consent (Appendix F: Informed Consent Of Participants*).* Participation was entirely voluntary and a number of students (3 out of 12) declined to participate in the research but still availed of the blog. Permission was given by the course co-ordinator (Appendix G: Letter of permission from Course Co-ordinator*).* Following the research a debriefing sheet was made available to the participants and course co-ordinator (see Appendix H: Debriefing Sheet).

Ethics approval was received from the Research Ethics Committee at the School of Computer Science and Statistics, Trinity College Dublin (Appendix N – Record of Ethical Approval).

4.5   Implementation

The research was conducted on already established course entitled *Digital Age Skills* at the night school of *Dun Laoghaire College of Further Education, Cumberland St., Dun Laoghaire, Co. Dublin.* The research covered 13 weeks (from the 26th September to the 20th December 2012**)** comprising 9 weeks of the course (8 classes of 2 hours per class and 1 week mid-term) and 4 weeks of post-course engagement. The blog was online and thus available to all learners between classes (and remains live and functioning) and its use outside of the classroom was actively encouraged.

4.6   Summary

A mainly qualitative case study was used to answer the research question using a single sample selected both purposefully and opportunistically. Data was collected from four main sources: a pre- and post- learning experience questionnaire, objective and subjective observations during the learning experience, site interactions and post-learning experience one-to-one interviews. Data was analysed iteratively on an on-going basis to improve the data collected and the learning experience deployment and delivery. Collected data was organised into quantitative and qualitative groups. Code and theme techniques were applied to all qualitative data to identify emergent themes. Conclusions were then drawn through triangulation between the data from the different sources with particular emphasis on verifying the interpretation of the qualitative data through comparison with quantitative data.

Chapter 5 Research Findings

5.1   Introduction

This chapter presents the data findings, first organised into two groups - quantitative data and qualitative data - and then analysed to answer the research question: *does using a blog as a digital literacy learning support encourage learners construct their own knowledge?* The chapter finally concludes that while the designed learning experience goes some way to creating a constructivist learning environment, modifications are needed to enhance the potential benefits to the learners.

5.2   Quantitative Data

5.2.1   The participants' profile

The participants' profile data was gathered though observation and from interview data. Age emerged as a theme and is shown along with the participant's gender in Table 5:

Ages	Gender
40s and 50s	1 male, 3 females
60s and 70s	1 male, 4 females
Total	**9 participants**

Table 5: Participants' Profile

5.2.2 Pre- and Post- Learning Experience Questionnaire

Chart 1 shows the parsed data from the pre- and post- learning experience questionnaire (Appendix B: Participants Questionnaire), organised into the three categories of questions.
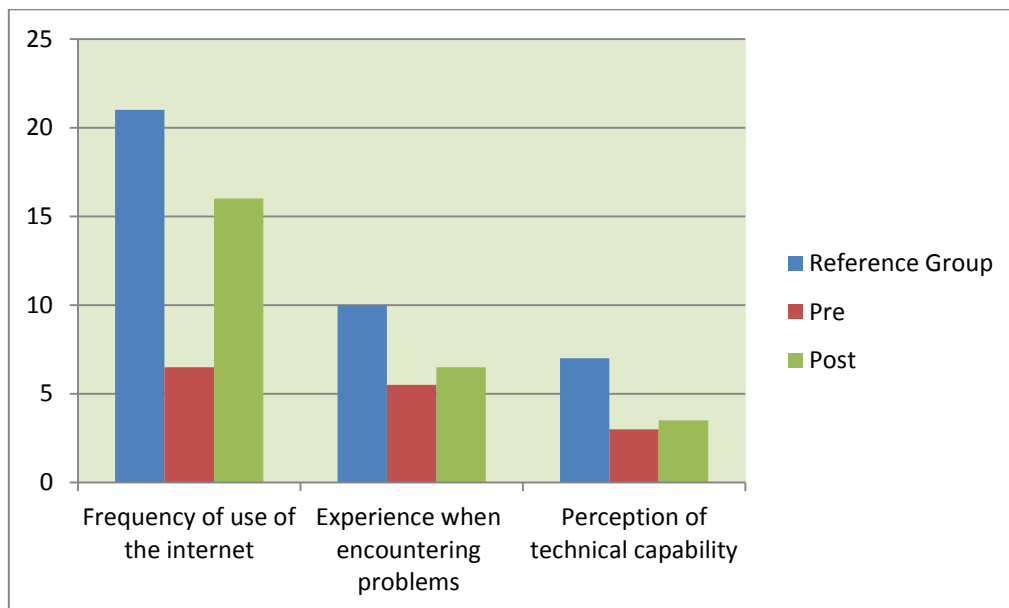
Chart 1: Questionnaire Data

All data has been normalised to enable comparison. The reference group data is included to provide some validity to the scoring (derived from 33 leaners attending a full-time FETAC Level 5 computer course). More details are shown in Appendix I: Questionnaire Data, including the normalised scores for each question.

As explained in Chapter 4, the scores merely provide an approximation of digital literacy and an indication of any digital literacy improvements over the learning experience; however the following notes are of significance:

- The pre-learning experience questionnaire reveals a relatively low digital literacy level in the learning group – although the learners did use email to some extent they made little use of other internet applications and had fairly low self-confidence when dealing with problems while using digital technology. This influenced the deployment and delivery of the blog, emphasizing the need to present the blog as a non-threatening learning support tool (Merriam, 1998, pp. 161-163).

- Overall there appears to be an improvement in the digital literacy level after the learning experience and, on closer examination of the data, the learners are clearly making more use of email, search engines and *YouTube*. There is some indication that leaners are simply doing more on the internet; however there is little or no evidence of any improvement in their perception of either their own technical capability or their ability to solve problems while using digital technologies.

5.2.3 Site Statistics

Chart 2 shows the number of views and comments week by week (Denzin & Lincoln, 2011, p. 473). This data has been derived from the *WordPress* site statistics (see Appendix J: Site Statistics for more detail).
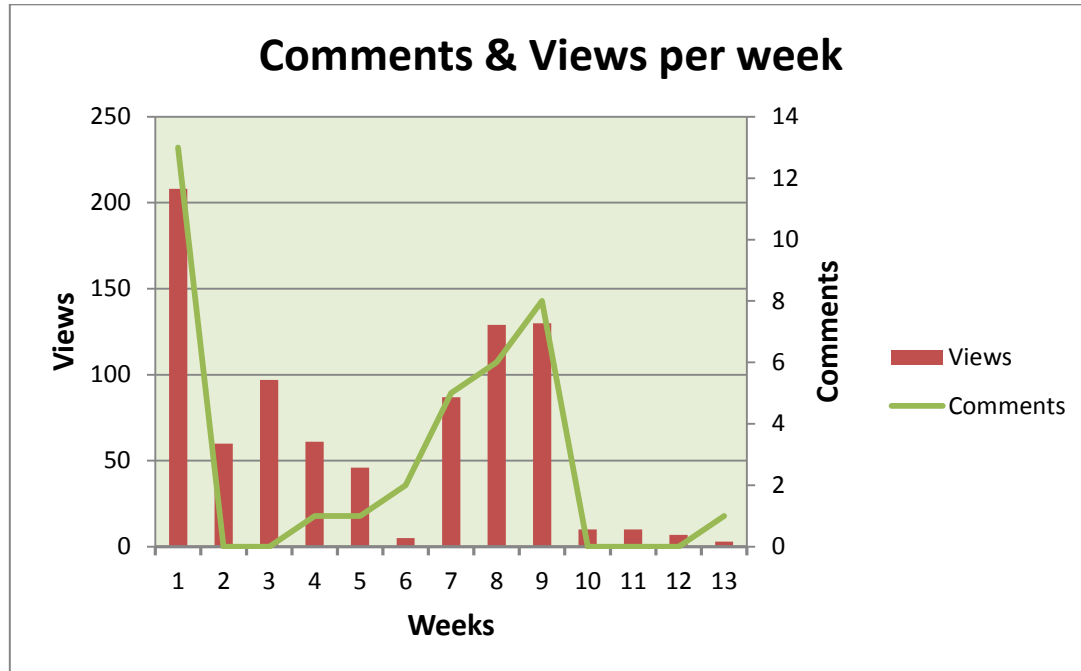
Chart 2: Views and comments over the 13 week research

Unfortunately, the views do not provide a reliable reflection of the actual views of class members for two main reasons. Firstly, these figures include views from the general public and secondly, as was revealed during the interviews, many students responded to the emails they received (by reading and/or following hyperlinks) without viewing the post on the blog site. However Chart 2 does illustrate that while the trend of views/comments reflects the learning experience deployment plan (that is, there is a peak in weeks 7, 8 and 9 when enhanced interaction was promoted by the tutor) there was never significant comment activity from the learners with only 37 comments made in total. Further analysis of these figures, as shown in Chart 3, shows a marked difference in the behaviour of different learners.
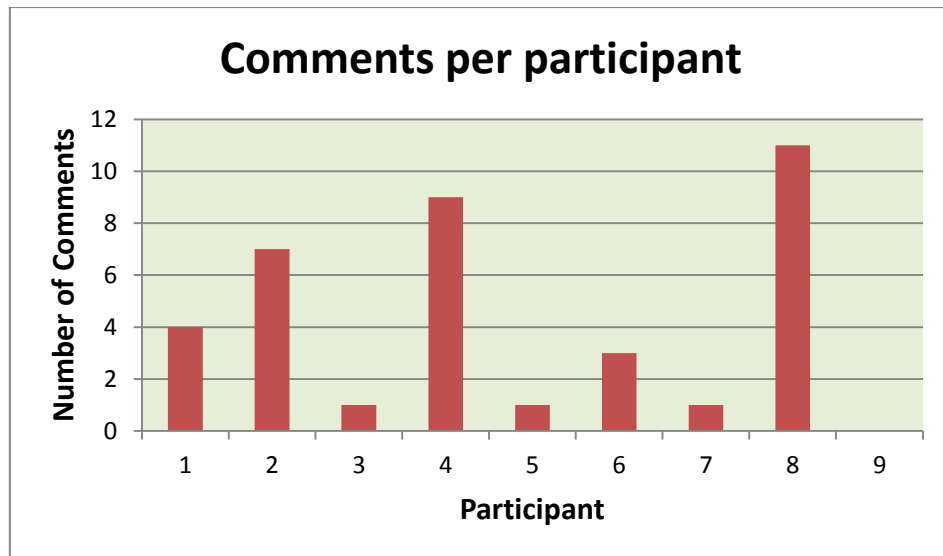
Chart 3: Engagement of participants via comments

Of the nine participants, four commented once or not at all. This means that four participants did not use comments after the initial introductory exercise.

Of the remaining five, three were reasonably active and two less so. No conclusions can be drawn from this without first examining the contents of the comments made and this is explored in the next section.

5.3   Qualitative Data

5.3.1 Learners Interaction with the Blog

The contents of the comments made on the blog were examined and divided into themes (see sample in Appendix K – Sample of Learners' Comments on Blog) as shown in Table 6*:*

Theme	Description	Number
Intro/Testing	In response to ice-breaker exercise or just testing process	9
Intent	Stating intent to use new technologies	5
Progress	Stating enjoyment of progress, expressing thanks	13
Help	Looking for more information	8
Sharing	Sharing information as a reference to others	2
Total		**37**

Table 6: Comments by Theme

Analysis of these comments reveals:

- The blog was used primarily as a place to comment on progress and to express enjoyment for the classes ("I really enjoyed last night's demonstration of Skype in action. Thank you." [P4]). While these could be regarded with some scepticism (the learners may have wished to please the tutor) it does reflect the learners responding to the tutor's intent of simply getting the learners to engage with the blog.

- The leaners did engage with the blog to seek answers to questions when they were encouraged ("I'm having difficulty finding (a linked to) podcast. Can you run through that again." [P1]).

- Those leaners who did engage expressed their intention to explore other digital technologies indicating their curiosity for learning more ("I downloaded iTunes – looks like a whole new world!" [P6], and "I just opened a twitter account" [P8]) and their openness to trying out the blog as one of those new technologies.

It is clear however that the blog did not create an exchange between leaners – there was no depth of communication between learners. This may have been a limitation in the deployment of the blog caused by the desire to set up in a non-threatening way or may have, as was later revealed in interviews, been a reflection of the lack of common interests (other than the obvious learning digital technologies) shared between the learners.

5.3.2 Observations – The Tutor's Perspective

The data from the observations of the tutor were first examined under the headings used in the field notes (Appendix C: Researcher's Observations) and then further analysed using the code and theme technique to reveal any emergent themes (Cresswell, 2005, pp. 237-247). The observations were gathered over the 13 weeks of the research but were found to be of most significance in assessing the impact the blog had on classroom activities during the 8 classes (see Appendix L – Sample of Subjective Observations – Tutor's Perspective). These findings are discussed here under the field note headings:

How was blog helpful to tutor?

The tutor always found the blog useful to support classroom activity. Most significantly, having the blog provided a reference for more able learners to work ahead while the tutor gave individual attention to weaker learners. The blog also provided a point of reference for neighbouring learners to discuss the subject at hand and help each other.

How did users respond to it?

Learners always expressed satisfaction with the blog and found the frequent emails between classes beneficial. While the use of the blog clearly evolved over the course, and as the users developed an understanding of the purpose of the blog, the users had a very positive response to the blog from the beginning. The learners did not tend to link to the blog from their emails until after week 4 when the method was again demonstrated.

How does blog appear to be a useful aid to the learners for course learning material?

The blog provided a reference point for the course notes which proved to be a useful aid to the course material particularly when learners missed classes. The blog also provided another perspective on the learning material, for example: an aggregation of *Twitter* tweets on the *Irish Times* site following the US Presidential Election was shared in Week 7, thus presenting the material from multiple perspectives (McPherson & Nunes, 2004).

How does blog appear to be a useful aid to help the learners' digital literacy?

In general using the blog supported the development of digital literacy skills and competencies, however the tutor noted that at times the blog confused the learners, most significantly when errors (specifically invalid links in Week 4 and Week 6) were found in the posts. These errors confused the leaners and potentially undermined their self-confidence as they had more trust in the material on the blog than in themselves.

How does blog appear to be enhancing communication within the group?

The tutor felt that class cohesion was good in comparison to previous Digital Age Skills courses: leaners helped one another and the blog provided a focal point for that activity. This finding is not supported by the leaners own responses as reflected in the interviews and this is discussed in more detail later.

Overall attendance for the course was very good and enthusiasm maintained throughout. The tutor felt that the blog made some contribution to this even if only through the support provided for sending regular emails.

How is blog a hindrance to classroom activities?

At times attention was needed to ensure that all learners were accessing the blog correctly. If this is considered peripheral to the course (and given that this was being used for research purposes it is perhaps reasonable to consider it so) then this could be considered a hindrance to normal activity. On later reflection, and following interviews with the leaners, the use of the blog could be considered an essential part of the digital literacy skills and therefore time spent ensuring the learners became proficient users of the blog was not time wasted.

Emergent Theme – Significant Time & Effort From Tutor

An emergent theme however was the effort required by the tutor to ensure that the blog was a useful aid. This required the tutor to carefully research material to bring to the students via blog posts and to ensure that blog posts were correct and working. Once or twice the blog posts contained link errors and this caused confusion and frustration to the leaners. In addition, the tutor needed to develop technical proficiency in maintaining the blog which required more time than expected.

5.3.3 Individual Learners' Perspectives

One-to-one interviews, conducted near the end of the learning experience with eight of the nine participants (one was unavailable), focussed on the individual learner's experiences (Silverman, 2009, pp. 189-191). The open coding technique (Cresswell, 2005, pp. 237-247) was applied in an iterative manner to discover emergent themes until finally grouping into five significant themes as shown in Table 7 and discussed in more detail in Table 8.

Theme	Description	Meaning
EXST	Existing Practices	The blog posts connected learners to their existing practices through the use of email and, while mainly beneficial, this may also have had a negative impact as some learners were reluctant to adopt new practices.
CONN	Connections to new technologies	Learners demonstrated their connections to new technologies or their intention to connect; evidence also emerged of nervousness of new technologies and resistance to explore.
AGE	Age related issues	The perception that age makes learning new technologies challenging while also creates a need to engage with at least some technologies.
CHSN	Class Cohesion	Class cohesion: whether it existed and whether it was enhanced by the blog.
IMPV	Course improvements	In addition to many positive comments on the course delivery some suggestions were made on how the course, and particularly the blog deployment, could be improved.

Table 7: Emergent themes from interview data

Theme	Discussion
EXST	Blog posts were emailed to the learners once the learners were following the blog and while this had the advantage of connecting to their prior learning ("Email is something I am very familiar with" [P6]), it may have also had the disadvantage of not drawing them to the blog site. Many said that they responded to the blog "mostly from the email" [P7]. While there was some evidence that the blog encouraged activity ("Blog was interesting, interactive and sometimes I would go back (to the blog) after the class and that re-enforced it" [P8]), there was also evidence of a reluctance to change from existing practices as demonstrated when asked how they would access the material again if returning to later: • "it'd be the emails" [P1] • (through the email) "because that is what I know" [P3] • "searching for Digital Age (in his email) is very easy … rather than remembering 'now what do I have to do to get into the blog' " [P6]
CONN	The division of the group into active engagers and non-engagers (as evidenced through the site interaction analysis) is further supported in the interview data. Those who engaged with the site described a curiosity in using new technologies and a satisfaction in now having the skills to engage further: • "And now when I want to use Skype I know how to do it – I just go in and read the background" [P8] • "I know that I can look those things up again (iTunes and digital photography) when I need them" [P1] • "In fact, you know, I am following a blog that I chose, that I discovered" [P4] Those not engaging expressed varying reasons for not doing so. One participant expressed a reluctance to engage as "a blog was never really on my agenda" [P3] whilst others simply felt no need to engage with it ("It wasn't that I didn't find it useful, it's just that I didn't use it." [P5]) but were grateful to have it as a reference ("What I liked about it was the fact that it was there." [P7]). Reluctance to engage may at times have been attributable to a fear of new technology and an understandable nervousness about what they were engaging with: • "I don't want to get into something where they bombard you with emails every second day." [P6] • (regarding *Google*) "I actually think that it is a massive spying organisation" [P3]

Theme	Discussion
AGE	There was a divide amongst the learners in terms of age. A number were older and retired (60s and 70s) and engagement with the technology was at times a challenge to them (which they often embraced) and a number of younger learners (late 40s and 50s) who were still working and appeared to not feel the need to actively engage to gain the benefits from using the blog. Age emerged as an issue for some older learners concerned with the problem that new technology can present to them: • "older adults need more time on basic terminology" [P3] • "having trouble remembering how to do things" [P1] • "the fluency that the younger people have with the whole computer thing, that still hasn't come my way" [P6] Indeed at times it was clear that some of the older adults simply weren't interested in exploring some of the new technologies: • "I wasn't really interested in Facebook, that's for the kids, I don't know anyone older with a Facebook account" [P3] • "now I'd only change that if I thought there was a reason to change" [P1] Others however expressed delight in learning these new technologies to help them engage better in today's society: • "it is very important to be engaged and I find that now that I am retired" [P8] • (if you didn't engage with new technology you'd be) "left behind" [P4] While speaking of retired friends who were not using the internet one learner recalled saying to them: "You need to do something about that (their lack of digital literacy) because you are going to be cut off from what's going on" [P8].
CHSN	The learners were asked explicitly about their perception of class cohesion and whether the blog contributed to better cohesion and almost without exception they stated that the class did not demonstrate good cohesion ("The rest tended to work alone, we weren't really that good at group dynamics" [P2] and "social cohesion in the class, probably not" [P8]) However, further analysis of the interview data reveals a different story. Although the group did not share common interests ("we just had different interests" [P1]) there was a commonality recognised by some ("Our group were all sort of similar" [P2]) and most expressed feeling comfortable in the class ("I thought that the class were very open, people weren't shy about coming forward" [P5] and "We all felt very at home with you" [P4]). While it is difficult to discern in what way the blog contributed to this, one learner expressed appreciation for gaining some insight into other learners' experiences ("It came up on some of the blogs: we were all experiencing the same problem" [P1]).

Theme	Discussion
IMPV	Overall there was a very positive response to the course delivery with the blog as a core learning support. Favourable comparisons were made to previously attended computer courses ("I have been to other computer classes before and some have been woeful … but I just found that blog one, it was interesting and interactive" [P8]) and indeed the blog itself was generally regarded favourably. The style of blog posts was appreciated by one learner ("I liked the blog, the short paragraphs, not being too long." [P1]), others expressed satisfaction with having a reference outside of the class time: • "The blog provides you with a way that you can go back and get the information when you are ready for it" [P7] • "They're there and they are a reference" [P5] The in-classroom support the blog provided to class progress was also appreciated: • "I could work independently" [P5] • "Having the blog meant that you could move people on while keeping the class with you." [P8] One learner expressed an appreciation for the nature of the learning supported by the blog ("Well there is another dimension to this learning and it is about responses, comments." [P4]). Interestingly, the improvements suggested relate to ways of promoting engagement with the blog ("more exercises – a little bit of homework on the blog" [P8]) and indeed of carrying out exercises using the blog ("People would benefit from having an exercise and focussing on that" [P2]). These generally came from learners who did engage, rather than those who didn't actively engage beyond the initial introductory comment. Indeed these other learners expressed satisfaction with the level of engagement expected from them ("I enjoyed it and I got what I wanted out of it" [P5]) and felt that a higher expectation of engagement might be off-putting ("It could frighten people a bit if pushed at the start – people would say: 'ughh I don't want to blog!'" [P7]).

Table 8: Analysis of emergent themes

5.4   Triangulation of data to answer research questions

The data from all sources has been analysed to derive answers to the research question and draw conclusions from any emergent themes (L. Cohen, et al., 2007, pp. 150-155).

To answer the research question 'does using a blog as a digital literacy learning support encourage learners construct their own knowledge?' the following questions are explored:

Does using the blog encourage active engagement with digital technologies?

The blog encouraged active engagement with digital technologies in a number of ways:

- *Frequent emails*
  The learners appreciated the connection to their prior learning afforded by the frequent emails sent to the blog followers. The learners often followed the hyperlinks provided and expressed satisfaction with this as an aid to their learning.

- *Linking from the email to the blog*
  While some learners simply followed the hyperlinks provided in the emails, others used the emails to connect to the blog posts. Once on the blog site the learners sometimes accessed the previous posts to further their knowledge.

- *Submission of comments*
  The level of engagement from the learners in terms of submission of comments to the blog was not significant; however those that did engage displayed a curiosity both in the blog and in other web technologies. Those that did not engage did not appear to feel under pressure to do so and expressed satisfaction in observing how others used the blog for comments.

- *Reference resource*
  The blog provided a reference resource, particularly for the class notes, with many expressing the intention of returning to later. In addition this provided a useful classroom resource allowing more able learners to proceed while the tutor helped those struggling.

- *Connecting to other digital technologies*
  The blog afforded an opportunity to gain familiarity with a specific Web 2.0 technology and this may have helped the learners' confidence in engaging with other Web 2.0 technologies. Many expressed the intention to use the internet more to get answers when they encounter technical problems and a number were making more use of other digital technologies now than before.

Does using the blog enable learners to access learning material from multiple perspectives?

The blog enabled learners to access material from multiple perspectives primarily by linking them to learning material in different ways:

- *Another perspective on emails*

  The blog made a connection between a technology the learners were familiar with, i.e. email, yet presented emails from a different perspective.

- *Authentic experience in accessing class notes*

  The blog provided a way for learners to access the class notes (via PDF files) affording them an authentic experience of the technology they were learning about.

- *A different angle on social media*

  The blog presented other social media from a different perspective. Most learners were curious about *Facebook* and *Twitter* but reluctant to become users of these – the blog provided a means of accessing these by linking to open *Facebook* pages and aggregated *Twitter* feeds.

- *The scale of data on the internet*

  The scale and scope of the internet was more clearly revealed to many learners, with some appreciating the potential for free online tutorials from *YouTube* for the first time. The blog organised these posts into relevant categories and thus provided a reference resource that the learners felt they would return to later.

Does the blog facilitate social interaction?

Social interaction for this type of learning experience occurs amongst class members (during and between classes) and within the wider internet community. While the blog may have *facilitated* social interaction, it does not appear to have *promoted* it. By not exploiting the features normally expected to promote social interaction (learners were not authors of the blog and so could only comment on posts made by the tutor), the blog did little to contribute to class cohesion: the number of comments made was low and the style primarily concerned with minor comments on the course content. The findings however present conflicting data – the learners expressed a lack of cohesion within the group, the tutor witnessed good cohesion – and it is interesting to note how the blog could be used to enhance better communication within the learning group though more collaborative/co-operative exercises. This was suggested by two learners and has been adopted in the next delivery of this course.

There was little evidence of any social interaction within the wider internet community although the effect on the learners sense of participation when, for example, accessing data posted by other users in the internet community, is difficult to measure and has not been assessed.

Does the blog promote continued use of digital technologies?

Many learners expressed the intention of continuing to use the learnt digital technologies and indeed of returning to the blog as a reference resource to help them do so. Assessing whether this actually occurred is outside the scope of this research, however, all participants are still following the blog (now being used for the next Digital Age Skills class) and are thus still receiving emails when new posts are added. Maintaining the blog in this way, and continuing to make it available to the learners, certainly has the potential to promote continued use, however, continued use may be better established and maintained where learners use digital technologies to help them pursue that a specific interest.

Two further themes emerged:

Learners' Self-Confidence

Overall it appears that there was some improvement in the learners' self-confidence in using digital technologies – they were making more use of technologies after the course than before – but it is difficult to determine to what extent the blog contributed to this improvement. For some, the blog provided an opportunity to practice active participation with one web technology and this may well have translated to increased self-confidence with other digital technologies. While other learners preferred less active participation in the blog, they still appeared to find the blog beneficial. In general, the learners' perception of their own technical abilities showed no significant improvement and some continued to feel their age a hindrance to progression.

Interests

Delivering a digital literacy course presents a challenge to engage leaners in subjects of interest, unlike, for example, teaching a digital photography course when digital literacy skills can be developed alongside explicit digital photography skills. This matter was raised by a number of learners and indeed was considered by some as being central to the learners' perception of the class lack of cohesion.

5.5 Conclusion

This research has demonstrated that using a blog as a core learning support for digital literacy has been beneficial to the learners and may have encouraged knowledge construction. Some of the guiding principles needed for a **constructivist learning environment** - active participation, social interaction and learning material from multiple perspectives - were met and were demonstrated to have been effective:

- **Active Participation**

  While the level of active engagement with the blog varied and indeed overall was quite low, there was evidence of active participation, supported by the blog, from all participants. Most learners responded or reacted to emails, following hyperlinks on subjects of interest to them and used the blog as a reference site to access the course notes. A number of learners used the blog as a means of practicing their skills at engaging in new technologies with one now following another unrelated blog.

- **Multiple Perspectives**

  The blog provided opportunities for the learners to interact with information from multiple sources and presented the material to the learners from different perspectives. This ranged from the learners developing skills in finding and using online tutorials to accessing new technologies in different contexts.

However, further modifications to the learning experience are needed to enhance **Social Interaction**. While the learning did occur in a social setting which was supported through the blog, there is conflicting evidence in the level of social interaction the blog encouraged. More social interaction through exercises on the blog was recommended by a number of learners and is currently being trialled with the next learning group.

A number of lessons have been learnt from this research and are currently being adopted in the next Digital Age Skills course delivered by the tutor:

- The ice-breaker exercise has been modified to get the learners to also introduce their nearest neighbours. This encourages the learners to communicate with each other, help each other submit a comment and provides richer data on the names of the learners.
- An "any questions" page has been included in the site to enable learners submit questions to the blog without linking them to specific posts.
- All existing posts (from this deployment) have been left on the blog as a reference rather than starting the blog from scratch. This provides a richer resource for new learners to access.
- Additional exercises, to be completed in class and in pairs, are planned as the course progresses to encourage interaction with the blog as a means of enhancing communication between learners and encouraging interaction with the blog.

Chapter 6 Conclusion

Different approaches to adult digital literacy learning are needed to provide positive learning experiences, enhance learners' self-confidence and encourage continued use of digital technologies (Redecker, et al., 2009). Providing a constructivist learning environment in which learners are engaged in meaningful learning in an authentic setting has the potential to achieve positive outcomes for adult digital literacy learners (Howland, et al., 2011). Web 2.0 technologies appear to provide such an environment by meeting some of the principles identified as being essential to a constructivist learning environment: active engagement, social interaction and multiple perspectives on learning material (Carsten, et al., 2008). An examination of available Web 2.0 technologies indicates that using a blog as a core learning support offers good potential for adult digital literacy learners. A review of the literature, however, finds little evidence of blog deployments for digital literacy learners. Lessons can be learnt from where blogs have been used in other educational settings including, and of most interest to this study, that the technical skills needed to engage in a blog are not insignificant (Sim & Hew, 2010).

A case study, using a blog as a learning support in an already established digital literacy learning course, was used to determine if the blog did indeed encourage the construction of learners' knowledge and provide them with skills and confidence promoting continued use. The blog deployment was carefully considered and the learning experience planned taking the learners' needs into account. Learning scaffolds were provided to ensure that, as the learners gradually gained confidence, their unaided interaction was encouraged (Murray & McPherson, 2006).

The study was conducted with nine participants over 13 weeks. The data collected was mainly qualitative with some quantitative data to support any findings. Data was collected from four main sources: pre- and post- learning experience questionnaires, tutor's observations over the learning experience, site statistics and finally, one-to-one interviews with the participants. Analysis of this data was started as soon as the first set of data was collected and continued iteratively with the findings used to determine both modifications in the deployment of the learning experience and any additional data to collect.

Although this study is limited by the small sample size and the short duration, it appears that the blog did indeed encourage the learners' construction of knowledge though meeting some of the guiding principles required to create a **constructivist learning environment**. The blog promoted active participation in all learners providing an opportunity for engagement in real life activities in an authentic setting and thus potentially developing the skills and confidence to encourage learners engage with other digital technologies. The blog provided the learners with the learning material from multiple perspectives, re-enforcing the knowledge acquisition and developing, in some, an awareness of how digital technologies can be used to help them in the future. While the blog deployment did not fully exploit the potential benefits of social interaction, there was some evidence that the shared experience afforded by the blog led to an appreciation of the challenges and opportunities digital technologies present to this type of learner. The study finds that many learners expressed the

intention of continued use of digital technologies and a number expected to return to the blog as a reference resource - further research would be required to establish if this did in fact occur.

Some differences in responses to the blog were found within the group: some learners showed little interest in using the blog, some were content with more passive participation and some used the blog to practice engagement with digital technologies and enhance their skills. There is some indication that age may have been a factor influencing the level of interaction with the blog, surprisingly with the older learners more keen to actively engage, but given the small sample size further research is needed to determine if this holds for other learning groups.   At times, age was also shown to deter older learners, some of whom struggled with the concepts of blogging and were not keen to learn new skills unless they perceived those skills to meet a need.

The findings support the contention that using a blog as a core learning support for adult digital literacy goes some way to providing a constructivist learning environment. The deployment of the blog must be carefully thought through: while more active engagement of the learners, particularly in teams, is advisable, care must be taken to not discourage learners by forcing engagement. The potential positive outcomes for learners make the choice of a blog as a learning support for adult digital literacy tutors and administrators worth considering but the blog must be carefully supported by the tutor and this requires on-going attention and effort.

Limitations

There were a number of **limitations** to this study:

- The small sample size makes it impossible to generalize behavioural responses based on age and/or gender.
- Data from only one sample makes it difficult to conclude how different learning groups might respond and impossible to observe how different class dynamics influence blog engagement.
- The time used for the study was short. A follow up interview some months after the completion of the course would be useful to determine whether learners' behaviour with respect to digital technology remains changed and whether the learners did indeed return to the blog as a reference site as many intended. This was outside the scope of the study.

Further Research

- A number of potential improvements are suggested that could further enhance blog usage for this type of learner. More research into the effectiveness of these modifications would be worthwhile.
- Age appears to have been a factor influencing the learners' response to the blog although the small sample size prevents any definite conclusion. Further research into whether and how age influences behaviour could be used to improve the design of the learning experience to promote greater participation in the blog.

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Appendices

Appendix A: Categorization of Web 2.0 Technologies

Web 2.0 technologies are distinguished from previous generations of the web for being inherently social and open thus encouraging interaction and participation (Carsten, et al., 2008). Anderson provides a useful categorization of Web 2.0 technologies (Anderson, 2007) and as Web 2.0 technologies have evolved other researchers have added to these categorizations (Baxter, et al., 2011; Buigues-García & Giménez-Chornet, 2012; Grosseck, 2009) as shown here:

Technology	Description
Social Networks	A range of social networking sites exist, the most prevalent being *Facebook*. These sites share the common characteristic of linking people and providing communication paths for users to share their photos, music and ideas (Anderson, 2007). Social networks provide hyperlinks across the web enabling users to share content. *Twitter* provides a combined social network and micro-blogging feature and has grown in popularity in line with the growth in users access to smart phones (Demirbas, Bayir, Akcora, Yilmaz, & Ferhatosmanoglu, 2010).
Blogs	A blog, derived from the words "web-log", comprises a webpage giving paragraphs, referred to as posts, of opinion and/or information often linking to other web pages. These posts are arranged chronologically with the most recent first and usually allow visitors to add comments (Anderson, 2007). Creating a blog is made easy by numerous blogging site, including *Blogger* and *Word Press* (Buigues-García & Giménez-Chornet, 2012).
Wikis	A wiki is a webpage or set of webpages that is developed by a community of users. A wiki facilitates collaborative writing and editing (Buigues-García & Giménez-Chornet, 2012) as any user that is granted access can add or edit content (Anderson, 2007). Wikis provide a useful resource for users to aggregate web content on a particular subject (Grosseck, 2009) providing a useful link into other areas of the web.
Online Forums	Online forums allow the user to post a message and to which others can then respond. Topics on online forums are organised into threads and thus forums are useful for finding answers to questions of interest (Baxter, et al., 2011)

Technology	Description
Content Syndication	RSS (Rich Site Summary) enabled websites are used to disseminate updated content to subscribed users. This allows aggregators, such as *Google Reader*, to aggregate the updated content thus making it easier for the user to access (Buigues-García & Giménez-Chornet, 2012).
Tagging and Social Bookmarking	A tag is a keyword that when added to a digital object (e.g. a blog post, wiki site, a podcast or a video) makes that object easy to find by a search engine (Anderson, 2007). Intelligent tagging of digital objects greatly assists users locate relevant digital objects. Social bookmarking systems range from *del.icio.us*, a service that allows users to store bookmarks to their favourite sites in a central location that can be shared with others to *Stumple-upon* which directs users to sites that match their expressed interest (Buigues-García & Giménez-Chornet, 2012).
Multimedia Sharing	Multimedia content can be easily shared online with a range of tools - including video hosting site such as *YouTube* and photo hosting sites such as *Flickr* - enabling users become active participants of the web rather than passive consumers (Anderson, 2007).
Podcasts	Podcasts are audio recordings, usually in MP3 format, of talks, interviews and lectures, which can be played on a wide range of devices including desktop computers, handheld MP3 players and most mobile phones (Anderson, 2007). Podcasting has become a standard means of broadcasting for most broadcasters as well as a common tool used by educational institutions to disseminate their knowledge. Podcasting works best in conjunction with content syndication, enabling users easily access updated podcasts (Buigues-García & Giménez-Chornet, 2012).
Other Tools	Web 2.0 tools are evolving all the time and becoming ever more integrated into how users access the internet. Other tools include Web 2.0 presentation (e.g. *Prezi)*, bibliographic references tools (e.g. *RefWorks)*, VoIP applications (e.g. *Skype*) and a host of instant chat tools (Buigues-García & Giménez-Chornet, 2012; Grosseck, 2009).

Table 9: Web 2.0 Technologies

Appendix B: Participants Questionnaire

PARTICIPANTS QUESTIONNAIRE
Used to gauge your current knowledge & experience
(Estimated time to complete: 15 mins)

Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to.

Current Use of Digital Technology

In recent weeks how often have you done the following:								
Emailed friends/family:	Never	☐	Once	☐	A few times	☐	Often	☐
Emailed for business (personal or otherwise):	Never	☐	Once	☐	A few times	☐	Often	☐
Accessed Facebook or Twitter (or other social media)	Never	☐	Once	☐	A few times	☐	Often	☐
Searched and/or viewed on YouTube	Never	☐	Once	☐	A few times	☐	Often	☐
Connected other devices to your PC (e.g. phone, iPod, mp3, camera)	Never	☐	Once	☐	A few times	☐	Often	☐
Managed your digital photos (viewed, organised, edited, emailed):	Never	☐	Once	☐	A few times	☐	Often	☐
Bought tickets online (films, concert, holidays, etc)	Never	☐	Once	☐	A few times	☐	Often	☐
Looked up information online (e.g. on people, places, companies etc.)	Never	☐	Once	☐	A few times	☐	Often	☐
Went online to find answers to questions (e.g. via forums)	Never	☐	Once	☐	A few times	☐	Often	☐
Provided answers to questions from others online (e.g. via forums)	Never	☐	Once	☐	A few times	☐	Often	☐
Others uses:	Never	☐	Once	☐	A few times	☐	Often	☐
Please specify:								

Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to.

Problems using Digital Technology

When using digital technology (including phones, TVs, computers, cameras etc) how often do you experience problems and how do you deal with those problems:								
I rarely have problems	Very true	☐	True	☐	Sometimes	☐	Not True	☐
I give up when I encounter problems	Very true	☐	True	☐	Sometimes	☐	Not True	☐
I call on friends/family for help	Very true	☐	True	☐	Sometimes	☐	Not True	☐
I work my way through problems and solve them myself	Very true	☐	True	☐	Sometimes	☐	Not True	☐
I go online to find answers to problems	Very true	☐	True	☐	Sometimes	☐	Not True	☐
Other comments:								

Helping others use Digital Technology

Do people seek help from you in using digital technology and, if so, how good are you at helping them: (digital technology includes phone, TVs, computers, cameras etc)								
Some people regard me as more expert than them	Very true	☐	True	☐	Sometimes	☐	Not True	☐
I consider myself quite good with digital technologies	Very true	☐	True	☐	Sometimes	☐	Not True	☐
I enjoy helping others solve technical problems	Very true	☐	True	☐	Sometimes	☐	Not True	☐
Nobody asks me to help them with technical problems	Very true	☐	True	☐	Sometimes	☐	Not True	☐
Other comments:								

Appendix C: Researcher's Observations

Complete for each week of research

Section A – Objective

Week Number:	
Group Id:	
Number of Learners in group:	
Number attending class	
Date of class:	
In class time: Number who commented on blog	
In class time: Number who posted on blog	
Outside class time: (since last class) Number who commented on blog	
Outside class time: (since last class) Number who posted on blog	

Section B – Subjective

How was blog helpful to tutor	
How did users respond to it	
How does blog appear to be a useful aid to the learners for course learning material	
How does blog appear to be a useful aid to help the learners digital literacy	
How does blog appear to be enhancing communication within the group	
How is blog a hindrance to classroom activities	
Other comments	

Appendix D: Post Exercise Interview

POST EXERCISE INTERVIEW

(This interview is conducted at the end of the research exercise and is expected to take approx. 15

mins. The interview will be recorded and then transcribed for analysis)

Group identification:		Date of interview:	

1. When you received posts via email what did you tend to do with them?
   Prompts
   - Nothing; didn't open them
   - Opened them, but didn't follow them up
   - Read them in email and followed any hyperlinks of interest
   - Viewed them on the blog and followed hyperlinks of interest

2. Did to ever return to email and/or posts (which) and if so when and why?
   Prompts
   - Before class
   - When time permitted
   - If a question arose

3. Do you think you'll return to any of the course material again and if so where will you access it from?
   Prompts
   - From email
   - From blog post
   - From class notes on blog site
   - From paper notes

4. Are you making more use of the internet since the course and if so what aspects?
   Prompts
   - Broadcast media – podcasts, RTE Player
   - Social media – facebook/twitter
   - YouTube
   - Searching for answers

5. Are you doing anything differently with other digital technologies now than before the course?
   Prompts

- Using digital camera
- Managing files better

---

6. Do you feel that the blog helped connect you to the internet/digital technologies in any significant way?
   Prompts
   - Not at all
   - Yes, made it easier to connect
   - Not sure, found it confusing

---

7. Did you ever read any comments left by others in the class and how did you respond to them?
   Prompts
   - No (if no why not? Did you know how to access them?)
   - Yes, found it interest to see what others were asking
   - Yes, but didn't find interesting.

---

8. How do you think the class blog added to the sense of community in the class:
   Prompts
   - It didn't
   - It helped give the class a common voice
   - It helped to learn the other class members names

---

9. What is your overall response to using a class blog in this way
   Prompts
   - Hard to get started
   - Felt it confused things
   - Felt in clarified things

---

10. Have you any suggestions as to what I should do differently if using blogs for a similar course again:
    Prompts
    - Make private
    - Allow students be authors of posts
    - Provide more training

---

11. Other Remarks

Appendix E: Information Sheet For Participants

INFORMATION SHEET FOR PARTICIPANTS

The purpose of this sheet is to inform you of the details of the research being conducted and in which your participation is being measured.

1. **The background**
This research is being conducted as part of my (Niamh L'Estrange's) MSc in Technology & Learning at TCD. The purpose of the research is to determine how digital literacy learners benefit from using a **blog** to support their learning.

2. **Why have you been asked to participate**
Your profile is that of a digital literacy learner i.e. you are currently engaged in a learning group to improve your knowledge of digital technology. You are being asked to participate as a member of your learning group so as to provide results comparable with other learning groups in this study.

3. **The procedures relevant to you**
This research will be carried out over the duration of your course:

        Course Title: _____

        From: _____ To:_____

During this course blogs will be used as a core learning support. At the start of the course you will be asked to complete a brief questionnaire to gauge your current expertise and interest and at end of the course you will be asked to participate in a brief interview to gauge your response to the exercise. In addition, your use of the blog will be observed as part of the research.

Your participation in the research will be completely anonymous.

4. **Declarations of conflicts of interest**
A blog has been selected as a core learning support for this course and as your tutor I will endeavour to make the blog a valuable learning support. My research interests are restricted to understanding whether the blog does indeed benefit you the learner. Allowing me (or not allowing me) use your data for my research will have no effect on any other learning outcomes expected from your participation in the course.

5. **Your right to withdraw from this study**
Your participation is voluntary. If you do not wish to be included in the results of the research then data relating to you will be excluded without any penalty to you.

6. **The expected duration of the your involvement**
This research will be conducted over the duration of the course (see dates above). At the end of the course I will interview you at a date and time suitable to you.

7. **Anticipated risks/benefits to the participant**
There are no risks to you. The potential benefits are that you should benefit for using blogs to support your learning.

8. **The provisions for debriefing after participation**
A summary sheet will be prepared and made available to all participants. If you wish to receive this then please inform the researcher (this can be done through email to niamhlestrange@gmail.com). More detailed results from this study can be viewed by you on request.

9. Preservation of participant and third-party anonymity in analysis, publication and presentation of resulting data and findings

Your identity will not be revealed in any part of this study and will not be available to anyone once the study is complete.

10. Cautions about inadvertent discovery of illicit activities

Please be aware that I am obliged to report to the relevant authorities any activities of an elicit nature that I may inadvertently discover whilst under-taking this research.

11. Provision for verifying direct quotations and their contextual appropriateness

As part of the research report I am required to document the research activities taking place. You are welcome to confirm the content and context of any results that I report.

12. No audio or video recordings will be made available to anyone other than the research/research team, nor will any such recordings be replayed in any public forum or presentation of the research.

An audio recording of the interview with you at the end of the research will be made. This will be transcribed and used for research analysis but will not be made public. Your identity will not be made known through this recording or through the transcript.

The Blog used for this research may remain available as a (hopefully) useful reference to you and your learning group after the research is complete. If you so request all postings and/or comments from you can be removed at the end of the course or at any time during the course.

Appendix F: Informed Consent Of Participants

INFORMED CONSENT OF PARTICIPANTS
PARTICIPANTS AGED OVER 18

LEAD RESEARCHER: Niamh L'Estrange

BACKGROUND OF RESEARCH: This research is being conducted as part of my (Niamh L'Estrange's) MSc in Technology & Learning at TCD. The purpose of the research is to determine how digital literacy learners benefit from using a **blog** to support their learning.

PROCEDURES OF THIS STUDY: This research will be carried out over the duration of your course. During this course a blog will be used to support your learning. At the start of the course you will be asked to complete a brief questionnaire to gauge your current expertise and interest and at end of the course you will be asked to complete this questionnaire again (to determine if there has been any changes) and to participate in a brief interview (approx. 15 mins) to gauge your response to the use of the blog. In addition, your use of the blog over the course will be observed as part of the research.

PUBLICATION: The results from the research will be reported in a dissertation and presented within School of Computer Science and Statistics at Trinity College Dublin. **Your participation will be completely anonymous.**

DECLARATION:

I am 18 years or older and am competent to provide consent.

I have read, or had read to me, a document providing information about this research and this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.

I agree that my data is used for scientific purposes and I have no objection that my data is published in scientific publications in a way that does not reveal my identity.

I understand that if I make illicit activities known, these will be reported to appropriate authorities.

I understand that I may stop electronic recordings at any time, and that I may at any time, even subsequent to my participation have such recordings destroyed (except in situations such as above).

I understand that, subject to the constraints above, no recordings will be replayed in any public forum or made available to any audience other than the current researchers/research team.

I freely and voluntarily agree to be part of this research study, though without prejudice to my legal and ethical rights.

I understand that I may refuse to answer any question and that I may withdraw at any time without penalty.

I understand that my participation is fully anonymous and that no personal details about me will be recorded.

I understand that if I or anyone in my family has a history of epilepsy then I am proceeding at my own risk.

I have received a copy of this agreement.

PARTICIPANT'S NAME:

PARTICIPANT'S SIGNATURE:

Date:

Statement of investigator's responsibility: I have explained the nature and purpose of this research study, the procedures to be undertaken and any risks that may be involved. I have offered to answer any questions and fully answered such questions. I believe that the participant understands my explanation and has freely given informed consent.

RESEARCHERS CONTACT DETAILS:

Niamh L'Estrange   email: niamhlestrange@gmail.com   **mobile: 0877712553**

INVESTIGATOR'S SIGNATURE:

Date:

Appendix G: Letter of permission from Course Co-ordinator

Letter of permission from

Course Co-ordinator

For research to take place

Note: This research has been granted ethical approval by the Ethics Board, School of Computer Science and Statistics, Trinity College Dublin, on 29th August 2012.

I, _____ have been informed by Niamh L'Estrange (lead researcher) of the research that is being undertaken with my group:

Digital Age Skills (night class) for the duration of this course i.e.

From 26th September 2012 to 21st December 2012

I give my full permission for this research to take place within the agreed boundaries.

Signed: _____

Date: _____

Appendix H: Debriefing Sheet

DEBRIEFING SHEET

Engaging digital literacy learners in the constructivist environment of Web 2.0 technologies:
An examination using a blog as a learning support

This project was conducted in partial fulfilment for a degree of Master of Science in Technology and Learning 2013 at the University of Dublin for Niamh L'Estrange B.A., B.A.I. (TCD).

Background & Context

The world is changing as we move into the digital age and there are some people in danger of being excluded from this changing society. Attending digital literacy classes provides an opportunity for such people to participate in the digital age yet all too often these courses fail the digital literacy learners as the learners are unable to engage with the technology resulting in insufficient continued use outside the classroom. Tutors and administrators need to design and deliver digital literacy courses that engage and motivate learners.

A **blog**, one of many Web 2.0 technologies central to the internet today, has the potential to achieve positive learning outcomes by engaging adult digital literacy learners in meaningful tasks in an authentic setting. A blog meets some of principles identified as being essential to a **constructivist learning environment**: active engagement, social interaction and multiple perspectives on learning material. While there is little research into blog deployments for digital literacy, lessons can be learnt from where blogs have been used in other educational settings including, and of most significance to this study, that the technical skills needed to engage in a blog are not insignificant.

Research Implementation

A blog was used as a core learning support for an already established course entitled *Digital Age Skills,* run at the night school of *Dun Laoghaire College of Further Education, Cumberland St., Dun Laoghaire.*

Figure 1: Screen shot of blog header

The research was conducted over 13 weeks comprising 9 weeks of the course (8 classes of 2 hours per class and 1 week mid-term) and 4 weeks of post-course engagement, running from the **26th September to the 20th December 2012**. The blog was online and thus available to all learners between classes (and remains live and functioning) and its use outside of the classroom was actively encouraged. Nine of the twelve students enrolled agreed voluntarily to participate in the research.

The blog deployment was carefully considered and the learning experience planned taking the learners' needs into account. Learning scaffolds were provided to ensure that, as the learners gradually gained confidence, their unaided interaction was encouraged.

Research Outcome:

The study finds that the blog is a useful core learning support for digital literacy and that it meets some of guiding principles required to create a constructivist learning. The blog encouraged **active participation** in all learners providing an opportunity for engagement in real life activities in an authentic setting and presented the learning material from **multiple perspectives**. The level of **social interaction** promoted from the blog was limited however and a number of improvements to the learning experience were suggested that may contribute to more social interaction. The study finds that many learners expressed the intention of continued use of digital technologies and a number expected to return to the blog as a reference resource - further research would be required to establish if this did in fact occur.

Some differences in responses to the blog were found within the group: some learners showed little interest in using the blog, some were content with more passive participation and some used the blog to practice engagement with digital technologies and enhance their skills. Age appears to have been a factor in the level of interaction with the blog, surprisingly with the older learners more keen to actively engage. Age however was also shown to at times deter older learners, some of whom struggled with the concepts of blogging and were weary to learn new skills unless they perceived those skills to meet a need.

Conclusions:

The findings support the contention that using a blog as a core learning support for adult digital literacy goes some way to providing a constructivist learning environment. The deployment of the blog must be carefully thought through: while more active engagement of the learners, particularly in teams, is advisable, care must be taken to not discourage learners by forcing engagement. The potential positive outcomes for learners make the choice of a blog as a learning support for adult digital literacy tutors and administrators worth considering but the blog must be carefully supported by the tutor and this requires attention and some time.

This blog, with modifications derived from this research, is being used again with the spring 2013 *Digital Age Skills* class and can be browsed at http://digitalageskills.wordpress.com/ .

Further Information:

Further information is available on request from Niamh L'Estrange (niamhlestrange@gmail.com).

Appendix I: Questionnaire Data

	REF	Pre LG1	Post LG1	Change	Comment
In recent weeks how often have you done the following:					All numbers are normalised for comparison purposes
Emailed friends/family:	17	5	20	**15**	Significant increase in use of email
Emailed for business (personal or otherwise):	16	7	24	**17**	Significant increase in use of email
Accessed Facebook or Twitter (or other social media)	21	2	10	8	Some increase in use of new tech
Searched and/or viewed on YouTube	24	4	17	**13**	Significant increase in use of new tech
Connected other devices to your PC (e.g. phone, iPod, mp3, camera)	22	5	10	5	Some increase in use of new tech
Managed your digital photos (viewed, organised, edited, emailed):	16	8	14	6	Some increase in use of new tech
Bought tickets online (films, concert, holidays, etc)	12	7	14	7	Some increase in use of new tech
Looked up information online (e.g. on people, places, companies etc.)	26	9	23	**14**	Significant increase in use of searching
Went online to find answers to questions (e.g. via forums)	24	10	14	4	No observable increase
Provided answers to questions from others online (e.g. via forums)	10	2	3	1	No observable increase
Totals (normalised to 9)	188	59	147		**NOTE: SIGNIFICANT CHANGE HERE**
Normalised for 1	21	6.5	16		
When using digital technology (including phones, TVs, computers, cameras etc) how often do you experience problems and how do you deal with those problems:	0		0		
I rarely have problems	15	8	10	2	No observable increase
I give up when I encounter problems	24	16	20	4	No observable increase
I call on friends/family for help	19	12	11	-1	**Decrease! Rechecked and correct**
I work my way through problems and solve them myself	16	9	8	-1	**Decrease! Rechecked and correct**
I go online to find answers to problems	13	4	5	1	No observable increase

Totals (normalised to 9)	87	49	54		NOTE: LESS SIGNIFICANT CHANGE HERE
Normalised for 1	10	5.5	6.5		
Do people seek help from you in using digital technology and, if so, how good are you at helping them: (digital technology includes phone, TVs, computers, cameras etc)	0		0		
Some people regard me as more expert than them	12	5	6	1	No observable increase
I consider myself quite good with digital technologies	16	1	3	2	No observable increase
I enjoy helping others solve technical problems	16	8	5	-4	**Decrease! Rechecked and correct**
Nobody asks me to help them with technical problems	22	11	17	6	Slight improvement
Totals (normalised to 9)	66	25	30		NOTE: LESS SIGNIFICANT CHANGE HERE
Normalised for 1	7	3	3.5		
Totals over 3 categories(normalised to 9)	341	133	232		
Normalised for 1	38	15	26		
Check Totals (expect 0)	0	0	0		Cross check totals

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Appendix J: Site Statistics

		Week	Views	Posts	Comments	From non-participants/tutor	Totals
24-Sep	30-Sep	1	208	2	18	5	**13**
01-Oct	07-Oct	2	60	1	0	0	**0**
08-Oct	14-Oct	3	97	2	0	0	**0**
15-Oct	21-Oct	4	61	2	2	1	**1**
22-Oct	28-Oct	5	46	2	2	1	**1**
29-Oct	04-Nov	6	5	2	2	0	**2**
05-Nov	11-Nov	7	87	5	6	1	**5**
12-Nov	18-Nov	8	129	4	7	1	**6**
19-Nov	25-Nov	9	130	6	10	2	**8**
26-Nov	02-Dec	10	10	1	0	0	**0**
03-Dec	09-Dec	11	10	0	0	0	**0**
10-Dec	16-Dec	12	7	0	0	0	**0**
17-Dec	23-Dec	13	3	1	2	1	**1**
				Total	**49**	**Total**	**37**

Participant 1	4
Participant 2	7
Participant 3	1
Participant 4	9
Participant 5	1
Participant 6	3
Participant 7	1
Participant 8	11
Participant 9	0
Total	**37**

Appendix K – Sample of Learners' Comments on Blog

Author	Comment	In Response To
(4) Bridget Shannon, 86 44 202 147	Submitted on 2012/11/22 at 8:01 pm — zipping and extracting files.... I will get my head around it in time.. So far I'm happy with how I'm going, especially I thank my very patient tutor, Niamh, her skills are so well integrated, my classes were a pleasure... Bridget	Zipping and ... 1 ... enjoy
(5) Carmel, 83 70 253 84	Submitted on 2012/11/21 at 3:00 pm — Niamh, Sorry, please ignore that last request. I had in fact ticked the Mute button on the volume icon at bottom of screen. Carmel	Using iTunes to download music 3 ... help!
(6) Carmel, 83 70 253 94	Submitted on 2012/11/21 at 2:52 pm — Thanks Niamh. I can't get the sound on the video above although the volume is up on the bottom right hand corner of my screen. What am I not doing or doing wrong? Thanks. Carmel	Using iTunes to download music 3 ...
(7) Colette, 86 41 41 5	Submitted on 2012/11/21 at 12:30 am	In reply to Bridget Shannon. Hi Bridget, What is Richard Rohr's site again please? Colette	More on using the ... 2 ... Post comm.
(8) Colette, 86 41 41 5	Submitted on 2012/11/20 at 11:27 pm — I think you will will receive your own post back via tweet! I just opened a twitter account too. Keeping up with all this will be the next problem!	Copying an email address/URL 1 ... New Post new tech.
(9) Colette	Submitted on 2012/11/20 at 10:31 pm — Thank you Niamh. I just watched the iTunes video and found it informative and helpful	Using iTunes to download music helpful.

Author	Comment	In Response To

Author	Comment	In Response To
86 41 41 5	Colette	3 View Post
(10) Bridget Shannon, n/a x, 86 44 202 147	Submitted on 2012/11/20 at 4:57 pm — I persevered a little more with Blog and even listened to Richard Rohr speaking in Santa Fe!. Bridget	More on using the ... 2 ... Post now tech.
niamhlestrange, niamhlestrange.com x, niamhlestrange@gmail.com, 79 97 241 198	Submitted on 2012/11/20 at 7:06 am	In reply to Bridget Shannon. Is he still posting? Go onto his blog and see if he has made more posts and if so, and you are not still not receiving them, try to Follow again.	Last class — Wednesday 21st November Any Questions? 2 View Post
(11) Colette, 86 41 41 5	Submitted on 2012/11/20 at 1:22 am — I have successfully downloaded Skype. Thank you for all the guidance. Colette	Using the Blog 1 ... Post now tech.
(12) Colette, 86 41 41 5	Submitted on 2012/11/20 at 12:06 am — Hi Niamh, I have tried and failed to forward emails from one account to another. Eircom site said there was a problem and I could not find settings in my gmail. I am not sure have I shut off things going in and out of Eircom account. All too new for me! I will ask you on Wednesday. I am now going to try and do the Skype. I will keep you 'posted'! Thank you, Colette	Forwarding emails from one email account to another ... Post new tech help.
(13) Bridget Shannon, n/a x, 86 44 202 147	Submitted on 2012/11/19 at 9:52 pm — Thank you. Using the Blog. I wonder why Richard Rohr has discontinued reaching me! Bridget	Last class — Wednesday 21st November Any Questions? 2 View Post now tech

Author	Comment	In Response To

Appendix L – Sample of Subjective Observations – Tutor's Perspective

Posts ⑤
Comments ⑤

wk45

RESEARCH PROJECT:
TECHNOLOGY ENHANCED LEARNING
TRINITY COLLEGE DUBLIN
RESEARCHER'S OBSERVATIONS

05/11 – 11/11

Complete for each week of research

Section A – Objective

Week Number:	~~6~~ ⑥ ⑦
Group Id:	61
Number of Learners in group:	12 → 9
Number attending class	10
Date of class:	07/11/12.
In class time: Number who commented on blog	0
In class time: Number who posted on blog	0
Outside class time: (since last class) Number who commented on blog	–5–
Outside class time: (since last class) Number who posted on blog	–0–

Section B – Subjective

How was blog helpful to tutor	yes – again useful for giving people links + setting them to work on.
How did users respond to it	Well, as usual, people seem to find it a useful ref. point, but are still confused about how to use it
How does blog appear to be a useful aid to the learners for course learning material	yes, in that it provides links to material, but again people are reluctant to use it. useful
How does blog appear to be a useful aid to help the learners digital literacy	yes, it that it provide a link to other web. material.
How does blog appear to be enhancing communication within the group	Not no evidence at all
How is blog a hindrance to classroom activities	Research element can be time consuming and may be pulling tutors focus from activities.
Other comments	Observer
	proportion

Researcher: Niamh L'Estrange
2012/13

Version 0.1

Following class 07/11/12.

Comments made:-

① "J Recently was advised to start following a blog of someone else
-it was great to know what they were talking about"

② "There is really an awful lot to know - two much"

Abo:- people are not accessing their emails daily
    - more like 2 or 3 times /week
    hence not seeing an immediate response to blog posts

Abo:- a number of things that I posted wont work
    so people may have been very
        confused !!!
                                no link
                                two many ads

me:- far too complicated to set this authors
    of their own blogs at this stage
    => could have been considered from the
    outset, but not sure it supports such
    an idea really.

10/11/12:- On Friday had 2 comments
1. Tom - looking for more helpful marketing pros ⎱ both praised post made
2. Carmel - looking for something on LinkedIn ⎰ on thurs

    + I replied to both w/ more info

=> unclear from other users:- 1. If just looking at in Email
                              2. if visiting site + viewing info at all

        *TO DO SUNDAY *
            ⌐D post re podcasts from Claire.

Appendix M – Sample Interview- Code and Theme

Researcher	*Opening comments and introductory remarks* When you received the email of the blog post what did you do with it.
Participant 1 *interest* *cohesion*	Opened it first of all to see what it was about. What I found useful as sometimes when I got the blog I was actually on my laptop myself encountering the problem and I said 'oh there's the answer'. It came up in some of the blogs we were all experiencing the same problem. What I find is that people of my age, and I was probably the youngest there, find the terminology defeats you, so when you it's explained to you, its 'oh so that's what it is. That what I think is the major difference between us and the younger generation, I have a son of 20, it's the terminology. *age*
Researcher	And did you follow the hyperlinks included in the post
Participant 1	Yeah, not all the time, if it was of interest to me. Yeah. *Interest*
Researcher	Viewed on blog or from email.
Participant 1	Sometimes from the blog, but I'm a real email man. I think I replied to some of you posts via emails. I understood the purpose of the blog, which I hadn't been on before, was to get people interacting with each other. . *emails*
Researcher	Return to any posts since classes or between classes, other than the prompts
Participant 1 *Intent*	What I do I try to put aside a morning a week, usually a Tuesday morning, I go back and practice things, I force myself basically. When you're not using these things regularly it's very easy to put them to one side. But on Tuesday mornings I go back and say – now that problem that I'm experiencing, is there an answer to this on the blog.
Researcher	Will you return to the material again, where would access it from – email or blog?
Participant 1 *emails* *interest* Gve *interest*	Well the emails in fairness I thought were very detailed and the information was easy to follow, so that would be initial thing I'd go back to – it's be the emails. I haven't got an enormous interest in photography okay, if I was going to give you an answer, I'd say, if I was interested in photography, and I could that a lot of the students were, I don't even own a camera, so that my honest answer, so certain things would be interest to me and others wouldn't and yet, when we downloaded the name of (.....) Picasa – I found that interesting – the things that you can do with it now , I'd have a fascination of darkening and lightening, and all the things you can do with photos, now that would of interest to me.
Researcher	Do you think you are making more use of the internet now than before.
Participant 1 *evetech*	At times, I am person who is from an era who, I used to say this to my own students, is that you should think for yourself if you can, and not go to the internet to look for the answer to it. I'll give an example, my own son was doing a history exam and I like history, and he wanted me to give him an opening paragraph, on world war 2, and a ending paragraph, and he downloaded the rest from the internet, and I said, you lazy sod and he said that's the way, and that the teacher would only the first and the last paragraph. So I gave the opening paragraph, on the *battle of the bulge*, and the ending paragraph, and he was late so I said that I would do it once.
Researcher	But I'm wondering if you might be using the internet for things you weren't using it before, like, for example, RTE Player, podcasts etc.
Participant 1 *adupts changes* *Intent* *interest*	Yeah, Yeah, how easy it was, it is not as difficult, like I know people and even people in the class, when the word is mentioned the eyes glaze over and it isn't - really isn't as difficult as people make it out. Its just practice really, and I spoke to a few of the students and they said with us it is practice, putting aside time to do it. Putting aside time to do it. One thing I would say, and we did iTunes as well, I have always had an interest in YouTube, I've an interest in older songs, it's the same type of things as in iTunes, do it is not as difficult as we make it out to be.
Researcher	Did the course reveal that to you, did you feel that the course helped you.

Appendix N – Record of Ethical Approval

((MYZONE))
Trinity College Dublin

Niamh L'estrange <lestrann@tcd.ie>

RE: CS7040 Ethics Application (2nd year MSc. in Technology & Learning)
1 message

Research Ethics <research-ethics@scss.tcd.ie>   29 August 2012 09:58
To: Niamh L'Estrange <lestrann@tcd.ie>
Cc: Research Ethics <research-ethics@scss.tcd.ie>

Hi Niamh,

Thank you for this amendment. You may now proceed with this study.

We wish you success in your research.

Kind regards

Gillian

From: Niamh L'Estrange [mailto:lestrann@tcd.ie]
Sent: 27 August 2012 06:44
To: Research Ethics
Subject: Re: CS7040 Ethics Application (2nd year MSc. in Technology & Learning)

Hi Gillian,

I have added the declaration to the Parental Consent Form and updated as needed. This is attached. I hope this is okay now but please let me know if anything further is required.

Kind regards,
Niamh

On 23 August 2012 10:35, Research Ethics <research-ethics@scss.tcd.ie> wrote:

Dear Niamh,

Thank you for your application. It has been reviewed by the Committee and the only amendment you need to make is to add in the declaration you have on the participants informed consent form into the