

Pathways to Competence and Participation
in the Digital World

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ABSTRACT

This research used grounded theory practice to investigate how and why adults approach their own learning for basic digital literacy. Specifically, the questions of how we should characterise learning for digital literacy and what are the key influences on the learning decisions of adults undertaking a basic computer course were addressed. The actions and experiences of students of *Know IT*, a blended learning course intended to enhance basic computer skills in the Irish workplace, provided a context for this inquiry. New insights derived from this research are intended to inform and improve future pedagogic design for technology enhanced learning in adults

People with low levels of basic skills are seriously disadvantaged in relation to their ability to adapt to changes in the workplace and to participate in further training. This is particularly true for people in need of basic computer skills and digital literacy. Members of this group are often experienced in other areas of work and may feel undermined by the introduction of new technology. Digital literacy is also becoming increasingly important for participation in many social and economic activities of everyday life. Individuals who are excluded from such participation feel left behind and alienated and desire to be competent.

The *Know IT* pilot project was a workplace learning intervention designed to improve basic everyday computer skills in adults. It used a blended learning approach and consisted of a self-instructional CD ROM, a learner's journal and optional attendance at tutorials for direct instruction. Data from a specifically administered self-response survey as well as other sources was used to paint a broad profile of the characteristics of the student group.

Qualitative interviews were conducted with ten course participants and grounded theory practice was used to construct an independent analysis of their conceptions of learning influences, motive and actions. Four individual stories are also presented to provide insights from a life narrative perspective. Three significant concepts emerged from independent analysis as the Digital World, Competence Desire and Learning Identity. The interplay between these three constructs provides the impetus and informs individual strategies for learning. Further conceptualisation leads to learning described as pathways to competence and participation in the digital world.

The insights from this research suggest that e-learning designers should use strategies that focus on harnessing positive conceptions of the digital world, nurturing desire for specific rather than general competence and supporting the establishment of a positive learner self-concept.

CHAPTER I INTRODUCTION

Every day we encounter new words, insights, people, problems and situations and with these encounters we adapt and change our mind. This process of change through the interaction of present and past experience is what we call learning. There are many conceptions, definitions and models of the learning process. There are also numerous theories and guidelines that describe conditions and circumstances that influence and support learning. This research will contribute to our understanding of learning and how it can be supported in particular contexts. It is one more contribution to a complex field of inquiry.

Despite the richness and density of theory there appears to be an essential simplicity in the way learning is perceived in everyday life. Learning is invariably considered a good thing and in our society investment in learning is often regarded as investment in future economic success.

I have spent over twenty years as a creator and developer of audio visual media for educational outcomes. I often noticed how everyone involved in these activities is prepared to articulate, argue and defend their own view on what is needed for people to learn successfully. It is as if everyone has their own firmly held theory of learning. I too have always had a theory of learning and, on reflection, I note how it has changed and evolved over time.

I have been fortunate to have the competence to produce digital media such as television and multimedia products and through these outputs to influence people's learning. In the process

I have encountered many adult learners who have influenced me; the woman I interviewed for a literacy programme who describes the cathartic effect on her self-esteem when she overheard one of her children comment on her inability to deal with a school report “no point in showing mammy she wouldn’t know how to read it” or the quiet determination of a young man describing his plan to sort out his life through reengagement in learning.

My professional involvement with learners, particularly in the interviews I conducted for television, can be characterised as deep and fleeting; deep in the sense that in a short space of time I was allowed to enter their world, often their home, and regardless of whether we recorded or transmitted the material, they were all keen to tell us their story. However such encounters were all too brief, as producers our role was to document and move on to the next story, we were not teachers, tutors or problem solvers, and we had little time to get to know people.

My conception of learning is predominantly the product of experience. I trust experience and hold experiential insights in high regard. The words of Carl Rogers apply:

Experience is, for me, the highest authority. The touchstone of validity is my own experience. No other person’s ideas, and none of my own ideas, are as authoritative as my experience. It is to experience that I must return again and again, to discover a closer approximation to truth as it is in the process of becoming in me.

(1961 p 23)

The goal of this research is to build on my experience, to enquire further into adult learning through theory, data collection and interpretation. I intend to focus on adults who choose to embark on a journey to address their basic computer competence. I will investigate their actions and decisions and seek to understand the influence of desire, motivation, opportunity and social context. I approach this inquiry through the discipline of adult education;

this provides a powerful platform, a base from which I have the freedom to explore my question through many related fields: psychology, sociology, technology, learning and information sciences, and philosophy. Through each of these subjects I find insights, methods and perspectives through which adult learning can be explored. Each adds trouble to my conception of learning, challenging me to redefine and rebuild; I realise that this is the nature of the process, this, in essence, is my learning through research.

Setting the Scene

There is something happening everyday in workplaces across the country – it is a quiet revolution barely noticeable to most people but for those involved the effects are profound and the consequences are life changing. This is the information age, computers are everywhere and they are changing the way people work, transact goods and services, communicate and engage in the home and in the community.

Few people question the positive impact of digital technology. Like printing, railroads and cathedrals in the past, digital technology defines the age in which we live and now controls much of our experience of the world. In such a society there is an implicit assumption that everyone can participate and that the advantages of digital technologies are available to all. Yet numerous surveys and research studies reveal the extent of the digitally excluded, the forgotten many. Often, because of their age, they are the most experienced and accomplished workers in our economy.

Quietly and inevitably they are adapting to the new world they now find themselves in – a world where Internet and e-mail competence are taken for granted, a world where government,

their government, advertises the advantages of on-line tax returns, passport administration, health services and transport information. In this world the Internet savvy can book cheap flights, trade goods and manage their financial affairs on-line. In this world, e-mail communicators connect with family and friends, share experiences and photographs, and establish groups to pursue common interests.

It is early morning in the container port at the furthest edge of the docklands of Dublin. Giant cranes are constructing box shaped mountains of box shaped containers. In between, port-based trucks are ferrying individual containers to the many yards and depots that are located around the deep-sea docks. In one of these trucks Ben is starting his early shift as he does every working day, by calling to the dispatch office of the shipping company that has employed him for the last five years.

Inside Ben chats with the two women who work there. He watches as they ponder the computer screens. He leans over to see what they are seeing. The IT system identifies the priorities for the day; twenty loads to be brought to a local depot for onward shipment up north. The computer screen shows the identification numbers and details of each container: contents, weight and shipping agent. Ben looks on as the office clerks line up each page and press control-P to print. In another corner of the room a printer springs into life and the pages that will determine what Ben will do for the day issue forth.

Across the city buses are leaving the garage; they continue in a line to the first big crossroads and then disperse in different directions – their mission to bring the workers of the city in from the suburbs. In the garage Jim peers at the screen of a computer that was recycled

from head office many years ago – an ancient model from the mid-nineties. The e-mail screen opens and Jim studies the one inbound internal communication – a list of ticket machine faults identified by yesterday’s drivers. A cart beside Jim contains the suspect machines and scattered around the workshop in the background is a mixture of electronic and mechanical spare parts. On the wall, one can imagine the hand written sign that says *Jim’ll fix it*.

An hour later, Tracy arrives at the suburban shop where she has worked for the last thirty years. Her recent promotion to a new role as deli-manager means that she needs to be in the shop early so the process of preparing ingredients for the lunchtime rush can get underway. A van arrives with the freshly baked gourmet breads and the regular deliveryman exchanges pleasantries with Tracy. She asks about changing the order for Saturday but she is not yet sure of the quantity. As he leaves the deliveryman suggests that Tracy send in the order by e-mail later in the afternoon.

Meanwhile in one of the large city centre department stores staff are racking and sorting in anticipation of the first customers who will arrive in half an hour. In the staffroom upstairs there is a sign that tells what to do in the event of difficulty with the computer-based register system. It names four people to call as trouble-shooters. Dot looks up from her coffee and as usual is slightly anxious to see her own name as the last of the trouble-shooters. She’s already tipped off her colleagues not to call her and everyone has a laugh, including Dot at the idea of her being proposed as a technical wizard.

These four people have the following in common: each made a decision and acted to change through engagement in learning, each enrolled on the *Know IT* basic computer skills

course and each was a participant in the research interviews I conducted and analysed using the grounded theory process.

My Inquiry My Problem

The origins of this research stem from my experiences as an educational television producer and as a designer of e-learning software. In particular, I worked on a television series called *Right to Learn* broadcast on RTE, the Irish national television network, in 1995. This series used a participatory approach to television production so that programmes for and about unemployment were created through active participation and engagement of a group of unemployed people. *Right to Learn* is described in detail in a book by Mary Kelly (1996) as an example of media for emancipatory education. The approach involved a small group of inexperienced people who were given genuine opportunities to shape and craft their own learning through their involvement in making educational programmes intended for a wider learning audience. The outputs, 5 half-hour TV programmes, were remarkable in the way they connected with the target audience and the series was repeated many times by the broadcaster. What has stayed with me since that experience was the importance of a very close connection with the learning audience to inform all aspects of production.

Later, I worked on several other series designed to bring about adult learning including *LearnNet* (60 programmes broadcast on RTE between 1996 and 1999) and *Read Write Now* (60 literacy programmes broadcast on RTE between 2001 and 2004). A review of the *Read Write Now* television literacy series was conducted by McSkeane (2003). An analysis of the contrasting approaches of the *Right to Learn*, *LearnNet* and *Read Write Now* series is provided

by Grummell (2004a) and a discussion on the wider context of educational broadcasting in Ireland is provided in a separate work by the same author (Grummell, 2004b).

These productions involved the design and organisation of media-based content intended to bring about learning. The *Read Write Now* literacy programmes were funded by the Irish Government for the purpose of addressing adult basic skills such as literacy, numeracy and, in later series, skills associated with using information and communication technologies (ICT). Although the public goal of these programmes emphasised acquisition of skills through on-screen learning the reality was that much of the content of the programmes featured people in the context of their home, hobby, community or workplace talking about themselves and how they came to decide to do something about their literacy skills.

The format, structure and content of the *Read Write Now* literacy programmes was decided through inputs from three organisations - the Irish National Adult Literacy Agency (NALA), the broadcaster (RTE) and the production company (AV Edge) providing a team of producers including myself. In contrast the *Right to Learn* content, design and format was determined by collaboration between the producers and a group of unemployed people representative of the intended target audience.

In general, broadcast television relies heavily on harnessing human interest to stimulate engagement and it is always a challenge to support cognitive learning through this medium. In the *Read Write Now* literacy series short sequences were inserted to support writing, spelling and reading skills – these were always problematic for producers and broadcasters as they were considered to interfere with the narrative framework and ran the risk of losing the audience

during transmission. I was part of the team that determined that mix and as I recall, I had an implicit awareness of the importance of learner decision making and the significance of intent in adult learning. My approach to television production was more about convincing people to learn rather than supporting people through the learning process.

I subsequently worked in the e-learning industry where I was involved in the development of web-based and multimedia courses to address adult literacy and numeracy in Ireland and in the UK. I found that e-learning materials in the form of CD ROM or Internet resources were predominantly designed to deliver instruction to the committed learner. Typically, course materials were arranged hierarchically as modules, topics and screens. Each module or topic began with a statement of objectives typically of the form: “in this topic you will learn how to manage files on a computer” or “in this module you will learn when to use capital letters”. I was always uneasy with this approach – I felt we were short-changing learners as there was little attempt to contextualise instruction through practical examples or authentic contexts and there were few facilities to support learner input and choice.

As I started to think about research I reflected on how much of what happens in e-learning design and development is far removed from the insights of the intended users. We could learn a lot by engaging with our intended audience, and as the *Right to Learn* TV series demonstrated, the role of producer and learner can and should be blurred. In particular, I wanted to find out more about the intended recipients of an e-learning course that I have been involved in – the course called *Know IT* was intended to teach basic computer competence to adult learners in the workplace.

In 2005, as part of my role as a developer of new business for ThirdForce the e-learning company that I worked for, I developed a prospectus for a new interactive computer skills course called *Digital Action*. The design approach emphasized user action and decision-making and the goal statement from the prospectus read as follows:

Our goal is to foster a learner-centred and personalised approach to every trainee whilst meeting the challenge of large-scale intervention to make a significant impact on this target group. We have therefore developed an e-learning instructional model that incorporates learner choice and task based outcomes. A key strategy is authentic simulation of real environments.

(NCI, 2005)

When I look back at this I realize how ambitious the original conception of the project was – a large-scale intervention with a personalised approach, a facility for learner choice at key decision points, users invited to select their preferred task from a range of options, and a simulated environment based on authentic activities. The full dream of *Digital Action* never really came to pass but it certainly formed the inspiration for the *Know IT* programme featured in this research.

My experience in the e-learning industry forms the backdrop to this research question. The *Digital Action* prospectus was but one example of both the power of technology to bring new learning opportunities to a previously neglected target group and the challenges that arise in terms of the consequent new approaches to policy, funding, access, design, delivery, teaching and support.

In retrospect looking at the *Digital Action* goal statement above I note how much it went against the dominant paradigm of e-learning at the time and still today. Most e-learning approaches are based on systematic instructional design and prescribed syllabi. There is little

room for user selection and choice, named specific objectives are stated before each section or topic, and the content emphasis is on software rather than authentic tasks. This structured model suits the e-learning industry - solutions can be built to order and it also suits policy makers as interventions can be measured, targeted and controlled. However, it is questionable whether it serves the needs of the intended learners and this is especially true for the low skilled.

For me adult learning is best framed in terms of decision-making and choice. There is a need for improved understanding of how and why adults approach their own learning and, in the particular case of this research, to ask how people go about learning basic computer skills. Through my experience as a producer I would claim to have an appreciation of the interplay between motivation, engagement and the acquisition of cognitive skills. In this investigation I will be exploring these phenomena through theory and research. I intend to explore in detail the world of the adult learner and in particular to investigate how people strive for basic competence in the world of computers and digital media. My goal is to untangle the processes that take place when people decide to learn new competences and take action toward that end. I expect that insights from this research will make a contribution to the way we think about and use technology to enhance learning in the future.

I believe that e-learning has a long way to go before the full potential of technology to enable, enhance and enrich meaningful adult learning can be realised. Many improvements are needed in particular, we will require technical configurations that are capable of changing and responding to individual needs and contexts. But how are we to know what aspects should be configurable and how and where to prioritise technical flexibility and adaptation? How do we see the role of people such as teachers, tutors, peers and others who support learning, evolving in

such a technically mediated future? This research will go some way to provide answers to these questions. It will give a starting point – an impetus to focus on individual learners and to look behind the scenes at the desires, motivation and personal stories of ordinary people as they navigate their unique pathways to competence.

This inquiry will focus specifically on the learning choices and experiences of adult workers undertaking a predominantly self-study multimedia computer literacy course called *Know IT*. This research will provide new insights by concentrating on learner's goals, expectations, influences, and the learners' experience of the course. The research is also concerned with framing new insights in such a way that they provide useful pointers for future e-learning designers, deliverers and policy makers.

Policy Context of this Research: A Bigger Problem

In this section I locate the requirement for workers to be computer competent within international and national economic policy contexts.

Digital Skills: The European Context

The argument goes that as future economic development will be characterised by knowledge rather than manufacturing industries, ample supply of competent labour will be required. People will require a broad range of competences and among these the capacity to use information and communication technologies will be to the forefront. Numerous policy documents call for large numbers of people to be up-skilled in order to meet the future needs of a knowledge economy (ICEL, 2001; S. L. Schmidt, Schomann, & Tessaring, 2003). The European Commission makes the case succinctly and clearly calls for member states to foster e-skills as a policy priority:

There is an important need to address ICT-related skills (e-skills) issues in order to respond to the growing demand for highly-skilled ICT practitioners and users, meet the fast-changing requirements of industry, and ensure that every citizen is digitally literate in a lifelong learning context requiring the mobilisation of all stakeholders. These challenges can only be effectively addressed by a real mobilisation of Member States and industry.

(The European Commission, 2007 p 3)

Of particular interest for this research is the reference to ensuring that every citizen is digitally literate in a lifelong learning context. In the same document the Commission points to the need for an extension of the traditional notion of literacy to embrace e-skills and digital media competences.

The extent of the digital skills gap is revealed statistical research conducted across the 25

EU member states: 37% of people aged between 16 and 74 lack basic computer skills (Demunter, 2006). This proportion is significantly higher if the older end of the age spectrum is selected - in the EU 25 on average, 61% of people over 55 years of age have never used a computer. The statistics also show the link between education attainment and computer skills - those with low levels of education are more likely to have low levels of digital skills. Combining age group and level of education the statistics point to a clear group of disenfranchised adults in the EU 25 - 80% of the over 55s with lower-levels of education have never used a computer (Demunter, 2006).

The consequences of digital illiteracy are discussed in the 2007 Communication from the European Commission to the Council and Parliament:

A lack of e-skills will prevent these people from using e-commerce and e-government applications and participating fully in the information society. Furthermore, the lack of e-skills exacerbates social and educational disadvantages, inhibiting lifelong learning and up-skilling.

(The European Commission, 2007 p 6)

One of the most frequently cited requirements is for enhanced skills in the use of everyday digital technologies (Boreham & Lammont, 2000). Many governments see these skills as desirable for all sections of the population not just the workforce (Selwyn, 2002, 2003). They are concerned to address the so-called digital divide and regard access to technology and the skills to use technology as key components of their strategy to redress the balance (Gunkel, 2003). Access to technology and a capacity to effectively use such technologies is seen not just as an economic but also as a societal imperative. Adoption of ICT is often linked to active citizenship and full participation in society. It is no surprise that many governments intervene to support technology adoption across the lifespan and that specific initiatives focus on the so-

called low-skilled in the workplace.

Digital Skills: The Irish Context

It is clear that across the European Union governments are looking for ways to respond to the challenge arising from low levels of digital skills among sections of the population and workforce. In Ireland, the report of Enterprise Strategy Group (2004) identified the need to raise educational levels across the workforce and cautions against leaving behind the low-skilled.

Upskilling of the existing workforce and raising education levels is essential in an environment of constant change. To foster the continual acquisition of knowledge, skills and competencies, formalised approaches to lifelong learning must be introduced and corresponding delivery structures put in place. As a particular priority, policy intervention will be required to ensure the low-skilled are not left behind in the move towards a knowledge society.

(Enterprise Strategy Group, 2004)

Thus future economic success is tied to the skills and competences of the entire workforce. Raising educational attainment across the broad spectrum of the labour market is seen as a core objective in maintaining our competitive advantage. Subsequent policy interventions such as the National Workplace Strategy (2005) and the National Skills Strategy (2007) further reinforce the economic imperative for a highly skilled workforce. The Workplace Strategy provides a summary of evidence on the changing demographics of the Irish labour force: by the year 2015 some 40% of the workforce will be aged 45 or older. Irish workers generally retire at an older age than others in the EU and by 2010 skilled and semi-skilled work in manual, clerical and service occupations will still account for half of all jobs in Ireland.

In 2005, 27.6% of all people in employment aged between 25 and 64 had educational attainment of lower secondary, primary level or below (Central Statistics Office, 2006). In a

2003 survey of employee's experiences in the Irish workplace (O'Connell, Russell, Williams, & Blackwell) the link between training participation and previous educational attainment is highlighted. Employees with low levels of skills are far less likely to participate in training.

Overall, 48% of employees report that they participated in education or training provided by their employer over the past 2 years ... training participation is closely linked to previous educational attainment: those with third level qualifications are nearly twice as likely to have participated in training as those with no qualifications. Training incidence is also strongly related to social class: almost two-thirds of higher professionals received training, compared to about one-third of semi-skilled manual workers, and a little over one quarter of unskilled manual workers.

(O'Connell et al., 2003 p 12)

Based on the collected findings of EU and Irish research the outlook for a cohort of the Irish workforce is very bleak. People with low levels of education attainment are less likely to receive training and are employed in jobs that are particularly vulnerable to the changing dynamic toward a knowledge economy. This is particularly true for older workers. Furthermore, this group have low levels of digital literacy and thereby face barriers to many forms of participation in society and access to lifelong learning.

Ironically, those in greatest need are required to overcome some of the biggest obstacles. Employees who lack basic skills in ICT, literacy, and numbers are excluded from onward learning progression. This is true regardless of the level of craft, skill, workplace experience or other competences. Workers in need of basic skills are active in a range of employment sectors including but not confined to construction, manufacturing, food, care, hair and beauty, retail, public service, security.

In summary there is an abundance of evidence both at EU level and at national level to support the conclusion that there are many people in the workforce who have low levels of

educational attainment and low levels of digital skills and this is especially the case for the older age group. It is also clear that governments see the advantages of a digitally literate population both in terms of the future supply of competent labour and the need for an engaged citizenship and access to lifelong learning.

The Irish government's response was to support a range of initiatives to enhance the skills of the workforce (Expert Group on Future Skills Needs, 2007). Among these, there was a specific need identified for actions to support basic computer competence in the low skilled. Given the nature and scale of the challenge, the case for an e-learning or blended approach was compelling. Thus *Know IT*, a multimedia course on basic computing skills was developed by National College of Ireland and ThirdForce (an e-learning company) in response to a national call for up-skilling initiatives. *Know IT* provides the context of this research and is discussed later in detail.

There is little doubt that policy initiatives are required to address the current imbalances in the provision of learning in the workplace. Many government responses can be characterised as adopting a rational-economic approach to addressing perceived skills' needs. The formula is straightforward – identify what skills are required, who needs them and provide opportunities and incentives to ensure there is sufficient uptake. This simple approach is not always the most effective. The crux of issue, and indeed the frustration of those who espouse an economic approach to skills, is captured in the following extract from the Irish Government's *Expert Group on Future Skills Needs*:

Skills supply is dictated in part by the individual returns to investing in those skills and by the general level of awareness of those potential returns. Economic theory, however, is predicated on the assumption that individuals will always make rational decisions. In

reality, an individual's decision to undertake investment in education or training is often influenced by non-economic considerations including personal and family circumstances, gender and class background.

(Expert Group on Future Skills Needs, 2007)

This study is concerned with finding some of the answers to the questions that are implicitly suggested above. What are the non-economic factors that influence individual decisions on investment in future skills? Is the list of considerations suggested above complete? How do personal and family circumstances, gender and class background influence learning decisions? This research will contribute to some of the answers to these questions by investigating the problem from the perspective of the individual.

Research Questions

The general research goal is to investigate adult learning and motivation for basic digital literacy. I would like to specifically address the following questions:

- How should we characterise learning for basic digital literacy?
- What are the key influences on a person's decision to learn basic digital skills?
- How should pedagogic design be used to support digital literacy in adults?

The decisions, actions and experiences of students of *Know IT*, a blended learning course intended to enhance basic digital literacy in the Irish workplace, provides the specific context for this research.

New insights derived from this research are intended to inform and improve future pedagogic design for technology enhanced learning in adults.

Rationale

In this thesis I intend to establish that the problems or challenges as set out above are valid and important and that this research will make a significant contribution to our future understanding of the area.

In the first statement above I am indicating that this investigation is concerned with the connected constructs of learning and motivation and that the site of this investigation will be basic digital literacy for adults. I intend to establish that the notion of literacy is often misunderstood and narrowly defined. I will argue for a wider conceptualisation of literacy as beyond skills and I will establish a case for the more useful concept of multiliteracies. Of these literacies, *basic* literacies are characterised as culturally and economically significant and difficult to avoid in everyday life. This leads to my argument that digital literacy, as competence and participation in the use of everyday computer technology, is an important basic literacy in modern developed economies and represents a special kind of learning challenge for adults. I ask how we should characterise learning for digital literacy. And related to this, what are the influences on motivation and decision making and what may propel or impede a learner's progress toward competence and participation. My case is that insights into learning and motivation in the context of adults addressing digital literacies will shed new light on how to enable active participation in society and strategies to address the future skills needed for economic growth.

I suspect that the interplay between identity, motivation and personal investment in learning will be strongly in evidence for adults engaged in digital literacy courses. Learning

computer skills for the first time in adulthood is not an easy or intrinsically enjoyable experience. I have observed people shaking with fear as they first moved a mouse or typed on a keyboard. As with other literacies it takes a significant investment of effort especially at the early stages to acquire computer skills. What is remarkable, in my view, is that large numbers of adults from diverse backgrounds and a variety of ages choose to learn computer skills.

I ask a further question on how we should design pedagogy to support digital literacy in adults. In this context, I am seeking to connect insights from the previous questions with practical insights for pedagogic design. What strategies will enhance learner progress and what will impede? In this, I expect that my insights will be broad rather than specific in nature.

I provide a specific context within which I will address the overall research question. I intend to establish that students on the *Know IT* course are typical of the context and type of learner identified as the general theme of this research. Furthermore, I indicate that the instructional context will be a blended learning programme. Blended learning is discussed later and defined as “the integrated combination of a number of pedagogic approaches – usually traditional learning with e-learning” (Oliver & Trigwell, 2005). E-learning refers generally to the use of technology to enhance learning. I have already discussed how widespread the problem of low levels of basic computer competence is across the EU and in Ireland. Government intervention is usually framed in terms of the need to provide skills for future economic growth – there is also growing realisation of the connection between digital literacy and the capacity for active participation in modern society. Due to the sheer scale of numbers involved governments have looked for a ‘technical fix’ (Selwyn, Gorard, & Williams, 2001) to address skills challenges and blended e-learning programmes are frequently sought as quick and affordable solutions. It is

reasonable therefore, that this research should explore motivation and learning within the context of such a programme.

I also anticipate a use for the outcomes of this study. I began this thesis by outlining a problem with design for learning as I perceived it based on my experience as a media practitioner. I argue that current learning design fails to take adequate account of student motivation and the almost exclusive focus on cognitive models of learning is too limiting in scope. I intend to present a set of research based insights that will provide guidelines for future designers. Design for learning, specifically technology enhanced learning, is emerging as an important new field of application of pedagogy (Beetham & Sharpe, 2007). This research will make a significant contribution to the field.

The design and development of e-learning software to address basic skills at a national level is often an expensive and complex process. Insights from this study will not just influence learning designers but will also inform other stakeholders such as policy makers, economists, training agencies, learning delivers and instructors.

Insights on motivation and choice are valuable for all involved in workplace skills improvement such as employers, trainers, course providers and those involved with the support for learning for the low skilled. It is also expected that some of the findings may be generalised to other literacy contexts beyond the domain of digital literacy.

Uniqueness of this Study

Many studies such as Mckinnon Partnership (2005) and Mellar (2004) looked at the role

of information and communication technologies (ICT) in basic skills learning. These reports aggregate the success or otherwise of existing initiatives. Shelswell conducted a critical investigation into uses of new technologies in the teaching and learning of adult literacy using a qualitative approach based on observation of classroom interaction and semi-structured interviews (2004).

Selwyn and others looked the role of ICT in adult informal learning (Gorard, Selwyn, & Madden, 2003; Selwyn, 2004, 2006; Selwyn & Gorard, 2004). These studies used combinations of telephone surveys, data from national household surveys and qualitative interviews to glean insights into the way adults use and regard ICT for learning. Little attention has been paid to the individual motivational perspective for digital skills (Selwyn, 2006).

Work by J T Schmidt (2007) looked at how college students may be prepared for success in blended learning environments. In particular, Schmidt looked at motivational and metacognitive strategies that could be harnessed to facilitate preparedness for blended learning. Lowe, looked wider afield, adopting a theory-building research process, to develop a theory of effective computer-based instruction for adults (2004). She looked at the critical components of computer-based instruction and identified important elements as: the learning outcomes, self-directedness, computer self-efficacy, learning goal level, instructional strategy design, e-learning design, and external support. Lowe suggested that instructional strategy and e-learning (she uses the term CBT) design should relate closely to the learning goal level and also emphasized the importance of appropriate external support.

Gibbons (2003) used a qualitative case study approach to examine the experience and

process of older adults learning to use online technologies. Gibbons used a grounded theory approach to analysis of data collected from video interviews and reflection journals. She found that participants in her study (all over 65) developed their own strategies for learning by progressing through a series of phases as: preparation, play and exploration, selection, goal setting, doing and practicing.

All of the studies discussed above offer insights into aspects of the problem statements outlined earlier in this section. Overall however, one can conclude that there is a gap in the research on adult learning and basic digital literacy and few guidelines to support design for learning in this area. This research is intended to fill that gap.

Structure of this Thesis

Merriam and Simpson (1995) suggest that the process of educational research comprises of a number of tasks as: (i) identifying a concern or problem, (ii) establishing a conceptual framework, (iii) delineating the research phenomenon, (iv) determining methodology and data gathering techniques and (v) analysing and reporting. I have used this structure to organise both my overall approach to this research and the layout of this dissertation.

In Chapter I Introduction I start by outlining in broad terms the research problem from two perspectives. Firstly, I locate the problem within my personal experience as an instructional media producer. I describe how I became interested in the nature of individual agency and decision-making in the context of *Know IT*, a basic computer skills e-learning course that I co-developed. Secondly, I frame this research and the *Know IT* project in terms of European and Irish policies that seek to address workplace skills shortages. *Know IT* is a specific intervention

to support digital skills for adults in the Irish workforce. Digital skills are required to meet the demands of future labour supply and provide opportunities for lifelong learning, democratic and economic participation for all citizens. I conclude the introduction with statements of the research problems and questions and my justification for the importance, application and uniqueness of this study.

In Chapter II Literature Review I use my discussion of the associated literature to achieve three goals. Firstly, to establish a conceptual framework within which I can consider the problem more precisely. Establishing a conceptual framework is a process to identify and delineate theoretical and conceptual parameters wherein the research will focus. Such a process works toward the progressive discovery of the exact problem to be studied (Merriam & Simpson, 1995). I start by considering conceptions of skills and literacy and I attempt to unpack the myriad of policy and academic terms, definitions and interpretations of what we mean when we describe basic skills and digital literacy. I show how different conceptions of literacy give rise to different ways of interpreting research questions and consequently the selection of methods to investigate associated phenomenon. My second goal of the literature review is to explore the broad theoretical landscape of learning and to achieve this I consider a number of formulations of *learning as* including learning as an organic process, learning as transformation and learning as social practice. My third goal is to examine the constructs of motivation and desire, competence, and identity and to establish workable definitions of these and to explore, in broad terms, some of the background theory.

In Chapter III I deal with the method and this section is in turn divided into four parts. I begin with a general methodological discussion and describe why I came to select grounded

theory practice as the appropriate method for this research. In the second part I provide an overview of the target group for this research based on data from four sources – national data from the National Household Survey (CSO, 2007), demographics on the make-up of all students who participated on the *Know IT* course derived from Know IT project reports, specific survey data from a self-response questionnaire administered to a sample of *Know IT* students and more detailed description of each of the interview participants of the grounded theory analysis. In the third part of the chapter I establish the characteristics of grounded theory research and I demonstrate how this research adhered to the guidelines for good practice in research of this kind. In the fourth section I deal with boundaries – this is where I identify important delimiting characteristics of the target group. These characteristics help to frame the subsequent analysis and the extent to which conclusions and insights may be generalised.

In Chapter IV I present the findings of this study and this section also has four parts each of which is designed to demonstrate the strategies and processes used to arrive at the eventual conclusions. The intent is also to allow the reader to experience in as open a manner as possible how the analysis remains firmly grounded in the data. I begin with four narratives or stories from individual participants. These individual accounts of feelings, experiences and decision making provide a useful concrete backdrop to the subsequent more abstract analysis that follows. I then provide an independent analysis – this is a fresh analytical response based on the initial and axial coding and conceptualisation based solely on the data. In keeping with suggested grounded theory practice I subject this independent analysis to further review by integrating other theoretical formulations into my analysis and finally I present my conclusions.

In the final chapter I look at the consequences of my findings and conclusions

particularly for those involved in the design for technology enhanced learning of basic skills.

CHAPTER II LITERATURE REVIEW

Literacy and Skills

The literature review is divided into four sections and each is intended to clarify and delineate the research questions introduced earlier. In Part One I discuss the concept of literacy and how it relates to, and may be distinguished from a collection of skills. I also seek to clarify what we mean when we use the term ‘basic’ as in ‘basic skill’ or ‘basic literacy’. I also argue that digital literacy is an important basic literacy in today’s modern economies.

Adult literacy has been studied from a wide variety of orientations including functional literacy (Hartley & Horne, 2006; OECD, 2000), sociological and social cognitive perspectives (Gee, 2001, 2004; Street, 2003), literacy as social practice (Crowther, Hamilton, & Tett, 2001; Papien, 2005, 2005b), and critical literacy (Freire, 1970; Freire & Macedo, 1987; Fueyo, 1988; Mezirow, 1996; Webster, Caddick, Reed, & Ford, 1999). This literature is discussed later in detail however a quick scan of the various approaches indicates three fundamental questions that arise and are the subject of much of the theoretical debate. These questions are:

- What is the distinction and relationship between literacy and skills?
- Should we talk about literacy or multiple literacies?
- How should we conceptualise *basic* skills or basic literacies?

Addressing these questions is an important step in finding an appropriate conceptualisation of basic digital literacy and will inevitably determine the nature of the research approach used to address questions posed earlier.

Literacy as Functional Skills

There is little doubt that in many contexts literacy is conceived as a set of specific and measurable skills. The International Adult Literacy Survey (IALS) reports on levels and distributions of literacy in adult populations in 20 countries (OECD, 2000). This functional model of literacy (Papen, 2005) is characterised by measurement in terms of individual competence levels and connecting these with employment and economic potential. Such an approach often focuses on literacy as an individual deficit and skills as a means of addressing such a deficit. This conception also suggests that there are fixed and discrete sets of skills that can be identified and measured by instruments such as the International Adult Literacy Survey or the national tests such as the UK National Test on literacy and numeracy (DfES, 2007).

Many countries have developed their own terminology and the meanings of terms such as basic skills, key skills, functional skills and core skills are specific to the policy setting in which they apply. In England, a 1999 report from a working group chaired by Sir Claus Moser describes itself as a national strategy for adult basic skills to deal with the situation in which “something like one adult in five in this country is not functionally literate and far more people have problems with numeracy” (DfEE, 1999 p 7). More recently, in England and Wales the strategy for improving adult literacy and numeracy skills has become known as *Skills for Life* (DfEE, 2001). Later, the UK Government’s White Paper (2003) added information and communication technology skills as the third *Skill for Life* together with literacy and numeracy.

Literacy as Social Practice

In contrast with the skills approach, many theorists argue that literacy should be seen as

social and situated practice (Barton, 2001; Papen, 2005, 2005b; Tett, Hamilton, & Hillier, 2006). This view interprets literacy as embedded in the activities of everyday life (social practices) and argues that there is little value in thinking about literacy independent of the context in which it is encountered. Papen articulates the difference in approach in terms of seeing literacy either as skills or activities:

Whether we think of reading and writing primarily as skills, that is, the ability to code and decode letters and words, or as activities, meaning things we do with letters and words, shifts the emphasis onto different aspects of what literacy means.

(Papen, 2005 p 23)

A social practice and situated view of literacy endorses a broader conception of what takes place when we encounter text or symbols in our everyday lives. Literacy is no longer seen as a set of identifiable and measurable skills; rather, literacy is embedded in participation and practice and is situated within specific social encounters. Barton, Hamilton and Ivanic (2000) call these social encounters 'literacy events'. Barton et al suggest a way of understanding literacy as social practice through a series of propositions:

Literacy is best understood as a set of social practices; these can be inferred from events mediated by written texts.

There are different literacies associated with different domains of life.

Literacy practices are patterned by social institutions and power relationships, and some literacies are more dominant, visible and influential than others.

Literacy practices are purposeful and embedded in the broader social goals and cultural practices.

Literacy is historically situated.

Literacy practices change and new ones are frequently acquired through processes of informal learning and sense making.

(Barton & Hamilton, 2000 p 8)

It is worthwhile examining each of these propositions in turn and to consider their implications for the way we conceptualise literacy. In the first proposition, literacy is clearly

connected to social practices –in fact Barton and Hamilton propose that literacy is a form of social practice. In their further propositions literacy is proposed as associated with different institutions and domains of life and as such, some literacies are more powerful than others. Literacies evolve with culture and are ‘situated’ within the social practices of the time. In this way recent developments in the use of everyday digital technologies give rise to new literacies and these, in turn, take their place in the current societal power relationships.

This contrast between functional and social practice approaches to literacy leads to differences in research methodology. Investigating literacy as functional skills suggests experimental research designs involving for example, different instructional interventions, and individual pre and post-test measurements. Alternatively, a social practice view implies that literacy is studied in context, in the everyday circumstances in which people encounter literacy events and this suggests ethnographic and qualitative research approaches.

Multiple Literacies

Evolving from the social practice view of literacy, many theorists have argued that we should conceive of literacy in terms of *literacies* (Barton et al., 2000; Crowther et al., 2001; Hull, Mikulecky, St. Clair, & Kerka, 2003; Tett et al., 2006) or *multiliteracies* (The New London Group, 1996). These plural terms emphasise that there are different forms of literacy often associated with different media and communicative domains. For example, the Scottish curriculum framework describes literacy as:

The ability to read, write and use numbers, to handle information, express ideas and opinions, make decisions and solve problems, as family members, workers, citizens and lifelong learners.

(Communities Scotland, 2004 p 13)

The statement refers to abilities connected with text and numbers but it also includes what people need to do such as express ideas, make decisions and solve problems. In a modern world these abilities will involve using different media, for example the ability to express oneself through e-mail, purchase goods or services via the Internet or solve an information problem through text messaging.

Roberts' Framework for Definitions of Literacy

Roberts (2005) framework for analysing definitions of literacy is useful -the framework proposes three kinds of definition 'stipulative', 'essentialist or particularist' and 'prescriptive'.

A 'stipulative' definition of literacy is used when literacy is defined within a particular context and is usually couched in phrases such as "for the purposes of 'x' literacy is defined as..." In such circumstance it is implicitly understood that a broader conception of literacy may be involved but the author stipulates that, for the particular purpose being described, literacy will be defined in a narrower sense. I suggest that many skill-based definitions of literacy are stipulative; they may recognise a broader conception but a narrow descriptor is provided for practical purposes.

The second way of approaching a definition of literacy is to adopt a position on literacy as either an 'essentialist' or 'particularist' construct (Roberts uses the terms essentialist and anti-essentialist). An essentialist view or definition of literacy conceives of literacy in terms of a single entity that can be precisely defined. When one asks 'what is the definition of literacy' the question itself implies an essentialist stance. One difficulty with essentialist definitions is that they need to keep expanding in order to accommodate wider contexts and conceptions. For

example, consider the following definition of literacy from the OECD:

The ability to understand and employ printed information in daily activities, at home, at work and in the community –to achieve one’s goals and to develop one’s knowledge and potential

(OECD, 2000 p (X))

It is not difficult to see how such a definition would need to be revised for today to include screen-based texts or even non-text formats. The problem is that as we continue to add to the definition, it becomes more of a clumsy list that is forever subject to revision and hence of limited usefulness.

The essentialist approach is also problematic in that it implies the existence of a generic literacy, a universal set of competences for participation in a mediated world. Canning (2007) discusses some of the conceptual difficulties that arise from a generic or essentialist approach to the related construct of ‘core skills’ I suggest that his comments are also valid for literacy. Canning points to three areas of difficulty, firstly he points out that the notion of the transferability of skills from a general universal domain across to particular situational domains is questionable. Secondly, the act of naming a set of core skills is itself, socially constructed and such skills, as named and identified from time to time, will actually reflect current societal priorities rather than universal core needs. Canning’s third criticism arises from social cognitive learning theories that point to collective construction of knowledge as with Lave and Wenger’s (1991) models of communities of practice. These approaches diminish the emphasis on individual agency and promote collective and collaborative learning processes thus the importance and usefulness of individual core skills is somewhat reduced.

Most recent academic discourse has favoured a particularist view of literacy as evidenced

in the multiple literacies approach. As Roberts puts it:

Those who adopt particularist constructs abandon the notion of searching for a unitary essence or nature, and focus on different modes or forms of literacy: collectively these constitute myriad literacies.

(Roberts, 2005 p 34)

When literacy is conceived in this way there are many forms of literacy; print literacy, media literacy, information literacy, multimedia literacy and digital literacy are all examples of literacy.

The third type of definition is 'prescriptive'. A prescriptive stance is characterised by the author taking a position on what literacy ought to be. In recent times, prescriptive definitions called for the inclusion of critical skills for literacy. A typical example of this prescriptive approach is found in Mezirow's (1996) discussion on literacy; he argues for revision and points clearly to deficiencies in existing approaches:

To become a "literate, productive and responsible citizen," the broad goal of the Adult Education Act, the adult learner in a literacy program must be aided to understand new concepts well enough to be able to use them to make discriminating judgments. This is not a luxury; it is a necessity. Memorizing meanings, and acquiring "basic skills" are insufficient. To interpret, to judge, to solve problems, to learn how to learn, and to learn to become increasingly self-directed as a learner -all require fostering critically reflective thought and participation in discourse. These become essential objectives of any literacy program.

(Mezirow, 1996 p 123)

Prescriptive approaches play an important role in expanding conceptions of literacy and challenging the assumptions that often underpin many policy based definitions.

Lo Bianco and Freebody's Families of Thought Around Literacy

So far I have described how literacy may be conceptualised as a set of functional skills

associated with an individual or as a set of shared social practices. I have also discussed Robert's framework and suggested that it provides a useful tool for delineating the different perspectives in which much of the commentary on literacy and skills is framed.

Another useful tool suggested by Tett, Hamilton and Hillier (2006) is the research-derived conceptual framework provided by Lo Bianco and Freebody (2001) who reported on teachers' ideas of literacy. They distinguish three 'families of thought' about literacy (i) literacy as skills (ii) literacy as personal growth and heritage and (iii) critical-cultural approaches to literacy. Lo Bianco and Freebody discuss how pedagogic strategies are connected to each of these perspectives.

I have already discussed 'literacy as skills' and arguably, the notion of literacy as skills is implicit in all of these families-of-thought. Other perspectives usually call for extending the notion of literacy beyond skills to include situated competence, implicit abilities such as protocols, codes and nuances, and critical awareness. Thus they argue for a 'skills plus' rather than a 'just skills' approach. To illustrate, consider what may be involved when people participate on the *Know IT* course to learn to use a computer for the first time. To use a computer, even at the most simple level, it is necessary to acquire the hand-eye motor skill of manipulating a computer mouse and for novice users this presents a skills challenge. For these users and their teachers literacy is all about skills. What is useful about thinking in terms of teachers' families-of-thought is that in certain contexts it is acceptable and indeed desirable to reduce our concept of literacy to a set of measurable skills.

Skill based definitions of literacy are, or should be stipulative. Such conceptions are

useful in certain contexts. Large-scale surveys such as the International Adult Literacy Survey have played a significant role in identifying differences in skills and abilities across society and between countries. However, problems arise when literacy is defined as skills in an essentialist manner. One such example is contained in the chairman's statement at the beginning of the UK Government's report *A Fresh Start* in the introduction Sir Claus Moser states:

Of course one can argue about definitions but the stark facts are all too clear. Roughly 20% of adults – that is perhaps as many as 7 million people – have more or less severe problems with basic skills, in particular what is generally called 'functional literacy' and 'functional numeracy'.

(DfEE, 1999)

The subsequent strategies and policies adopted by the UK Government as *Skills for Life* have continued the functional skills emphasis. From a policy maker's perspective, there are definite advantages in framing a clear definition and measurement scheme for literacy; strategies can be connected to numerical targets and annual measures. However, the danger is that we measure only what can easily be measured and the resulting uplifts give a false indication of success.

The second way of thinking about literacy as suggested by Lo Bianco and Freebody is as 'growth and heritage'. They describe this family-of-thought as emphasising the private and individual ways in which people use reading and writing to grow and access shared heritage and culture. I suggest that the alternative terms of 'engagement' and 'participation' are more useful in today's context. These terms provide a rationale for discussing the multitude of modes of literacy, beyond reading and writing, and extend particularly to the use of new technologies. They also locate literacy as associated with all forms of communication and meaning making. In contrast with skills approaches, the key area of inquiry now centres on participation and activity.

Thinking in this way, we are more concerned with what people do with skills rather than measuring and advancing skills in their own right. New digital and computer technology has given rise to new skills such as using a mouse, a keyboard or sending text messages. However, much more intriguingly, they have also brought about new forms of engagement and participation. It is engagement and participation that acts as the driver for learning not skills in isolation.

The third way of thinking about literacy is in terms of ‘critical-cultural’ approaches; these emphasise the variability of everyday literacy practices from culture to culture and from setting to setting. They also stress the importance of critically analysing literate communications for their underlying belief systems and their cultural consequences (Lo Bianco & Freebody, 2001). This is what Barton and Hamilton are pointing to when they suggest that literacy practices are patterned by social institutions and power relationships and that literacy is historically situated.

Literacy and Basic Literacies

Theoretical and research based contributions, as described above, are useful in a variety of ways: they provide a framework for concepts, they untangle the terminology and they act to identify conceptual boundaries. One boundary area that requires further discussion is the notion of what constitutes a *basic* literacy. I have already outlined how different definitions of literacy are appropriated depending on audience and other contextual influences. However, it is still important to develop a clear understanding of what is and what is not considered basic literacy within the context of this research. The question is why we describe some practices, such as using digital technologies, or using numbers in everyday situations, as basic literacies and not

others?

Sociolinguists refer to different semiotic domains (Gee, 2004) and, from a social communications perspective, they would argue that almost all social encounters have associated literacy. For example, we could describe mathematics as literacy associated with theoretical physics; in order to participate within the semiotic domain of theoretical physics a person would need to be highly skilled in mathematics. In this way, sociolinguists point to literacies in all walks of life. However, in this discussion we are specifically concerned with literacies that are variously termed as ‘basic’, ‘core’, ‘functional’ or ‘essential’.

How then should we delineate these basic literacies? I propose a three point approach. The first point is to recognise that such literacy will be associated with a situation or practice and not with an individual. Secondly, such a practice has significant social or economic value within a particular culture to the extent that people who cannot effectively participate in the practice are fundamentally disadvantaged. Thirdly, the practice is pervasive in that encounters with this practice are not easily avoided, it may even be said that the practice helps define the culture. Examples of such practices in modern societies are economic transactions, workplace activities and democratic participation. As is the case with other literacies, there are symbolic systems associated with each domain of practice for basic literacies. Effective participation requires that people can use the symbol system to read, decide and participate in the relevant domain.

Further insight may be gained by considering literacy in terms of the ‘assumptions’ people bring to the practices described above. Mezirow (1996) points out that often in human communication there are often both instrumental and communicative competences required. For

communicative competence we require abilities, such as suggested by Habermas (1984), to recognise implicit claims and to make informed critical judgements the validity of such claims.

An everyday example of this is to be found in the label systems for packaged food purchased in supermarkets. The ‘practice’ here is economic transaction ‘money for food’. The practice fulfils the conditions outlined above – it is economically and culturally significant and pervasive – it’s an everyday occurrence. On face value it may seem strange to explore such a transaction in terms of Habermas’s notion of discourse. However, there is not just instrumental learning required for the performance of this transaction there is also a communicative learning element. For example, a ‘best before date’ on a label conveys a different message to a ‘use by date’; for each, there are different responsibilities and consequences for the consumer and the retailer. For those who have the competence to understand these messages, distinguish between them, consider alternatives and make informed decisions this (transactional) practice may be described as discourse. This is not the case when some of the participants lack the capacity to understand such messages, they are unable to make informed decisions and the transaction does not meet the conditions of communicative discourse.

Note that literacy is associated with the transaction and it involves participants on both sides. Often, we consider the transaction from a one-sided stance and name literacy as a problem associating only with the consumer. I would argue that because the transaction is organised and designed primarily by the retailer, they in turn, carry a high degree of responsibility for the communicative aspects of the transaction.

In these everyday situations there are often assumptions made about the competence of

consumers and these assumptions are valid for most but not all people and transactions. One could say therefore that literacies are characterised as ‘basic’ or ‘fundamental’ when they are assumed to be available to everyone in a specific cultural context. Note that I am not saying that such literacy *is* available but that the construction of the practice (or transaction) includes an assumption of literacy. What constitutes the label ‘basic’ together with the literacy is the set of assumptions that everyone has the competence to engage to this degree. An obvious corollary is that those who lack the competence to participate are and will also feel, less valued in the situation.

Having mapped out the characteristics of a basic literacy I would now like to consider the case of ICT or digital literacy as a basic literacy. I argue above that a basic literacy is associated with pervasive situations or practices that have significant cultural, social or economic value and where non-participation gives rise to disadvantage. Further, I characterise basic literacy in terms of a set of assumptions associated with such practices. Few can argue with an assertion that computer technology is pervasive and increasingly used as a mechanism for important practices in society. In developed economies, people can buy, sell, pay taxes, book holidays, manage finances, source information, publish, communicate and express themselves creatively using digital technology. People who cannot engage in these practices are disadvantaged and marginalised. Furthermore, the construction of these practices is based on sets of assumptions regarding participant competences. Without these competences participation is either not possible or, at best, cannot be described as communicative discourse in the sense of Habermas. Therefore, for many societies today, digital literacy is basic and fundamental to effective participation.

Digital Literacy

This previous discussion suggests that the capacity to use computers and other everyday digital technologies may be described as a basic literacy. Bawden (2001) provides a review of concepts in this area describing two general concepts: ‘information literacy’ and the more recent ‘digital literacy’. Bawden notes that despite the wider implications, the main thrust of academic inquiry in information and digital literacy remains within the field of information studies (often library and information studies). Bruce (2003) provides a collection of digital literacy contexts and examines critical issues that arise from engagement with new technologies. Useful frameworks for digital literacy skills are provided by O’Connor (2002) and Martin (2006). These conceptions emphasise digital literacy as beyond technical skills and introduce abilities associated with the practice of new technologies such as analysis, critical appraisal and creativity.

Digital Literacy as a Basic Skill

This research is directed at understanding the decisions, actions and learning experiences of students encountering *Know IT* a blended learning course intended to enhance basic digital literacy. However, for practical purposes and in the spirit of the stipulative approach to definitions, I frequently describe *Know IT* as a course to develop basic computer skills, or basic digital skills –this is a practical approach based on the language of the project and the participant learners.

Learning

How I Have Organised this Section

In this section of the literature review I discuss conceptions of the process of learning. I confine my discussion to several broad theoretical orientations that indicate particular positions of *learning as...* and I follow with a brief discussion on the nature of adult learning and the relevance of theory and research to professional practice. In the sections that follow I will deal with:

- Learning as an organic process
- Learning as a transformative process
- Learning as social practice
- Adult learning
- Learning as a cognitive process
- E-learning

Throughout this review I am generally mindful of how each of the theories relate to my research question and also how such conceptions inform my methodological approach to this research.

Learning as an Organic Process

In this section I adopt my own description of learning as an ‘organic’ process to discuss learning from a human organismic perspective. I draw mainly on the writings of Dewey, Piaget and Vygotsky. All three of these theorists regard learning in terms of an organism’s interaction with the environment and that in many ways the nature of the interaction is their conception of learning.

For Dewey learning involves a special understanding of what it means to think and to be

‘in’ the world. Dewey maintains that “an experience is always what it is because of a transaction taking place between an individual and what, at the time, constitutes his environment” (Dewey, 1938 p 41). For Dewey, this is true regardless of whether the environment is a science experiment, another person, or an interaction with a computer. This ‘transaction’ involves both objective (we might say external or instructional) and internal conditions. Dewey’s critique of education at the time, a critique that is still relevant today, was the over emphasis on the objective side of the interaction. Illeris (2004), Piaget and Vygotsky also argue along similar lines that learning involves two mutually dependent processes; namely, interaction with the outside environment and the internal process associated with this interaction.

I will return to Dewey later in this review; however, I would like to discuss briefly one further point made by Dewey in relation to the ‘organic’ or biological nature of learning. In the opening remarks of *Democracy and Education* Dewey asks the reader to ponder the difference between organic and inorganic things. He suggests that organisms attempt to control or subjugate their environment and he describes life as a “self-renewing process through action upon the environment” (Dewey, 1944 p 2). For people, this self-renewing process is not limited to individuals – society seeks to renew itself through the transmission of knowledge from the old to the young and from the experienced to the inexperienced. The continuity of society comes from our continued readaption of the environment and to be alive as a human is to learn to participate in this process.

There is another reason why I use the phrase ‘learning as an *organic* process’ to describe the approaches of Dewey, Piaget and Vygotsky. Each of these theorists conceives of the learning process in terms of growth; they emphasise the journey and not the end result –

knowledge. In this, they suggest that given the right conditions, natural tendencies or instincts may be harnessed to bring about learning. The role of teachers and parents is to facilitate and allow learning to take place rather than to direct it. For me, the notion of learning as an organic process is connotative of the movement for organic foods where industrial and mechanistic processes of production are spurned in favour of growth under natural and more sustainable conditions.

Jean Piaget described himself as a genetic epistemologist and he devoted his career to understanding the nature and process of learning. Piaget is credited with the establishment of the field of cognitive development and with a model of learning in childhood that is active and constructive (Flavell, 1996). Piaget was opposed to a view of knowledge as some form of passive copy of reality and he argued that learning is essentially a constructive process.

To my way of thinking, knowing an object does not mean copying it - it means acting upon it. It means constructing systems of transformations that can be carried out on or with this object. Knowing reality means constructing systems of transformations that correspond, more or less adequately, to reality.

(Piaget, 1968 p 9)

His approach to learning was influenced by the biological process of adaptation whereby an organism will modify itself to accommodate and survive in its surrounding environment. Piaget believed that growth of knowledge is primarily *operative* (Campbell, 2006) by which he meant that it was concerned with and driven by change and transformation. Cognitive structures, according to Piaget, consist of a system of possible transformations of content. Each structure is defined by processes for establishing relationships between areas of content (Lawton, Saunders, & Muhs, 1980). Cognitive structures can be simple action schemes or more complex representational schemes involved in logical thinking. Most cognitive structures are active and

evolving not fixed – they are adaptive. Applying a scheme to a new situation is called ‘assimilation’. Each time a scheme is applied in a different situation the scheme is modified in some way and this process is known as ‘accommodation’.

Bruner (1983b) who was largely responsible for bringing the work of Lev Vygotsky to the foreground, pointed out that Piaget’s work placed little emphasis on social interaction “The world is a quiet place for Piaget’s growing child. He is virtually alone in it, a world of objects he must array in time, space and causal relationships” (Bruner, 1983b p 138). In contrast, the Russian psychologist Lev Vygotsky looked at the development of cognition with an emphasis on social interaction. Vygotsky’s work is often compared and contrasted with that of Piaget. Vygotsky, and others of the so-called cultural historical tradition, characterised human interaction with the environment through the key concept of ‘activity’ or goal-directed endeavours (Illeris, 2004). These activities take place in the social sphere and learning is construed within a social and communicative context.

Vygotsky, like Piaget, addressed the development of learning in the child. A key process identified by Vygotsky is the pattern of social interaction and internalisation:

Every function in the child’s cultural development appears twice: first, on the social level, and later, on the individual level; first between people (interpsychological) and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals.

(Vygotsky, 1978 p 57)

In my view the importance, indeed centrality, of learning through social interaction would seem to be well placed; human society and culture has evolved and developed through assimilation and adaptation of each succeeding generation. Vygotsky describes the development

of higher-order psychological functions in the context of this historical and social development of human kind as ‘phylogenesis’ (Nelissen & Tomic, 1996). Vygotsky proposed that a child’s learning capacities are connected with the opportunities for learning rooted in social interaction. He emphasised learning and development as a shared process that should be described in terms of both the personal and the social context. This shifts the focus of development beyond just the mind of the individual and into the social sphere. Consequently, there is a strong connection between learning and the situation in which it is experienced.

Learning and Development

Piaget is also known for his stage theory wherein he describes four stages in a child’s cognitive development (Inhelder & Piaget, 1958): the sensory-motor period usually from 0 to 2 years, the period of pre-operations usually from 2 to 7 years, the period of concrete operations usually from 7 to 11 years and the period of formal operations usually from 11 to 12 years on. A key question for adult education is the nature and extent of development changes in post formal-operation lifespan.

Knight and Sutton (2004) discuss neo-Piagetian theory and research in the context of practice for educators of adults. While preserving Piaget’s principles on cognitive structures the neo-Piagetian’s suggest that in adulthood “cognitive structures become increasingly complex through the intricate interaction of maturation and experience in a cyclical knowledge building process” (Knight & Sutton, 2004 p 3). The development of post-formal cognitive structures is also attested by Commons et al (1982), Moran (1991) and Merriam (2004).

A key area of interest in neo-Piagetian theory is the distinction, or the blurring of the

distinction, between development and learning. Development in the classical Piagetian sense, is the transformation or accommodation of an individual's existing cognitive structures; whereas, learning is considered as the assimilation of new content into these structures (Knight & Sutton, 2004). However, is such a distinction valid or meaningful beyond the early stages of development? I believe that a case can be made that learning in adulthood and cognitive development in adulthood are indistinguishable. I discuss later how adult learning can be both additive and transformative; by its very nature transformative learning will involve the building of new cognitive structures and one could argue that this is in fact a process of development rather than learning.

A further area of debate in regard to learning and development centres on whether cognitive structures develop as domain-general or domain-specific (Goswami, 2001). Are cognitive structures developed and applicable in a general way across all contexts (domain-general) or do they develop in different ways and hence could be at different stages depending on specific contexts? This is a significant question for adult learners particularly those labelled as low-skilled. A domain-general view of cognitive development would suggest that low-skills are a broad characteristic, whereas, a domain-specific stance on development would mean that one can only say that a person has low skills in a specific context – for example spelling or problem solving.

Zone of Proximal Development

The Piagetian stage model deals with development internal to the individual whereas Vygotsky places the emphasis on the learning individual within a supportive context. Usually this support is provided by elders, teachers or more experienced peers. Vygotsky recognises the

importance of the additional potential for learning when guided in this way. The obvious implication of this approach is that it recognises the important role of teaching and guidance. An important concept introduced by Vygotsky is the zone of proximal development or ZPD and he provides a definition as follows:

It is the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.

(Vygotsky, 1978 p 86)

A discussion on translation and interpretative difficulties of Vygotsky's texts and specifically, the precise origins of the concept of the zone of proximal development is given by Gillen (2000); she indicates that much of the popularity, in terms of its applicability to instruction, derives from Bruner and later theorists. Bruner (1983a) discussed the nature of the ZPD in terms of 'scaffolding' – the way in which children can be supported in their learning through appropriate guidance of others usually an adult. Vygotsky maintained that learning can take place beyond the current developmental level of a child provided that there is an externally supportive framework, at an appropriate level, to support and guide internalisation.

For the context of adult education and instructional design the implications of the concept of a ZPD are significant. Vygotsky proposed that for instruction to be effective it needs to be pitched beyond the current developmental level of the learner. Interpretations of Vygotsky's conceptualisation of the 'internalisation' process and its relationship with speech are discussed by Parkes (2004). He argues that Vygotsky implied, although never directly stated, that there is an important dynamic between the ZPD, internalisation and semiotic mediation. The role of mediating artefacts, not just more capable other people, are critical to learning in the zone of

proximal development (Parkes, 2004). These artefacts include intellectual tools such as language and writing and other semiotic tools including diagrams, maps and, I add, nowadays digital media.

Learning as Transformation

There are many learning different types of learning and numerous schemes to suggest how we should organise learning outcomes and objectives. Most notably, Bloom's Taxonomy (1956) which delineates the cognitive, affective and psychomotor domain and Gagne's (1985) classification of learned capabilities as motor skills, attitude, verbal information, cognitive strategy and intellectual skills are well know and applied in many pedagogical contexts. However, an important distinction arising from many of these typologies is between 'additive' learning and 'restructuring' learning (Illeris, 2009).

Additive learning is simply the accumulation of new knowledge and it generally involves little change to existing meaning schemes or structures. For example, as I write these words using a computer and word processing software I am aware of many keyboard shortcuts that are available to me to perform tasks such as underlining, italicising and so on – if I come across a new shortcut I simply add this new knowledge to my existing repertoire – this is additive learning.

In contrast, learning may involve restructuring an existing meaning scheme and as might be expected, this is a more demanding and complex process. Such restructuring will always be associated with new experiences and encounters that challenge our existing understanding and expectations. We may choose to ignore or avoid situations that challenge us in this way or we

may use such encounters to reframe our thinking and to build new meaning schemes. An important question is why we engage in transformative learning in the first place. Restructuring is a demanding process involving cognitive and emotional investment – why do we need to learn in this way? Dewey provides the answer when he describes life as a “self-renewing process through action upon the environment” (Dewey, 1944 p 3). Dewey suggests that living beings seek to change their environment and that to be human is to be creative – to want to change the world and not just adapt to it (Dewey, 1944; Wain, 2009). Additive learning by its very nature will never be sufficient for creativity – in order to change our environment we need to model it and because it is dynamic and complex we will always need to shape and reshape our models. This is the nature of human questioning, inquiry and creativity.

Learning as Inquiry

Bruce and Bishop (2002) elaborate on Dewey’s idea of inquiry to suggest a framework for learning as a cycle of inquiry. The components of such an inquiry cycle are; ask, investigate, create, discuss and reflect. The process may begin at any point in the cycle; for example, an encounter with a new piece of technology may cause a person to *ask* what use they may put this technology to and to *investigate* how to get it to function for the desired purpose and hence to *create* their own way of working or getting the most out of it and subsequently *discuss* their experience with others and *reflect* on the process and once again to *ask* if it was worthwhile and should one invest further effort in using this technology. These cycles take place in many everyday contexts not always as complete cycles as in the example above. Notice how an inquiry cycle suggests an expanded model of learning, involving the environment and changing the environment, an internal process and a change of internal processing, a social dimension and

a self-perpetuating, cyclical aspect of the process.

Dewey always regarded education and learning as a social process; his belief was that “all education proceeds by the participation of the individual in the social consciousness of the race” (Dewey, 1913 p 77). Bruce and Bishop (2002; 2009) point to Dewey’s description of four impulses or instincts of the learner as: the ‘social’ instinct, the instinct for ‘making’, the instinct for ‘investigation’ and the impulse to ‘express’. This latter impulse is suggested as the need to extract meaning from experience, it is essentially a reflective process.

Making Meaning

The task of looking up the meaning of a word or the spelling of a word in a dictionary is often featured in literacy instruction. This is a very useful way of checking out a new word or the spelling of a familiar word. What exactly is the meaning of a word? One may be forgiven for the assumption that meaning is a precise characteristic associated with the word itself or the concept that the word represents. This is our everyday understanding – that there is *a meaning* for a word such as the meaning of the word *Internet* or *broadband* that we may find in a dictionary. This interpretation connects the meaning of a word or concept to the word itself. It is identified as a specific element of declarative knowledge that either one has or has not; as in when one says “I know what broadband means”. Meaning, when interpreted in this way is regarded as invariant, precise and universal.

The alternative perspective, put forward here, is that meaning is not associated with words or things but with people. We make meaning. We do this by connecting our immediate or newest experience of the world with our present and past experience – this is essentially the

constructivist approach to learning. Meaning is therefore regarded as dynamic and personal.

Dewey discusses these approaches in terms of two competing ideas of learning:

On the one hand, learning is the sum total of what is known, as that is handed down by books and learned men. It is something external, an accumulation of cognitions as one might store material commodities in a warehouse. Truth exists ready-made somewhere. Study is then the process by which an individual draws on what is in storage. On the other hand, learning means something which the individual does when he studies. It is an active, personally conducted affair.

(Dewey, 1944 p 335)

Dewey's own vision was in keeping with the latter active notion of learning expressed above. Much educational debate has centred on the epistemological demarcation outlined above and the two positions outlined by Dewey have significant consequences for how we organise, encourage, measure and research learning. This ideological fracture is ultimately at the root of dualities such as positivism and post-modernism, behaviourism and constructivism, education as achievement versus education as growth, and literacy as skills versus literacy as social practice.

Mezirow locates this view of learning in the context of adult literacy:

Learning is the process of using a prior interpretation to construe a new or a revised interpretation of the meaning of one's experience in order to guide future action.

(1996 p 118)

It is worthwhile exploring what this means for adult basic computer skills' learners. Mezirow (1996) suggests that we look to Habermas's (1984) major work on a theory of communicative action. In this he distinguishes between two forms of learning as 'instrumental' and 'communicative' learning. Instrumental learning is concerned with how we control and manipulate the environment as in natural science, engineering-type problem solving and many of the everyday tasks that we perform. Communicative learning is about the quest for meaning and

is concerned with social interactions. In communicative learning participants need to take account of all aspects of social interaction including the words used and the explicit and implicit assumptions of all parties. Such awareness arises from a process of critical reflection and Mezirow (1996) argued that this notion of discourse is a neglected component of the literacy learning debate.

This emphasis on the connection between learning and communication is also found in Dewey's work:

Society exists through a process of transmission quite as much as biological life. This transmission occurs by means of communication of habits of doing, thinking, and feeling from the older to the younger. Without this communication of ideals, hopes, expectations, standards, opinions, from those members of society who are passing out of the group life to those who are coming into it, social life could not survive.

(Dewey, 1944 p 6)

Dewey also suggests that society not only continues by means of communication but that society exists *in* communication. Consider the relevance of these ideas for the ubiquitous nature of everyday digital technologies and the challenges faced by people who lack the relevant competence to participate. Dewey's quotation is interesting for two reasons; firstly, he is laying the groundwork for a theory of learning based on active participation and secondly he indicates that what is transmitted is not just a collection of signs and symbols but also habits, thoughts and feelings and, as a consequence, communicative learning must involve the process of becoming critical aware of these.

Thus far, I have discussed theories of learning that emphasise both the individual and social aspects of learning. I have suggested that these are fundamentally linked; a constructivist view of learning will inevitably lead to a social *and* individual dimension of learning.

Learning as a Multi-Dimensional Process

Illeris synthesises many theoretical perspectives of learning in his books on the three dimensions of learning and ‘how we learn’ (Illeris, 2004, 2007). In a related work he describes his contribution as towards ‘a contemporary and comprehensive theory of learning’ (Illeris, 2003). He proposes a comprehensive model of learning involving the interaction of cognitive, social and psychodynamic (he later uses the word incentive) influences, and he describes these as the realms of Piaget, Marx and Freud (Illeris, 2004). Along these three dimensions he suggests a way of organising many of the theoretical perspectives that seek to describe adult learning and motivation.

Illeris makes it clear that he sees learning as involving two different processes; the process of the learner interacting with the external social or material environment and the internal process of elaboration and acquisition (Illeris, 2004, 2007, 2009). However, Illeris further points out that the criteria for each of these processes are different – the external interaction process is determined by environmental, social and cultural contexts whereas the internal process is individual and psychological in nature. In contemporary society human capacities in relation to each of these processes is radically different - the capacity of external process may be considerably enhanced for instance, by the use of technology or innovative teaching strategies - whereas the capacity of the internal process is dependent on the neurological structures that have evolved in humans over many generations (Illeris, 2009).

Illeris is quite categorical about the significance of all three dimensions and the two processes for learning:

The basic conception of learning in this presentation thus suggests both that learning

always consists of two integrated processes of interaction and internalisation, respectively, and that *learning simultaneously comprises a cognitive, an emotional and psychodynamic, and a social and societal dimension.*

(Illeris, 2004 p 19)

Illeris's propositions provide a very useful perspective through which other theoretical contributions to understanding the learning process may be framed. He suggests that many theories focus only on one side of the learning process or on specific dimensional aspects of learning. Thus, for example, behaviourists looked only on the (external) interaction process whereas cognitive theories, while taking account of the two processes (interaction and internalisation), focus only on the cognitive dimension. It is in this way that he lays claim to a comprehensive theory of learning; by asserting that learning involves all aspects of the personality he is arguing for a broader conception of human learning. Of necessity, such an expanded view requires that learning be located as integral to the lifelong process of self-development and actualisation.

Illeris uses the term 'dimensions' of learning; I interpret this to mean the different polarities in which the learning process acts and that variation takes place along each of these. The sub-heading of Illeris's book describes contemporary learning 'theory in the tension field between the cognitive, the emotional and the social'. For me the notion of a tension field fits very well and it also connotes the scientific concept of equilibrium. This is similar to the Piagetian concept of 'equilibration', although Piaget's focus was on equilibrium *within* cognitive processes and Illeris points to the tension field *between* the cognitive, social and psychodynamic dimensions.

However, in attempting to frame specific research questions that relate to Illeris's

contribution to a comprehensive theory of learning (Illeris, 2003), the notion of ‘three dimensions’ is potentially misleading. The concept of a dimension is usually associated with measurement in a particular direction; we are familiar with the three dimensions of space as a way of describing position. It is useful therefore to visualise, as Illeris suggests, the positioning of various contributions to learning theory as occupying their own position within the Illeris three-dimensional space. However, this metaphor is of limited value in conveying the dynamic of the *tension field* and the interactions between different aspects of learning.

The notion of learning ecology was put forward in an article by John Seely Brown (2000); he describes ecology as basically an open, complex, adaptive system comprising elements that are dynamic and interdependent. Brown’s emphasis was on the Web as a supporting and facilitative mechanism for different types of learning and learning across different regions. It might be useful to explore using the ecology metaphor as an alternative to the three dimensions as posited by Illeris. In this way learning is conceived as an open, complex and adaptive system comprising multiple processes that are dynamically responding to the influences of outside world and each other. The processes can be broadly grouped as acting within the cognitive, social and psychodynamic domains.

Learning as Social Practice

To Lave and Wenger (1991) the concept of internalisation, and therefore learning, is embedded in the process of participation. They see this as a logical extension of cultural historical theory:

First, the historicizing of processes of learning gives the lie to ahistorical views of “internalization” as a universal process. Further, given a rational understanding of

person, world, and activity, participation, at the core our theory of learning, can be neither fully internalized as instrumental artefacts or overarching activity structures. Participation is always based on situated negotiation and renegotiation of meaning in the world. This implies that understanding and experience are in constant interaction-indeed, are mutually constitutive.

(Lave & Wenger, 1991 p 51)

Communities of Practice

Lave and Wenger describe learning as participation in social practice and they build on the notion of cognitive apprenticeship (Collins, Brown, & Newman, 1986) to look at the way people learn and extend their participation in social contexts. In this context, the concept of 'participation' is important. Lave and Wenger (1991 p 29) describe the notion of 'legitimate peripheral participation'. The emphasis is on the learning journey within a community or practice (Wenger, 1998) from the periphery to the centre. This process is driven by active participation and important facilitative mechanisms are social structures designed to allow the learner to operate in the zone of proximal development.

Hammersley (2005) suggests some characteristics of a conception of learning involving communities of practice: expertise is socially determined by the group rather than an external analyst, conscious rules are replaced by capacity to engage in tasks, group concepts are open and not strictly defined and learning involves the whole person in embodied action. Wenger suggests that meaningfulness is at the root of community of practice learning as learning within social contexts facilitates the negotiation of new meanings.

To illustrate, consider a situation where an inexperienced adult decides to begin to use a computer to send e-mails for the first time to a circle of friends who she knows are already communicating by e-mail. We should consider the activity not just as the act of an individual

sending or receiving e-mail, it is rather, a movement towards participation by both individual and group. In the beginning, the new e-mailer may be regarded as operating on the periphery of the community of practice (here the 'practice' is friends communicating by e-mail) and over time, she will learn her way into the practice by using the tools, terminology, unwritten rules and protocols of the group. Such a person's competence will gradually be enhanced as she moves from the outskirts to the centre of this community of practice. The community thus facilitates transitions of participation from legitimate peripheral participation to central participation and the community itself changes in the process.

Situated learning

Situated learning (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991; Quay, 2003) is now applied in many instructional contexts. Situations such as workplaces with opportunities for learning from experienced co-workers (Fuller & Unwin, 2005), and collaborative on line and on site learning (Borthick, Jones, & Wakai, 2003) are promising contexts for situated learning. Situated learning connects clearly to a social practice conception of literacy (Appleby & Hamilton, 2006; Papen, 2005) and many applications of this approach have been proposed (Cairns, 2001; M. C. Taylor, 2006) whereby literacy is furthered through supported and contextualised activities.

Billett (1996) sees situated learning as bridging the gap between cognitive and sociocultural theorising. He maintains that the relationship between the construction of knowledge and the circumstances in which knowledge is constructed is significant and that the consequences need to be further understood. Billett regards situated learning as goal-directed activity that is embedded in the authentic context for which it is intended to be applied. This has

implications for the design of courses such as *Know IT* – I previously described how the e-learning software simulated the intended activities such as using e-mail, Internet exploration and word processing - situated learning theorists emphasise that learning should be supported in authentic contexts.

This poses an obvious challenge for intuitions and designers of technology enhanced learning. In essence, the issue is one of the transferability of knowledge and skills. Billett suggests that we need to look at contributions from both theoretical perspectives namely socio-cultural *and* cognitive learning theories; he later proposes a workplace pedagogy based on such a combination and built around reciprocal participatory practices (Billett, 2002).

Adult Learning

This research deals with adult learning contexts and many texts such as Merriam and Caffarella (1999), Cross (1981), Knowles (1978) and Jarvis (2004) provide very comprehensive overviews and are testimony to the abundance of approaches, models, and theoretical perspectives in this area.

In a series of dialogues Alan Rogers and Knud Illeris (2003) debate the distinction between learning in childhood and learning in adulthood. Illeris points to motivation as the key distinguishing characteristic, he argues that children are dependent on the support and direction provided by adults as they learn whereas adults have choice, and that both legally and psychologically, adults direct their own life and learning. In essence, children will do what they are told, adults, on the other hand, will undertake learning only if they choose to do so. Rogers argues that there are exceptions to both claims; there are many instances where children learn

without guidance, for example in play, and there are many instances where adult learning is non-voluntary as in compulsory training.

I suggest that the issue is really one of degree and that childhood learning is indeed dominated by external influences but from the earliest years a process of self-control of learning is initiated. In adulthood, the tendency to direct ones own learning is primary but there are also instances and contexts where powerful external influences initiate and guide learning. I agree with both authors as they seek to resolve their different approaches through the construct of identity, which Illeris argues, should not be considered in isolation from motivation and learning. Further, the construct of identity necessitates that adult learning is considered in relation to the lifespan; as West (1996 p (ix)) aptly quotes Kierkegaard “Life can only be understood backwards. In the meantime it has to be lived forward”.

Knowles (1970 p 39) describes a set of assumptions that can be made about the characteristics of adult learners; these help distinguish ‘andagogy’ as the art and science of helping adults learn from ‘pedagogy’ which is concerned with children. Knowles work has been criticised as not really providing a theory of adult learning rather a set of propositions to describe adult learning. However, Knowles is also largely credited with establishing a ‘rallying point’ for adult education as a separate field from other areas of the scholarship of learning and teaching (Merriam, Caffarella, & Baumgartner, 2007).

Knowles’ assumptions are worth considering in the context of this research. His first assumption is that adult learners become increasingly self-directed as they mature. I have already discussed this in relation to the Illeris and Roger’s dialogue summarised above.

Knowles' second assumption is that adults will draw on their reservoir of experience as a resource for learning. This is not unexpected if one accepts constructionist theories of learning and the logical consequence is for adult educators to tap into this resource of experience to support learning. Knowles posited two further assumptions related to adult life stage development; one suggesting that adults' readiness to learn will be focused on the current life stage challenges and a second that adults will tend to focus on immediate application rather than the future application of new learning as they mature. Knowles later added assumptions regarding adult motivation as internally rather than externally controlled and further suggested that there is a need for adults to clearly rationalise *why* they need to learn before investing energy and effort in the process (Knowles, 1970; Knowles, Holton, & Swanson, 2005; Merriam et al., 2007).

Knowles' work is most useful when regarded as a set of good-practice guidelines for adult educators. However, one of the challenges for e-learning designers is to adapt Knowles' assumptions in the context of media based instruction. Knowles himself addressed this in an interesting, less well known, future-orientated, work published on the Internet (Knowles, 1991). Knowles envisions a lifelong learning centre of the future where people of all ages have access to a 'learning skill assessment laboratory' therein individuals receive a diagnostic of eight skill dimensions; these are described as the skills of self-directed learning. The skills consist of abilities to develop and be in touch with *curiosity*, to perceive oneself *objectively*, to *diagnose* learning needs, to *formulate* objectives and performance outcomes, to *design* strategies for learning using appropriate resources, to carry out a learning *plan* systematically and to collect evidence of accomplishment validated through *performance*.

Remarkably many recent applications of ICT to support learning match Knowles' dream of the future –e-learning is used now as a self-directed resource (*Know IT* is such a resource), in assessment (Buzetto-More & Alade, 2006) and cognitive diagnostics (Kalyuga & Sweller, 2005), to formulate learning plans and to provide portfolios achievement (Lorenzo & Ittelson, 2005). Knowles' vision was of technology enhancing learning, not as an extension of existing institutionalised education structures but as an instrument of transformation bringing about a new learning society.

Tusting and Barton (2003) conducted a literature review of models of adult learning applicable to basic skills. The first point in their summary of inferences drawn from the review is as follows:

Adults have their own motivations for learning. Learners build on their existing knowledge and experience. They fit learning into their own purposes and become engaged in it. People's purposes for learning are related to their real lives and the practices and roles they engage in outside the classroom.

(Tusting & Barton, 2003 p 36)

Another way of putting this is that adults learn what they want to learn and what they perceive as useful to them. Many employers, policy makers and educationalists fail to appreciate the consequences of this important finding. Those looking to identify successful strategies to improve workplace skills, including basic ICT skills, should look closely at individual agency and decision making.

Decisions to Learn

The importance of learning decisions cannot be over-emphasised; almost all learning theorists make a seemingly obvious point that adults learn what they choose to learn. Time and

again the capacity to make one's own decisions and to self-initiate and self-manage learning is identified as a key characteristic of adult learning – see for example Knowles (1978), Cyr (1999) and Merriam, Cafferella and Baumgartner (2007). Learning decisions are therefore important sites of investigation and can provide powerful insights for educators and policy makers on the development of skills and competence in future populations.

Although there is a rich tradition of academic inquiry into learning in adulthood Cross (1981 p 110) points to the deficit of theory. She argues that, in an applied profession such as adult education, theory and practice must be used together to build and expand the knowledge base. She refers to the historical imbalance between descriptive research and approaches that develop or propose new theoretical models. Few would argue with her further assertion that there may never be a single all-embracing theory of how adults learn throughout their lives.

The study of learning in the human context cannot easily be reduced to a predictive empirical process; there are so many complex sets of variables. Identical experiments cannot be repeated and much of what takes place at a neurobiological level is inaccessible even with modern scanning techniques. Adult learning is generally studied as a social science and as such, it will always describe rather than predict outcomes. However, it is important to recognise that descriptive research, when adequately referenced to explanatory theory, can provide many meaningful insights. In turn, these insights can either verify an existing model or suggest adaptations on the basis of new data and findings.

Learning as a Cognitive Process

In the previous section I discussed theories that considered the organic and social nature

of learning. I now introduce theoretical perspectives that emphasise cognitive structures and a process-oriented conception of learning. Just as Piaget and Vygotsky draw heavily on biological science for underlying conception, metaphor, and terminology, cognitive science draws on the architecture of the modern computer for inspiration.

Unlike constructivist and social approaches, these theories take little account of experience, situation or emotional aspects of learning. However, they are important to this investigation for a number of reasons – they represent the current dominant learning paradigm for e-learning design, they provide popular theories for workplace training and instruction and they are favoured by many employers and trainers alike. They also provide good models of the process of skill acquisition such as required by computer novices to master the use of the keyboard and computer mouse.

I have already stated in the introduction section of this thesis that I am sceptical about many of the existing approaches to instruction and e-learning design. I recognise that behavioural and cognitive theories have contributed many useful insights to the modern practice of instructional design. However, behaviourist conceptions of the nature of individual learning are often simplistic and inadequate. There is a need for greater acceptance of expanded models of learning to take account of factors such as individual experience, the contexts in which learning is applied, learning decisions, and the social and emotional aspects of learning. The issue here is one of balance, as with Dewey who, speaking of traditional education, suggested “not that it emphasized the external conditions that enter into the control of the experiences but that it paid so little attention to the internal factors which also decide what kind of experience is had” (Dewey, 1938 p 42). I believe that it’s not so much that we should reject the insights from

cognitive learning theories but that we refrain from positioning these theories as the *only* models applicable to e-learning and workplace training.

Cognitive theories of learning have evolved from experimental psychology and find their roots in the study of behaviour. The so called behaviourist approach was the dominant paradigm up until the 1970s. Much pioneering work in experimental learning psychology was based on observing results from animal and human experiments; typically, involving the quest to understand relationships between stimuli and observed responses (Hilgard & Bower, 1966; Mackintosh, 1997; Travers, 1967). These insights into learning focused only on external observable behaviour.

Watson, Thorndike and Skinner, as early exponents of behaviourism, contributed to our understanding of some of the basic characteristics of learning. They elaborated on stimulus response models to develop concepts such as the associative nature of learning, reinforcement and the learning curve (Anderson, 2000). They achieved this by focusing almost exclusively on the observable interaction between the learner and the external environment. The internal workings of the mind were considered to be beyond the bounds of observation and therefore disregarded. In contrast, today's cognitive scientists can draw on neuroscience to investigate the internal processes of the brain and advanced experimental and computer modelling techniques for analysis. Probably the major contribution of the behaviourist approach is the concept of task analysis; this is the instructional strategy of decomposing a complex task into constituent sub-tasks, categorising these and suggesting learning strategies based on these categories (Anderson, 2000).

The notion of specifically identifying and naming learning objectives also originates in behaviourist theory (Leigh, 2004; Reiser, 2001). Tenant (2006) includes a useful discussion on the value and limitations of behavioural objectives in instructional approaches. He notes that objectives are frequently cited in terms of observable and measurable outcomes. This is a common practice in e-learning whereby specific objectives, including pre-requisite or enabling objectives, for each unit of instruction are stated at the outset. Tenant questions the validity of using such a structured approach to instruction. He provides an example of mastering the complex skill of playing the piano; in this case, learning can proceed in a multitude of different directions for different people, sub-skills such as posture, finger position, notation and scale drills will be learned differently depending on the individual. The key to mastery of the piano is how these skills come together to form an integrated whole; following sequentially arranged specific objectives will not ensure mastery as this happens in a different sequence and in different ways for different learners.

It would be difficult to underestimate the influence of Robert Gagné on industrial training and consequently on e-learning designed for workplace contexts. Gagné's (1985) Instructional Systems Design (ISD) emphasised the task of organising content into discrete behavioural objectives this suggests a bottom-up, structured approach to learning. Instructional Systems Design places much emphasis on achieving prerequisite knowledge and skills at one level before proceeding to the next level.

Gagné's systematic model of instruction is ideal for the mass production of e-learning materials. In my experience even the production process in the e-learning industry is organised around similar principles – the emphasis is on content and the instructional design team break the

content into chunks or sections, each labelled with a set of objectives, writers are then assigned to script each section and finally developers build these into larger units and compile the audio and visual content. This constitutes a system for organising content rather than learning. The underlying principle is that people learn by progressively moving through content organised by others.

Instructional analysis, such as advocated by Gagné, is based on the assumption that learning outcomes can be deconstructed into specific types of objectives and learning and teaching strategies matched to the characteristics of the objectives. Modern cognitive theories are more concerned with factors such as individual learner characteristics, problem solving and skill acquisition. I would describe this generally as an emphasis shift from content to learning process.

A key foundation for modern cognitive theories was the work of Newell and Simon (1972) who proposed a model of learning based on problem solving. Their work drew heavily on the emerging fields of computer simulation and artificial intelligence. Newell and Simon's learning paradigm is encapsulated in a process they called the General Problem Solver (GPS). The process involved applying a means-end analysis to a given learning task in a sequence of logical steps. The process begins with a goal, for example, a literacy learner wishes to check the spelling of a word. The learner starts by taking some action described as an 'operator'; the purpose of this action is to reduce the difference between the present state and the goal. The operator, in this case, is to check the word in a dictionary. If the operator cannot be applied, for example when the student can't find the word, then the next step is make a new goal to enable the operator, in this case *find* the word in the dictionary, this the 'secondary operator' dealing

with alphabetical order, becomes the means to the primary goal. Newell and Simon's approach provided the foundation for, what is often referred to as, an information processing model of learning. From this, several new theories of cognitive architecture emerged and cognitive science, a new strand of scientific study of mental processes has evolved.

ACT-R

An example of one such cognitive approach is Anderson's adaptive control of thought – rational or ACT-R theory (Anderson et al., 2004; Anderson & Lebiere, 1998). ACT-R and its derivatives are examples of cognitive models that attempt to describe the internal architectures of the mind and in this way contribute to an understanding of the learning process. ACT-R theory is based on a complex model of human thought and is often represented as a computer simulation. It can be more accurately described as a theory of cognition rather than a learning theory.

Declarative and Procedural Knowledge

An important underlying concept is the distinction between two types of knowledge 'declarative knowledge' and 'procedural knowledge' (Anderson, 1982). Declarative knowledge is knowledge of factual information, for example, "Dublin is the capital city of Ireland". Declarative knowledge is also explicit in that a person is aware of what they know. Procedural knowledge is knowledge that may be displayed in behaviour but one is not conscious of it; it is implicit knowledge, often connected with how to perform tasks. Procedural knowledge often specifies how to bring declarative knowledge to bear in problem solving. In the previous example of using a dictionary, one may use declarative knowledge to find a word by alphabetical order by simply reciting the alphabet while searching. Alternatively, an expert user may have

procedural knowledge; quite simply, an expert may know that P comes later than L and before R and have no need to recite the alphabet. ACT-R describes declarative knowledge in terms of small primitive units called chunks and procedural knowledge in terms of rule-like units called productions. The cognitive model also includes goal structures similar to Newell and Simon's goals and sub-goals.

Relating ACT Theory to Learning

Anderson and Schunn (2000) discuss the implications of ACT-R theory for learning. The model allows for the acquisition of declarative knowledge in two ways either in a passive (encoding from the environment) or constructive (mental computation) modes. To go back to the example of the literacy learner seeking to find the correct spelling for a new word; this could be accomplished in an active manner by looking it up in a dictionary, or in a passive manner by simply being told the word. Interestingly, according to ACT-R theory, there is no inherent difference in the memorability of the knowledge generated from the two types of acquisition.

Procedural knowledge is gained through the generation of production rules and enhanced through practice. As practice continues toward a particular skill there is a gradual and systematic improvement in performance and, according to research studies and the computer model, this improvement will correspond to a power law (Anderson, 2000).

Skill Acquisition

Anderson (1982) relates the transition from declarative to procedural knowledge with the development of a cognitive skill. Based on empirical evidence, he proposes three characteristic stages in the development of skills (Anderson, 2000 p 310): the cognitive stage, the associative

stage and the autonomous stage. During the cognitive stage the learner often works from instructions and commonly verbalises the process. Anderson points to a familiar example of this as when a new driver learns to change gears for the first time. At the early (cognitive) stage there is much verbalisation and actions are slow and tentative. The next (associative) stage is marked by more deliberate and direct actions. At the third (autonomous) stage actions are increasingly automated and often a person may even lose the ability to verbally describe what they are doing.

Anderson's analysis of the process of skill development provides important, if underused, insights for skill's learning. He makes two points that are relevant for many learning contexts including basic computer skills: first that the acquisition of a skill does not proceed in a linear fashion - progress is slow at the early stages and later speeds up considerably; secondly, experts are often unaware and unable to describe the components that make-up their skills.

In many domains of competence, there are prerequisite skills that need to be mastered even to function at a basic level. To use a computer one must first master the operation of a computer mouse and keyboard. Those of us who are competent computer users often remain unaware of the extent of this barrier to entry. Novices often assume that progress to new skills will occur linearly and when they assess their own performance accordingly, they become frustrated at the lack of progress at the early stages. Anderson's model of skill acquisition allows learners and instructors to make more realistic assessments of progress.

Anderson's observation on the lack of awareness by experts is also useful as evidenced by the following authentic example. A *Know IT* tutor reported that she observed a student who,

while learning to operate a computer mouse, failed to appreciate that she could lift and replace the mouse in a new location. The student made the apparently logical assumption that the flat operating space of the mouse represented an identical area map of the computer screen. When the student encountered an obstacle in the space she was unable to proceed. When the instructor understood what was happening she was able to adjust her teaching to let everyone know how a computer mouse works. Importantly, the instructional insight came from the experience of novice and not expert users.

e-Learning

Technology Enhanced Learning

In an earlier part of this review I discussed how Dewey, Illeris and other theorists identified two processes associated with learning; interaction with the external environment and the internal process of integration and adaptation. The term 'e-learning' is generally used to signify the use of modern information and communications technology, also referred to as digital technologies, to support learning. To date, much emphasis has been placed on the power of technology to present instructional content through flexible and accessible delivery systems. The promise of e-learning is largely framed in terms of the power of technology to package and organise learning experiences free from many of the logistical and economic constraints of face to face instruction. However, in harnessing technology for learning, there is also the obvious risk of focusing too much on the external interaction side of the learning process to the neglect of the internal process of elaboration and integration.

There are many definitions and approaches to e-learning and such a confusing array of

terms, often used imprecisely, leads to over optimistic and misguided expectations of what may be achieved. I propose a simple understanding of e-learning in this review as “the use of technology to enhance learning” (Dror, 2008). This is a useful approach as it stresses *learning* and positions technology as an enabler and enhancement of learning rather than an end in itself. Furthermore, it does not limit e-learning to Internet based courses, nor does it preclude blended learning approaches (Alonso, Lopez, Manrique, & Vines, 2005; Oliver & Trigwell, 2005) or the use of technology as teaching aids.

An important point to consider is the *way* technology enhances learning. This enhancement is not confined to audiovisual capacity or flexibility it also give rise to new pedagogic possibilities and new forms of learner engagement. Dror (2008) argues that design for e-learning must fit human cognition and contrasts the oft-cited quantitative benefits of e-learning with the understated qualitative advantages that may be afforded by technology.

We can define blended learning as: “the integrated combination of a number of pedagogic approaches - usually traditional learning with e-learning approaches” (Oliver & Trigwell, 2005). In this definition the important words are ‘integrated combination’; this means that blended learning is not a collection or mixture of pedagogic approaches, it is the planned and complimentary use of different media, learning environments and teaching scenarios to deliver a more engaging and useful learning.

e-Learning and Lifelong Learning Policy

Selwyn, Gorard and Williams (2001) provide a review of what they describe as the ‘technical fix’ in UK lifelong education policy. They point to the role of ICT in lifelong learning

as largely unexamined and unquestioned. This uncritical acceptance of the role of technology in providing access to learning is not unique to the UK. Similar sentiments are expressed in policy documents in many country contexts and in European Union policies (Conole, 2004; Hodgson, 2002). The rhetoric of a knowledge economy (Peters, 2001) is generally accompanied by calls for new technologies to contribute to the formation of a learning society.

Design for e-Learning

Beetham and Sharp (2007) discuss the notion of pedagogy and design in relation to learning in the digital age. They argue that digital technologies give rise to new contexts and opportunities for learning and as such, present new challenges for designers. The term ‘design’ is intended to signify processes that bridge the gap between theory and practice in pedagogy. ‘Design for learning’ is a creative activity that can be improved through scholarship and reflection. The design process involves a series of component stages such as the investigation of users and their needs, the application of design principles, representation or modelling of the intended solution, and an iterative review process for continuous improvement as the solution is implemented. Such a learning design paradigm is nothing new; however, it is an important and frequently neglected aspect of research and practice. New research approaches reflect the current emphasis on design for learning as with design-based research (Barab & Squire, 2004; Collins, Joseph, & Bielaczyc, 2004). This approach emphasises learning research in naturalistic settings bringing design-decisions, and pedagogical modelling to the foreground.

The Future of e-Learning

The traditional term ‘instructional design’ is subsumed as a component of ‘design for learning’ as the emphasis shifts from guided instruction to self-learning. Many commentators

also look to Web 2.0 and the proliferation of socially constructed content, in the form of blogs, wikis, community platforms, social-networking, and video sharing sites, as an opportunity for further transformation of education and learning design. Notable among these commentators are John Seely Brown (2000; Brown & Adler, 2008) and the New Media Consortium (2008). Any reading of these future-orientated commentaries captures the excitement and anticipation of greater things to come. There is also a genuine sense of surprise and optimism at the manner in which the 'organic' web has sprung to life in the last few years. This, as yet unfolding process, may be the most powerful evidence yet of the nature of human inquiry and the social construction of knowledge.

e-Learning and Basic Skills

Mellar (2004) provides a review of ICT and adult literacy, numeracy and ESOL wherein learning *with* ICT and learning *how to use* ICT are both emphasised. Mellar's review focused on UK provision and found that tutors and students integrated the use ICT into basic skills teaching and that students regarded ICT as an important skill.

Kambouri, Mellar, Kinsella and Windsor (2003) reported on the effectiveness of the UK's on-line 'Skills for Life' resources (known as *Learndirect*) and reported that learners showed strong verifiable progress using these resources. They further pointed to factors influencing success as: learner motivation, increasing the independence of learning following initial support, regular attendance and the application of new learning to everyday life. They found that two groups who struggled were those with poor attendance records and those who had high levels of initial need.

Holland (2002) provides an overview of literacy learning in Ireland and the promise and challenges of ICT approaches to instruction. She argues that, for literacy learning, there is a need for a well developed pedagogy for the design of on-line environments. Holland suggests six areas where technology and pedagogy should work to facilitate literacy goals as: access, interactivity, flexibility, motivation, collaborative and independent learning. McCain (2002), Pobega (1996) and Snyder, Jones and Lo Bianco (2005) provide further examples of research into using ICT for literacy learning.

Desire, Motivation and Competence

In this section I consider some theoretical frameworks for the concepts of desire, motivation and competence. These constructs are familiar to us - in that we commonly use such terms in everyday life - and at the same time, they are elusive as the exact meaning of each term is difficult to pin down. In an everyday sense most people appreciate that desire and motivation are somehow intertwined and that desire for competence is somehow related to, if not part of, the learning process.

Defining Desire

Much of the psychological literature dealing with competence and motivation positions desire as a personal, often unconscious, disposition:

Why do people want competence? First, there appears to be an inborn desire to acquire and exercise competence. From the beginning its acquisition is readily initiated, inherently sustained, and intrinsically rewarded. Later this can become a more conscious valuing of learning and growth.

(Dweck & Molden, 2005 p 122)

With the notable exception of *Knowledge as Desire* (Furth, 1987) few learning theories take desire as their starting point. This may be due, in part, to the abundance of pro-attitude terms such as want, need, drive, wish and motivation. With so many seemingly similar terms how then should we distinguish desire? Schroeder (2004) provides a philosophical treatment of the concept of desire in which he also draws on recent neuroscientific discoveries. Schroeder describes desire as “a phenomenon for which everyday usage has at least three labels: desiring, wanting and wishing” (Schroeder, 2004 p 5). He describes the three faces of desire as motivation, pleasure and reward; he further postulates that desires may precipitate motivation

(but not always), there is pleasure associated with the fulfilment of desires, and desires determine rewards and (by their denial) punishments. Schroeder later argues that desire for something has two constituents; firstly, a representation of that which is desired and secondly, the connection of this representation to (biologically driven) reward signals. Schroeder's emphasis on representation is interesting from the perspective of this research as we will see in my later discussion on the Digital World as a representation of that which is desired.

Marks (1986) talks about the "practical impotence" of desire and provides criteria for distinguishing motivation from desire:

Motivation involves belief, desire does not;

Motivation is conceptually tied to action, while desire is first and foremost tied to a state of affairs;

Motivation is sufficient to produce action, "other things being equal", while desire is powerless to produce action in the absence of a relevant belief.

(Marks, 1986 p 141)

These are interesting criteria and may provide a framework to clarify the difference between 'desire' and 'motivation' as constructs and insights as to how they relate to each other. In my opinion, this distinction is captured in Mark's first statement above; the key difference centres on belief. One can desire something, for example an apple, and because it is within grasp one is motivated to reach out and take it. One could also desire that tomorrow will be a fine day but will have little motivation to do anything about it. The difference between the two scenarios is belief that one has the capability to satisfy the desire. Hence motivation will always be linked to action and desire to disposition. The notion of the practical impotence of desire now seems sustainable.

Defining Motivation

Ahl (2006) summarises different theoretical orientations in her extensive literature review of the concept of motivation in adult learning. She argues that the construct of motivation is itself questionable. She challenges three assumptions that are often implicit in many of the theories: first that such an entity as motivation exists; second, that it resides with the individual; and third, that motivation causes behaviour (Ahl, 2006). Ahl encourages us to adopt a critical stance when considering theories of motivation and asks that we consider how those who name and locate motivation are creating a construct which they may deem lacking in others. This problematising of unmotivated individuals fails to appreciate how motivation itself is societally construed and may be used to mask economic and technological determinants of power. Ahl argues for recognition of the power implications of motivation theories and cautions against the undue dominance of Western, androcentric (male oriented) perspectives.

In my view the concept of motivation is indeed a social invention or, more accurately, a series of inventions. It is also relativistically, situationally, historically and culturally determined. It may well be the case that the best we can do is to survey each model of motivation in relation to the scenarios it seeks to describe and the outcomes it can predict. A universal theory of motivation may be impossible due to the multiplicity of meanings and the breadth of contexts and behaviours that are considered.

Ahl argues the large variety of definitions of motivation from the literature contribute to the questionability of the motivation construct. Wlodkowski (1999) seems to support this:

We have invented a word to label this elusive topic – *motivation* - but even its definition continues to baffle the most scholarly of minds.

(Wlodkowski, 1999 p 1)

In everyday use there are three meanings in which the term motivation is used; these may be described as regarding motivation as disposition, energy or direction (Ahl, 2006). When we regard motivation as disposition we see it as a source of explanation as to how people are moved to act in a certain manner. In this mode there is often a tendency to conceptualise motivation as mono-dimensional we seek *the* motive for why a person acted in a particular way. Such single explanations for people's actions or goals are often inadequate and fail to account for a complex of influences.

Motivation is also used to describe a level of energy associated with striving to achieve a goal such as during half-time at a football match when a manager gives motivational talk to a team to “lift” their motivation for the second half. In such uses of the term motivation is likened to a psychic energy level; one could imagine an internal M meter reading either high or low.

The third everyday use of the term motivation is as directed action. This is closely associated with the setting and monitoring of goals such as when we describe someone who is motivated to develop their career or to become an expert in an area of competence.

Ahl also points out that just as motivation is socially and psychologically construed operational measures in research such as self-report surveys act merely to reinforce research-generated concepts. For example, to ask people to report on their need for achievement is to create the notion of a “need for achievement”. People tend to justify past-behaviour and when prompted will often provide a retrospective rationale for their actions. However, models of

motivation, if they are to be of use, need to provide predictions of future behaviour.

Ryan and Deci refer to motivation in terms “of the energy, direction, persistence and equifinality of activation and intent” (2000 p 69). “Equifinality” is a term borrowed from systems theory in this case meaning that the same result can be arrived at through many different paths or trajectories. Similarly, Colman’s *A Dictionary of Psychology* describes motivation as “a driving force or forces responsible for the initiation, persistence, direction, and vigour of goal-directed behaviour” (Colman, 2006). These definitions introduce the notions of intent, goals and goal-directedness within an individual. Within the framework of the above definitions, we may regard motivation-for-learning as having a causal relationship with learning oriented behaviours. However, there is still one aspect of motivation that needs to be clarified; this is the use of the terms “driving force or forces”.

I suggest that the above discussion on Mark’s (1986) framework to distinguish between desire and motivation may provide a more suitable alternative to the notion of a driving force. I would propose to define motivation in terms of desire “as a wish, together with a belief in one’s potential to bring about that wish, responsible for the initiation, persistence, direction, and vigour of goal-directed behaviour”.

Defining Competence

Elliot and Dweck refer to dictionary definitions of competence “as a condition or quality of effectiveness, ability, sufficiency or success” (2005 p 5) and they propose that the term competence rather than the previously emphasised construct of achievement be used in future scholarly discourse. They note that there is an extensive tradition of achievement motivation and

achievement goal literature; Elliot (2005) provides an extensive review of this field. However, they suggest two weaknesses associated with the continued use of the term “achievement” in such scholarship; firstly, the absence of a ‘broadly articulated, consensually shared understanding of how achievement should be defined’, and secondly, the narrow focus and limited scope of use of the term achievement for individual accomplishments as it is often confined to typical domains such as sport, academia and work (Elliot & Dweck, 2005).

In contrast “competence” is applicable throughout the lifespan and in a wide variety of life contexts and cultures. Furthermore, Elliot and Dweck (2005) suggest that achievement motivation, and its associated literature, can then be reappraised and reviewed through the lens of competence motivation. As human beings we seek to be competent throughout all aspects of our lives and academic, sports, or workplace achievements are but examples of societally and culturally determined domains within which competence is particularly recognised and celebrated.

Defining Competence Desire and Competence Motivation

I now propose to define competence desire and motivation by combining the definitions presented earlier in this section:

“Competence Desire” is defined as: a wish to bring about a condition or quality of effectiveness, ability, sufficiency, or success.

“Competence Motivation” is defined as: a wish and a belief in one’s potential to bring about that wish, responsible for the initiation, persistence, direction, and vigour of goal-directed

behaviour that brings about a condition or quality of effectiveness, ability, sufficiency, or success.

These combined definitions are more useful in terms of this research and they go some way to address the concerns expressed by Ahl above. Competence is seen as a condition or quality broadly described as effectiveness, ability, sufficiency or success. Such a description is more likely to be culturally independent and relevant for individuals of all ages. A condition of effectiveness, ability, sufficiency or success is understandable in relation to children at play, parenting, workplace tasks and the use of computers and digital technology in everyday life.

The definitions of Competence Desire and Competence Motivation posited above may be applied in the context of this research; specifically in relation to basic computer skills for adults. The definition is sufficiently broad to allow for the existence of multiple influences on motivation, some internal (e.g. past experience), some external (e.g. promotion in the workplace), some conscious and others unconscious.

Winne (2004) approaches motivation from a different angle; he simply states that because human behaviour (with the exception of reflexes) originates in thought then 'motivation' is a thought. This, I believe, is a useful approach, it allows for the existence of desires (conscious and unconscious) but it also emphasises the cognitive nature of motivation. Further, the definition discussed above suggests the nature of the motivation thought as a combination of a wish and a belief in one's potential to bring about that wish.

Identity in the Digital World

Put simply, identity may be regarded as a representation of our self-concept to ourselves and to others (Fenwick, 2008). However, it is necessary to consider the wider conception of personality in order to establish a useful notion of identity in relation to this research question.

Tenant (2006) provides a review of psychological theories and research methods applicable to adult learning. He discusses the relationship between the individual and society in terms of Freud's three-part structure of personality centred on the id, the ego and the superego. The id is instinctual and present from birth; the primary goals of the id are excitement and pleasure. The id can only wish; it is powerless to plan and to guide action. In order to make sense of the world and to act meaningfully, the ego mediates between desire and action. The ego, because of its capacity and responsibility for executive functioning, must adapt and take account of the rules, taboos and values of society. Through the ego we understand the consequences of our actions and the mechanism for applying moral judgement on such consequences is the third component of personality the superego (Freud, 2005/1930; Tennant, 2006).

Freud's model of the personality suggests that the structure of the personality reflects the conflict between the individual and society. As individuals we may harbour unrestricted cravings for excitement and pleasure however the reality of life in a social setting is that we regulate our desires and work within a societal structure. In this way, according to Freud, the external conflict between an individual and society is internalised as a conflict between the structures of the personality.

Freud's description of the structure of the personality is well contested and is often criticised as being unproven, trivial and heavily influenced by cultural and moral values of the time when it was first proposed. As Frosh suggests "Freud is not fully of our time" (1991 p 32). While these are clearly legitimate objections they frequently fail to appreciate that the central tenant of Freud's approach was to suggest the reflexive nature of the development of personality and the concept of self. Freud's legacy was not so much a stable model of the structure of personality but his suggestion that the *process* of development of personality reflects one's experiences in society.

I now introduce a more recent perspective on how this process of internalisation may operate; McAdams (1996) suggests such a framework. Drawing on William James's distinction between 'I' and 'Me' aspects of personality McAdams likens this to the distinction between process and product. Thus he suggests the *I* as more like a verb and he denotes 'selfing' to indicate the "fundamental process of making a self out of experience" (McAdams, 1996 p 302). The *Me* is the product of the selfing process and is therefore likened to a person's self-concept. *Me* in this sense is therefore all that I am, my stories, my beliefs, my knowledge, my relationships and my competence. It is reasonable to ask whether the *Me* formulated in this way, is the same as the better known psychoanalytical construct of personality? McAdams suggests that there are differences; there are aspects of *Me* that are not part of personality such as possessions and some aspects of personality that may not be the result of the selfing process.

McAdams goes on to suggest three levels of description of personality: traits such as those often referred to as the 'big five' are at level one; whereas goals, projects and strategies reside at level two and at the third level is found life stories. McAdams suggests that life stories

are reflexive and integrative accounts that create identity in the *Me*. This is essentially a social constructionist account of identity (Tennant, 2006) and it suggests that the key to investigating identity is through narrative accounts; the life stories of individuals (McAdams, 1996; McAdams, Josselson, & Lieblich, 2006).

Illeris talks about the development of personality in terms of reflexivity or self-reflection (Illeris, 2004). This may be the essential developmental process that takes place through the lifespan; known variously as self actualisation (Maslow, 1943), individuation (Boyd, 1994; Jung, 1992) and maturation.

Frosh (1991) explores the modern and postmodern versions of this process from the psychoanalytical perspective. The internalisation of the conflict between the individual and society is today complicated by the postmodern condition. He poses the question: what does it *feel* like to live in a world like this (p 14)? Frosh describes a postmodern psychosis; a reflection of the cultural fragility of our times:

Under modern conditions, the construction of a self is a struggle at best won only provisionally and always entailing expenditure of considerable amounts of psychological energy.

(Frosh, 1991 p 187)

Frosh is suggesting that construction of personality today is of necessity, fragmented, uncertain and a continuous struggle. In keeping with Giddens (1991), Frosh portrays a challenging view of the subjectivity of contemporary life; we find ourselves in a society with no absolute stability and no stable reference points. This results in “identity crisis” (Frosh, 1991).

McAdams perhaps, provides the most useful and hopeful resolution of this impasse; there is hope in that “we are the stories we tell” (McAdams et al., 2006). Identity is indeed

fragmented; however' through our life narratives we cling to stability and seek culturally acceptable meaning in our stories (West, 2006). How is this possible? The answer is through a constant process of reflection as we frame and reframe our stories throughout life. This is what I call "project self"; the inevitable consequence of the ambiguity of our times, it is our investment in the representation of our self-concept to ourselves and to others. In this we strive to provide plausible explanations, back referenced rationality and a sense of continuity and coherence. It is through this narrative, this selective and constructed autobiography, that we see ourselves and present our account to others.

CHAPTER III METHOD

Research Design and Methodology

The general problem that I wish to address is a need for improved understanding of how and why adults approach their own learning and, in particular, the individual motivation and decision processes around learning basic computer skills.

I started the process of building a conceptual framework by looking at skills and literacy. I have argued for literacy to be considered beyond skills and learning beyond cognitive competence. I have adopted a particularist approach to defining literacy and following New Literacy Studies (Street, 2003) I use the term literacies and recognise that there are multiple manifestations of literacy. Conceiving literacy as situated practice emphasises the cultural and economic contexts wherein people act, make and share meaning. Consequently literacy should be investigated as social practice in context rather than through measurement of component skills associated with individuals.

This conceptual framework suggests that literacy and power are inter-connected in all societies, and some literacies are more powerful than others. In particular, I have delineated a category of literacy that may be called basic literacies. Basic literacies are associated with important everyday practices and are recognised by the implicit assumptions that everyone is capable of full participation in these practices. People who lack basic skills are prevented from participation in important everyday practices and there is little doubt than in modern economies these practices involve digital and computer technology.

Digital literacy is a basic literacy and many adults find they are excluded from full participation in economic and social life because they lack computer skills. This situation is evident in workplace contexts where, often older, more experienced workers who lack basic computer skills feel undermined in situations where their younger colleagues appear more competent in using new technology.

Adult learning may be characterised by choice and volition and as such, learning decisions are an important site of investigation. Motivation and identity are likely connected with adult learning decisions and this may be especially the case in the context of decisions and actions directed toward addressing basic skills.

The *Know IT* course provides an opportunity for adults to address their basic skills; adults who decide to participate in the course are a rich source of insight into the dynamic of learning decisions and consequent actions.

Deciding on the Specific Area of Interest

The term research can be used to mean both the process of enquiry and the outcomes that result from such a process. I faced many challenges and made numerous decisions before arriving at what I deemed to be a suitable research method for my enquiry. From the beginning, I knew that there was something significant happening when adults made decisions and took actions to learn computer skills at a specific point in their working life.

To illustrate how I connected my own experiences in working with the *Know IT* with the progress of my thinking on the research question I will describe a formative insight from early in

the *Know IT* project. At an early point in the development of the course we wished to evaluate the newly developed e-learning software. We brought together a pilot group of student volunteers to take the course. This group was made up of workers from the contract cleaning industry and we had already ascertained that they had little or no previous experience of using computers.

The first class took place in a teaching laboratory at National College of Ireland and this facility provided each participant with their own computer workstation. I introduced the course and demonstrated the basics of how to use the software. I then invited the students to load the CD ROMs that we had supplied. We had three people from the project team on-hand so there was ample practical support available for the class of 12 students. All of the students wanted to do all the actions themselves and naturally we encouraged and facilitated this. I noticed that, as they loaded the CD ROMs or used the mouse or keyboard for the first time, many of students were shaking with fear and anxiety. It struck me that these were adults, mostly in their fifties, they had volunteered for this course, had help close at hand and yet despite the fear they wanted to be self-competent in a set of entirely new skills. The question for me at the time was why would adults put themselves in a situation of such obvious discomfort? There must be something very compelling about the need to acquire computer skills? This and other similar incidents contributed to my conviction that this phenomenon was worth investigating.

I was also convinced that the richest source of data would come from students at the early stages of the *Know IT* Course. For advanced users, computers can be intrinsically interesting and can potentially facilitate deeply rewarding learning opportunities. Novice users, on the other hand, struggle with the keyboard and mouse, fail to follow screen navigation rules and often

have difficulty appreciating the time delay from keyboard action to computer response. Yet people seem willing to overcome these challenges and to persist in learning. In my experience, there are few other instances where this happens in adult life and when it does it is associated with powerful and desirable outcomes such as learning to drive a car or taking up formal learning for the first time.

Deciding on the Appropriate Methodology

Once I decided to focus my research on the early-stage computer skills learner I began the quest for an appropriate research method. It is tempting to suggest that the decision on research method was a straightforward one but this was not the case. Looking back through my notes of the time I am struck by the number and variety of options considered and the gradual, not sudden, process of arriving at a final decision on research method. Conducting research is as much a journey of the mind as a process of systematic investigation. Reflecting on this journey I note how my thinking on research method evolved particularly as a consequence of my expanded conceptions of literacy and learning.

I knew that I had access to a large cohort of the target group in the form of the students from the *Know IT* course. The eventual number of students who registered for the course was over a thousand and I considered conducting a detailed survey using a sample from this group. Such an approach would provide useful information on the circumstances, attitudes and influences of *Know IT* learners. In the end I did conduct a survey and I discuss some of the findings in a later section. However, I used the survey mainly as a device to facilitate a general description the target group and, together with data from the Central Statistics Office (2007) and

the Centre for Research and Innovation in Learning and Teaching at National College of Ireland (2008) I was able to get a broad picture of the educational background, computer access and level of technology acceptance (Venkatesh, Morris, Davis, & Davis, 2003) of this group. Conducting the survey certainly gave me a general picture of the *Know IT* student population. However, as the main thrust of my research question was directed at a deep understanding of individual learning and motivational processes I positioned the survey as a backdrop rather than a core component of this research.

I contend that in the context of modern economies, competence in using digital technologies, including computers, is an important and powerful literacy. Those who miss out on digital competence miss out on more than the immediate opportunities that may arise. The knock on effects of low computer skills contribute to missed economic opportunity and general deprivation from full participation in society to achieve life goals and personal wellbeing. The so-called low-skilled are under-represented in theoretical and applied research (Payne, 2002). Furthermore, there have been calls for researchers to focus on learning in context and to adopt qualitative and ethnographic approaches to the study of literacy (Barton, 2001; Barton et al., 2000; Barton & Tusting, 2005; Howard, 2006).

I have earlier outlined the general research question: I wished to investigate learning and motivation of adults in their approach to acquiring basic digital literacy. I decided to use a qualitative approach to my enquiry centred on in-depth interviews using a relatively small sample. I also decided to use grounded theory practice (Charmaz, 2006; Glaser & Strauss, 1968) in conducting and analysing this research.

My conceptual framework endorses an expanded notion of literacy as ‘literacy beyond skills’ and an expanded conception of learning as ‘learning beyond cognition’. These theoretical approaches pointed toward descriptive and analytical qualitative investigation (Casey, 2008). I further considered how best to optimise my enquiry and adopted grounded theory practice for a number of reasons. Firstly, I considered that the most significant insights would come from how students themselves perceived the process of acting to gain new skills. Secondly, the practice of grounded theory provides a systematic approach to data gathering, analysis and interpretation. Finally, I was attracted by the inductive approach to theory building as I felt that there were few appropriate existing theories to draw from.

Target Group

Know IT

The roots of the *Know IT* project go back several years and I have been closely involved with the project since its inception. In my previous capacity, as a business development manager for ThirdForce an e-learning company, I co-developed a proposal called *Digital Action* (NCI, 2005) which eventually served as the prospectus for the current *Know IT* project. ThirdForce and National College of Ireland made a successful joint submission to fund the project under Ireland's National Development Plan; the managing agency was FÁS, Ireland's national training authority. I subsequently came to work for National College of Ireland and part of my responsibility was to manage the *Know IT* project.

The original proposal on *Digital Action* (NCI, 2005) suggested that there was a growing need for a new approach to teaching basic computer skills to adults. The proposal suggested that existing courses and associated e-learning software was too focused on software applications and over-emphasised knowledge recall rather than meaningful action. A case was made for a task-based approach to learning computer skills and the submission proposed that a new course be developed where adult students would be given the choice of selecting only those tasks that were relevant to them.

Know IT evolved from these beginnings with many additional inputs and strictures from the various organisations that played a part in its conception. During its two-year development the course was adapted and modified to accommodate the practical requirements of a blended

learning delivery model.

In National College of Ireland *Know IT* was managed by a team of three people including this researcher. This team had overall responsibility for the development and delivery of the course including liaison with the managing agency, designing the course, recruiting the students, training the tutors and ensuring that institutional and qualification standards were adhered to. Table A1 provides explanations for some of the terminology associated with the *Know IT* project (see Appendix A).

Know IT was designed to promote computer skills for people in the workplace specifically those in low skilled jobs. The *Know IT* Report identifies those who were targeted by the *Know IT* programme:

[People] with little or no experience of ICT and who are late adopters of technology; have not had the benefit of much formal education to date; are unable or unwilling to avail of existing training or education opportunities/models; are at risk of limited opportunity for job advancement and require IT training to further their careers and move to a more secure skill level within industry; are at risk of 'opportunities divide' should they not engage in upskilling and lifelong learning.

(CRILT, 2008 p 16).

During the main phase of the *Know IT* project 1163 learners registered for the *Know IT* course. Tutorials were available on company premises or at the National College of Ireland campus or in schools and other locations rented by the project team to support the needs of a dispersed group of learners.

The Qualification

The course was oriented to support the Further Education and Training Awards Council

(FETAC) Level 3 foundation award Computer Literacy. The specific learning outcomes as described in this award are presented in Table A2 (see Appendix A). Assessment was by means of evidence of the completion of three assignments by *Know IT* students. The students needed to demonstrate that they could send and receive e-mails, navigate to specified web sites and find information and type a minimum of two paragraphs of 50-60 words on a word processor with 90% accuracy and fewer than six errors (FETAC, 2007).

The Know IT Student Population

In this section I describe the background and context of the overall population associated with this study. Generally, I was interested in people who are in need of basic computer skills. I present four levels of data: Irish national data drawn from the Central Statistics Office (CSO); data drawn from the 1163 students who participated on the *Know IT* course (this information was contained in the final report on the pilot phase of the *Know IT* project); a third source of more specific data was drawn from 120 responses to a self-report survey designed by this researcher and a fourth source was the information drawn from the sample of 11 interview participants who formed the participant group for the grounded theory investigation.

One question that will be addressed in the conclusions section of this thesis is the extent to which findings from the grounded theory process may be generalised to other contexts. It is hoped that by framing the characteristics of the interview group within wider and still wider population data it will be possible to judge the extent to which outcomes from the grounded theory process may derive from a typical sample.

National Data

The most recent Central Statistics Office publication on the Information Society and Telecommunications (CSO, 2007) provides details of the use of computers in households and workplaces. They report that in the 1st quarter of 2007, 65% of Irish households had a home computer and of these 87% were connected to the Internet. This report confirms the significant differences between the use of computers and the Internet for different age groups: 70% of people aged 25-34 years have used the Internet whereas the figure is 50% for the 45-54 age group and 30% for 55-64 year olds.

The total number of people who claimed to have used the Internet (during the previous three months) amounted to 1.5 million. Users were asked to indicate what tasks they were doing; 86% reported that they use e-mail, 93% search for information and use on-line services, 45% conduct personal banking and 58% use the Internet for interaction with public services. It is also notable that of the 1.7 million people who used computers (as distinct from the Internet), 45% reported to have used computers in the workplace.

These figures highlight differences between sections of the population in relation to computer and Internet usage and, as a consequence, the economic and social advantage afforded to those who are using the Internet. The capacity to manage one's banking, track prices, book travel, and purchase goods is not evenly distributed across sections of society. Likewise the capacity to communicate through e-mail, interact with public authorities, manage tax affairs, and access citizen information on-line is available only to the Internet savvy. The irony is that older age groups, who would be much in need of all of these advantages, are under-represented in

computer and Internet usage.

Know IT Course Participants

Additional descriptive data is available from the final report on *Know IT* (CRILT, 2008) which provides demographic information on students who participated on the course. As Table 3A (see Appendix A) indicates by far the largest proportion of students was over 40. This is in keeping with national and European data indicating older adults are more likely to be in need of basic computer skills.

The gender breakdown of *Know IT* students, Table 4A, indicates that more women (59%) than men (41%) undertook the course. This may be due to the high numbers of retail workers who participated on the course.

The final report also confirms that most of the *Know IT* students were Irish (76%) with workers from the Poland (2.5%) and Britain (2%) making up the largest other nationalities represented.

As expected, most of the participants on the *Know IT* course had low or moderate levels of educational attainment and as Table 5A indicates 37.5% had left school at Junior Certificate level or earlier.

Table 6A shows the various occupations represented in the total population of *Know IT* students. It is notable how many of the students were drawn from service occupations with retail (31%) and factory workers (13%) comprising the largest groups.

The *Know IT* student group is characterised by low skilled occupations, low levels of

educational attainment and older members of the working population.

Student Recruitment Strategies

The target number of students to be recruited for the pilot phase of *Know IT* was over a thousand. Three recruitment approaches were used: a direct-to-employer strategy, a newspaper strategy and a shopping centre strategy. Each of these strategies used a different method to access and recruit *Know IT* students.

The first model, direct-to-employer, involved contacting training managers and inviting them to outline the *Know IT* opportunity to their employees. This approach was generally successful in the long-term but initially many barriers had to be overcome. Some employers did not recognise the importance of basic computer skills for employees and were reluctant to cooperate.

The newspaper strategy involved placing advertisements in the jobs section of national and local papers inviting people to ring the college to sign up for the course. In numerical terms this strategy yielded relatively low numbers of students but what was striking was the keenness and degree of commitment from students recruited in this way (see Ben's case study later).

The shopping centre strategy involved positioning recruitment and awareness stands in prominent locations in large shopping centres. The *Know IT* project team employed college students to work at these stands and to hand out leaflets and encourage people to sign-up for the course. Funding for *Know IT* was specifically targeted at people in employment and this led to a troubling and unsatisfactory characteristic of the supermarket strategy. Many people who were not in employment but who wished to do the course could not be accommodated. However, an

unexpected bonus from the strategy was that employees from nearby shops would often call at the stand during their break and frequently signed up for the course.

Table 7A (see Appendix A) shows the share of *Know IT* students recruited under each of the three student recruitment strategies.

Self-Report Questionnaire

Additional information on the background and characteristics of *Know IT* students was drawn from responses to a survey of 120 *Know IT* students developed by this researcher. The survey consisted of a self-report questionnaire on technology user acceptance (discussed below) as well as information on computer access and use. The questions related to computer access and usage were modelled on those used in the National Quarterly Household Survey (CSO, 2007). The survey was voluntary and administered in some instances by the researcher and in other instances by course tutors during the first tutorial session.

Responses to two important questions on student's access to computers and access to the Internet are presented in Table 8A and Table 9A respectively. The tables indicate that most students had access to a computer (86% compared to the national average of 65%) and the Internet (77% compared to 56% nationally). This is not surprising as it is reasonable to assume that the presence of a computer in the household would have a likely positive impact on a person's intention to participate on the course.

I was also interested in the locations where students would have access to a computer and it is notable in Table 10A that quite a high number (52%) reported that they had access to a

computer in the workplace. One factor contributing to this is that many of the respondents were participating on the *Know IT* course through workplace learning centres that were equipped with computers.

I was also interested in the prior experience of the student group. The survey included questions to determine students' existing levels of use of Internet (Table 11A). A surprising finding is the high percentage (72%) who indicated had used the Internet in the last 3 months. Students were also asked to indicate their frequency of computer use (Table 12A) and to indicate which activities they use computers or the Internet for (Table 13A). The tables point to some interesting characteristics of the *Know IT* student population. There appears to be no clear demarcation between computer users and non-users. The pattern suggests that many of the students are already engaging with computer technology in some form or other and perhaps as a consequence of this, they elect to participate on the *Know IT* course. The tables also reinforce the need for further investigation and highlight the inadequacy of survey data alone as a method of inquiry for this research problem.

The self-report questionnaire also featured items designed to illicit motivational influences on the *Know IT* students. Measures for four constructs based on Venkatesh, Morris, Davis and Davis' (2003) Unified Theory of Acceptance and Use of Technology (UTAUT) were included in the survey. Respondents were asked to indicate on a 5 point Likert scale their agreement with a series of statements adapted from the Venkatesh *et al* model. The constructs were "performance expectancy" (Table 14A) - a measure for how respondents rate the benefits of participation on the course, "effort expectancy" (Table 15A) - a measure of how difficult they perceived the course to be, "social influence" (Table 16A) - a measure of how other people

would influence their intent to participate, and “behavioural intent” (Table 17A) - a measure of their determination to complete the course.

As might be expected, most of the *Know IT* students completely agreed that ICT would be useful in their working lives (57%) and, a higher number agreed that it would be useful for their life in general (66%). As Table 14A illustrates, respondents tended to see the benefit of ICT in terms of social and general life improvement rather than improvement in work productivity, chances of getting promotion or a salary increase.

In terms of effort expectancy (see Table 15A) most of the respondents agreed completely that they would find *Know IT* easy to use (57%). For this question, *Know IT* was taken to mean the computer software component of the course. The other responses in this group broadly indicate that students expected to be able to navigate and use the software.

Social influence (Table 16A) appears to be of relatively minor importance to the participants. Only 35% of the students completely agreed that people who are important to them think they should use more ICT. However, a slightly higher number (37%) agreed completely that senior management at work had been helpful to them in the use of ICT.

Behavioural intent (Table 17A) provides an indication of the respondent’s determination to complete the course and most agreed completely that they intended (62%), predicted (51%) and planned (59%) to achieve this in the next 2 months.

Data on course completions for *Know IT* was obtained from NCI and as of August 2008, 299 or 26% of students had completed the *Know IT* course and obtained the FETAC

qualification. The low number of completions requires explanation. Many people signed up for the course and were provided with the e-learning software and the workbook but did not attend tutorials or engage in any of the activities. Of those who did attend tutorials completion rates were much higher (over 80%). This research focused on student's who actively engaged in the blended learning course. All students who registered for the course have a window of one year within which to complete the assignments.

So far I have described the background and characteristics of the *Know IT* students by referencing national data, course level data and a sample of 120 students who responded to the self-report survey. Taken together these sources provide a broad overview of the people who have decided to participate on the course. We find that older workers (over 40) make up the majority of the *Know IT* student population as do people in low skilled jobs and with low levels of education.

The preceding descriptive section helps to locate the 11 informants who participated in the detailed interviews within the wider group of *Know IT* students and indeed the broader cohort of people who lack basic computer skills in the population. In the next section I describe how the grounded theory approach is used in this research.

Grounded Theory Practice

Grounded theory first emerged in the classic work *The Discovery of Grounded Theory* by Barney Glaser and Anselm Strauss (1968). As sociologists they had been studying terminally ill patients in hospitals and developed the grounded approach as a means of gleaning constructs and theory from patient interviews. In later publications they diverged with different views on recommendations and procedures to be undertaken by researchers involved in grounded theory practice. Separate publications by Glaser (1978b; Glaser, 1993, 1994) and Strauss and Corbin (1990; Strauss & Corbin, 1997) chart the development of the method and their different perspectives (Charmaz, 2003, 2006).

Strauss and Corbin (1998) provide a basic definition of the grounded theory approach as “a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon” (P24). In this case the phenomenon under investigation is what I initially called “pathways to learning basic computer skills” and subsequently renamed as “pathways to competence and participation in the digital world”.

Grounded theory differs from empirical research methods in that the process of theory building is inductive. A grounded theory approach implies that underlying theory can be discovered through analysis of data using what Glaser and Strauss call the ‘constant comparative method’. Charmaz (2006) citing Glaser and Strauss (1968) provides a summary of the defining components of grounded theory practice:

Simultaneous involvement in data collection and analysis;

Constructing analytic codes and categories from data, not from preconceived logically deduced hypothesis;

Using the constant comparative method;

Advancing theory development during each step of data collection and analysis;

Memo writing to elaborate categories, specify their properties, define relationships between categories and identify gaps;

Sampling aimed toward theory construction, not for population representativeness;

Conducting the literature review *after* developing an independent analysis.

(Charmaz, 2006 p 6)

In the following sections I describe my specific research approach using as headings the components outlined above. I also draw from my original data, early codes, draft memos and personal reflections of the process to demonstrate the analytical journey as clearly as possible.

In order to make sense of the examples I use I would like to briefly introduce the participants of this research. (Table 1) indicates the research pseudonyms of the people who participated in the interviews. All but one (RD) were *Know IT* students and the interviews took place at the early stages taking the course. The non-student whom I call RD was the person responsible for recruiting students to *Know IT* and her interview provides additional insights on the manner in which student's came to learn about the course. Table 1 also indicates the dates and the order in which the interviews took place.

Table 1 Know IT Interview Participants

Research name	Age	Occupation	Interviewed/started course
Mary	53	Works for a large retail store	November 2007
Ben	47	Dockland driver	December 2007
Jen	56	Owner of small retail business	February 2008
Tracy	45	Delicatessen Manager in shop	March 2008
RD	N/A	Student recruiter for Know IT	March 2008
Dot	62	Works for a large retail store	April 2008
Tess	45	Counsellor	April 2008
Pat	29	Recently left warehouse job	May 2008
Marie	62	Shop assistant	June 2008
Jim	62	Bus depot worker	June 2008
Tim	65	Bus driver	June 2008

Simultaneous Involvement in Data Collection and Analysis

Guidelines for grounded theory procedures suggest that data gathering and data analysis are carried out simultaneously. Thus when I interviewed Mary, my first case, and not long afterwards Ben, I immediately began the process of analysis. I decided to audio record the interviews using a small digital recorder; this proved to be non-threatening and intruded little on

the process. The device I used gave good quality recordings despite the fact that it was quite small - comparable in size to a matchbox. Before each interview, I invariably asked for permission to use the audio recorder and I clearly indicated to each participant when it was turned on and when it was turned off. I decided to use audio recording of interviews rather than contemporaneous notes, as I wanted to be able to maintain eye contact with my informant and to encourage a relaxed unhindered discussion.

In keeping with Charmaz (2006) I made notes immediately after each interview capturing my first thoughts and impressions, the interview setting and any additional data from conversations that I had not recorded.

Listening and Documentaries

The first stage in the analytic process for me was to listen back to the audio recording several times. I have already mentioned that I had a previous career in television production and because of that work I developed a habit of listening to sources again and again in preparation for editing. Grounded theory practice is often described as a process of fracturing and reconstruction of data (Strauss & Corbin, 1998). This is not dissimilar to the post-production process in documentary making. The documentary editing task is to take apart extended interviews with informants and to organise these along thematic lines into clips or sections. In the final edit the programme is constructed through creative reassembly of the clips to generate a narrative thereby exposing the underlying themes through the words of the informants.

I advocate the discipline of listening back through an interview several times throughout the analytical process. Although I used notes, transcriptions and special software (nVivo7) to

work through the data I continued to listen to the spoken word as I progressed. I found listening had important advantages that contributed to the process of investigation. Firstly, I got to know my subjects well and gleaned much additional data from the pauses, hesitations, tone and emphasis in their responses. Secondly, I could listen back to my own questioning and engagement with the informant and find ways to improve for future interviews. The third reason was to do with the way I think; for me, the spoken word was always present even when reading transcripts I would literally play back a section in my head and this inner listening was an important tool available to me during the analytical process.

Transcription

I transcribed most of the interviews in their entirety and following Strauss and Corbin (1998) I relaxed this practice for some of the later interviews becoming more selective in the extracts that I wanted to use. Transcribing proved to be time consuming and often tedious but playing the interview bit by bit and then writing each section afforded opportunities to reflect and absorb the data as I proceeded. Transcription is also a process where numerous interpretative decisions are made. On many occasions I found myself trying to untangle a run of words in order to make sense of what I heard. Many informants used repetitive phrases such as “do you know what I mean”. Others were littered with hesitations such as the multiple use of ‘eh’ in speech or colloquial mannerisms; ‘yeh’ rather than *yes* and so on. In all instances, the decision on how to present a response in the transcription was made by me and guided by my intent to convey in the written word the essence of what I heard.

In text transcription I followed the guidelines and conventions suggested by West (2007) - no attempt is made to force grammatical corrections, pauses are indicated by the use of three

dots, four dots indicate omissions and edits for abbreviations and interpolations are indicated by the use of square brackets. I present interview extracts in italics and use underlining to indicate dialogic speech which I regarded as an important additional component of data.

Initial Coding

I used nVivo 7 qualitative research software to help me organise my initial coding. Following Charmaz (2006), I worked rapidly through the transcripts using broad descriptions of what I felt was happening. At this stage I avoided conceptualisation. Glaser (1978a) suggests the use of gerunds at the initial coding stage thereby encouraging the researcher to stay close to the data. In Table 2 I reproduce an extract from my interview with Ben along with my initial codes in the first column and later conceptual codes in the next column. At the time of the initial coding I had only interviewed one previous participant Mary and so the initial codes for Ben are raw, uncomplicated and rooted in the data. In contrast the conceptual codes are from a later stage of the research process and demonstrate a level of abstraction.

Table 2 Contrasting Initial and Conceptual Codes

Transcription	Initial Codes	Conceptual Codes
Ben		
Well it's just getting on, if I wanted flights anywhere or anything like that you know.	Wants to use the Internet for flights.	Specific Competence Desire
I'd have to ring a mate now to say I wanted to go to Spain tomorrow. There's times with me job I can get time off for weekends or weekdays and with flights are cheap or whatever nowadays.	Gets someone else to do it for him.	Using a Proxy
It's just spur of the moment you can go anywhere so it's just look up the [internet]you could say to me <i>I'll look it up for you now</i> and there, you could fly out tomorrow there, it's all done and dusted.	Imagining the competence	Reflective Self

Table 2 also illustrates how data collection and analysis proceeded concurrently during the research process. Conceptual codes evolved as further interviews were conducted and each round of analysis drew from the preceding components. Thus initial coding contributed to the generation of the future conceptual codes. As I recorded and coded further interviews in the months that followed my interview with Ben I became sensitised to the way people get others to accomplish computer tasks for them. This is evident in the way Ben gets his friend (mate) to make the holiday booking for him. In later interviews, I would specifically ask participants about how they used friends, family or co-workers to act as a proxy presence for them on the Internet.

In the preceding section I have demonstrated how grounded theory practice involves simultaneous engagement in the process of data collection and analysis. I have presented an example of the way in which the coding evolved and how the early initial codes sensitised the researcher to inform practice at future interviews. Through seven months I conducted ten student interviews and in that time I transcribed, coded and recoded interviews. Data analysis and data collection were intertwined each one informing the other.

Constructing Analytic Codes and Categories from Data

The challenge for the researcher is to remain open throughout the process and to look for meaning within the data and not from preconceived theories. In conducting this research I developed my own interpretation of this principle. I did not wish to suppress my natural tendency to draw on past experience including previous exposure to theory and research; or to suppress personal hunches and intuition as I engaged in the coding and analytic process. On the contraire, I remained mindful of these influences however I was always careful to ensure that all of the emerging concepts were firmly grounded in the data derived from my sources. The vigorous and strongly contested debate on constructivism and grounded theory is evidenced in Charmaz's (2000) contribution and Glaser's (2002) response to this issue. Charmaz acknowledges the subjectivity of the researcher and his or her influence on the emergent theories whereas Glaser sticks firmly to the ideal of an objective process that can be largely independent of the preconceptions of the person who conducts the analysis. There is an apparent contradiction in Glaser's (2002) argument wherein he claims that the constant comparative method (discussed below) will eliminate researcher bias while also suggesting that researchers

are open to bias by pre-reading other theories.

Using the Constant Comparative Method

I have already mentioned that I used nVivo7 software to help with the analysis of this research. I found that the biggest advantage of using such software is that it facilitates the constant comparison method. Grounded theory practice calls for different types of code comparison. Charmaz (2006) suggests comparison within codes, comparison between codes and comparison between codes in different cases.

As suggested by Strauss and Corbin (1990), I use the term “category” to denote a classification of concepts. When I refer to categories, I denote them as proper nouns as in “Competence Desire” or “Proximate Sites of Engagement”. Note that when I use such proper nouns I am referring to the categories as defined by this research not any other everyday or scholarly meaning of these terms. To illustrate how I used constant comparison within this research I will discuss how I developed the category of Competence Desire and the concepts of General Competence Desire and Specific Competence Desire.

I have already identified an example of Specific Competence Desire in the extract from my interview with Ben (see Table 2). I started with an initial code of ‘wants to use the Internet to book flights’ and I later conceptualised this to code as Competence Desire. As I progressed through the analytical process, I found that my informants tended to have very specific things they wished to do with their new computer skills. Tracy wanted to send work related e-mails connected to her role as deli manager and to book the family holidays. Mary wanted to book hotels and to use e-mails in her capacity as a trade union representative. Dot wanted to look up

old movie stars on the Internet. People identified very specific things they wished to do and in the interviews they provided a context and a rationale for the desired competence. Through the constant comparison method I established the existence of a concept I named as Specific Competence Desire. I also identified a concept called General Competence Desire and subsequently I positioned these as dimensions of the wider category of Competence Desire.

It is reasonable to question the usefulness of a concept such as Specific Competence Desire. One could after all simply produce a list of all the different things that people wanted to do with computer technology? The constant comparison method suggested that all of the ‘want’ type codes had certain common characteristics. What was significant, and what emerged from the data, was the specificity of the desire. In many cases the desire for competence went right down to a very detailed description of where and in what context the informant wanted to be capable. This is suggestive of an imagined act and a prior consideration of the consequences.

To demonstrate how I distinguished between Specific and General Competence Desire consider the following extract from my interview with Jen:

Well we're in the 21st century and everything is computer, computers and it's going to get more and more computerised into the future and I want to become computer literate and I really mean I want to be literate I don't want to be semi-literate I want to be computer literate I want to be able to sail through any computer thing that comes up and to do everything on the computer.

At first glance this is obviously an example of the expression of desire for competence. However, I noticed that, in this example the desire had more to do with a wish for general improvement and, in my interpretation, a desire to be someone else, someone who could “sail through any computer thing”. I coded this extract as ‘general competence desire’ that later became part of the category General Competence Desire. In this way the constant

comparative method helped formulate the conceptually appropriate codes and categories throughout my analysis of the data.

Table 3 presents the two categories of General Competence Desire and Specific Competence Desire side by side and a selection of extracts from the source material from which they are derived.

Table 3 Comparison of Two Categories

Specific Competence Desire	General Competence Desire
<p>Tracy when we're out for a drink Verona would say <i>I emailed Bernie yesterday and she didn't e-mail back maybe she wasn't in her office so she's off today</i> like where I'd be texting them <i>what are we up to this week</i>...whatever they're e-mailing each other</p>	<p>BenI know [computers are] part of the world as in where we live and what we do and all that so I just wanted to know more or know how to work it now on my own</p>
<p>DotI'd love to be able to do a lot more now I'd love to be able to kind of book holidays and look up hotels and things like that. Now I'm getting there hotel wise but I'm not able to book anything</p>	<p>Jen I want to be able to use it if somebody asked me to do something ok no problem get on to the computer do it and don't be you know there's nothing to it...just like using the telephone just like reading a book</p>
<p>Maryand even going on-line and checking out different legislations or different things I didn't know and I mean it's a great tool for that and I didn't know how to do it...even if I kind of knew how to do it I was nearly afraid to do it</p>	<p>Jim ...it's just something that I wanted to do sort of thing...just I never had the time as the fellow would say but I did have the time...I'm lying about that I did have the time I just didn't have the inclination when the kids were at school when they had the computer you know.</p>

Advancing Theory Development

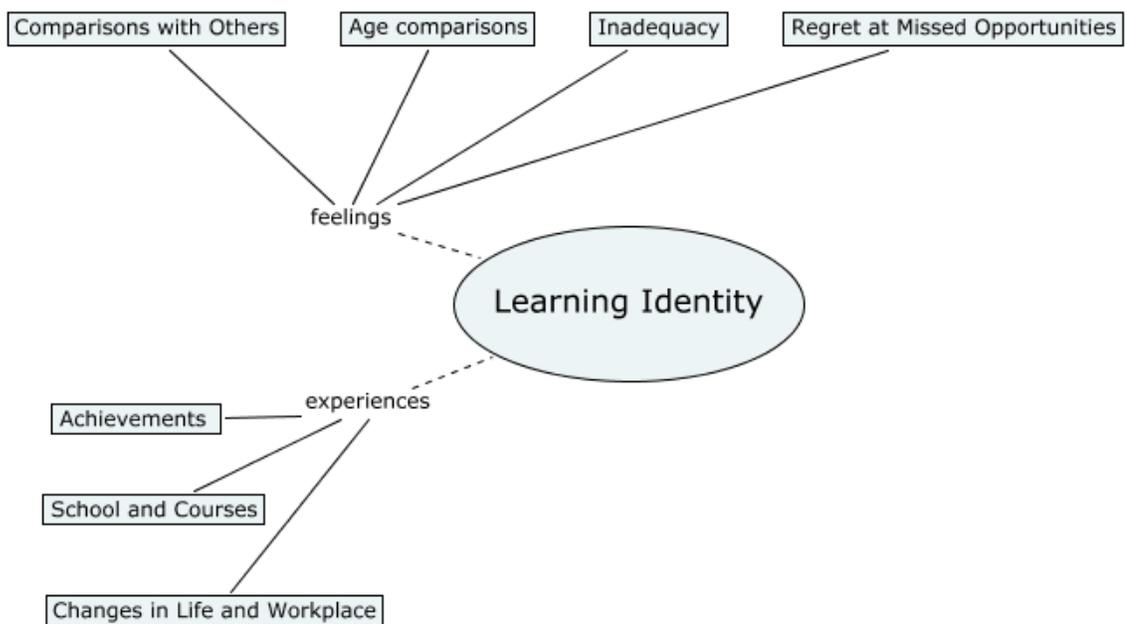
Charmaz (2006) suggests 'advancing theory development during each step of data collection and analysis' as one of the characteristics of grounded theory practice. The

advancement of theory involves generating concepts, categories and relationships by means of the constant comparative method.

Advancing theory was not a step-by-step process. I found that as the components or characteristics of a category begin to emerge through analysis new questions would arise and new relationships were suggested. This was the beginnings of theory building. For example, I began to think about what occurs when an informant describes a specific task in which they wished to be competent. I assumed that the anticipated tasks were authentic and based on the lived experience of the informant. In a lot of instances the desired competence appeared to reinforce an existing role; for example, Tracy wanted to send e-mails to order goods as part of her role as a deli manager. I speculated that for the Specific Competence Desire category the interviewee is really saying something like: “here’s something that I do, it is important to me, and I could do it better if I had the computer skills”. In contrast, General Competence Desire as a category often indicated that the informant wants to be someone else, a more knowledgeable person at home with technology.

I arranged the codes and concepts into groups; Figure 1 illustrates how the category of Learning Identity was formed. Codes such as “age comparisons” and “regret at missed opportunities” were grouped into a cluster labelled “feelings”; while other codes such as “school and courses” and “changes in life and workplace” were grouped into a cluster labelled “experiences”. Feelings and experiences in turn, contributed to the establishment of the category called Learning Identity.

Figure 1 Learning Identity



It is noteworthy that naming a specific category was a significant step in the analytical process. The Learning Identity category was particularly troublesome. I was aware that the term had many different connotations some of which might not match what I perceived from the data. As discussed earlier, I derived all of the categories from data and as such, from the perspective of the informant. Therefore, the term Learning Identity, as used to signify a category in this research, should be considered as a short form of “those aspects of the informants’ presentation of self that emerged from the interviews”. In other contexts, different aspects of identity such as county or country of birth, political orientation, or religious affiliation might be considered important components of identity. However, they did not emerge significantly from this data and

therefore they are not included.

In this research the ingredients of Learning Identity that emerge from the data are the essential experiences and feelings that people point to when they describe their rationale and actions as they move toward computer competence.

Conditional Relationship Guide

I have already discussed how I was engaged in theory development as I analysed and collected data and I would now like to discuss one of the tools I found useful for this process. Scott (2002) developed a useful Conditional Relationship Guide to introduce a procedure for defining and delimiting emergent categories. The guide is in the form of a matrix made up of a series of questions and guidelines to help frame responses:

- What is [the category]?
(Using a participant's words helps avoid bias.)
- When does [the category] occur?
(Using "during..." helps form the answer.)
- Where does [the category] occur?
(Using "in..." helps form the answer.)
- Why does [the category] occur?
(Using "because..." helps form the answer.)
- How does [the category] occur?
(Using "by..." helps form the answer.)
- With what Consequence does [the category] occur or is [the category] understood?

From Scott 2004 p115-6

In Table 4, I show how the Conditional Relationship Guide was applied to the category Specific Competence Desire. I also show in Table 5 how the guide was applied to clarifying the contrasting category of General Competence Desire.

Table 4 Conditional Relationship Guide for Desire for Specific Competence

Specific Competence Desire					
What	When	Where	Why	How	Consequences
Expression of the type <i>I'd love to be able to use to Internet to book weekends away...</i>	During a description of a particular context	At Proximate Sites of Engagement	Because the informant knows the upside if he/she can accomplish the desired task	We covet what we see and what we are familiar with Using a Proxy (person) to complete tasks	Specific goals Imagined improvement Peripheral engagement More likely to be successful

Table 5 Conditional Relationship Guide for Desire for General Competence

General Competence Desire					
What	When	Where	Why	How	Consequences
Expression of the type <i>I'd like to be up to date...to be a computer whiz</i>	Comparison with others Reflection Technology awe encounters	Encountering The Digital World	Wish to be part of The Digital World Feelings of being left out or left behind	Imagining as another person	Further feelings of inadequacy Unfilled Poor satisfaction with courses

Memo Writing

For me the defining characteristic of memo writing is the non-linear nature of the analytical and writing process. In the previous section I introduced the Conditional Relationship Guide a conceptual tool that I used to analyse important categories. Each of the categories evolved through a sequence of memos. Category naming was an important point in the process. The NVivo7 software facilitated either grouping concepts together (called tree nodes in NVivo7) or as stand-alone entities (free nodes). I also used mind-mapping software to draft models and explore relationships.

The important point and I believe this is why memo writing is so fundamental to the grounded theory process, is that many memos were evolving simultaneously. The analytical process did not proceed through a series of iterative steps. Rather it was a process of incubating many different ideas and growing these through questioning and further data comparison. A memo would start out simply as a grouping of initial codes; for example, when I began to collect all of the 'want' statements and described these as desire for competence. I then grouped and regrouped the codes and eventually I separated them out and named the two categories as Specific and General Competence Desire. I then applied the Conditional Relationship Guide and this pushed my thinking toward the connections and influences of one category upon the other. The type of structure as suggested by Figure 1 was itself the outcome of a memo. In the end the memos evolved to comprise the model and theory discussed later.

I would like to make one further point about my experience of memo writing for this research. In the sections above, I describe the process of the evolution of a memo, code or

category - much of this work will be in evidence in the case studies and findings section. However, there were also many failed memos - ideas that did not stack up, connections that I thought might be important at an early stage but with the addition of new data and further analysis proved in the end to lack sufficient substance for inclusion in the final model. In many cases such failed memos arose as a consequence of my over enthusiastic initial coding wherein I created too many superfluous codes. The practice of memo writing resolved this and was an important step in my own understanding of the grounded theory process.

Sampling Aimed Toward Theory Construction

Table 1 provides a summary of the sample of *Know IT* students I used for this research. I conducted ten student interviews and one with RD, the person responsible for *Know IT* student recruitment. In keeping with grounded theory practice the selection and sequencing of interviewees was directed toward theory building rather than representative sampling. The time gaps between interviews facilitated interim analysis of previous interviews to inform future interviews and candidate participants. The fact that *Know IT* was a flexible blended learning course meant that students from different organisations were starting the course throughout the data-gathering period. Despite the progression of time the student perspective was always that of a course starter or a student engaged at an early stage in the learning process.

One decision I was faced with early on was whether to conduct multiple interviews with sources or as I have done in this research, to use single interviews from a range of informants to gather the necessary data. I adopted the single interview strategy as it had a number of advantages over other strategies. Firstly, my research question was focused on the pathways and

decisions people make as they move to learning computer skills and therefore the richest source of data was from early stage *Know IT* students. Secondly, *Know IT* was a relatively short and light course with just two tutorial opportunities for each student often separated by six or eight weeks. Many of the students attended only one tutorial. (The original design of the *Know IT* Course was as an exclusively CD ROM-based, self-instructional course; later this was modified to facilitate tutorials to orient students on the use of the software and an optional follow-up tutorial to support students to complete their assessments.) Given the course format and especially the fact that the students would not be required to attend regularly, I felt that one intensive interview per student would be the most effective strategy. A third reason was that I was sufficiently satisfied with the early interviews as rich sources of relevant data. This indicated to me that the best way to progress my enquiry was by adding new participants rather than revisiting existing informants.

There were also some disadvantages arising from the strategy of using single interviews and I needed to be aware of these and to mitigate for some of the potential weaknesses. A potential weakness could arise from a lack of opportunity to validate my findings. I employed some strategies to support other means of validating my findings. As the interviews progressed I became more focused on the emergent theory and in later interviews, toward the end of the session, I would propose simplified versions of my findings to informants and invite them to comment. For example, I would suggest that previous informants had commented on the importance of learning alongside people of a similar age and I would invite the participant to comment on this. I phrased such comments in a neutral format such as “other people might say” so as to minimise potential bias of respondents wishing to affirm the researchers point of view.

A further strategy was my interview with RD, the person responsible for recruiting many of the students. She contributed an alternative perspective on the research phenomenon and I compared her views with those of my findings from the student interviews.

Conducting the Literature Review after Developing an Independent Analysis

McGhee, Marland and Atkinson (2007) suggest that many researchers find themselves confused about the appropriate way to integrate the literature review in conducting research using grounded theory practice. This researcher also found much of the advice and guidelines on the place of literature review to be unclear and contradictory. From the outset Glaser and Strauss (1968) positioned grounded theory as a reaction against contemporary positivist methodologies that sought to test grand theories through empirical studies designed to test preconceived hypotheses (McGhee et al., 2007). They argued that grounded theory is a process of theory building and that the substantive literature review should take place after the independent theory begins to emerge.

The danger of forcing data to fit preconceived models and theories is frequently highlighted by Glaser (Glaser, 1998; Glaser & Holton, 2004) and the challenge for the researcher is to maintain an open mind while interpreting data. Glaser and Holton are explicit in relation to when to conduct a literature review:

To undertake an extensive review of literature before the emergence of a core category violates the basic premise of GT—that being, the theory emerges from the data not from extant theory. It also runs the risk of clouding the researcher's ability to remain open to the emergence of a completely new core category that has not figured prominently in the research to date thereby thwarting the theoretical sensitivity.

(2004 section 3.5)

This notion of a tarnished or clouded mindset is troublesome for this researcher and I believe that there are a number of flaws in Glaser's position. My first concern is the idea that there can ever be a clean mind – uncluttered by previous reading or theory. What of professional experience and informal personal theories? Why would someone engage in research or inquiry unless they were seeking to address an underlying question and surely the existence of such a question is itself an interpretative act and as such, may be regarded as theory? My second objection is that on the one hand Glaser proposes and describes a rigorous research method and on the other Glaser undermines this method by assuming that it is susceptible to researcher bias and naivety.

Glaser and Holton (2004) also take issue with Creswell's (1998) classification of grounded theory practice as placing the theoretical review after the analytical process. They argue that one should constantly compare theories *during* category and property generation and not afterwards. So to paraphrase the Glaser approach – the literature review should not take place either before or after the analytical process but should be included as part of it. In Glaser's view, other theories may be treated as new data and worked into an emerging theory through the constant comparison method.

Strauss and Corbin (1990 p 48) distinguish between *technical literature* - which they define as research studies, reports, theories and models that generally pertain to the research topic - and *nontechnical literature* - consisting of the notes, interview transcripts, codes and data derived directly from the research process. They suggest five uses for technical literature: firstly, background readings can stimulate theoretical sensitivity thereby attuning the researcher to descriptions, concepts, philosophical and theoretical orientations that improve one's capacity to

give meaning to the data; secondly, literature may be used as secondary sources of data to contribute to the investigative process; a third use of technical literature is that it can stimulate inquiry and guide preparation - for example, in selecting questions for interviews; furthermore, a knowledge of the background literature may also guide the process of theoretical sampling and a fifth use of technical literature is as a source of supplementary validation to support the grounded theory analyses or indeed a source of alternative paradigms to challenge the grounded theory.

The Literature Review in this Research

In this research I discuss the technical literature in two places; in the literature review I introduced the conceptual framework and discussed some of the broad theoretical literature associated with literacy and new literacies, learning, e-learning, desire and motivation, competence and identity. I revisit some of the technical literature as part of the grounded theory analytical process; this is *after* the independent analysis. New insights from related literature are then included as part of the subsequent conceptualisation process and thereby inform the results and conclusions of this research.

Focus and Boundaries

For any theory to have meaning and usefulness it is necessary to mark out its focus and determine the boundaries of the conditions in which the theory may be applied. In this research such conditions relate to the target group and the relevant contexts. I used grounded theory practice to develop or discover this theory and as such, it was derived from data gleaned from the participant interviews and other supporting sources. The implicit assumption therefore is that the theory should apply to those who have much in common with this group.

As starting point, I discuss some of the salient characteristics of the research participants. From this one can judge the extent to which the findings can be generalised to other contexts. All of the participants were students of the *Know IT* course and as this is a basic computer skills course it is reasonable to assume that the theory will apply to those who believe that they are in need of such skills.

Three Sub-Groups

The age span of the participant group ranged from Pat (29) to Tim (65) who, at the time of the interview, was four weeks from retirement. I found it useful to organise the participants into three sub-groups based on the commonalities of their work and career circumstances. This facilitated some aspects of my analysis but I stress these are loose groupings based on common circumstances they are not intended as a formal classification of participants:

The first group are the *pre-retirees* and consists of Dot (63), Jim (62), Marie (62) and Tim (65);

The second group is made up of Ben (45), Mary (53) and Tracy (47) and these are essentially *mid-career workers*;

The third group consisting of Jen (56), Tess (45) and Pat (29) were either self-employed or moving jobs –these people have the common characteristic of not having an employer or as such they may be considered as potentially *self-directing* their work and career.

Economically Active

All of the participants were economically active and would describe themselves as workers (Pat had recently left a job and was seeking a new career in bookkeeping). It is noteworthy that many of the participants worked in the service sector in areas such as retail (5) and transport (3). None of the interview participants could be described as highly skilled and all had generally low-levels of schooling; eight of the participants were educated to primary school level or below, one (Pat) to Junior Certificate level and one other (Tess) had returned to college later in life and had a primary degree and a diploma.

Volition

Often in workplace contexts, people are required to do courses to fulfil legislative requirements such as safety or environmental training, it is also common to organise training around a particular role or function such as becoming a supervisor or adapting to a new piece of technology. The *Know IT* course was not this kind of training it was not compulsory and was not tied to any specific legislation, job function, or machinery. The offer to students was that they would receive instruction and support to achieve basic computer competence – local managers facilitated this but there was no real sense that the course was positioned as a good career move.

Existing Competence

I asked all of the participants about what they were able to do before the course and their responses ranged from little or no experience with using computers (Ben, Tim, Marie, Tess and Tracy) to being able to use e-mail (Jim, Jen, Pat and Dot) and some actions on the Internet (Mary, Jen, Pat and Dot). Of the ten participants interviewed only one, Pat, reported to have, what could be described as, a reasonable level of computer skills. Pat could send e-mails and use the Internet however he also reported that he wanted to learn word-processing. There is little doubt that all of the participants were in a position to benefit from the *Know IT* course in terms improving their computer competence.

Limited Emphasis on Secondary Motives

One of my first considerations was to ascertain the extent to which the research participants had engaged in the *Know IT* course for reasons other than competence goals. I have already argued that the focus of this research would be on individual learning pathways in the pursuit of basic computer skills and in keeping with grounded theory practice I selected my sample with this in mind. I was interested in the extent to which my informants indicated that they wanted to achieve the *Know IT* qualification for the advancement of their career as this would indicate goals other than immediate computer competence. In general, I found little evidence from the participant interviews of dominant career enhancement or qualification-seeking goals.

As might be expected none of the *pre-retiree* group posited career development or new qualifications as predominant reasons for doing the course. The *mid-career* workers gave some

examples of how they would use their computer skills for work purposes (Tracy intended to order ingredients by e-mail and Mary uses e-mail for union related activities) but they did not specifically associate *Know IT* with career enhancement. The third *career-self-directing* group went somewhat further in articulating the value of the qualification - Pat specifically targeted the *Know IT* qualification to enhance his job prospects and Tess regarded computer skills as giving her an advantage in seeking new opportunities as an addiction counsellor.

Notwithstanding these examples of what might be regarded as secondary motives all of the participants wanted to develop computer competence as a goal in itself. One of the *pre-retiree* participants Marie puts it very well:

I have a computer I don't really know how to use it ... I play solitaire on it and the few times I've tried to do something on it something has come up and I wouldn't know how to get out of it and it would be very frustrating ... I've always put off doing a computer course... so when the opportunity came in work it was great ... you know I just wanted to do it ... it's kind of showed me too that it's not as fearful as what I had in my mind ... and that's a good thing as well.

All of the participants reported that they intended to use their computer skills to be able to perform tasks connected to their social and family lives to some extent. It is notable that only two of the participants saw *Know IT* as improving their career prospects Pat - who had given up his job in stores to pursue a career in bookkeeping - and Tess - who was a freelance counsellor and regarded computer competence as a necessary add-on to her existing skill set. This is an important boundary point; what it means is that we are describing pathways of learning that are directed toward task and activity-based competences rather than academic qualification and career progression. In general, the older research participants favoured personal rather than workplace reasons for doing the course. Mary, the 53-year-old retail worker is typical:

The reason I decided to participate in the course was as there was a computer in my home that my son used and he was very good at. I just felt that I was left out of it I mean I tried to use it a few times and he nearly ... died because he knew I couldn't use it properly. And to be honest even to go on the Internet and look up things or even write a letter or e-mail I always felt excluded and at this moment in life everyone's talking about e-mails, everyone's talking about Internet and I was totally out of that, because I didn't know how to use it properly – I was too afraid because as you get older in life technology is ... you kind of fear it because you didn't grow up with it, really ... and I was a bit scared of it.

Limited Reference to Intrinsic Interest

The extract above also provides insight into the way in which the students regarded computers and associated technology. Mary points to feelings of exclusion and a general fear of technology among older people 'because you didn't grow up with it'.

Often people do courses because they are intrinsically interested in the subject. One might find this to be the case when, for example, people do courses on topics such as Local History or Digital Photography. They may have past experience in these subjects and are intrinsically interested in the area and they find such courses enjoyable. However, Mary's response above does not provide evidence of intrinsic interest, quite the opposite. Similarly in the extract from Marie (on page 125 above) she too alludes to fear and she describes her pre-course experiences on a computer as often quite frustrating.

I have already mentioned that I acted as an occasional tutor on the *Know IT* course and have observed people's hands shaking as they struggled to use a mouse and a keyboard for the first time. I did not sense from these observations that the students were intrinsically motivated in what they were doing, in my view, they were uncomfortable and anxious and I saw this as

evidence of determination rather than enjoyment. No evidence emerged from the participant interviews that *Know IT* students were intrinsically interested in the technical aspects of computers.

One can surmise that the students interviewed for this research participated on the *Know IT* course with the intention of improving their basic computer skills. Predominantly, they did not engage with *Know IT* for new qualifications or because they had an intrinsic interest in using computers. I have previously argued that basic computer skills are an important literacy to enable effective participation in modern society. It seems that the participants on the *Know IT* course were more attracted to the outcomes rather than the experience of the course.

Characterised by Low Barriers to Participation

A further characteristic associated with the *Know IT* course was that many of the traditional barriers to course participation were reduced. Government funding was provided for the development of the course and delivery to the first cohort of over one thousand students. As far as the students were concerned the course was offered free-of-charge.

In many cases a representative from the National College of Ireland, usually RD would attend at the workplace and address potential students directly. In other instances, training managers or line managers would encourage the students to sign-up -as was the case with Jim and Mary (see case studies below). Others were recruited through publicity stands that were set up in large shopping centres. The point I wish to emphasise is that students were presented with the opportunity through a presentation about the course, a straightforward registration process and no fees. The project team consciously structured these arrangements to make it easy for

students to take at least the first step along their pathway to learning.

It was not the case that there were no barriers to participation, the course certainly involved investment of effort and time; in many cases employers supported students through time-off to facilitate participation in the tutorials and in other cases there was no employer support. Students had to make arrangements to attend these tutorials and to get access to computers in order to run the software. *Know IT* was predominantly a self-instructional course. Students were made aware of this before they signed up for the course, they were informed that attendance at tutorials was optional and that decisions on how they managed their learning would be predominantly left up to them. As Dot puts it “I like the way you do it here in so far as that you give people a programme to learn at home and it gives them a little more courage”. The *Know IT* course was of relatively short duration with most students taking twelve weeks to complete and the time commitment required was minimal (a notional 30 student effort hours); there was no need for students to give up a job or significantly alter their life circumstances while participating on *Know IT*.

Presence of Opportunity

These characteristics of the *Know IT* course and the participant students will frame the theoretical findings that arise from the grounded theory process. A further characteristic of *Know IT* was that all of the participants were presented with the learning opportunity and they could choose to take the course or not to - to decide to act or to ignore. All of the interviews were with participants who choose to act; this is a theory derived from their perspectives. It would also be interesting to investigate those were presented with the opportunity and who did

not participate, however, this is not the focus of this research. I questioned my informants in detail about the way in which they perceived the opportunity when it was presented to them and I probed for insights into why they choose to do the course now and whether they would have done so in the past. The sample, derived as it was from recent starters on the *Know IT* course, provided rich insights into the initial decision-making and the early steps in learning.

Mary describes the way she perceived the *Know IT* learning opportunity.

And the opportunity came with Know IT when the space was there ... and I could ... I mean if it wasn't there I wouldn't have taken the course because you have to be committed to these things before you start at all and ... that's basically why I did It ... a road was clear as they say.

These decision points are crucial to delineating the application of this theory. The key ingredients are opportunity, choice and action from the perspective of the individual.

Summary of Focus and Boundary Characteristics

In general, one can describe *Know IT* as a course that addresses basic skills using a flexible delivery model with low barriers to entry. *Know IT* students participate on the course to gain computer competence and not for academic qualifications, career enhancement or out of intrinsic interest. These attributes point to a useful sample with relatively uniform characteristics and few complications arising from environmental or economic influences. In so far as my intent was to study adult learning decisions and actions toward basic computer competence the data from the interview participants provides a fresh uncluttered perspective of this phenomenon. Insights will contribute to a wider understanding of adult learning in many other contexts.

CHAPTER IV FINDINGS

In the next three sections we move through different levels of abstraction – beginning with four individual narratives, then an independent analysis of all the interview data using the grounded theory process. This is followed by the next level of conceptualisation achieved through the integration of other theories with the independent analysis and finally a model and theoretical summary of my findings.

Narratives

In this section I present a series of profiles, each of these contributes to the overall picture of the phenomenon under investigation and together with the analysis presented later they contribute to the development of a grounded theory. I present the stories of four of the students who I interviewed Tracy, Ben, Dot and Tim. I selected these four cases as they provide important insights to convey the individual perspective on the research phenomenon. Together they provide a strong sense of the lives and experiences of the target group and establish a foundation of my exposition of the theory in the next chapter.

I want the reader to appreciate not just the themes and constructs that emerge from the data but also the people and process through which they arise. To accomplish this one needs to get to know the people whose stories permeate this research. I found these stories fascinating and compelling; each narrative a rich source of insight. Generic terms such as the *low skilled* are replaced by first names such as Tracy, Ben, Dot and Tim, and impressions of people talking sincerely about their lives, their challenges and achievements. As a researcher I found valuable insights by considering the biography, or more accurately the selected biography

(Gregg, 2006), that my informants choose to share with me and through these stories the reader can also appreciate the rich texture of pathways to learning.

Participant profiles may also provide an opportunity to appreciate how emergent categories and insights unfold during the interviews and subsequent analysis. For example, I would begin most interviews with the same question: “why did you decide to do the *Know IT* course” - I was interested in how each respondent would interpret the question and whether they choose to focus on a single moment or an overall context. For me, what was important was not just the insight from the response but also the contexts in which these insights were gleaned.

There were clues and valuable details in the manner in which the participants told their stories – a form of narrative punctuation that can indicate emphasis and important details. One such clue, that I became particularly attuned to, was the use of recalled or imagined dialogue in narrative. In the extract below from an interview with Jim (an informant not featured in the profiles section) notice how the dialogic mode (indicated by underlining) is invoked when Jim describes his choice of computer course.

... So our second in command under management he just said to me do you want to do the ECDL course? and I said no because I don't know enough and he said sure you know how to turn it on and you know how to send e-mails and you know it and I said I know it but I don't know what I'm doing and I said I'd prefer to do the Know IT course and then, if I can, do the ECDL.

I became aware of how people introduced dialogue selectively and to me it was an indication of reliving the moment in the mind of the teller. In many of the interviews informants switch between narrative and dialogic mode at important points in the story. I interpret this as indicating they have played and replayed the scene many times – it is part of their selective biography. I noticed also that the process of introducing dialogue distorts the

timeframe of the narrative. Typically people would say something like “so I did that for 12 years and then one day at break time my boss said...” - so all these years pass by in a moment and then a one ten minute scene is revealed in detail.

Each of the profiles carries aspects of the central themes of this research and they serve to support the conclusions discussed later. The first is Tracy’s story and I use this to provide the reader with insights into a personal experience of doing the *Know IT* course as well as introducing the broad themes of this research.

Tracy's Story "We were in the Olden Days"

Background

Tracy was not my first informant; in fact she was the fourth person I interviewed. However, from a reader's perspective, Tracy's story serves as an excellent introduction to the dominant themes emerging from this research. Tracy, more than any other informant, typifies the mixture of past experiences, chance circumstances and personal commitment that influences decision processes for the initiation and persistence of basic skills learning. At the time of the interview I had already some feel for the themes that might emerge. In preparation I reviewed transcripts of my interviews with Ben and Mary and as a result, my questions to Tracy were more focused and I probed deeper in certain places. I suspected that, for people like Tracy, issues such as exclusion, a desire for competence and the nurturing and protection of self-identity were likely to emerge.

Tracy was recruited for the *Know IT* course via the 'shopping centre' strategy. She first came to my attention when her tutor "A" reported to me that one student in particular, had been a frequent attendee at the same tutorial class (this was encouraged by the *Know IT* team). A knew that I was keen to interview people who had been recruited through the supermarket strategy and suggested that Tracy (not her real name) might agree to be interviewed. I arranged to meet Tracy the next time she came into the college and she was willing to be interviewed.

The interview took place in my office in early April 2008. Tracy immediately struck me as a relaxed, straightforward person with a very direct manner. Throughout our conversation she remained at ease and she spoke about herself with a straightforward enthusiasm.

The Crisis of Workplace Change

I began with my usual question: “why did you do this course?” Tracy’s response captures her experience of workplace change and the challenges she faced as an older, experienced worker challenged by the introduction of new technology.

... I was in [Shopping Centre] and they were canvassing for the Know IT course. Now previous to that I have worked in the same shop for thirty years but it got taken over by a new company three years ago. So basically, we were in the olden days as in push button tills, still writing down orders, that type of thing and all of a sudden within this period of three years everything has turned computerised. I work with a great crowd of younger people who were all carrying the can for me don't worry about it Tracy ... we'll put it through ... don't worry about this. That I was still doing faxing where they e-mail ... they were so much more knowledgeable ... than I was ... they told me they would put my name forward and if I was accepted they would get in touch with me and then A just got in touch with me then and it went from there.

Tracy had worked for thirty years in the same shop and when it was taken over three years ago everything changed. Tracy describes the past as the ‘olden days’ and compares it with today where everything is computerised. She describes the impact of these changes on herself and references her old technology as ‘doing faxing’ in contrast with the e-mail used by ‘a great crowd of younger people’. Despite her obvious depth of experience and length of service she refers to her younger colleagues as ‘carrying the can’ for her.

I encountered similar situations described in many of the other interviews - young people cope with the technology and older, more experienced, colleagues feel undermined. In Tracy’s case her popularity keeps the situation amiable but you could tell that she was not comfortable at being carried along.

Opportunity: Internal (Desire) and External Factors

Later in the interview I wanted to explore the encounter in the shopping centre in more detail and to hear again Tracy's articulation of the reasons why she decided to do the course.

So I just went over and asked them what it was and they explained that it was ... basic computer skills, free to people in the workplace and I said like now I know nothing and they said that's what we're looking for people who know nothing can go ahead and learn so that's how I came about coming here then.

.... I kept putting it on the must have menu, must do must have, and it just happened that I walked in that day and saw them

.... I probably would have never gone and done the course that I just happened to see them girls in the shopping centre that time that day

.... and that's how it all just fell in to me that's kind of meant to be if they weren't there it probably wouldn't have happened but they were there and it did so I'm just happy that it did.

In these responses Tracy captures the dynamic of internal and external motivational factors. She points to the moment when she met the two 'lovely girls' and remarks that if they weren't there it probably wouldn't have happened. Thousands of people would have passed the stand that day and yet only about thirty of them signed up for the course. Tracy was somehow primed and the *Know IT* message was the right one for her at that time. In other interviews people refer to the time being right or the road being clear. It is obvious that at certain times a pitch or an act of persuasion can resonate with pre-conceived desires and urges in individuals.

Tracy's Life

Throughout the interview there is ample evidence of a highly supportive workplace environment. Tracy describes how her manager offers to facilitate access to his computer during work breaks so that she can practice the e-learning content and how they are willing to let her

leave early to attend classes. Work is an important aspect of Tracy's life and I asked her to describe her working history to me. Tracy is forty five and she left school very early.

A quick history, I hated school ... the first year at school in secondary school and I pleaded with my Mam and Dad can I get a job and not go back after the summer holidays and in them days it was kind of all ok then if you don't ... you know if you get a job then you don't have to go back and I just got a [job] with my aunt in the sewing factory and that was from 13 to 14 ... then I went to, you know the little newsagents beside the [City Icon], I was there from 14 to 16, then I went to a sausage factory in the [Northside] until I was 17, and then into this job.

This is the rational, economic perspective of Tracy's story - a workplace history that reveals much about economic hardship and a sustained work ethic. To me the picture was quite stark - Tracy working in the same shop since she was seventeen years of age – not quite the thirty she claims just a mere twenty nine years. Yet, I have to say that all the while Tracy spoke about her work it was with pride and satisfaction and I got no sense that she was unhappy there - quite the opposite.

It occurred to me that up to that point in the interview all of Tracy's responses regarding her reasons for doing the *Know IT* course had been framed in terms of her experiences in the workplace. This was in contrast with other respondents who tended to describe a mixture of family, social and workplace influences. In the next section I reveal how I almost stumbled upon the explanation for this and yet again how Tracy's story has the capacity for surprise and insights of great depth.

Family Crisis

I asked Tracy about access to a computer at home and she responded that there was a computer in the house but she could not access her home in recent months. Her marriage had

broken up and she was now living at her mother's house. This happened after she had started the *Know IT* course and, as you might expect, it threatened to disrupt all of her progress.

I was back three times before Christmas and then my marriage broke up just over Christmas so I didn't get back but I just ... A happened to ring me and asked me why am I not coming back and I explained what the situation was and so she said look Tracy if you can get an hour off work early on Thursday and I said God I'd love to so they didn't [mind] they said yeh sure so I just took on some extra hours in work for the moment and they said no problem go ahead and do it.

I made some notes immediately after the interview with Tracy and much of my comment referred to this section of the interview. I noted how I reacted to Tracy's openness regarding her marriage break-up by ignoring it for the next few minutes of the interview. I was caught off-guard. My interviews were to be about why people undertook to do a computer skills course and I was not expecting to hear about her marriage breakdown. For a short time I was concerned to keep the focus of the interview on my research topic but I soon realised that what she said, all of it, was part of the investigation. I should have been more empathetic in the first instance. Tracy's marriage break-up was part of her story and she chose to share it with me.

My next few questions were clumsy and awkward. I was experiencing first hand the challenge and responsibilities of qualitative research. The transcription reproduced below was not my finest moment as a supportive human being. I was in the end rescued by the informant. Tracy - honest, matter of fact, and likely aware that she had moved into territory beyond my comfort zone, continued to tell her story. I asked the questions and she was giving honest truthful answers.

LC And did you use software at home or were you only using it at work?

I did in my own ... no I did use it in my own house [but I haven't been there] for a couple of months now so I haven't got access to the Internet

LC So you have a home difficulty that you've just mentioned?

We have yeh, yeh. But I was saying to them in work on, when did A ring me, Tuesday ... Oh God they rang me from college and blah blah blah and [her manager] said to me oh right you're up the creek there you haven't got a computer and all and he said look why don't you get your discs and that type of thing and maybe if you have a fifteen minute break or a half-hour break he said why don't you use my computer and I said could I and he said yeh I'll just be with you in case I'd make any mistakes and wreck all his system of something like that.

LC So he supported you on it?

Yes he supported me on it, which was great.

To me something remarkable was revealed in Tracy's response. The tutor in question A is a colleague of mine and in keeping with the ethos of the project, and her personal commitment to her students, she called Tracy to inquire as to why she had not yet completed the course. At the time of the call A would have been unaware of Tracy's circumstances. Yet the call seemed to precipitate a new vitality in Tracy's commitment to learn. Tracy shared her dilemma with her manager 'they called me from college' and in the workplace she received the necessary support.

I was curious about the phone call from A and the effect it had on Tracy. As I've mentioned before *Know IT* is a national skills programme and the number of people involved is quite significant. The approach is blended learning, a mixture of tutor instruction and self-directed e-learning. Each tutor had many students to deal with and had limited opportunity for one-to-one contact. Tutors were paid a fixed rate for a set number of hours but they were also encouraged to be as flexible as possible. In this way we hoped that tutors would use their discretion to provide extra assistance to students who needed it and we also recognised that many people used the CD ROM on their own and did not require additional support.

I asked A about her policy for contacting students and she reported that she would follow

up with anyone who had part-completed the course and that she would, as a matter of course, try to make contact and encourage them to complete. Tutors could also use a text messaging service to remind students when tutorials were on and to encourage them to send e-mails. Sending e-mails was one of three assignments that students needed to complete as part of the assessment requirements.

One of the dilemmas for the *Know IT* course team was to decide on just how “pushy” tutors should be. On the one hand, we wanted to respect the autonomy of each person and our approach was to facilitate individual decision making in so far as possible. On the other hand, we felt it would be good practice to constantly encourage and remind people of the need to progress. Tracy’s story presented an ideal opportunity to explore this issue from a student’s perspective. Tracy had a lot to cope with when A contacted her.

It’s very easy to put everything on hold when you’re worrying about the kids and you’re worrying ... trying not to let your Mam and Dad know too much because they’re too upset and his mother and you know you’re going around everybody else but you’re still in the middle and you’re forgetting hang on a minute like I’m here too and trying to keep everybody happy.

.... My head was wrecked anyway so I probably wouldn’t have been much good to anybody coming in. So it’s just like when A rang and I said feck like this is for me not like anybody else so like my daughter’s are 20 and 15 so the 15 year old just went straight to my mother’s so that’s fine.

.... LC What advice would you give to the like of an organisation like ourselves as an organisation where we’re trying to support people to get these new skills ... ?

Well I have to say I thought A, now I know I keep blabbing on about her, but even at Christmas she texted me Happy Christmas for New Year she texted me Happy New Year. Very homely, it’s real personal isn’t it you know like, that’s what I like about it, it’s not like going into school and there’s oh! Teachers going around with books under their arm and you know. I think it’s very relaxing.

Doing the Course

Tracy had feelings of nervousness and anxiety as she started the course. She was keen not to look stupid and in keeping with findings from the other case studies, she welcomed the fact that she was in a class with others of similar ability.

.... A rang me and said like you know you've been accepted to come for it Oh God! Why did I do that but I'm really glad now I came

LC Were you nervous?

I was really nervous ... Yeh! Really nervous but she's brilliant and then we went to the computer room and like it was nearly enough one-to-one there was like a good few teachers there like helping us

In the skills ... the biggest challenge to me was coming, you know, to decide ... Oh my God the first day I was saying Oh My God I hope I don't look like I'm stupid or something....

The *Know IT* course is structured around the interactive e-learning software that all students receive when they register. The software is delivered on a CD ROM and is a self-contained course. The software design is such that the student has access to all of the content and exercises necessary to complete the course. The dilemma for the *Know IT* team was to achieve the optimal balance between self-instructional e-learning and tutor support. Our approach was to offer maximum flexibility; it was possible for students to complete the course without attending any tutorials and conversely we encouraged students who so desired to attend multiple tutorials where the same content was covered. Many students, including Tracy choose to take advantage of the latter option.

Tutors were faced with a new challenge - they needed to manage classes where established students are likely to show up and mix with students attending for the first time.

However, we encouraged tutors to allow students proceed at their own pace using the self-directed characteristics of the software. This occurred in many of the classes and it was common to have students working on their own using a headset while the tutor was explaining a different aspect of the course to the rest of the class. This is an advantage of blended learning that is often missed; an experienced tutor can facilitate many students to proceed through different sections of the course simultaneously. Students went to class not just to be instructed by a tutor but because it was a space for learning providing access to a computer and support if needed.

Well I thought even the last day I was here there was only about eight of us and you know we were kind of in rows and one near me would be saying how did you do that and I'd be saying of where's that A thing again you know. It was great everybody was helping each other because nobody ... we were all starting from scratch like ... so I thought that was good too.

What is significant from Tracy's comments above is that she would not have previously known the other students in the class. As she reports the group seemed to be mutually supportive and there was a sense of common purpose as they were all beginners.

Themes of Research

Tracy's story can be characterised as a broad introduction to many of the themes that will be discussed in more detail in other case studies. One finding that was common to many of the interviews was that students expressed a wish to be in classes with others of similar ability and similar age. Age and computer skills appear to be correlated in the minds of many of my informants – the young are highly skilled while older adults may be experienced in other areas, but they are not regarded as digitally competent.

I asked Tracy about her experiences of working with the computer disc. I was conscious

that using a CD ROM was itself a new challenge for many students. Tracy was relaxed about engaging with the software.

I don't mind ... because sometimes you think you haven't heard it right or then you go back and you put the disc in and you go what did she say about that now?

The disc is brilliant like especially when you're listening to it ... it's great it basically tells you step by step and if you make a mistake you can go back ...you've done it wrong start again. It even congratulates you ... you did well (laughs). I love the disc ... the disc is brilliant.

Similar comments of appreciation of the software design were also made by the other informants. I found that, for most of the people, the significant challenges centred on starting the learning process, getting access to a computer and finding space for learning. Once users began to engage with the software it could facilitate their progression through the exercises at their own pace. They could also repeat sections where necessary. A further advantage of the blended learning was that when students engaged with the disc they were less inclined to be self-conscious and embarrassed. Repetition was easy and the simulation system was structured so that when a student pressed the wrong button they would be guided through a correction process. In this way errors were not allowed to compound in a way that may happen if people were learning through engagement with authentic software.

Family

Tracy has two daughters aged fifteen and twenty and I asked her about their use of new technology.

I've seen the girls going on to Google and you know looking up what disco's on next week and where the venue is and ... like they're brilliant you ask them to look for something and they look for it my husband has [skin disease] and he wanted to find out more about treatments ... the kids are like here dad look we printed that off

.... also for holidays I go into my neighbour and she books everything for me you know flights apartments she does all that ... my daughter said Mam I could do that but like I'd be afraid if it's going on my credit card that she'd make any mistakes so it was just easier to go into Carol and let her do it

.... I'd love to be able to like cause I'm watching it now and it looks fairly simple you get the date you get the time and where you want to go - just kind of click them and whatever it looks simple enough so I'd like to learn how to do things like that.

In the response above, Tracy identifies two sites where she encounters computer technology; in the home she observes the actions of her two daughters (she is describing the past as her circumstances have now changed) and at her neighbour and friend Carol's house she looks on as Carol books the holiday. Notice how Tracy describes her own perspective on the engagement she says 'I'm watching it now and it looks fairly simple'. To me, this is an important statement and it indicates a recent change in her thinking. In an earlier response Tracy described how her daughters would be in the bedroom using the computer

.... they'd be tap-tap-tapping away but at that stage I didn't, I blanked it like, I didn't notice they were so computer literate like until I started this

In her description above she refers to her past-self 'I blanked it' 'I didn't notice' whereas in her recent encounter in Carol's house 'it looks simple enough so I'd like to learn how to do things like that'. I will show later how what happens at Carol's house is an example of the category Proximate Sites of Engagement. I argue that these are places and mechanisms where much informal learning takes place. Notice how in the past Tracy was passive or unaware of what was going on and the shift to the situation today where she has adopted a more questioning and engaged approach as in Carol's house. A further pattern I will discuss later is the use of a "proxy"; as the name suggests, this is where the learner gets someone else to perform computer tasks in their place. Carol acts as a proxy when she is used by Tracy to arrange her holidays.

Selective Narrative

“We are all storytellers and we are the stories we tell” in this way Mc Adams (2006 p 1) describes how people construct their self through biographical narrative. There are strong biographical elements to Tracy’s interview and those of the other informants. One of the rewarding aspects of this research was to experience how open people were willing to be in responding to my questions. Pals (2006) suggests that we should examine causal connections in life narratives as they provide important clues for the interpretation of self-making within the life story. Almost invariably, my first question of the interview was why they did the course. Earlier I have discussed the detail of Tracy’s response to this question. In that response, Tracy painted a picture of herself as an older person in the workplace struggling to cope with technological change and supported by young people who were ‘carrying the can’ for her. This is the self that Tracy chooses to present to me. There was nothing in my question to indicate that I was keen to hear about her workplace over and above her family or her social context. I was interested in how Tracy portrayed causation throughout the interview.

Tracy’s first connection is between her circumstances in the workplace and her decision to engage with the girls at the recruitment stand. She reports that she had been thinking ‘I must find out about doing a course’. Elsewhere, Tracy points out that other employees in the workplace have a lot of respect for her and that she now has a more senior position as deli manager. Tracy also describes her lack of computer abilities as ‘embarrassing’. Considered together, these comments reveal a sense of what’s happening to Tracy in terms of her self and identity. In the workplace Tracy has a status she has the experience of many years and is also a manager and a decision maker. Yet, somehow Tracy’s status is undermined by her lack of

computer skills and therefore her participation in the course is about the protection and enhancement of her workplace identity. However, I am also conscious that this is the causal connection as reported by Tracy - it is her construction of her self.

Causal Connections

I looked for other clues in the transcripts to see if I could arrive at a more complete picture of who Tracy really was. As I discussed earlier, I had stumbled upon the fact that Tracy was going through a marriage crisis and she willing to discuss this in the course of the interview. This is how Tracy describes the causal connections involved in her break-up.

It just happened and we're 25 years together like but he took the redundancy out of his job last year... and he thought he'd won the lotto ... and the lotto was going onto the other end of a bottle so I wasn't willing to go down that road no ... I'd put too much into my family and my home to like waste money like that.

In the extract above Tracy presents a rational economic version of her self, unwilling as she was, to tolerate money being wasted like that. In a subsequent comment she describes her husband's behaviour as 'ridiculous'. This is a rational, practical Tracy who understands how hard it is to earn money and cannot stand by and see it squandered. This is the rationality of someone who manages the household finances and needs to be competent at all aspects of the role. I suspect that she is not comfortable using her friend and neighbour Carol to book the holidays on the Internet; from her comments she appears poised to take that task back into her control.

In other sections I had further glimpses of Tracy's self-building as a practical economic manager and competent parent. I asked her about any courses she had attended before the *Know IT* course.

Well the only thing I would have done wouldn't have been a course, I'd have been very involved in the girls school and I'm chairperson of the parents association ... yes, so like I would be very involved in the school and what we could do to raise funds it'd be all fund raising based

It was clear to me that through activities such as the parents association and her new role in the workplace that Tracy also had good interpersonal skills. She knew this too, in one of her comments about doing the *Know IT* course she says:

.... as I say I left school so young and ... the only thing is that you kind of educate yourself when you leave school young as in reading writing and how to speak and you know that type of thing. But I think that I've worked with the public for such a long time that's a learning skill as well.

This indicates a pattern to me of constant informal learning and improvement throughout life, all the time aware of the potential disadvantages of having left school at a young age. There is also a sense of pride in her length of time in dealing with the public and she recognises this as a learning skill. Against this background, it is not so surprising that Tracy would choose to do a computer course; it is simply a continuation of a process of self-building that has progressed through her adult life.

Future Competence

I asked Tracy what she would like to use her new found skills for and her response below summarises the different themes that I've discussed in this section.

.... booking a holiday whatever and then e-mail would nearly be just for work purposes although a lot of my friends work in offices and I would hear you know when we're out for a drink Viv would say I emailed Bernie yesterday and she didn't e-mail back maybe she wasn't in her office so she's off today like where I'd be texting them ... What are we up to this week?... Whatever - they're e-mailing each other while they're in work you know.

It is not surprising that being able to book a holiday is an important goal as this activity is

currently 'outsourced' to Carol. Tracy also reinforces the competence motive in relation to e-mailing at work. The last part of her response points to her self-identity and her current perception of where it needs to be bolstered. Her friends communicate by e-mail and she uses text messaging. Tracy feels she is missing out and she intends to address this.

In the preceding section I have attempted to portray a fuller picture of what is really going on when an individual decides to engage in a basic computer skills programme. There is a tendency to assume that the acquisition of new skills in the workplace is a relatively straightforward process and that decisions to learn are based entirely on opportunities for promotion and furthering job prospects. I have endeavoured to convey a far more complex landscape of influences. Tracy's story demonstrates how workplace, family and social circumstances combine to create a set of conditions to facilitate a learning project. Furthermore this story illustrates how learning and identity are interwoven and how much of adult learning is in support of the on-going construction project of self.

Ben's Story "I'm just ignorant passing by them every day"

Introduction

Ben is a forty five year old docklands worker he's been driving containers in and around the port for most of his adult life. One day Ben sees an advertisement in the newspaper inviting people to a free, government backed, course on basic computer skills. Ben calls the number and, by arrangement, he visits the local college the next day and signs-up for the course.

Why did Ben make the call? This is a key question and perhaps it is at the core of what this research is all about. I shall now describe Ben's story; once again a complex picture of an individual who, at first glance, may appear straightforward and mono-dimensional. Ben has a remarkable outlook on life and through my interview with Ben I learned a lot about how my informants viewed their experiences of the world. Through Ben's story I introduce the concept of The Digital World; this is how modern information and communication technologies and systems are viewed from the perspective of those outside.

School

When Ben was in school he was left out of the woodwork and metalwork classes. He is not sure why but it was "myself and another bloke" as he would say, perhaps, he speculates, it was because of where their second names came in the alphabet. Ben was consigned to doing home economics and typing -"girly subjects"- he really didn't see the point of them. But some of the content is still stuck in his head, he still rattles off the letters of the keyboard "ASDF semicolon LKJ". The teacher at the time assured him that someday he'd need it.

I remember the teacher saying this'll do you a world of good. Yeh right! Just give me a shovel and I'll dig a hole what do I need a computer for to dig a hole but

now-a-day if you see people digging a hole they have to take measurements ... it's all back, all paperwork's back into computers

The extract above is typical of many of Ben's comments; for me, it appears that I'm listening in on an internal debate between competing selves. His first point is 'just give me a shovel and I'll dig a hole' and 'what do I need a computer for' then the other self argues back that even digging a hole today involves technology for measurement. Ben's world is changing and computers (perhaps representing all technological systems) are everywhere and somehow Ben feels left out and now the time has come to do something about it.

I interviewed Ben in my office in National College of Ireland. I was keen to talk to students who had acted on their own initiative to engage with the course. Ben was recruited from our so-called 'newspaper' strategy discussed previously. The college had a facility whereby individual students could call and arrange to register for the course. When the student arrived they would get a short demonstration of how to use the software on the college's computers and for many, this was their first time to use a computer. I approached Ben on such an occasion after he had registered and spent about an hour on a college computer getting to know the software. I suspected that students like Ben who acted independently would provide valuable insights. He was a willing informant and happy to talk.

Just a note on Ben's language; Ben spoke with a strong Dublin accent and he used many mannerisms in his speech that would be difficult to decipher if you were not familiar with Dublin dialect. Many of the extracts benefit from being read out loud several times to capture the rhythm and intended meaning as I did not to substantially alter or correct his language during transcription.

Change of Job

Ben changed employer some years ago and regrets that his current job does not bring him into contact with computers anymore; he describes his predicament:

and it's just that I worked around computers that I never went near them, the last what seven years in the last job I was in what I didn't learn from...them, what I could have learned, and I'm just ignorant passing by them every day knowing that here could you print me this or do this on it and all that but I was never there here I'll do it myself whatever so I never went out and did it, and then looking back at my new job now I'm just away from the office now and all that and I'm away from computers and I'm missing out somewhere along the line ...

These few sentences portray an impression of desire, anxiety and regret and it is worthwhile considering some of the detail. Ben starts with his own problem statement 'I work around computers but I never went near them' and then he harks back to missed opportunities in his past 'I didn't learn from them what I could have learned'. He then contrasts two versions of himself in the past – what he perceives himself as having been 'and I'm just ignorant passing by them every day knowing that *here could you print me this or do this on it*' - and a possible or more desirable self 'here I'll do it myself'. The final line captures the tragedy, the current predicament and problem that he needs to deal with 'I'm just away from the office now and all that and I'm away from computers and I'm missing out somewhere along the line'. It is notable, that all of the above arose from his immediate response to my first question; "why did you choose to do the *Know IT* course?"

It struck me as curious that Ben placed a lot of emphasis on comparing the conditions of his current and previous jobs. Both involved driving trucks in the docks but as he makes clear in the interview, the difference was in the degree of contact he had in and around the offices.

... now in the new one we're away from the office people, we're more or less in the yard so you don't see any of this ... the in's and out's of how the office works and all that, and back to basics how a computer ... what's happening what's up to date with them and all that.

Later in the interview Ben gives another insight into the way he views the office and the people who worked there.

Well I don't see anything new coming into the system broadband or whatever that is but it's a new word for me. So what is that? It's not like I just learn the word. I know the word broadband but you have to learn ... tell me what it is, even though I know the name I don't know what it means or what it is.

Then there's some of them [the office people] go on up-to-date computer courses, there's new technology coming out and you'd see some of them going off from the office oh we have to do this and do that do you know ... oh what's this one for and what's that for?

So not only do the office people work with computers they are also provided with occasional courses to allow them to keep up-to-date. This is in stark contrast to Ben's frustration expressed in the first part of the extract where he laments that he knows the word broadband but he doesn't know what it means. In my notes written immediately after the interview the description I used was that Ben coveted the situation of the office people. He is close-by and as they go off to do their courses they say 'oh we have to do this'. I noted that Ben provided much more detail in his description of the old job and this is where he locates his interactions with the office people. The peculiar point is that he decided to act to undertake the computer course *after* he moved jobs and had found that he no longer had contact with the office people. Could it be that the current absence of exposure to vicarious computer experience contributed to his decision to learn at this time? Ben himself provides a hint of this.

it could be something to do with ... like there was always someone helping me around with computers but now there're not but now I know it's part of the world as in where we live and what we do and all that so I just wanted to know more or know how to work it now on my own.

Decision to Learn

I asked Ben if his decision to do the *Know IT* course had been building over time or if he decided on the spur of the moment.

This was over time as time went by it's computers are getting more and more advanced and there's more kids doing it now and they're more welladapt to them compared to you looking at them.

So, I sort of, like years ago me da wouldn't be able to use ... how to change a station on the TV and it was only a remote control trying to show him and he say's no I can't use it and I says look its simple and now you have kids telling me in a sense or people around me look it's simple so I was just thinking from there jees I used say it to me auldfella there.

In this remarkable response Ben juxtaposes the technological competence of three generations: his father who struggled to use a remote control and the 'welladapt' kids of today and Ben caught in-between. He sees the situation from both sides; on the one hand, the world of 'look it's simple' and on the other, despair and shame at lack of competence.

Ben, in common with many of the informants, points out that computers are getting more and more advanced and he sees kids adapt to them and then he says 'compared to you looking at them'. It's as if there are two Bens. Who is saying 'compared to you looking at them'? He uses what I coded as, The Reflective Self and his self-abjective tone is similar to his earlier comment of 'I'm just ignorant passing by them every day'. In the register of The Reflective Self, Ben judges himself and makes comparisons with others such as his father in the past, and the office people and kids of today. What resonates is that he now finds himself, like his father before him, in the predicament of the non-competent and the implication is that something needs to be done or 'I'll be like me auldfella there'.

Home Circumstances

Ben lives at home with his two brothers and they do not have a computer or even a telephone in the house. He reports that one of his brothers has some contact with computers when he does accountancy work for their sister but he too is only starting to learn. He says that the new house they're working on is ready for phones and computers and all that.

I wouldn't be able to bring in a load of computers and just have them there and doing nothing with them cause I didn't want to be so ignorant ah just leave them there at least we have them yeh.

I think this comment is an indication of Ben's functional approach to technology. He's not going to settle for just having computers in the house doing nothing. He's not happy to be the kind of person who would say 'at least we have them ye'. His standard is higher, he wants to be competent and he doesn't want the technology for show.

Current and Future Competences

Later, I asked Ben how he would use his computer skills in the future. As with many of the informants, Ben was interested in booking holidays and getting cheap flights.

Well it's just getting on, if I wanted flights anywhere or anything like that you know I'd have to ring a mate now to say I wanted to go to Spain tomorrow, there's times with me job I can get time off for weekends or weekdays and with flights are cheap or whatever nowadays it's just spur of the moment you can go anywhere so it's just look up the inter ... you could say to me I'll look it up for you now and there you could fly out tomorrow there it's all done and dusted.

So things like that it's easier ... it's easier to do it like that compared to himmen and hawen ah we'll go next week we'll go next week it's more or less do something there and then compared to say we used to years ago or ... this like meself and all, we used to ... we'd wait until an opportunity comes well I have tickets for this for that.

We again encounter the use of a proxy to get things done on the Internet; in this instance

Ben would ring a mate (friend) to get him to book a weekend in Spain at short notice. Ben knows the advantages of this facility and he compares today's flexible and proactive approach to booking travel with that of years ago where one would have to wait for the opportunity to arise. Here again, we see the functional rather than reverential view of technology.

The Digital World

Later, Ben explains that one of his main interests is going abroad two or three times a year. I sensed that Ben was keen to meet new people, possibly a girlfriend on these trips; he even suggests his not having e-mail as a barrier to keeping in touch with potential new friends.

Hobbies interests eh I just socialise and all that you know and mostly going away at weekends I like going on holidays two or three times a year so that's one of the reasons and then when your on holidays you get someone who'd say oh send me an e-mail or send me something I'd keep in touch with ...

Ben went on to provide yet another example of his frustration with himself at not being competent with computers. In the following scenario he is located abroad in a hotel lobby and attempts to connect to the net using a coin operated public access point.

You'd put money in the machine and then get the computer ... ah sure I'm stuck here now again.... and usually it's there cause your sitting waiting for someone or something like that ... its just I wish I could use this you know you don't you've a few coins in your pocket and you would go on the ... net ... well try it well it's there it's like ... a walking mobile in a sense mobile phone isn't it -it just gives ye access to the [Internet]to anyone you want to be ... in contact with.

I developed a category called the Digital World and will use examples from Ben's narrative to illustrate the nature of this category. Firstly, the Digital World is always perceived from the perspective of the informant; in other words, I could say Ben's digital world and Tracy's and so on collectively make up the category of the Digital World. All of my informants

view the Digital World from the outside and much of what they report is to do with attempts to come to terms with exclusion or attempts to gain entry.

For Ben, what took place in the office at his old job was an example of the Digital World; in this instance he viewed it from afar and he located many of his perceptions through other people - the office people. Ben also encounters the Digital World when he uses his friend to book holidays; this time he's somewhat closer and he is aware of the functional advantages of the technology. In the lobby of the hotel, Ben has a further encounter with the Digital World – this time he's right up against it, almost despairingly, trying to break through. Later I discuss how I interpret the Digital World and Proximate Sites of Engagement as at either end of a continuum; when viewed from afar it is perceived as awesome and pervasive - the Digital World - whereas when the same phenomenon is encountered up-close it is described as Proximate Sites of Engagement.

Future Plans

Ben intends to buy a computer soon. Computer ownership is regarded by many of the informants as an important marker of serious intent. As Ben put it earlier he would not want to have a computer and just have it sitting there. Ben indicated that his preference would be for a laptop as he would be able to take it with him from room to room. I noted how Ben had been thinking about the logistics of this which I took as an indication that he had a serious intent to buy. In the long-term Ben hopes to move away from the job he now finds himself in.

I hope to be out of there or doing something else maybe. I used to work on a golf course I did the golf course green keeping certificate in the Botanic Gardens ... I have that. And then when I was [based in a golf club] they put me on that course.

There was [an irrigation contractor] a lot of their stuff is all done on computers. So it's

done by satellite computers ... and it was always gees that's brilliant that you can be in one part of the world then the other and then turn on a sprinkler from say Spain to Australia or whatever ... into the wineries there, doing the irrigation there, so that's done on computers and things like that things like that -so that's the nearest thing I'd get to computers in a work ... environment.

Even as Ben sees his future in green keeping he recognises that the Digital World will also be there. What Ben appears to be describing above is a globally connected system for controlling irrigation. It sounds extraordinary and what's intriguing is how he reports snippets of dialogue 'gees that's brilliant'; presumably, these were conversations between him and the people responsible for the irrigation system. And in the last line Ben reverts again to the theme of proximity.

Dot's Story "The Trouble-Shooter"

Introduction

Dot is sixty-three years old and works in a large department store in the centre of Dublin. Twelve people from that particular department store had participated in the first wave of *Know IT* courses run in October and November of 2007. I was invited to attend a ceremony in the store to celebrate the achievements of this first cohort and I was impressed by the manner in which the employer facilitated such public recognition of learning achievement. Dot somehow missed this first opportunity to participate on the course and she was part of a second group who started after the busy retail Christmas season was over. I was keen to interview someone from this group and I contacted Dot and she readily agreed to be interviewed.

In revealing Dot's story I wish to emphasise the working life trajectory of a person who decides to engage in learning for computer competence within three years of retirement. As Table 1 reveals, many of the informants were born in the 1940s and 50s and the backdrop of economic hardship underpins their accounts of education and early working life. Dot, like many of my informants, had a moderate level of schooling and she left early out of economic necessity.

I left school very early because my family weren't well off and I left school when I was fourteen I went to this business that I'm in [retail].

So I'm only really up to primary level with the result that I would have basic education you know and I had one year [in secondary school] and kind of everybody thought I should have an office job.

.... there was three basic jobs you could see ahead ... I remember you could be a nurse or you could go to a factory or you could go to the business that I'm in or maybe ... work in a cinema or something like that.

I didn't see a lot ahead of me that I could do other than what I did

Dot started out in retail at the age of fourteen and she describes her experiences of those early working years as an apprentice in the retail trade.

I was a whole year before I was allowed touch a customer I did everything cleaning the floor doing the parcels you did everything and then you made little sales and you went according to rank it was very old fashioned like 'Are You Being Served'.

Like many others in similar circumstances, Dot's formal working career was put on hold while she reared a family. In that time she was involved in volunteering.

I didn't go back to work until my family were reared so with the result that I worked for seven years and then there was a huge big space after that

Actually I did a lot of voluntary work for the local school and I wasn't paid for it or anything like that I used to help out in the school library with the children

The brother left and a new principal took over and I felt that ... he felt a little bit intimidated by me because I knew a lot about the school that he didn't and I felt he was uncomfortable so I left.

Dot appeared to me to have a gentle and caring manner and I wondered how she could perceive herself as intimidating to a school principal - suffice to say that I deduced that she was highly successful for a time 'I knew a lot about the school' and then decided to leave with the change of regime.

A Big Moment

Next comes one of those moments in a life story that has all the hallmarks of an often relived experience: the condensation of time and the recalled dialogue.

and I was going in and out of FAS so often that the man down in FAS got to know me quite well and he says it's a wonder you wouldn't get a job for yourself instead of working for these brothers for nothing and I said well the kids come home and I look after them and it gets me out of the house [later] I used to get forms for free lunches and things like that in the school and when I went in he said what are you doing here? And I said I'm just getting a form because I've left the school and ... I said I'll come in someday please God and he said no you won't you'll come in this minute and

on the form he wrote me in and he said you'll just a little bit late for ... he said what do you want to learn and I said I don't know how to use a register at all so he said I'll tell you what it's a pity the one in DL started all ready but he said I'll see what I can do for you.

I present this extract to demonstrate the level of detail in which Dot relived that conversation. In the previous section Dot recalls 'I worked for seven years and then there was a huge space after that' and then at the other end of that space she reveals the detail of a conversation that could only have lasted a few minutes. In that conversation an opportunity was pushed at her 'no you won't you'll come in this minute'. This was the moment where she acted to precipitate her return to work. And of course, it worked out for Dot but only with the aid of another persuasive person in her life.

So anyhow I had only reached home and he said there was a place in DL on the Monday and I remember sitting down on the floor my poor mother was alive Lord rest her and I was crying and I said I don't think I'll be able for to go back after all these years or whatever - and she booted me out!

Competence in Workplace Contexts

The transition back to work was obviously quite a traumatic ordeal for Dot. In the intervening years the retail sector had changed significantly and the introduction of technology had a lot to do with this. On her own admission, Dot did not know how to use a register. In another part of the interview, Dot describes how, in her early work days, they used a chute system so that transactions were not completed on the shop floor; the money was transferred by chute to tellers located in the offices. Dot describes how her main worry with her new training related to the use of technology.

I went down to DL and really enjoyed it. They were teaching me everything but the register and then when it eventually came up to the register you'd have to put things in and out and whatever

After some persistence, Dot got her job in Bs [large retail store] and has continued to work there since that time. I asked her to describe how she perceived the introduction of gradually more sophisticated computer systems in the sector and what it felt like for her as a worker. I was interested in this experience as it is related to the general expansion of the influence of technology in workplace and personal contexts. For clarity, when I use the term ‘personal contexts’ I mean individual economic, family or social activities, and when I use the term ‘workplace contexts’ I am referring to activities involved in the performance of work related duties.

I was in the furniture for fourteen years and then I went to linins for two years and now I'm in men's shirts. So when [computerisation of] the furniture department came about, to be honest with you, we were all very much at sea.

We had an ordinary register and all of a sudden it became computerised and we were all struggling to be honest, and we were all within the same age group as myself anything from fifty to sixty.

There was training but it's very short the training you know for the likes of us it would be about we'll say three hours in the morning or two hours in the morning but if you're ... and then its within a group it's not individual

What Dot describes is a pattern that also recurs in the other interviews; the introduction of technology in the workplace has consequences for older workers and it is difficult for employers and others to appreciate the scale of the challenge. I probed deeper into this by asking Dot to describe specific instances where the technology presents difficulty.

Yes, well now the biggest difficulty I'd have when I started off looking at stock locator for instance, now a customer would come in and say do you have that in Cork and I'd go to the register and I'd say oh Dear Lord.

Dot also describes how difficult it was for some men when they did not keep up as they were expected to be more technically literate than their female counterparts.

So that was hard going and I suppose where men were concerned I was a little bit more courageous than some of the men, you know to try and go for it although I wasn't good you know - they were rather sceptical about not looking great about it

Dot was quite clear about how she learned about the system

And now my colleagues taught me now to be honest with you and I learned that way you know - easier from my colleagues than I did from the classes to be honest.

In many ways, one can regard the introduction of technology in the workplace as a microcosm of the process of technological expansion in the wider world. Two main differences arise between the workplace and personal contexts; first the degree of volition involved - in many workplaces there is little choice for people to opt in or out of technical change - and second, in the workplace it is not always clear where the advantage lies for the individual.

A further area of inquiry was the way Dot perceived working with young people who were generally regarded as more technically savvy.

I don't have a problem with it to be funny I like young people but I'd say some would yes one of them was very courteous and very nice and they weren't a know-it-all - now if it had a been the other way round then it might have been different but you know it depends on the young person that you're dealing with when I went to linins first I had to get the young people to do it for me because I just wasn't able to do it I didn't even know how to go about it even.

I have made a case that many people use proxies to get things done for them and in the last part of the extract above we see a further example of this; albeit in the context of workplace change.

Trouble-Shooter

Dot went on to describe how she was recently asked to act as a trouble-shooter for other people who struggle with the workplace technology. It is interesting how older experienced

workers often appear reluctant to adopt a mantle of expertise when it comes to technology.

Now the biggest laugh of all was somebody must have thought that I was a genius in computers or whatever but I was brought as one of these people that comes to any of the registers (laughs) a trouble-shooter they put me down as on the wall.

They brought me up for this trouble-shooter training and it was only for a few hours and to be honest with you I couldn't make head nor tail of it and I came back down and there was a big manual and I said oh my gosh you put this plug in and the other plug in and I don't know if I'll be up to this at all so my name is up on the wall as a trouble-shooter and I pretend they don't know me if they ring because I'm not up to it. Yes!

I find this vignette intriguing. My interpretation is that Dot may be understating her technical competence (there are clues elsewhere in the text such as her comparison with her male colleagues) but at the same time, she is commenting on the technocratic training systems and how she regards them. I suspect that Dot has excellent people management skills and that trouble-shooting is more about managing the customer when the technology fails to function rather than fixing the machine. Furthermore, Dot is quietly proud of being selected as a trouble-shooter as the following extract reveals.

Now they were laughing at home when I said they wrote me down to be a trouble-shooter and they said Oh no! Mammy a trouble-shooter - this was before I came to this, and I said well the tears [of laughter] were coming out of my eyes and anyway they've left me alone now I'm on the wall but I meant to scratch it off actually but they don't ask me

Retirement

Retirement looms for Dot in two years time and she spoke about this during the interview. Once again she provides hints of how well regarded she is in the workplace and she reported that management had suggested that she may be able to continue after her retirement date on a part-time basis.

Social Comparison

I have already mentioned the extent to which prospective *Know IT* students tended to regard the participation of others of the same age group as an important consideration in choosing to do the course. Dot's case is no exception – this is how she describes finding out about the course and deciding to engage:

I should have learned from the notice board but I didn't because I never read the notice board which is not good and my colleagues, about fifteen of them came here and they were speaking in the restaurant how good it was and this that and the other and we were raging that I didn't know about it and myself and my friend B who was 48 years with the company, who is about to retire, we said we would have liked to have given it a go so the pair of us did ...

So, having one another it was good – on my own I probably wouldn't have come. It was nice to have a colleague together; you know it's a back up if you're nervous.

And then when I saw the crowd from Bs that went they were all older like myself and when they came back and they all said gosh this was great and we got on great and this that and the other that made an awful lot of difference because then I said if they can do it we can definitely do it B you know.

Most of the research interviewees make a similar point; the issue of doing the course with others of similar age and ability was paramount. When I interviewed RD, whose job it was to recruit new students to *Know IT*, she described how she would invite people to an information session and they would gather in groups outside the venue to see who was going to go in. They would enter *en mass* when they were satisfied that they would be with people like themselves. Notice how in the last line of the extract above Dot sums up the kind of comparison that may be taking place 'if they can do it we can definitely do it'.

The term investment is often used to describe the economic aspects of decisions people make about learning; however, there is also an investment of the self. Theories suggest the

construction of self-identity is a comparative process (Dweck & Molden, 2005; Giddens, 1991; Leary, Haupt, Strausser, & Chokel, 1998). Investment in learning carries a risk; poor performance in comparison to others will undermine the self. People can reduce this risk by carefully selecting the social contexts of learning; in other words, ‘whom I am learning with’ and ‘whom I can compare myself with’ are key decisions.

The *Know IT* programme was blended learning; there was a tutorial aspect and a self-instructional aspect. Engagement with the self-instructional software provided a kind of safe zone where there was little opportunity of comparison and hence little risk to one’s identity. The tutorials, on the other hand, were social environments and it was important to be close to people who were of similar ability. Dot describes these two learning contexts and how she felt about a person in the class who she believed was too well qualified.

I like the way you do it here in so far as that you give people a programme to learn at home and it gives them a little more courage because in my opinion if somebody’s standing over you or maybe if somebody’s better than you or even [it’s less satisfactory]

I found in the course here there was one lady that came but she had some knowledge of this and we were very basic you know the pair of us. Now she would be off-putting to me if she was sitting beside me if she kind of knew everything and I didn’t and you’re there and you’re struggling ...

It is interesting how, outside of the course context, Dot was happy to be considered as a novice user and she even elicited the support of her colleagues to get her started with e-mail.

My colleagues at work they were all very encouraging particularly the young people when they heard that I was doing the course ... they all put me down on the e-mail and sent an e-mail to me so I have like six or seven people that keep me going you know back and forward and one in particular B that came with me we e-mail one another every night and so with the result that I’m beginning to get a bit of practice.

This was Dot’s pathway to participation; notice how the consequence of learning is

engagement. A consistent theme of this research is how people encounter the Digital World and use the *Know IT* course as a means of entry and Dot's story is no exception. Here is how Dot regards the Digital World:

Even in so far as when you go to the airport you have to put in your tickets and everything now you're really lost now I think without a computer to be honest with you no matter what age you are.

Now, as her family is all grown up and she nears retirement, Dot is getting to grips with technologies that have so far eluded her. She described how her husband is doing evening work and she is alone now in the evenings and she finds that 'it's a great company for me'. What is the 'it' in this case? I suggest that it's not the computer, or even the Internet, it is the capacity to engage and participate in the Digital World. Dot sums up the many advantages:

My biggest joy is I love looking up all the old stars and hearing them singing and learning all about them and things that I didn't know and I'm able to look up hotels but I can't book a holiday yet.

Tim's Story "The Survivor"

When I left school I would have worked as a messenger boy in the city of Dublin and then moved on to various different messenger boy jobs. Then into a timber yard I laboured in a timber yard. Worked around the docks, worked on lorries and then became the driver of lorries. I can remember actually one time going to [a training agency] I think it was and they done a kind of assessment and they said I was a survivor – that was my label.

Tim was a very keen informant. I knew that a group of taxi and bus workers were participating in a *Know IT* tutorial in the college and I obtained permission from the tutor to address the group and request that they consider participating in this research. I described the overall aims and the level of commitment that would be required and I stressed the voluntariness and confidentiality of participation. I distributed a simple paper sheet where students could indicate if they wished to participate and provide details of how I could contact them. I had many positive responses I acknowledged all of them and followed up with a smaller number to set up interviews. I contacted Tim by mobile phone and it took about three weeks to arrange the interview as we needed to set and reset dates to suit Tim's work shifts and my availability. During these conversations on the telephone prior to our meeting I was struck by Tim's enthusiasm; he reiterated several times how much he wanted to take part in the research and, as he termed it, give something back.

Tim's story, as described below, draws mainly from the interview session and my associated notes and transcriptions. However, Tim continued to come to the College and to progress through the *Know IT* course for many months after the interview. In that time I got to know him quite well and so I have also included some additional insights from this engagement.

Retirement – Taking Time to Learn

Tim found out about the *Know IT* course through his work for a city transport company. He was a driver and his job involved working with maintenance teams to reposition vehicles before and after they were repaired. Tim was 65 years old and was just four weeks from retirement when I interviewed him. My first question as usual was why Tim had decided to take the *Know IT* course:

I'll be retiring from work in July I wouldn't have had a great education down through the years and I believe this is an opportunity for me to try and educate myself in the modern technology.

What I can understand of it you can't even ... go to a film or go to a show without booking things on line and things like that ... I would be at a loss there.

Tim has no hesitation in connecting three important elements in his response: his imminent retirement, his lack of education and the pervasiveness of modern technology. Once again we see how informants view the Digital World. In this case, Tim hints at the frustration he feels 'you can't even...go' and 'I would be at a loss there'. He describes *Know IT* in terms of an opportunity to educate himself and his participation is connected to his desire to expand his horizons for the future. Tim has certainly thought about his retirement and what he will do with the extra time available.

I would feel that I'm going into a new stage of my life and I really have to plan now for things to pass my time and this would be the first one and I hope to expand my life's pastimes from there on. And basically that's my thinking.

I wondered if Tim would have been interested in taking a computer course in the past. In keeping with the stories of many of my other informants, Tim reported that he was somehow not conscious of computer technology for many years. More recently, he described how he would

get his daughters to book holidays and make arrangements for weekends away and how one daughter, also a learner, provided encouragement 'she was a certain amount of years at it and she's still learning and she encouraged me then to just keep trying it you know'.

I asked Tim about his current computer competence and he said that he can start to look for things on the Internet and that he is beginning to learn how to send e-mails. Tim has had two lifelong interests: ponies and wood; when he described his early uses of the Internet it was in relation to these.

I was talking to a friend of mine he said he was getting a wooden home built and he mentioned the name of the company and I got them on the net and I had a look at the various different types of timber homes just basically practicing the thing.

Tim talked in terms 'practicing' and wanting to 'get used' to using the Internet and that he was 'beginning' to learn about e-mails. I wondered at the time of the interview how much he could actually do.

I really was only getting e-mail addresses and looking at house sales or pony sales just dabbling kind of thing you know. Nothing! [It was nothing] I just decided to get used to the thing you know.

This was a notable insight as it is difficult for regular computer users to appreciate how different novice perceptions can be. Tim always wanted to take his time and as evidenced by his subsequent engagement with the course after he retired this strategy worked well for him.

I later got to know Tim quite well as he became a frequent visitor to the College. I subsequently discovered that he approached his use of computer technology through very deliberate, if somewhat cautious actions and that this 'getting to know' stage was typical of his overall approach. In my later interactions with Tim I found that he did not progress rapidly

through the learning materials; he had a slow and measured approach to progression, one sensed almost that he wanted the learning process to last as long as possible.

Purchasing a Computer

Tim purchased a laptop six months before his retirement and describes that he was quite keen when offered a chance to participate on the course. Many of the participants describe the significance of purchasing a computer. A common theme is the sense that one should only buy a computer when one is ready and able to use it. Tim makes a similar point where he describes how and why he decided to purchase:

Which brought me around to think maybe I'd invest in one for myself and if I had it I'd do something about it rather than be thinking about it since I've got it and when I do spend time at it I can see the real value of it.

This is similar to Ben's thinking and to me is an interesting form of self-management. It works something like this "I am a person who will not buy anything I wouldn't use so if I buy a computer I will have to use it". And in the extract above Tim vindicates his strategy by pointing out that since he's got a computer and he spends time at it he can see the value. Tim also positioned his purchase of a computer as a pre-retirement action. Throughout the interview Tim would refer again and again to his intent to use his retirement time to educate himself.

Low Self-esteem from Lack of Education

Tim had print literacy difficulties and as he puts it himself "I wouldn't have had the skill of writing". He was also quite open about his desire for further learning in retirement and how he regards the Know IT course as a stimulus for this process: "I believe I'd be educating myself to where I said I hungered for, which I did, and I find this a way to educate myself".

It is interesting that Tim uses the word ‘hungered’ in relation to education. Tim appears to have a deep desire for learning. Desire is certainly related to motivation but the two concepts are not identical or interchangeable. Desire is really the expression of a wish and as Freud (1911) suggests, such wishes may be conscious or unconscious. We can have many desires but they really only become motivational when there is the likelihood of fulfilment. I discuss this in more detail later and my purpose for introducing it here is to demonstrate how the concept of desire is rooted in the language and meaning conveyed by the informants.

I have already mentioned how I continued to be surprised by the honesty and frankness of my respondents and how much they connected the quest for basic computer skills with their overall self-concept. Tim was no exception. He described how he wanted to learn to use his computer on his own:

Not to get awkward about the thing but there's a certain amount of low self-esteem in me and it helps me to be able to go into a room and do things on my own – you know there's probably a fear factor there as well - the age ... what'll people think and all that ... you know this is stuff I'm going through that I have to overcome

I found it interesting that people like Tim connect their computer skills' learning to wider goals of self-improvement. I noted that, at this stage in the interview, I hadn't asked about self-esteem or fear; I simply asked why he did a computer course. From Tim's response it is obvious that he had given the matter some thought and that he already had a well-formulated negative view of himself as a learner. The other surprising aspect of his comment was that he labelled himself as having low self-esteem. His use of the term ‘self-esteem’ seemed out of place with the rest of his language. I found out later that he had been in group counselling. It also struck me that his capacity to reflect on his learning in this objective manner was empowering and that

by naming his problem, as low self-esteem, he was beginning to tackle it.

As with other informants Tim suspects that his trouble with learning originated in his school years.

I never acquired a learning skill and when I went in to do a beginners course elsewhere for the IT thing there was a class of about 6 or 7 and when I required attention there was too many pupils for me to get the attention that I believe I required. Now I don't know whether that stems back from when I was a child as there was 36 or 38 in the class as well now I don't want to go too deep into that but sub-consciously I don't know whether that's there.

Tim felt that he missed out on the opportunities in life that an education would have afforded him. At this stage he appears to have a relatively stable view of himself as a low achiever in education although he repeats again and again in the interview that he has always wished for more education “I never acquired the skills but for some reason or other I always hungered”.

Reading and Writing

I asked Tim to elaborate on his reading and writing skills and he told me that, in recent years, he began to read a few books but that he found writing difficult and that he had a problem with spelling. In the past he had typed union reports and he found the typewriter easier than handwriting and he always had his ‘friend the dictionary’ beside him.

I suppose I had a little bit of an advantage from the point of view of the keyboard as such because I remember one time my daughter had a typewriter and like that I'd try anything and I used to sort of dabble at that and I got used to the keyboard.

Tim regrets not being able to write letters in the past but points out, somewhat proudly, that he is now learning to do it electronically with e-mail. Furthermore, he recognises the wider

aspects of what he is trying to accomplish “so it’s fulfilling something in me in trying to educate myself”.

Later I discuss the category of Desire for Competence and how it may be regarded in terms of Desire for General Competence and Desire for Specific Competence. Tim’s reference to his hunger for learning is a manifestation of Desire for General Competence and his references to learning to e-mail are more characteristic of Desire for Specific Competence.

Twelve Steps

At a point in the interview Tim asked me to stop recording which I did and then he told me that in the past he had an alcohol problem and that he wondered if he should tell me about this on tape. He was asking me was I ok with this rather than indicating reluctance on his part. We agreed that if he felt it was relevant then he should introduce the topic and we proceeded with the interview.

Tim told me about his interest in wood; he had built a shed with a wide door suitable for a pony. He has been interested in ponies since his childhood and he would love to own one. He imagines how his grand daughters would be thrilled to visit him and see the pony. However, he is worried about cost and is not sure if it will ever happen. I asked about other hobbies and Tim began to tell me about the twelve steps:

No I don’t have any other hobbies. This 12 step programme ... I work off, I refer to it as a programme for living and I believe now that I now have to learn to manage my life because I didn’t know how to prior to this.

Tim locates his participation on the *Know IT* course as part of his overall life management strategy. He suggested that he wanted to pursue other interests and as he says

himself, “the start of them....would be to enlighten myself into the technology of the computer and then see where I go from there”. Tim appreciates that by gaining computer competence he would be opening doors to new opportunities for learning and self-fulfilment. He suggests that there’s “stuff in there” that he’ll find that he would like to get involved in.

Elements of Tim’s engagement with the alcoholics anonymous twelve step programme (Anonymous, 2006) appear to permeate many of his comments:

The programme I work is a daily basis so I start from today as such what went [on in the past] is gone

When someone asks me to do something and it’s for someone else and there’s no gain in it for me then I’m on a winner. Let your misfortune be your fortune.

Tim regarded his participation in the research interview as an opportunity to give something back and like his participation in the *Know IT* course, it was part of his overall agenda to lead a fulfilled life by putting his troubled time with alcohol addiction behind him. When he spoke about his past he seemed to be describing a different person and he contrasted his desire to give with his selfish past:

I can only speak for myself me doing that [the course and participating in the research] makes me feel very good. It takes me away from self and self to me is part of my fucken downfall – selfishness! For me, life doesn’t work that way anymore I didn’t know I didn’t intentionally be selfish but I discovered that by going on in a selfish manner it was no good.

More than any other informant Tim blamed his poor education for many of the troubles that befell him. Most significantly, Tim talked about a troubled past where he felt empty and as a result he turned to drink:

I didn’t have much of a choice I wasn’t educated and my father died young and I wasn’t trained in any profession or trade I was just living in a negative world I suppose I just

done what everyone else done not knowing any different. Drink took over.

Tim has been dry for many years and is involved in voluntary work helping others to cope with their own difficulties with addiction. However, he sees his impending retirement as both a challenge and an opportunity. It is a challenge in that he fears that the emptiness might return and that would be dangerous for him and it is an opportunity to learn and grow in a way that he has not been able to achieve in his life so far. His expectation is that computers will open up a whole new world.

The interview concluded by discussing Tim's experience of the course and in this, he really appreciated the support structures and also the option to proceed at his own speed:

I found it good. I found it good. And I was just thinking now you asked me the question and maybe subconsciously the people that I met the tutors there and to know that I had a card [written] down and I could ring them and meet them and if I was stuck I could come in here I had a facility of a mature student and I could come back in if I was stuck anywhere which I did on one occasion and met one of the ladies and I found that was good. Maybe it's just personally me but I do things at my speed.

It an interesting footnote to this interview Tim continues to come to the college and now, in the first months of his retirement, having completed the *Know IT* course, he is actively seeking new learning challenges. The old ghosts of the past seem to have been exorcised and twelve steps, *Know IT* and an apparent self-sustained reflective process indicate Tim's path to actualisation.

I got nowhere. I got nowhere. It took me a long time to accept that was nothing got to do with me. That was nothing to do with my mother – she reared 9 children basically on her own ... It was the system so I can't blame any one person and I've learned that I've no control over people places and things so there's no point in hitting my head against the wall over it. Forget about it! It's trying to accept me as I am.

We can all learn from Tim.

Independent Analysis

Introduction

Strauss and Corbin (1990 p 42) suggest that theoretical sensitivity is the capacity of the researcher to provide insight and to give meaning to the data. Such sensitivity derives from different sources – background reading, professional experience and personal experience. They caution the researcher to maintain the appropriate balance between science and creativity and suggest strategies such as stepping back from the process and remaining sceptical throughout.

In this section I present my analysis of the data and following the advice of Strauss and Corbin I have endeavoured to produce good theory through craft and process. I borrow from Bruce and Bishop's (2002) Inquiry Cycle to summarise my approach to theory building: I *ask* what is really happening and in particular how is the phenomenon experienced from the perspective of the interview participants. I *investigate* through the grounded theory process, the interview data, my questions and perceptions, the coding procedures and memo writing. I *create* a new theory or description based on my theoretically sensitive synthesis of the data. I *discuss* through the writing process and through comparison and further insights from other theories and I *reflect* on the consequences of my findings for policy, practice and further research.

The process of unfolding theory involves establishing the salient concepts and categories and suggesting relationships between them. My purpose is to address research questions related to learning decisions, actions and experiences of students of Know IT. In particular, I am interested in how to characterise learning for basic digital literacy and the positive and negative influences on learning decisions and learner progress.

In the method section I have already discussed how I have approached this investigation using a grounded theory process. I have also presented four individual stories and through these narratives, I have shed light on aspects of the research questions. Some concepts and categories have already been introduced; however, I have not yet established an overall analytical framework of the phenomenon.

As a starting point for presenting such a framework it is useful to review the terminology I will use in this analysis. A useful approach is to organise concepts and categories in terms of level of conceptualisation as presented in Table 6. The column furthest to the left would contain *data* (omitted for clarity) derived from the participant interviews, my notes and other materials connected with *Know IT*. Data was then coded and organised to establish *concepts* – this was the first level of conceptualisation. These concepts were further organised as *clusters* or *sub-categories* in the next level of conceptualisation; in this process, important constituents of the *categories* began to emerge such as Proximate Sites of Engagement and Specific Competence Desire. Some of these clusters such as Opportunity required little further abstraction whereas others evolved to form the three main categories of the Digital World, Competence Desire and Learning Identity. Finally the *core category* of ‘Pathways to Competence and Participation in the Digital World’ represents the highest level of abstraction of this analysis.

I begin by discussing how the three significant categories of the Digital World, Competence Desire and Learning Identity emerged from analysis of data.

Table 6 Concepts and Categories Organised by Conceptual Level

Data	1st Level Conceptualisation Concepts	2nd Level Conceptualisation Sub-Categories/Clusters	3rd Level Conceptualisation Categories	4th Level Conceptualisation Core Category
		The Digital World	The Digital World	Pathways to Competence and Participation in the Digital World
		Proximate Sites of Engagement		
		General Competence Desire	Competence Desire	
		Specific Competence Desire		
		Experience	Learning Identity	
		Feelings		
	Time to Learn	Opportunity	Decision to Learn	
	Cost			
	Instructional Approach			
	Space to Learn			
	Level			
	Level of Other Participants			
	Not Like School	Blended Learning Experience		
	Tutorials/Working with Others			
	Persistence			
	Brevity			

The Digital World

Many of the informants implicitly suggest the notion of two worlds as they describe their encounters with technology. These two worlds - the traditional world and the digital world -

exist side-by-side. For many years people like Ben are content to live in the traditional world and to read about, or hear about, the digital world through communications and the media.

It's just a new world ...bit too late [to take up a course] though! '07 by right it should have been what years ... about ten years ago when they started ... really started to come out They were there all the time. It'd just be Oh! We won't be using them in our lifetime. Wow! That was when you were in your thirties ... whatever.

From a distance, the Digital World is no threat and although one could broadly appreciate the advantages of competence in the Digital World the case was not very compelling. This is similar to the way in which people might wish to learn a new language - although they see the advantages they never quite get around to taking action - there is no immediate or compelling requirement. Jim, who admits he always had an inclination toward technology, provides a sense of what this might have felt like when he describes his frustration at not doing a computer course earlier in life:

It's just something I wanted to do Just I never had the time as the fellow would say. But I did have the time ...I'm lying about that. I did have the time! I just didn't have the inclination when the kids were at school, when they had a computer you know.

For a long time the Digital World is admired from afar, considered to be a positive development, generally associated with the young, and with people in senior management in the workplace. There was never really an expectation that someday one would have to participate in this world.

Invasion of the Digital World

Then the Digital World begins to invade the traditional world. Old familiar sites of competence become contested ground between digital and traditional practices. For example, booking a family holiday, which was part of the traditional world, has now largely shifted to the

digital world. Cheap flights, hotel booking dates and times can be effectively managed over the Internet. The Digital World has also invaded many workplaces and it is difficult to find a job that does not require some level of ICT competence. It is no longer sufficient to regard the Digital World as disassociated from everyday life. Worse still, if you are not digitally competent, if you cannot access the technology and thereby you cannot participate, life seems to carry on regardless. All of a sudden, as Mary puts it, 'you're being left behind'. It's not so much that the Digital World is opening up new possibilities; it is rather, that the traditional world, your traditional world, is being swallowed up. Tim puts it this way: "What I can understand of it you can't even ...go to a film or go to a show without booking things on line and things like that ...I would be at a loss there". All the while, younger, digitally competent people are adapting faster, they're booking holidays and using technology effectively in the workplace. Traditional roles and power relationships are being undermined by these changes as we have seen in Tracy's story.

Introducing Proximate Sites of Engagement - The Digital World Close-Up

I developed a sub-category called Proximate Sites of Engagement (PSE) and used this to classify instances where the research participants describe their close encounters with the Digital World. Proximate Sites of Engagement are characterised from the perspective of the individual. They are scenarios where one encounters practices of the Digital World that have a counterpart, or resonance, with familiar traditional world practices; examples are, Internet holiday bookings, e-mail communication and on-line information seeking. I found that the research participants knew, in a general way, what was taking place at Proximate Sites of Engagement – the basic

processes were familiar - booking holidays, written communication and looking up information.

Later, I will discuss in more detail the process of learning at Proximate Sites of Engagement. I suggest a pattern of progressive engagement; moving from simple awareness to active appropriation of the technology to achieve a desired outcome. This progression starts with awareness of computers being used close-by; this awareness is often accompanied by feelings of regret at not becoming involved:

(Jim) Well the reason I wanted to do [the course] is ...I've never done computers you know but the kids have computers in the house but I never went near them all the time when they were growing up and that

I will also describe how informants use other people as “proxies” to carry out tasks and thereby allow non-users to take advantage of information and communication technologies.

(Marie) Just to know that you can go in ... to the web like if I want to order something. If I want to get something I'd say to Caroline [daughter] will you just go in and order that for me. So she'll order ... if I wanted something ... she'll do that.

Competence

Previously I outlined the boundaries of the theory and established that the *Know IT* informants did not emphasise the pursuit of academic qualifications, career progression or intrinsic interest. For the most part they expressed, what I term, competence desire. It is interesting that I arrived at the term competence desire rather than competence motivation; on reflection, I note this as one more testament of the grounded theory process. Throughout the coding and analytical process I was compelled to keep the theory grounded in the perspective of my informants. Often, when we use the term motivation, we propose it as an observable attribute associated with a person, activity or context. We use terms such as the *motivated*

student or football team. Motivation is generally associated with movement or action towards a goal. Desire, on the other hand, is much deeper and personal; it is the expression of a wish. We can have many desires and not necessarily the motivation to see all of them fulfilled.

In the analysis I distinguished between General Competence Desire - a general wish to be knowledgeable, literate and to participate in the Digital World - and Specific Competence Desire - a wish to be able to perform certain useful ICT related tasks.

General Competence Desire

Jen expresses her desire for computer competence:

To know everything about It ... it's like reading a book ...to know everything about a computer to go in ... to wan and ram and ram what all of these mean I've an idea but I'm not fully literate in that respect. I want to be able to use it if somebody asked me to do something ok no problem get on to the computer do it and don't be you know ... There's nothing to It ... just like using the telephone just like reading a book to be literate to be fully literate at the computer ... get on and do it.

Jen, like many of the informants, expresses her desire in terms of what she wishes to be able to do and the associated literacies she wants to be able to master. In keeping with many of the desire statements from my informants Jen expresses her desire in relation to how others might see her: “if someone asked me to do something *ok no problem*”. Who is this person that says *ok no problem*? It is the person that Jen desires to be. In the extract Jen is expressing a broad desire for competence and in my analysis I coded this as a sub-category General Competence Desire.

General Competence Desire speaks of a wish to be someone else, a competent and effective person as regards computers. This general wish is expressed in comparison with others.

I sense that it is a wish that is doomed to failure; there are few pathways to instant expertise. Informants regularly expressed frustration when they described their desire in such a generalised manner as they looked back at missed opportunities and unfulfilled potential.

Furthermore, although General Competence Desire is often articulated in terms of modern technology there is evidence in some of the interviews of a generalised dissatisfaction with the individual's overall educational achievement and a more expansive version of desire beyond computer-related competences. Consider, for example the following extract from Tim:

And also I've discovered that when I would have been working by not having that kind of knowledge I was deprived of going for promotions – positions in stores, store keeping and such in the company.

In this extract from Jen the same pattern is evident:

We had a family business so at that particular time (1968) women weren't encouraged to go on the boys had to get educated well they were a lot older and I was at the other end of the spectrum so I was just taken out of school into the shop and that's it you just have to get on and you say ok this is it you get on ... I think I would have gone on for further education at a later stage because it was a family business I was always helping out in the grocery and you know that's ... Irish family business that's the way it works Really that's why I want to do the computer course I want to be up there; I want to be with the best I want to be able to say yes I know about that.

It is also notable that General Competence Desire was more in evidence in the sub-group described as career self-directing than in the other two groups. This group consisted of Jen owner of a small retail business, Tess a self-employed counsellor and Pat who was moving jobs and looking for a new career in bookkeeping. Perhaps this group were more disposed to reflection and self-appraisal as they were directing their own careers rather than dependent on the security of regular employment.

It is also important to note that most informants expressed both General and Specific Competence Desires in the same interview.

Specific Competence Desire

It is reasonable to ask what exactly is intended, in the context of this grounded theory, when the term competence is used. From my analysis, respondents did not really talk about competence in a single-dimensional way as might be expected. For example, if this research was about the competence associated with driving a car I'd expect people to say 'first I'd like to know about the gears, then how to turn' and so on. *Know IT* respondents, on the other hand, present their competence desire in the context of the use of technology rather than the technology itself. Ben is typical:

It is more or less just getting to the ins and outs of it and all that and maybe looking up what's in your bank account all the time instead of going to an ATM machine or whatever. What's all there where's me money going or what's this! What's what, where?

What competence does Ben desire? I believe he wants to manage his finances and he wishes to use the Internet to accomplish this more effectively. Going back to the driving-the-car analogy it's as if respondents would reply 'first I want to learn how to drive to the bank, then to the cinema' and so on. Most *Know IT* respondents framed their desire for competence in a similar manner and I called this Specific Competence Desire. Marie captures the essence of this sub-category in the following comment:

I think...there might be certain things that might interest me ... and those certain things I might want to do ... but it's only if it's of interest to me will I do it. I don't want to know everything I don't want to go in to everything or anything like that. But I'd like to buy [from the Internet] if I wanted to buy online.

What Marie is suggesting here is that she is selective about what she wants to be able to do and as she puts it, she doesn't want to know everything. Dot demonstrates the same kind of progression in the following comment:

I'd love to be able to do a lot more now I'd love to be able to kind of book holidays and look up hotels and things like that. Now I'm getting there hotel wise but I'm not able to book anything.

All of the interviews yielded evidence of wish statements that identify specific actions and use-contexts for ICT. The most common specific competences indicated by informants were (1) to book travel and make holiday arrangements (2) to use e-mail to communicate with friends and family (3) to use e-mail in workplace contexts (4) to manage finances on-line (5) to use the internet to find information on areas of interest. Specific competences are associated with extending the effectiveness of an individual to control and manage everyday life, unlike General Competence Desire they are not directed at redefining the person as an effective computer user.

Although *Know IT* is described as a computer course the respondents did not refer to specific software applications in their responses. In fact for the most part, they used only two terms that might be described as technical and these were 'Internet' and 'e-mail'. When other terms such as 'broadband', or 'RAM' were mentioned they were as examples of terms that they had heard but did not understand. So Specific Competence Desire is a wish to be able to perform certain useful tasks and General Competence Desire is a general wish to be knowledgeable, literate and to participate in the Digital World.

Many of the informants report their Competence Desire alongside the sites where they have encountered such competences in others – these are the previously introduced Proximate

Sites of Engagement. In the extract from Mary's interview (see pages 125-126) notice how in expressing her own desire to be competent she positions this alongside the situations where she encounters competence; as she puts it "everyone's talking about e-mails, everyone's talking about Internet and I was totally out of that". Marie shows a similar pattern including the same challenges of learning from a competent son or daughter:

Well I always wanted to learn but I think when I asked my daughter she'd show me but she was so quick and so good at it ... that ... then she'd lose her patience I'm after showing it already and ... so it ... put me off from asking again

Several of the informants discuss computers in the home as sites of engagement. This often involves unsuccessful attempts by younger members of the family to teach digital competences to their parents. Informants report these instructional sessions as accompanied by impatience and frustration on the part of the younger member of the family. Family members appear willing to carry out tasks on behalf of informants but are not willing to participate in the slow process of taking the informant through the tasks step by step.

The Experience of Competence Desire

In the following extract Mary captures some of the experiential aspects of Competence Desire – these are 'feelings' of exclusion, adopting strategies for 'coping' and the sense of 'inclusion' when competence is achieved. I have broken the interview extract into three parts to demonstrate how these three elements relate to each other.

In this first section Mary is describing how she *feels* as she commutes and works alongside people who she perceives as computer competent:

Well, you're left out, you're out of the loop, totally, because even on your own – the train going home or talking in work or they're talking about e-mails and they're talking with

this, that and the other which is common place now, you really don't know what they're talking about.

Mary then presents her strategy for dealing or *coping* with the situation in the past:

You're pretending you are ... you pretend you know what e-mails [are] and you do but how to use them and how to ... interact in that world you don't really have a clue even though you pretend.

Finally, Mary describes the sense of *inclusion* that comes with gaining the competence to participate:

And I meant it's great that all of sudden you're there too. Your par, you're included instead of excluded. And it's ... very ... I was very proud of myself.

This is the sense in which the term competence is intended in this theory. It can mean different things to different people and it has more to do with activity and participation rather than skills and software. As Mary says when you're competent 'you're on a par and included'.

Social Comparison

In the extracts above we have a picture of Mary as she sits on the train and feels left out when she overhears conversations about e-mail and the Internet. She describes the feeling as one of being excluded. From whom does Mary feel excluded? Consider the hypothetical situation of Mary sitting beside a group of electronic engineers talking about advanced microprocessors - would she have the same feelings of isolation? I suggest that Mary has provided the answer in the text above when she says 'when you're competent you're on a par'. Mary does not seek expertise – she does not desire to be better or smarter than others - just on a par. I examined all of the desire statements of my informants and there is no instance where they expressed a desire to be regarded as highly skilled or superior relative to others. The term *on a par* implies that one

is equally competent relative to others and a key question is what *others* are they talking about?

One could suggest that *Know IT* participants want to be on a par with their peers but this is not as useful as it might first seem to be. Who are Ben's peers? He sits alone in the cab of a truck during the working day and, as has already been established in the case study, Ben associates his expression of desire for competence with the people he sees working in the office; these would hardly be his peers.

Ben, like Tracy or Mary and many of the research participants, doesn't want to be someone else - his desire is for a more competent version of himself - and he uses other people, whom he sees as computer competent, as reference points. There is a sense in which he trials a version of himself through imagined engagement with the office people. The characteristic of the *others* in this instance is that they are potential co-participants in the Digital World.

Learning Identity

In this section I will discuss the category of Learning Identity and, as with the other categories in this discussion Learning Identity means the construct as derived from this grounded theory process. Figure 1 illustrates the cluster of codes that make up the category of Learning Identity. I originally named this category as Identity but later modified it to Learning Identity to signify that it relates to those aspects of the informant's personal narrative presented during the research interviews. These are inevitably connected by the informants to their participation on the Know IT course and as such, I suggest that the term Learning Identity is more useful. Learning Identity may be regarded as shorthand for 'how I see myself as a learner'.

Experiences and Feelings.

Learning Identity includes experiences at school and educational courses; achievements such as passing a driving test (Mary) or being successful at voluntary work (Dot); experience of changes in life such as imminent retirement, marital problems or coping with alcoholism; and experience of changes in the workplace such as the introduction of new technology, promotion or changes in role or work practices.

Learning Identity is also presented in terms of the feelings expressed by informants in relation to these experiences such as regret at missed opportunities - particularly not making the most of previous encounters with technology (see Ben's story); feelings of inadequacy, frustration and expressions of a lack of confidence in one's abilities (see Tim's story); comparisons with others who are perceived as more competent; and particularly, age comparisons related to the perception of young people as being 'good with technology'.

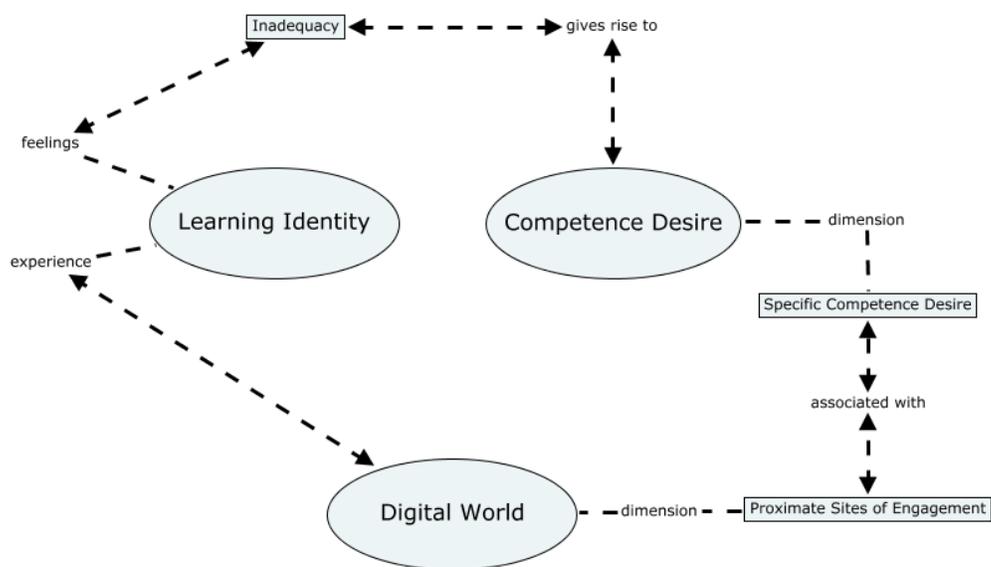
Most participant comments related to Learning Identity may be characterised as negative, however, there were also examples of positive experiences and feelings. For example, Mary expressed pride in completing the *Know IT* course and informants such as Dot and Tim were quite optimistic about achieving their life goals such as having an active retirement or becoming a more fulfilled and better educated person.

Of course, experiences and feelings as co-constituents of Learning Identity are never isolated from each other – experiences give rise to feelings which in turn influence the nature of experience.

The Digital World, Competence Desire and Learning Identity

In Figure 2 I propose an example of the dynamic relationship between the three main categories the Digital World, Competence Desire and Learning Identity. The dotted line in the lower left of the figure suggests how the Digital World and Learning Identity relate to each other. The Digital World is *experienced* as part of Learning Identity and consequent feelings, for example, inadequacy, arise as a result (other feelings are omitted for clarity). These feelings, in turn give rise to Competence Desire. There is a constant tension between Learning Identity and Competence Desire – each may stimulate the other – a feeling of inadequacy makes one want to be competent but wanting to be competent also contributes to feelings of inadequacy as Ben says ‘and I’m just ignorant passing by them every day’.

Figure 2 Example of Dynamic Relationship between the Categories



I speculate that the interaction may be self-regulating - competence desire is carefully managed by the individual as when left unfulfilled, it gives rise to further feelings of inadequacy and regret. This may explain why so many of the informants report being unaware or passive about technology for long periods of time. An example of this is where Tracy recalls her awareness of her daughters during the time before she wanted to do a computer course: “they’d be tap-tap-tapping away but at that stage I didn’t, I blanked it like, I didn’t notice they were so computer literate like until I started this”.

In Figure 2 the dimension of Specific Competence Desire is shown on the right for clarity as is the sub-category of Proximate Sites of Engagement. As previously discussed, Competence Desire is characterised by two sub-categories General Competence Desire and Specific Competence Desire. General Competence Desire is broad and undefined and remains inevitably unfulfilled. Specific competences are more achievable and more likely to be fulfilled hence Specific Competence Desire is more useful to the individual. How does Specific Competence Desire arise? Figure 2 suggests that it arises through close-up encounters with the Digital World in scenarios described through its sub-category Proximate Sites of Engagement.

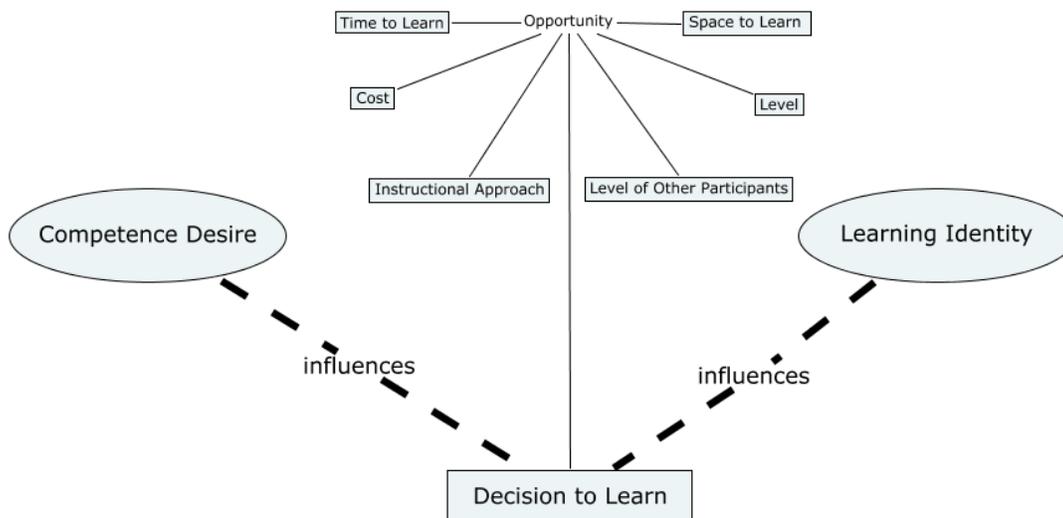
Learning Decisions

I now discuss other insights derived from the participant interviews under two headings namely ‘learning decisions’ and the ‘blended learning experience’. Although these insights are derived from the grounded theory practice of coding data from interview sources and constant comparison ‘learning decisions’ and the ‘blended learning experience’ are really sets of insights rather than conceptual codes. They contribute to our understanding of the research questions of

learning decisions, actions and experiences of students of Know IT.

I begin by discussing the way certain learning opportunities, when combined with Competence Desire, will give rise to an internal appraisal process. This process is described here as a ‘learning decision’. In Figure 3, I present a model of learning decisions for *Know IT* students as a composite of influences from three different clusters Competence Desire, Opportunity and Learning Identity.

Figure 3 A Model for Learning Decisions of Know IT Students



I have already discussed how Competence Desire is most useful when it is focused as Specific Competence Desire and I believe that the decision or appraisal process, described in Figure 3 is a mechanism to achieve this. Students will weigh-up perceived course characteristics such as instructional approach, time, cost, the level of the course, the level of the other

participants (which could also be considered as related to Learning Identity) and what I coded as, “space to learn”. Space to learn captures considerations such as that the course is offered at a good time in life - when one is not dealing with other challenges such as bereavement, illness and such like.

A third source of influences, on a decision to learn, is captured by the category of Learning Identity. I have already introduced Learning Identity - it comprises experiences; the most significant being the experience of school and other courses, and feelings such as adequacy, and regret at missed opportunities.

These influences worked either way – for or against participation. For example, many of the informants reported that they were anxious about starting a course as they had previous negative experiences of school (coded as a feeling associated with Learning Identity). However, many also reported they perceived the blended learning course as “not like school” (coded as instructional approach); they were happy with this and reported that it helped them overcome their anxiety. Another influence, space to learn, was found to be important. Mary provides a good example of the influence of space to learn when she describes how she could only have done the course at this time and not in the recent past, as she was dealing with family illness and the death of her father. She describes how she is now able to participate “as the road ahead is clear”.

Another cluster of influences may broadly be described as “course characteristics” incorporating factors such as cost, time commitment and instructional approach. Many of these factors were anticipated in the *Know IT* project design and were often addressed during the

introductory session. The course was free to students and the instructional and course delivery approach was flexible and not unduly onerous. Students appreciated these characteristics and took them into consideration when deciding to participate on the course.

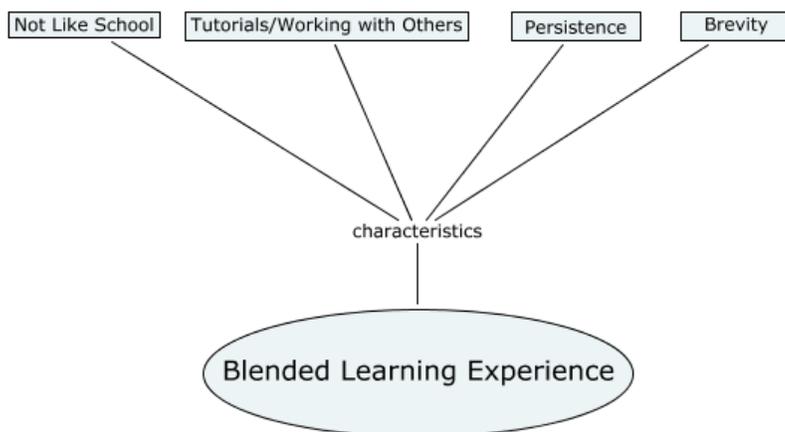
A consistent finding was that *Know IT* students placed a lot of emphasis on who they would be with when they participated on the course. They were very clear that they valued the fact that they would be in company with others of their own age and ability.

The model suggests that the decision-to-learn arises as the summation of the effect of Competence Desire, Learning Identity and an appraisal of a learning opportunity. The *Know IT* informants identified key influences as the appropriateness of the level of the course and, related to this, the level of the other participants on the course. They also commented on the appropriateness of the instructional approach, overcoming anxiety, and having the space (in their life), the time to do the course and the absence of cost.

The Blended Learning Experience

Figure 4 provides a description of how students regarded the *Know IT* blended learning experience. I coded student comments on the course, including both the use of the self-instructional software and the tutorials, and from this I generated the insights presented in the model. I found that there were four significant characteristics of the blended learning experience – tutorials, working with others, persistence and brevity - all unlike school.

Figure 4 Characteristics of the Blended Learning Experience



The first important characteristic of the blended learning experience, as referred to by the informants, was that it was not like school. Many expected to experience large classes, teacher-directed instruction and a formal, highly-structured learning experience. Instead they were provided with self-directed e-learning software, optional tutorials, flexible instruction and teachers who acted as guides rather than sources of expertise.

This is not to present a rosy picture of the experience of the *Know IT* course. As with other courses and colleges there was considerable variation in the way tutors organised their teaching and some tutors were more supportive than others. However, the important point here is that student *expectations* were based on their experiences of school and, for the most part, school experiences were negative experiences.

I have already discussed how the decision to learn is influenced by the student's perception of the appropriateness of the level of the other participants on the course. A recurrent theme emerging from the informants was anxiety at the prospect of being singled out and humiliated. Many were afraid of falling behind and the shame of being perceived as 'stupid' (an informant's word) relative to the other participants. The students reported that their experiences of the course did not bear out these initial anxieties. They described the tutors as supportive and were happy that the other participants were progressing at a similar pace to themselves. Some of the informants commented on the e-learning software and liked the way they could progress at their own pace and in private. They also appreciated the affirmative comments that played when they correctly completed a question or task.

Two other, apparently contradictory, characteristics of the blended learning experience were persistence and brevity. Typical student comments coded as "persistence" described the frequency which they attended the college and engaged with the materials. There were some surprising examples of persistence; Jim reported that he had come to the college to use the computers at least ten times, Tracy was also a persistent attendee and Tim continued to attend long after the formal part of the course was completed.

Many other comments were critical of the brevity of the course and the fact that there was no real progression route. Several of the students indicated that if they were provided with further opportunities to learn they would avail of them.

The Process of Learning at Proximate Sites of Engagement

In the previous section I discussed a model of the decision making and aspects of the

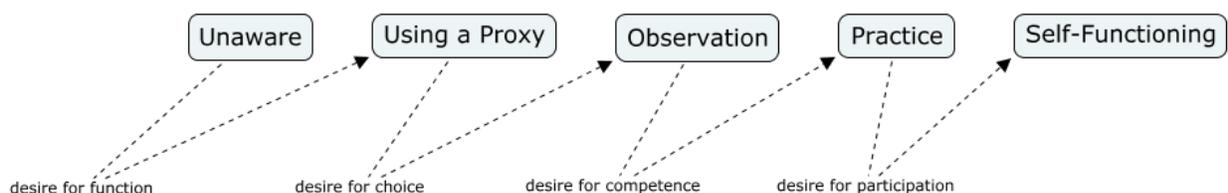
blended learning experience of *Know IT* students. Investigation of these processes was the main goal of this research. An unanticipated outcome, also meriting discussion, relates to additional insights that emerged on how people move to basic computer competence in informal settings. I have already introduced Proximate Sites of Engagement – I suggested that these are locations or scenarios where people encounter the Digital World close-up and where the advantages of ICT are clearly understood and appreciated even by non-users. All of the *Know IT* informants were keen to describe the benefits of using computers – they cited the ability to book cheap holidays and travel, the use e-mail to keep in touch with friends and family, the capacity to manage financial affairs online and the ability to look up interesting web sites as examples of what they would like to do.

I suggest that there is a form of learning opportunity associated with numerous encounters with technology at Proximate Sites of Engagement. These encounters, when experienced together with Competence Desire, may trigger a process of informal learning. An important feature of this process is the use of proxies – these are people who are appropriated by the learner to perform desirable tasks that are beyond their current level of competence. Examples are where participants describe using a family member, friend or colleague to send e-mails or arrange Internet transactions.

Figure 5 presents a likely progression path for learning at Proximate Sites of Engagement. To illustrate how this works I refer to the process as described by Tracy in the case study presented earlier. Tracy describes how, in the past, she perceived her daughters upstairs using computers; she reported that wasn't really aware of what was going on. This first stage 'unaware' is presented at the far left of Figure 5. Later, Tracy wishes to use computers to book

holidays – this creates an impetus, a desire for the functional advantages of the Internet. To progress toward the goal Tracy uses a proxy, her friend Carol, to make the holiday bookings. However, it is difficult to completely outsource this task as there are many small decisions connected with the holiday-booking process and therefore Tracy needs to be present as Carol works through the task. Tracy observes Carol as she completes the task. The cyclical dynamic of the Digital World, Competence Desire and Learning Identity is now in play and Tracy begins to feel that she can achieve this specific competence – in her own words “it looks simple enough so I’d like to learn how to do things like that”. Tracy moves toward competence and participation through this mechanism.

Figure 5 Learning at Proximate Sites of Engagement



Tracy was not the only informant who reported using a proxy and learning at Proximate Sites of Engagement – Marie uses her daughter as a proxy “if I want to get something I’d say to [daughter] will you just go in and order that for me”. Tess and Dot also report using others in a similar way. However, use of a proxy is just one of many possible mechanisms for learning at Proximate Sites of Engagement. Some informants, such as Mary, tried to learn to use a computer from a son or daughter; this is not necessarily the same mechanism as using a proxy

and by Mary's account, her son did not have the patience for the process to be successful.

Competence and Participation

In this section I would like to demonstrate how I came to use the term 'competence *and* participation' rather than just competence to describe the focus of learning in these contexts.

Consider the following three extracts from the participant interviews:

Ben: I like going on holidays two or three times a year and then when you're on holidays you get someone who'd say oh! Send me an e-mail or Send me something I'd keep in touch with

Dot: My colleagues at work, they were all very encouraging particularly the young people - when they heard that I was doing the course whatever and they all put me down on the e-mail and sent an e-mail to me so I have like six or seven people that keep me going you know back and forward

Jen: You know I would use it for transactions or for answering something else ...when I'm in the shop and there's ... one of the wholesalers I'll go by e-mail and say have you got such and such a thing. Please answer me back that sort of thing.

The first and second levels of conceptual coding for these statements suggested that they were part of the category Competence Desire. They are all related to e-mail competence and they describe either wished for scenarios (Ben and Jen) or, in the case of Dot, a continuation of the good situation of receiving many e-mails from her colleagues. I suggest that these desires transcend functional competence; they are really expressions of desire for participation. What Ben really wants is to participate in a connected world. In Dot's case, it is obvious that her colleagues implicitly understand her need to participate and they actively send her e-mails to get her going. Jen imagines the dialogues of participation that e-mail competences would afford.

It may also be argued that an expanded notion of competence would also imply such

outcomes. Competence, as earlier defined, is a condition of sufficiency or success and it is always connected with a practice; for example, a person could be described as a competent footballer or a competent e-mailer. However, I noticed that in the extracts above and in many others informants were not expressing a wish for advanced e-mail competences; they do not say something like “I’d love to send hundreds of e-mails at a time” or “I would like people to regard me as good with e-mails”. Rather they are expressing something like “there are practices out there connected with human communication and I want to be part of them”. I wish to participate.

Summary of Independent Analysis

I have identified three categories; the Digital World, Competence Desire and Learning Identity and I have suggested that these are in constant transaction (Dewey, 1938) with one another. One could also describe this relationship as cyclical; experiences and encounters with the Digital World give rise to revisions of Learning Identity which in turn leads to Competence Desire directed at the Digital World. I have also emphasised how these three constructs are drawn from the perspective of the individual and may be regarded as components of the internal mindset or predisposition of the early-stage *Know IT* student. I have described two learning contexts and the associated processes – the *Know IT* blended learning course and learning at Proximate Sites of Engagement. I have also presented insights on Learning Decisions and the Blended Learning Experience as perceived by individuals. Finally, I have argued that my analysis suggests that people are on a path to competence *and* participation in the Digital World rather than just competence.

Framing Findings in Relation to Literature and Experience

Charmaz suggests that one should view the post-independent analysis literature review and theoretical frameworks as “ideological sites in which you claim, locate, evaluate and defend your position” (Charmaz, 2006 p 163). Glaser advises that one should treat insights from the background literature on the substantive theory as additional data and integrate it using the constant comparison method. In this way, he advocates, it should be part of the process of concept and category formation.

In the independent analysis, I adopted names and descriptors for grounded theory concepts and categories, based on informant interviews, and emerging from the process of constant comparison. Terms such as Competence Desire, the Digital World and Learning Identity have an evolved and specific meaning in this research. My task now is to compare these concepts with similar constructs that arise in the academic literature; remaining mindful that they may not match the consensus view of the meaning of these terms in scholarship.

I also use this section to connect the independent conceptual analysis with insights drawn from my own professional and personal experiences. I heeded all of the advice to allow initial conceptualisation to unfold through a theoretically sensitive analysis. At this stage, it is appropriate, to integrate additional insights to clarify and strengthen the process of theory building.

The theory presented in the previous chapter centres on three categories of the Digital World, Competence Desire and Learning Identity and therefore it is logical that I organise this

next level of analysis in relation to these categories.

The Digital World

What is the nature of the Digital World as perceived by the informants of this research? Looked at from Ben's perspective or any other informant's perspective, the Digital World is a social construction and is derived from fragments of a shared history with others. Ben's Digital World is the product of his ongoing discourse with other people and media. He learns about this world through other people and with them he also constructs that world.

How then is such a world perceived? Is it imagined, visualised or represented in some form or other, as one might imagine a far off place like Tasmania? I suggest that it is not perceived in this way; it is, rather, experienced as if one kept meeting people from, let's say again Tasmania, and they were telling you about the place and doing familiar things the 'Tasmanian way'. Gradually you build up an impression and expectations of the place through these numerous encounters and reports.

All the participant narratives and the independent analysis revealed aspects of the nature of the perception of the Digital World. These are captured in the following statements and I have included sample data to illustrate the grounding of these ideas:

(i) ***I am outside the Digital World;***

Mary: *I just felt that I was left out of it I mean I tried to use it a few times and he [her son] nearly ...died because he knew I couldn't use it properly.*

(ii) ***The Digital World is to be respected even feared;***

Jim: ... *I heard how such and such inspector he made a right mess he [messed] up the whole thing he was doing whatever he was on the computer and everything went ... you know and you're sitting around there and you're hearing that and you're making it more afraid of going to a computer...*

Mary: *I was too afraid because as you get older in life technology ... you kind of fear it because you didn't grow up with it, really ... and I was a bit scared of it*

(iii) ***I did not always have a need to be part of the Digital World but I do now***

Marie: ... *being left out of it? I think yes probably. As I get older I think it's something that I would use more and more (because it connects you?) yes with people, family and friends.*

(iv) ***The Digital World is up there.***

Jen: *and I feel the only way you can learn is by computers because it's a lovely medium because it's there it's in front of you. You click a button, it comes up.*

Mary: *I mean, I drive a car I passed my test I didn't [fail]...but for some reason, that... didn't seem as big as actually ... using a computer isn't it funny! It was more manual, it was more hands on ... where computers are kind of up there you know.*

Notice how many of the statements are socially referenced – even when it is not obviously stated, many informants would speak about computer technology with an implicit “I’ve heard it said” at the beginning of each statement. I wanted to understand how the Digital World is constructed by the informants and I suspected that clues lay in the language they used. This pointed, unsurprisingly, to social interaction as the formative process.

In Ben’s interview he describes watching the women from the office as they go to courses to update their computer skills: “and you’d see some of them going off from the office Oh! ‘We have to do this and do that do you know’ Oh! ‘What’s this one for’ and ‘what’s that for?’” In these lines one sees how Ben is framing his perception of the Digital World. I note that the scene in question is as recalled by Ben; actually, it may never have happened in this way.

What is important is that the Digital World, for Ben, is structured through the experiences of others as communicated to him. The Digital World is always second-hand; it is defined so in this research, it is how the excluded perceive that world.

I suggest that the Digital World is constructed as a result of social actions. It would be interesting to be able to investigate how this occurs – what happens in these social interactions. This would be beyond the scope of this research and would rely on methods such as discourse analysis (Gee, 1999; Scollon, 2001) using authentic contemporary data rather than the reflective narratives of the *Know IT* informants.

Through social interaction the Digital World is continuously constructed and evolving in the mind of the individual. The Digital World is a fragment of the personality integrated with existing assumptions and mind-sets. The Digital World is that part that deals with everyday computers and technology; a kind of pre-programmed routine that runs when certain situations are encountered. These situations give rise to the kinds of feelings captured in the four statements above: alienation, anxiety, desire for competence and a positive disposition to technology. This suggests that the Digital World may constitute an aspect of the lifeworld of a person and I wish to explore this further.

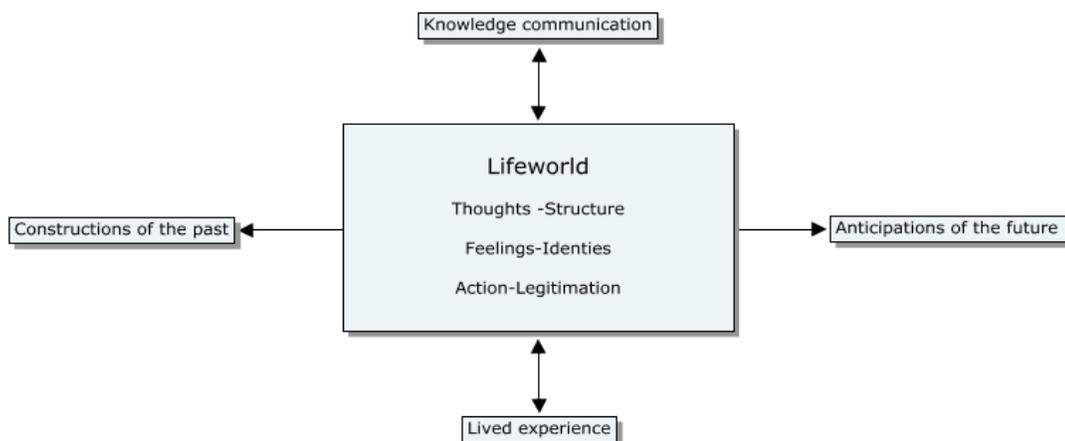
The Digital World as Lifeworld

The phenomenological concept of a lifeworld introduced by Husserl and subsequently developed by Habermas (1984) may provide an additional theoretical lens to consider the Digital World. Brookfield (2005) discusses how Habermas conceived the lifeworld as ‘forming the indirect context of what is said, discussed and addressed in a situation’. He suggests that we

think of the lifeworld as the background rules and commonsense understandings of how we perceive the world. For Habermas, the lifeworld remains, often unchallenged, in the background assumptions that frame our interactions. It is “a storehouse of unquestioned cultural givens from which those participating in communication draw agree-upon patterns of interpretation for use in their interpretative efforts” (Habermas, 1990 p 135) quoted in (Brookfield, 2005).

The lifeworld is given a different emphasis in an interpretation provided by Williamson (1998). He suggests that people live their lives through shared interpretation of the world and strive for meaningfulness and purpose. Williamson proposes a structure of the lifeworld presented in Figure 6 below. The model shows how the lifeworld is constituted of thoughts, feelings and identities; to make sense of the past and to anticipate the future. It also suggests how lived experience and communications both sustain, and are sustained, by these processes.

Figure 6 Structure of the Lifeworld from Williamson 1998



It is not difficult to envision the Digital World as integrated into Williamson's model of the lifeworld shaped by *lived experience* and *knowledge communication* and anticipating the future. It is interesting how the suggested components of thoughts, feelings and actions are all in evidence in the four statements about the Digital World and the associated extracts from the interviews discussed earlier.

Scollon (2001) discusses mediated discourse analysis and presents some theoretical principles and associated corollaries. The first such principle – the principle of social action - is described as: “Discourse is best conceived as a matter of social actions, not systems of representations or thought or values” (p 6). Scollon argues that to be *social* an action must be communicated and that shared meaning derives from a common history or common past. In this way, he regards *social* and *historical* meanings as synonymous. The notion of discourse, as tabled in this way, provides an additional tool for making sense of the category of the Digital World. The Digital World is regarded as the product of discourse, it is constructed in the mind of the individual as a consequence of so many social actions.

Thus far I have not discussed how the Digital World relates to other aspects of the lifeworld. For example, what are the power implications of the Digital World? I have argued throughout this work that basic digital literacy is an important literacy and that there are significant social and economic implications for the excluded. People don't just perceive technology in a passive or neutral manner; economic, social, age-related and gender-related patterning of the lifeworld are all brought to bear on every aspect of a technology related social action.

The book, *Cyborg Lives* (Henwood, Kennedy, & Miller, 2001) unfurls, from a feminist perspective, the intertwining of identity, feelings and power through women's autobiographical accounts of their everyday relationships with technology.

The interplay of technology and power in the workplace is a long established theme; Karl Marx put it succinctly "the instrument of labour strikes down the labourer" (Marx, 1985). This association of technology with capitalist and technocratic control is still very real for workers today. In turn, feelings about technology itself are often ambiguous; it can be both oppressor and liberator – a mechanism of control or a mechanism to control. All of these influences - gender, class, age and others - play out in the world of the *Know IT* student and the Digital World is often invoked with a raw uneasiness.

Bourdieu's concepts of "field", "practice" and "habitus" may provide a set of intellectual tools to shed further light on the Digital World. For Bourdieu, 'field' is a definable sub-set of the social arena. Education, politics and social class are all examples of fields (Jenkins, 2002; Lash, 1990). Within each field, symbolic struggles and individual manoeuvres for resources are played out. Each field has its own logic and sets of taken-for-granted assumptions. I suggest that the practice of using everyday digital technology is an example of such a field. This idea is compatible with an expanded notion of digital literacy – where the logic and assumptions of a practice are also considered. Bourdieu suggests that 'taken-for-granted assumptions' arise both as the product of, and the producer of, the specific 'habitus' associated with that field (Jenkins, 2002).

The concept of habitus is described by Bourdieu in his major work *Outline of a Theory of*

Practice as “systems of durable and transposable dispositions and are the generative foundations of all patterns of social practice” (Ostrow, 2000 p 305). Bourdieu provides an explanation of how experience generates habitus and habitus, in turn, contributes to the social shaping of a field. Jenkins (2002) tables three operations of research inquiry that should evolve from the Bourdieu concept of field; first, power relationships need to be understood relative to the societal dominant power, next the social topology needs to be mapped out and finally, the process of habitus associated with the individual agents and practices of the field needs to be unravelled.

Relating Bourdieu’s work to the category of the Digital World provides additional insights to the process of formation of the category and how it will continue to be shaped by practice. Over time (many years in the case of Know IT informants), ways of thinking and approaches to technology evolve as habitus. These include taken-for-granted assumptions; in this case associated with the field of personal computer technology, e-mail and the Internet. Interviews from this research feature many references to technology; that refer to its ubiquitous nature, higher pecking order in the social sphere (as Mary says, “computers are *up there*”) and, a duality - the inherent goodness of technology for personal use and the perceived threat of computers in work place. All of these comments provide evidence of preconceived assumptions.

Bourdieu goes further and warns that observers also need be mindful of how habitus shapes their own representation of a phenomenon. In Bourdieu’s intellectual framework there is no absolute objectivity. At an earlier stage in the process of this research I was troubled by the following question: am I investigating the digital world or their (category) Digital World? I perceived two entities, a real digital world and their perception of it. I now realise that there is no difference, no absolute world of digital technology, just a phenomenological conception of

the world of everyday digital technology - the Digital World.

Competence Desire and Motivation

In the Chapter II Literature Review I introduced a definitional framework for competence, desire and motivation. Competence was described as a condition or quality broadly described as effectiveness, ability, sufficiency or success. I pointed to the distinction between desire, as a wish, and motivation as a wish together with a belief that one can achieve that wish. I suggested a definition of 'competence desire' as a wish to bring about a condition or quality of effectiveness, ability or success. I also suggested a definition of 'competence motivation' as a wish, together with a belief in one's potential to bring about that wish, responsible for the initiation, persistence, direction, and vigour of goal-directed behaviour that brings about a condition or quality of effectiveness, ability, sufficiency, or success.

The independent analysis revealed the category of Competence Desire and two sub-categories General Competence Desire and Specific Competence Desire. General Competence Desire is a general wish to be knowledgeable, literate and to participate in the Digital World and Specific Competence Desire is a wish to be able to perform certain useful ICT related tasks.

I suggested that General Competence Desire speaks of a wish to be someone else, a competent and effective person as regards computers. I also suggested that this wish is very difficult to fulfil and may be unhelpful to an individual – expressions of General Competence Desire were accompanied by frustration, regret and negative social comparison. I found evidence that, for some of the informants, General Competence Desire extended beyond the domain of digital literacy and was connected with a broader dissatisfaction with their level of

previous education.

Specific Competence Desire was expressed in terms of the tasks people wanted to do and was directed at the tasks or application of technology rather than the use of technology for its own sake. Thus, it could be said, the research participants wanted to be better communicators rather than e-mail experts, better managers of their own finances rather than Internet experts and so on. Specific Competence Desire was also associated with Proximate Sites of Engagement. I also noted that Specific Competence Desire is directed at meaningful tasks that were within or close to the subjects perceived capabilities (see Tracy's story). In this way, the distinction between General Competence Desire and Specific Competence Desire may well be the same as the distinction between desire and motivation as outlined above. This distinction depends on the potential of achieving the desired outcome through action.

Need Theories - Maslow

Maslow is best known for his model of motivation that regards humans as essentially needs driven organisms and behaviour as directed at reducing those needs. Maslow's (1943) model has a hierarchical structure with basic physiological and safety needs at the base and other, higher order needs, such as love, esteem and self-actualisation at the pinnacle. Needs at each level will only be addressed when needs at the level below are satisfied; thus, physiological needs such as hunger and health come before safety which comes before love and belonging and so on. Maslow's hierarchy is widely known and has undoubtedly contributed much to our understanding of goals and motivation. However, less attention is given to his selection of the top three levels the so-called higher order needs: love, esteem and self-actualisation.

The first of these, love, is elaborated in terms of affection and belongingness. In Maslow's own words a person "will hunger for affectionate relations with people in general, namely, for a place in his group, and he will strive with great intensity to achieve this goal" (Maslow, 1943 p 379). Maslow proposes 'esteem' at the next level of his hierarchy and stresses that people have a need or desire for a stable, usually high evaluation of themselves and to expect such esteem from others. Finally, Maslow positions the need for self-actualisation at the top of his hierarchy. For Maslow, the concept of self-actualisation centered on the need for a person to achieve one's full potential in life, as he put it succinctly "what a man *can* be he *must* be". I will return to the concept of self-actualisation later in this discussion.

Maslow's work suggests how we might interpret Competence Desire from a human needs' perspective. Many of the informants reported that they required the 'space' to do the course, as Mary put it, 'the road ahead was clear'. She was referring to the situation that she had to satisfy other, more demanding, needs (in her case dealing with her terminally ill father) before she could address her computer competence need. Maslow also suggests that we locate and frame such a competence need in terms of the human needs of belongingness, esteem and self-actualisation. I suggest that the sub-category of General Competence Desire is more characteristic of such needs than Specific Competence Desire. Notably, Maslow does not include a basic need to explore and become competent in one's environment.

As the Digital World becomes, more and more, a part of everyday life and is connected with social and family practices (such as e-mail exchanges), the needs to belong and to participate are localised as the wish to be digitally competent. This wish or desire is also driven by the need for self-esteem – to be regarded by important others as a competent co-participant in

the modern world. The need for self-actualisation is also evident in the findings of this research; the quest for computer competence was framed as part of the life-project of many of the informants either as preparation for retirement or as part of an overall self-improvement process.

Self-Determination Theory

Ryan and Deci (2000) propose a self-determination theory framed around three innate psychological needs as competence, autonomy and relatedness. Ryan and Deci's approach emphasises the *conditions* within which a person can fulfil these needs. Ryan (1995) explored the concept of competence motive through life and draws on the work of many theorists such as Freud, Weiner and Maslow to support the hypothesis of an innate tendency, as Ryan puts it, to "differentiate and integrate experience and knowledge" (Ryan, 1995 p 399). Ryan further proposes that such a process is not automatic but varies in robustness and is highly dependent on social and contextual supports. He cites educationalists such as Dewey, Montessori and Rogers who argue for a model of teaching as a facilitative rather than controlling practice.

Ryan also looked at the concept of intrinsic motivation and at the conditions that facilitate a self-active approach to assimilation and integration. He points to the existence of internally motivated behaviours as evidence of a striving to expand and integrate knowledge of the environment (Ryan, 1995). External control of such behaviours is largely unsuccessful and in many instances will undermine the intrinsic interest dynamic (Deci, Koestner, & Ryan, 2001; Deci & Moller, 2005). However, conditions that support *perceived* autonomy and competence will be conducive to intrinsic motivation. Additionally, where such activity is in keeping with social norms, thereby satisfying a *relatedness* need, this will create circumstances where intrinsic

motivation will flourish and internally motivated behaviours will result (Ryan & Deci, 2000).

The consequences of Deci and Ryan's ideas are now considered in relation to this research. Self-determination theory posits the existence of three innate needs as competence, autonomy and relatedness. There is a special way in which they conceive of each of these as a 'need' rather than a drive or instinct. They propose that people live their lives embedded in social and experiential contexts and these contexts may act to nurture or to inhibit the three needs. They suggest that competence and autonomy are closely related; and in keeping with DeCharms (1983), they emphasise the importance of perceived locus of control. People optimally strive for competence when they perceive internal rather than external control; in other words, the competence motive is closely connected with the need for personal agency. The need to belong relates to the internalisation of values and behaviours that derive from a person's social group. In this way, people strive for a sense of competence, autonomy and belonging within the social environment in which they find themselves.

Evidence of the needs for competence, autonomy and belonging is found in the manner in which Desire for Competence is expressed by the interview informants. The connection is most obvious in the sub-category of Specific Competence Desire; for example, when Ben states that he wants to manage his finances or any of the numerous instances where informants express a desire to be able to book holidays or send e-mails. There are also examples of the expression of the need for autonomy as in when Tracy wants to take over from her friend who acts as a proxy for her Internet bookings. In many other instances autonomy is an implicit objective. Many of the desirable competences are about applying individual choice and agency to tasks where autonomy is perceived as important – finding information, sending e-mails, managing finances

and making travel arrangements. Marie provides a very clear statement of the connection between the needs of competence and autonomy:

Marie: I think ... there might be certain things that might interest me ... and those certain things I might want to do ... but it's only if it's of interest to me will I do it. I don't want to know everything I don't want to go in to everything or anything like that. But I'd like to buy off line [from the Internet] if I wanted to buy online

The need for belongingness is captured in the many statements by the informants of feeling 'left out' and wishing to participate. Workplace settings also provide evidence of belongingness needs; for example, as RD reported potential students of *Know IT* congregating in groups to see who else of their own cohort would attend the course information sessions. The independent analysis also identified the level of co-participants as an important influence on the decision to participate in *Know IT*.

Many aspects of the instructional design of the *Know IT* course are in keeping with self-determination principles; the very notion of self-directed learning materials is sympathetic to the pursuit of competence through autonomous action. When self-instruction is blended with traditional tutorial formats the need for belongingness may also be catered for.

Achievement Goal Theories

The concept of goals has always been intimately associated with motivation; whereas motivation is the wish and belief in one's capacity to act, goals define the focus, purpose and direction of action (Deci & Ryan, 2000; Elliot & McGregor, 2001; Elliott & Dweck, 1988). Elliot (2005) provides a conceptual history of the achievement goal construct in Psychology and also suggests that the literature should refocus on the more universal and useful construct of competence goals (Elliot & Dweck, 2005). Such renaming and reframing is characteristic of the

scholarship of motivation and this is particularly the case for competence motivation. Following Elliot and Dweck's (2005) line of reasoning one can ground the extensive literature on achievement goals in the more expansive concept of competence goals.

White's (1959) landmark publication on motivation suggested that there was a need to transcend the prevailing drive theories of the time. Freud and Hull's theories conceptualised motivation in terms of drive-reduction and instinct and White argued that competence motivation could not wholly be described in these terms. White remarked "we need a different kind of motivational idea to account fully for the fact that man and the higher mammals develop a competence in dealing with the environment which they certainly do not have at birth and certainly do not arrive at simply through maturation" (p 297). This notion of an innate tendency to manipulate and gain mastery over one's environment has a long and significant history. The challenge has been to formulate research-based insights and to identify and harness useful characteristics to support learning and instruction.

Elliot and McGregor (2001) proposed a four-part framework for achievement goals. They suggested that the previously well-established distinction between "mastery goals" (such as wanting to be a competent driver) and "performance goals" (as wanting to be a better driver relative to others) should be further augmented, by contrasting between "approach goals" (as in wanting to pass a driving test) and "avoidance goals" (as not wanting to fail a driving test). This yields a 2 x 2 matrix of mastery-approach, mastery-avoidance, performance-approach and performance-avoidance.

The approach-avoidance classification distinguishes goals that seek to achieve certain

positive outcomes and those that try to avoid negative outcomes. This distinction has implications for understanding the nature of test anxiety, and the interplay of self-worth and attribution in goal-directed behaviour (Elliot, 1999). It is also compatible with many existing motivational models such as Maslow's (1943) wherein the valence of needs may be negative or positive (Elliot, 1999).

In examining the category of Competence Desire I was curious to determine whether informants displayed approach or avoidance tendencies in their rationale for doing the course. In general, I found that informants express their desire for competence in terms of approach goals. This was not unexpected as the naming of the category, itself a significant marker in conceptualising its nature, posited Competence *Desire*. Desire indicates a pro-disposition rather than striving to avoid.

However, actions to fulfil desires often involve exposure to new risks for the individual such as wasted effort, failure and humiliation. There is much evidence in the interviews of fear and anxiety on the part of adults in relation to their use of new technology. Tim refers to hearing about colleagues who messed up computer systems in work. Mary says that people who did not grow up with technology were afraid of it.

The literature on achievement goals seems predicated on a mono-dimensional conception of human motivation - it supposes one goal and consequent action. In reality, the situation is always more complex; for example, students of *Know IT* certainly had an achievement orientation to their overall objective of computer competence - however, in tutorial settings they reported that they wanted to avoid the humiliation of appearing incompetent in front of others.

So an achievement goal may govern an overall set of behaviours directed at a desirable learning outcome while avoidance goals may be in evidence at many of the intermediate steps along the path to this objective.

Attachment Theory

Bowlby provides an explanation of the interplay between the tendency to want to be competent and achieve and the risks associated with learning and exploratory actions (Bowlby, 1988). In contrast with Elliot and other goal theorists, Bowlby's approach is based on the psychology of the individual and particularly the formative influences of attachments in childhood. Bowlby's attachment theory has many wider applications, beyond the present discussion, but it also provides several useful insights here. Bowlby looked at child development as a source of insight into adult behaviours and he was particularly interested in the child's requirement for a secure base. He developed the notion of attachment behaviour which he defined as:

Attachment behaviour is any form of behaviour that results in a person attaining or maintaining proximity to some other clearly identified individual who is conceived as better able to cope with the world.

(Bowlby, 1988 p 29)

Bowlby proposed the existence two behavioural control systems - the attachment and the exploration system (Elliot & Reis, 2003). These act in relation to each other to regulate the exploratory behaviour, necessary for a person to engage and be competent in the world, whilst minimising the risks involved by means of the attachment compulsion, to return to the security of the adult. This is essentially an evolutionary concept and as such, it provides a biologically based explanation of White's competence or effectance motivation (Elliot & Reis, 2003).

Furthermore, it is unlikely that such fundamental behavioural control systems confine themselves to the developing child; they extend throughout the lifespan.

Fleming (2007) discusses the implications of attachment theory for adult education; he sees three areas of application - the internal working model, the strange situation and transformative learning. The “internal working model” is an attachment theory construct of a child’s representation of social experience. Fleming suggests that educators and learners alike be mindful of their own internal working model and how this affects communication.

The “strange situation” is also an attachment theory construct; it is manifest in the separation anxiety experienced by a child when a parent leaves a room and is replaced by a stranger. Fleming likens this to the experiences of adults, newly engaged in a course - facing the challenges of open discussion, the quest new meanings and the loss of old ones - in contexts that may not match the person’s preformed internal representation model.

I suggest that the internal working or representation model is a similar notion, albeit derived from a psychological perspective, to Bourdieu’s concept of habitus and Mezirow’s frames of reference. Transformative learning discussed further below involves the questioning and reframing of internal meaning schemes including cognisance of one’s own internal representation model.

Bowlby’s work provides an additional layer of insight to the context of the *Know IT* student’s Competence Desire. One could speculate that the exploration system is at the root of an adult’s need to be competent in the world and finds its expression in Competence Desire. The attachment system acts to regulate risk. In the case of *Know IT* students, learning is a strange

situation; represented as it is by an internal model - that originated many years earlier in negative school experiences of the individual and nurtured ever since, by a sense of inadequacy in the face of competent others.

Competence and Participation

As I was growing up I attended an inner city all-boys school and I recall how at break time and lunch we milled around the school yard – literally two or three hundred boys packed into an area not much bigger than a couple of basket ball courts. There was always something ‘in’ at the time; for a while marbles were in and we’d cluster together in small groups with bags of marbles in hand intensely setting up games and discussing tactics, at another time it would be conkers, horse chestnuts at the end of a string, and at various other times football cards, dinky cars and even hula-hoops. There was a similar pattern in each case; the new interest would begin quietly with a few early adopters engaged in the activity and then quite suddenly, one day everyone was doing it. And I remember the feeling if you did not have the cards or conkers or you didn’t know how to set up a game of marbles; you felt excluded, alone and anxious. As a result when you came home from school you had a mission, a singular focus for action, get the stuff, learn the rules, play the game and talk the jargon.

This recollection came into my mind as I analysed the transcripts from the participant interviews. I remember that feeling of being outside the loop and my anxiety of having to learn about and engage in each new activity.

In this research I have consistently emphasised the notion of participation and as my title suggests, pathways to competence *and* participation, I am signalling the idea that participation

extends beyond competent functioning. What then is the nature of this extension? Part of the answer, in my view, lies in understanding the difference between instrumental and communicative learning. Participation is a communicative process; framed by sets of assumptions on both sides and these assumptions are, in turn, influenced by the process of participation. This connects back to the previous discussion on communities of practice and what happens in the process that takes a person from legitimate peripheral participation to full participation. In the case of a first time adult computer user, this movement may be mapped by the reframing process of person's point of view (Mezirow, 2000) of themselves – from “I'm really no good at this I'll keep quiet lest I be humiliated” to “I have standing in this group and I wish to contribute to this debate”. This is the nature of participation and it is always connected with changing assumptions.

To put this in context, I present an interesting update to the Tim's story, one of the interview participants discussed earlier. Tim, who is now retired, continues to show up at the college and avail of access to the computers and local support – he keeps in touch with me by e-mail.

While I was writing this section, Tim copied me on the following e-mail (reproduced with permission and without correction – Tim is not his real name):

Dear Gerry,

I would like to make a suggesting as the people have no trust in the Government. As we have seen what people power can do would it not be better if all the sporting people of the country got behind the Garda. And used the a credential email address to the garda of any thing that could be helpful or any other About this case thing they see if we are to put a stop to all of the murders Maby notices could be displayed electronic flashing's signs at sporting fixtures around the country reminding people that this could happing again to any of us if we are in the wrong place at the wrong time

Please don't mention my name.

The intended recipient is a well known television presenter and the backdrop was a tragic murder of a young footballer; a case of mistaken identity in a local gangland feud. Tim has only recently acquired the capacity to compose and send e-mails and one of his first acts is to participate in a national debate. Consider his opening sentence: “people have no trust in the Government as we have seen what people power can do”.

Brookfield (2004) looks at the origins and traditions of criticality and cites Kincheloe's (2000) definition of critical thinking as: “the ability of individuals to disengage themselves from the tacit assumptions and discursive practices and power relations in order to exert more control over their lives” (p 24). Brookfield describes this form of critical thinking as *ideology critique* and recognises that it draws on the tradition of the Frankfurt School and thinkers such as Marcuse and Habermas (1984). Murphy and Fleming (2006) and Mezirow (Mezirow, 1991) also articulate the connection between adult learning and the critical questioning of underlying assumptions that uphold dominant ideologies.

The connection between these thinkers and the comments reprinted above is intriguing; Tim may not use sophisticated language in his writing but he is certainly questioning power structures. His reference to people power stems from recent events where older people successfully protested against a government proposal to change their access to free medical care. What I believe is significant is how participation and critical thinking go hand-in-hand. Armed with his new found computer skills, Tim wants to make a difference and to improve society.

Mezirow (1991; 2000) describes a theory of learning as transformation. At the core of

this theory is an understanding that people experience the world not directly but through the lens of their frames of reference “frames of reference are the results of ways of interpreting experience” (Mezirow, 2000 p 16). There are two dimensions in which a frame of reference may be articulated “habits of mind” and “points of view”. The first of these, habits of mind, comprise the broad structural value sets through which we filter experience; for example, our cultural, religious, psychological and aesthetic predispositions. The second, points of view, are clusters of preset meaning schemes and they are really localised manifestations of habits of mind.

In my analysis of the participant interviews in this research I encountered many examples of how the informants interpreted the world through their existing frames of reference. Most informants equated youth with computer competence, they framed college courses against their experiences of school, they had generally positive dispositions to technology and specifically the Internet, and they grappled with their self-concept often comparing themselves to competent others.

Mezirow describes transformative learning as the process whereby these frames of reference may be challenged, broken down and reconstructed. Perhaps, it begins as some previously unconscious point of view is challenged as may be the case in Tim’s e-mail ‘people have no trust in the Government’ and this in turn, may destabilise a habit of mind, built on the assumption that authority should not be questioned. This may (*may* because I have not researched this most recent aspect of Tim’s learning journey) be the beginnings of a process that will eventually lead to transformation of Tim’s frames of reference; this is what Mezirow calls “perspective transformation”.

Keegan (2000) argues that we need to clarify the distinctions between transformative learning and other types of learning. He suggests that we look at *what* exactly is transformed and delineate *informative* from *transformative* processes. He asks - what constitutes a form - and draws on constructivist-developmental theory to position transformational learning as a lifelong phenomenon. Keegan draws from empirical sources to present an array of five increasingly complex epistemologies; he labels these as perceptions, concrete, abstractions, abstract systems and dialectical. The latter three of these he, in turn, describes as “the socialized mind”, “the self-authoring mind” and “the self-transforming mind”. These epistemological shifts are a uniquely adult learning phenomenon although not everyone progresses through all stages.

Taylor (1998) recognises the contributions of two alternative and related perspectives to Mezirow’s transformative learning theory –Robert Boyd’s work on transformation as the Jungian concept of individuation and Paulo Freire’s work on emancipatory education and the process of conscientization. I will briefly discuss each of these in turn.

Carl Jung describes individuation as the continuous process of becoming aware of ourselves through self-knowledge (Saul, 1994). Boyd (1994) explored this process through his analysis of small group behaviour. Boyd saw transformation in terms of personality changes revolving around the resolution of personal dilemmas and an increasing consciousness of the (Jungian) components of the personality. Jung suggested that the forces and dynamic of individuation are largely unconscious (Dirkx, 2000) and consequently, Boyd saw the transformative learning process as reflective – shedding light on and harnessing these forces for positive change.

Paulo Freire's (1970/2000) concept of conscientization presents a more radical and socially active version of personal transformation than Mezirow's (E. W. Taylor, 1998). Freire's work began among the illiterate people of Brazil and he combined his practical methods with a radical epistemology that advocated education as an instrument of social change. Freire emphasised the notion of praxis which he saw as the combination of social action and reflection: "There is no true word that is not at the same time a praxis. Thus to speak a true word is to transform the world" (Freire, 1970/2000 p 87). Freire discusses the nature of learning through dialogue and he maintains that discourse is never neutral; it either reinforces existing power structures or it challenges and changes them. For Freire, there are two kinds of thinking; critical thinking which acts to change the world and naïve thinking which passively accepts events.

The works of Brookfield, Mezirow, Boyd, and Freire describe how the adult learning process can turn inward through critical self-reflection and initiate an irreversible extension of human consciousness. This may be a sudden or a gradual process but it is developmental in its nature and it is a form of learning that can take place through the lifespan.

I argue that learning for digital literacy may also involve transformative learning. New technologies provide new means of expression, new forms of communication and greater levels of participation in society. These new tools promote discourse and reflection and thereby lead to transformation.

Synthesis

The Digital World versus Learning Identity

When I think about identity and alienation a certain, locally iconic, image comes to mind; I first encountered this photograph in a Dublin pub the 1980's, it shows an old man with a peak cap looking straight at you with a certain self-assured yet quizzical look on his face, the caption underneath reads *computers how are ye!* At the time there was much hype in the media about the great things computers could do and the prospect of a wonderful technology-driven future. The old man was making his statement of resistance, regardless of what happens around him his identity will remain robust, defiant against external influences, and comfortable within the pub culture and his social group. Perhaps he did manage to live out his years unaffected by the cultural transformation brought about by everyday digital technology. However, for many others, as the years have progressed, the reality of a computerised world has been fulfilled.

In these times, often described as the computer age, the information society or the knowledge economy, a technology resistant stance is becoming more and more difficult to maintain. Many adults have experienced cultural transformation in the course of their lives and they are now faced with unexpected learning challenges.

One of the key sources of tension is the undermining of a person's standing or role in a workplace or family setting. A recent experience in a department store puts this tension into sharp relief. A sales assistant in his mid-fifties measures me for a new jacket, confident as he provides valuable expert advice; later, when we go to the counter to conduct the sale, his demeanour changes as he grapples with the new computerised till system. In one

move he goes from expert to novice. What is more, this happens in his domain, the place where he has reigned for many years through his extensive experience and knowledge. I suggest that the introduction of new technology has destabilised his Learning Identity and has initiated a powerful drive to learn.

This type of crises is not confined to the workplace it also occurs in home and community contexts. As a consequence people act to reposition themselves relative to, what they perceive as, the Digital World. This repositioning is a learning process and it involves the acquisition of skills, the adjustment of self-concept and the reframing of previously unquestioned assumptions. I describe this learning as pathways to competence and participation in the digital world.

Learning as Pathways to Competence and Participation in the Digital World

This is a theory of 'pathways to competence and participation in the digital world'. The purpose of my title is to capture the essence of the phenomenon that is being addressed. Each word in the title is carefully chosen to convey an aspect or characteristic of the process that I wish to describe.

Why then did I choose to call this phenomenon a theory of *pathways*? There is nothing exceptional about describing learning in terms of a journey or a pathway. Progression through life as a form of journey is an archetypical metaphor probably as old as civilisation. In folktales, literature and common usage pathways have specific connotations that are useful and relevant for this description. Pathways are used to get people from A to B – from one place to another - they are a means to an end or a stage of a journey. Unlike roads and highways, pathways are diminutive; usually imagined in terms of individual tracks rather than great thoroughfares.

Pathways are many - we can envision many paths through a forest or over a mountain – all generally in the same direction but each with its own characteristics. Pathways are practical – they frequently twist and turn to avoid obstacles and take advantage of shortcuts and they follow not necessarily the shortest but the easiest route.

Learning pathways are unique to each individual and Tracy, Ben, Dot and Tim's stories provide us with examples of such pathways. So too would the stories of Jim or Mary or any the other interview participants as would any of the other students who participated on the *Know IT* course or the tens of thousands of people who embark on similar learning projects. All pathways are unique but they share some common characteristics and the purpose of this theory is to identify and describe these.

I have discussed how the various learning pathways involve formal and informal learning opportunities, learning by means of software, learning with others or through guided instruction. Students also used many additional strategies to achieve their desired outcomes – these included combinations of purchasing their own computer, getting family and friends to help, encouraging colleagues to e-mail them and engaging in additional training available in work. Overall, the picture this research portrays is one of a truly blended learning process. The participants engaged in varying degrees with the formal opportunities provided by the *Know IT* course; however, they also reported supplementing this with many informal learning strategies.

I suggest that the pathways metaphor is appropriate to describe the phenomenon that has been investigated by this research. A pathway leads to a new location and in this instance the location is participation in the Digital World. There is no direct or universal route; each pathway

is unique. Learning opportunities such as presented by *Know IT* and at Proximate Sites of Engagement are appropriated as paths of least resistance. The drive that compels individuals to pursue the path is Competence Desire and this desire arises from challenges to Learning Identity brought about by encounters with the Digital World.

CHAPTER V DISCUSSION AND CONCLUSIONS

In Chapter One I set out a series of research questions I intended to address; the broad goal was to investigate adult learning and motivation for basic digital literacy. I expanded on this goal by identifying the main research questions as:

How should we characterise learning for basic digital literacy?

What are the key influences on a person's decision to learn basic digital skills?

How should pedagogic design be used to support digital literacy in adults?

I also identified Know IT as providing a suitable research context and further suggested that any new insights deriving from this work should be framed so as to improve future pedagogic design for technology enhanced learning. I will review the findings of this research in light of each of the questions above.

How should we characterise learning for basic digital literacy?

I have argued that the process of learning to achieve basic digital skills, competence and participation should be considered as a special case of learning in adulthood. This position is justifiable on several grounds. Digital literacy, as exemplified by the everyday use of ICT, is a basic literacy in modern developed economies. The nature of digital literacy practices give rise to this status as a basic literacy; they are important, unavoidable and assumed to be available to all. Conversely, those who lack the means to engage in these practices feel alienated and excluded from full participation in the society to which they belong. This situation is especially

challenging for older adults in workplace and family contexts. Often, their status as wise and experienced individuals is undermined by their sense of inadequacy in dealing with new technology. Traditional learner and teacher roles are reversed with the young instructing the old - often, a frustrating experience for both sides. In response, many non-users embark on a learning journey to get to grips with new technology.

This learning is highly significant for a group of people often labelled as the low-skilled in the workplace. Low-skilled workers are characterised by low levels of education and little onward progression through working life. Many of the low skilled lack basic digital skills. For this group, the decision to learn is a big step often characterised by a complex of feelings such as determination and anxiety. In many instances, signing-up for the *Know IT* course is their first engagement with formal education since their school days many years ago. Inevitably, this means having to deal with their own learning identity. It is a time of appraisal and the prospective course often triggers feelings connected with school. As a result, success at learning *Know IT* may challenge previously held beliefs about how people learn and one's own ability as a learner.

As people proceed to learn the new skills associated with ICT they use both formal and informal learning opportunities to achieve their goals. Students of the *Know IT* course blended self-instruction with a CD-ROM with optional attendance at tutorials. Many worked at home and elicited help from family or friends. Some students used a proxy, a person they trusted, to carry out tasks for them on the Internet. As learning progressed, students invariably wanted to perform such tasks for themselves.

In the beginning progress is slow; certain skills, such as using a keyboard and mouse, need to be mastered. Gradually, new competences are learned and a process of engagement with the Internet or through e-mail commences. This starts out as low level and tentative; however, in many cases it evolves to provide a new form of participation in society.

What are the key influences on a person's decision to learn basic digital skills?

I have characterised learning decisions as a key aspect of the learning process described above. Decisions are important because adult learners will largely self-determine their own learning priorities. Put simply, willingness to learn is a pre-requisite for success in adult learning projects. This is true for all contexts – in the home and in the workplace. One may argue about the nature of secondary motives such as keeping one's job or preserving one's status within the family but the evidence on volition is clear. As Tusting and Barton (2003) suggest "adults learn what they want to learn and what they find useful".

In this research the most significant question I asked interviewees was why they decided to do the *Know IT* course. There is no absolute certainty as to the precise reasons why any one individual will choose to learn at a particular point in time. As West (1996) reported, interview respondents often provide a life-history rationale to make sense of their actions. This 'wisdom of hindsight' may not be a reliable indicator of the recalled influences on decisions and actions. A further weakness of research is the reliance on only one side of a decision outcome. This research only gathered data from people who choose to take the *Know IT* course this is similar to West who reports only on adult returners to college. Insights from those who considered a learning option and decided not to partake are elusive and it is questionable whether meaningful

findings would result from research conducted on this difficult-to-define group.

When is a decision made? Is it final or the postponement of a task that will be addressed at some future date “when the road ahead is clear”? This research took the approach that the most useful source of insights on learning decisions would be gleaned from students at the early stages of the *Know IT* course. Informants were encouraged to recall their experiences and feelings as they approached the course.

The research findings yielded three categories or constructs through which basic skills learners interpreted their predicament. Firstly, the Digital World represents the domain of the computer and associated technology – it is a place from which they feel excluded. The influence of the Digital World is pervasive. It is possible to avoid engaging in the practices of the Digital World but it is increasingly difficult to manage and there is a price to pay. The situation is particularly challenging when the Digital World is experienced close-up and first hand; at Proximate Sites of Engagement strategies are employed to get trusted friends and family to perform on-line tasks. These sites often provide ‘scaffolding’ for new learning whereby over shoulder observation reassures the non-user that the task is within grasp.

Something needs to be done about the Digital World; non-users feel they are missing out; undermined in the workplace; displaced from decisions in the home and left out of the loop in friend’s conversations because they do not have an e-mail. The second construct that emerges from the research is Competence Desire. Competence Desire comes in a general and specific variety. General Competence desire is a wish for transformation of the person; to become a ‘computer wiz’ or at the very least, someone who is on a par with the others. Specific

Competence Desire is really about tasks one would like to be able to do – manage finances, send e-mails and book holidays are all examples of Specific Competence desires. Specific desires are more useful for learning as they may be matched with realistic and achievable goals. General Competence Desire, on the other hand, may be counter-productive and when unfulfilled, will further reinforce feelings of inadequacy.

These feelings of inadequacy, together with comparisons with young people and regret at missed opportunities, form part of the third category to emerge from this research – Learning Identity. This category is also formed from experiences; life in school, although distant in time, is a powerful influence on Learning Identity. Other experiences are also important – in the workplace the introduction of technology, pending retirement and a desire to manage one's life in a time of crises are all contributing factors to the category of Learning Identity.

These three constructs interact and transact with each other – the Digital World precipitates Competence Desire which in turn may be moderated by Learning Identity. If the conditions are right a learning opportunity is grasped that may otherwise have been ignored. When the *Know IT* course is presented and Competence Desire is strong enough it may be time to risk one's Learning Identity and grapple with challenges of formal education for the first time in many years. This decision will depend also on external factors such as low barriers to entry, a capacity to practice in private, a supportive tutor, absence of cost and, most notably, participation with others of similar age and ability. These are the key influences on a person's decision to learn basic digital skills.

How should pedagogic design be used to support digital literacy in adults?

This question is really about consequences – given the insights discussed above what are the consequences for pedagogic design? In setting the context for this research I outlined my experiences in pedagogic design both as a television producer and as a developer of e-learning and blended learning programmes. My research aim was to gain a deeper understanding of students who engage in basic digital skills' learning. I now ask how this understanding should be applied. To achieve this, I propose propositions and strategies based on each of the three constructs discussed above. These ideas are directed at large-scale, media-based interventions designed to promote digital skills and inclusivity, rather than specific instructional strategies.

The Digital World – Narrow the Gap

If people perceive the Digital World as 'out there' and not for them they will hardly be inclined to engage. A perhaps unintended, consequence of the manner in which technology is portrayed in the media is the sense of alienation for non-users. Pedagogic strategies need to deal with the Digital World. Non-users should be invited in; to explore in confidence and without risk. This may be achieved by means of stories of role models, people like themselves, who are now active with ICT. The case studies presented in this research are examples of such stories and these and similar narratives could provide a powerful impetus for others to re-frame their assumptions regarding the Digital World.

Proximate Sites of Engagement provide useful opportunities for informal learning for students as they begin to engage in digital practices. Pedagogic interventions that harness the role of the proxy could provide a new area of support. For example, an instructional resource

intended to facilitate the interchange between the proxy and the learner; in this way people can be supported as they gradually progress to self-completion of tasks.

Competence Desire – Be Specific

Competence Desire is a powerful pro-disposition to support adult students as they begin to use new technologies. This research has established that, by focusing on specific tasks and outcomes, learners can avail of the immediate advantages of their actions. In contrast, a generalised competence desire is less useful and may even reinforce feelings of inadequacy. Learning is best supported by a close connection between the usage and learning context.

E-learning and blended learning design that incorporates and supports simulated environments for task completion, safe zones for exploration without risk and opportunities to progress to authentic tasks, will prove effective.

The more choice and agency afforded to the learner the better for learning. The key question is what the learner would like to be able to do? Competence desires may be harnessed as a means of setting goals for adult learning and may prove more useful than learning objectives or externally determined learning outcomes.

Learning Identity – Reframe

The Learning Identity construct may prove the most robust and difficult to change. Experiences at school still loom large in the world view of adults who embark on any kind of formal learning project. Another element of this complex relates to age and technology – older people are not expected to be good with technology. The consequence is a reluctance to take on the risk of learning; the potential pitfalls are shame and fear of failure, wasted effort and an

expectation of school-like situations.

Pedagogic strategies should be developed to help adult basic skills learners to reconstruct their Learning Identities. This would be a useful application of new technology to support the non-cognitive components of learning. Students would engage with an interactive learning resource that promoted self-esteem, re-appraisal of school experiences and better planning for learning. At the same time, such a resource would provide a taster for the potential student on the experience of learning in a technology enhanced learning environment.

Recommendations for further research

This research was designed to answer certain questions and to provide new insights in an area of practice that is both important and under-investigated. Inevitably, the research process and outcomes have resulted in many new questions that fell outside the scope of this inquiry.

More research will be needed to develop the three constructs that emerged from the grounded theory process – the Digital World, Competence Desire and Learning Identity. How useful are these in relation to pedagogic design and specifically blended learning design? Further investigation would be required to answer these questions in greater detail.

The notion of Proximate Sites of Engagement emerged from the narratives of some of the informants in this research. How prevalent is this phenomenon? New studies involving, perhaps, survey instruments, would yield valuable additional insights.

This study did not focus on the pedagogic design of the Know IT project per se. Rather, Know IT provided a context and a means of access to learners from the target group under

investigation. Further research is needed to establish how blended learning could be better formulated to support low skilled learners in workplace contexts.

A useful area of further investigation is the intersection of transformative learning and newly found digital competences in older people. This research has uncovered some evidence that such competence leads to fuller participation and may consequently, lead to a reappraisal of previously unquestioned assumptions. However, further investigation would be required to establish the extent and nature of this process.

Concluding Remarks

The first title I proposed for this research was ‘e-learning – a mass produced individual experience’. From the start, I intended to focus on the relationships between people, technology and learning. In the future, technology will change and evolve and we will continue to endeavour to harness technical innovation for learning innovation. I set out to uncover new insights by framing this investigation from the perspective of the individual. As a caring society, we should strive to allow all learners to access the benefits of technology enhanced learning. New approaches to pedagogic design will be required if we are to take full advantage of the affordances of new technology. These pedagogies will be learner-centred. In this research I found that in certain supportive contexts people will follow pathways to competence and participation in the digital world. Hopefully these insights will contribute to future pedagogic practice.

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APPENDIX A

Table 1A *Know IT Terms*

Term	Explanation
Know IT Project	The overall project to design, develop and deliver a pilot of the Know IT Course to 1,175 students.
Know IT Course	National College of Ireland's blended learning course on basic computer skills. Under the pilot scheme the course was free to students. Students could also use the open access computers available in the College.
Know IT Software	An interactive instructional CD ROM containing that was given to all Know IT students.
Know IT Learner's Journal	A workbook provided free to all Know IT students.
Know IT Qualification	FETAC Level 3 award in computer literacy granted to students who successfully completed the Know IT course
FETAC	Further Education and Training Awards Council (FETAC) - the Irish awarding body for vocational and further education sector

Table 2A FETAC Level 3 Computer Literacy Award - Specific Learning Outcomes

	Candidates must achieve all of the following specific learning
Unit 1	Computer Operation and Use
1.1	Describe the component parts of a computer system
1.2	Identify areas of everyday life where the learner interacts with computers
1.3	Describe the uses of common software applications
1.4	Operate computer, with due attention to safety procedures
Unit 2	Introduction to Word Processing
2.1	Load a word-processing system
2.2	Key in text to specification
2.3	Edit text
2.4	Enhance text
2.5	Print a document
2.6	Exit from software
Unit 3	Introduction to Software Package B
3.1	Load software
3.2	Navigate package
3.3	Exit from software
Unit 4	Introduction to Software Package B
4.1	Load software
4.2	Navigate package
4.3	Exit from software

Table 3A Know IT Students by Age Group

Know IT Students by Age Group N = 1173	count	%
61+	95	8
41-60	597	51
23-40	439	37
18-22	32	3
Under 18	1	
Not specified	9	1

Table 4A Know IT Students by Gender

Gender N = 1163	count	%
Male	477	41
Female	686	59

Table 5A Know IT Students by Educational History

Educational History N = 1163	count	%
Primary level	146	12.5
Junior Certificate or equivalent	290	25
Leaving Certificate or equivalent	372	32
College or University	209	18
None specified	146	12.5

Table 6 A Know IT Student Occupations

Occupation	Number	Share	Occupation	Number	Share
Shop Assistants/Related Workers	323	31%	Receptionist	14	1%
Factory Worker	137	13%	Electricians/Electrical Fitters	12	1%
Managers & Team leaders	59	6%	Administrator	11	1%
Warehouse & Despatch Clerks	40	4%	Sales Executive	11	1%
Postman & Post Office Sorter	26	2.5%	Taxi Driver	11	1%
Security Guard	24	2%	Catering Assistant	10	1%
Cleaners & Domestics	20	2%	Drivers of Buses	9	1%
Unspecified	20	2%	Gainfully Occupied –not stated	9	1%
Drivers of RGVs	19	2%	Builders and Contractors	8	1%
Mine & Quarry workers	19	2%	Carpenters and Joiners	7	1%
Care Workers	17	2%	Customer Service Representative	7	1%
Counsellor	15	1%	Pharmacist & Dispensers	7	1%
Nurse	15	1%	Engineers	7	1%
Bakers & Pastry Cooks	14	1%	Others	6	1%

Table 7A Know IT Students by Recruitment Channel

Know IT Students by Recruitment Channel N = 1163	count	%
Advertising	197	16
Shopping Centre Promotions	181	16
Through Employer	785	67

Table 8A Know IT Survey Group Access to a Computer

Do you or anyone in your household have access to a computer at home? N = 120	count	%
No answer	2	2
Yes	103	86
No	15	12

Table 9A Know IT Survey Group Access to the Internet

Do you or anyone in your household have access to the Internet at home? N = 120	count	%
No answer	4	3
Yes	93	78
No	23	19

Table 10 A Know IT Survey Group Location of Computer Use

Where have you used a computer in the last 3 months? (list all) N = 120	count	%
At home	82	68
At a place of work	63	53
At a place of education	6	5
All other places	8	7

Table 11 A Know IT Survey Group Use of the Internet

Have you used the Internet ...? N = 120	count	%
No answer	5	4
In the last 3 months	87	73
In the last 12 months (but not in the last 3 months)	3	2
Not in the last 12 months	0	0
Never	25	21

Table 12 A Know IT Survey Group Frequency of Computer Use

On average, how often have you used a computer in the last 3 months? N = 120	count	%
No answer	6	5
At least once a day	50	42
At least once a week (but not everyday)	35	29
At least once a month (but not every week)	14	12
Less than once a month	5	4
Not used in the last 3 months	10	8

Table 13 A Know IT Survey Group Computer and Internet Activities

Which of the following computer related activities have you used a computer or the Internet for in the last 3 months (list all) N = 120	count	%
Sending/receiving e-mails	65	54
Finding information about goods and services	61	51
Using services related to travel and accommodation	50	42
Playing or downloading games, images, films or music	19	16
Using a computer to manage photographs	26	22
Using a computer to write documents or letters	29	24
No, none of the above	18	15

Table 14 A Know IT Survey Group Performance Expectancy

Performance Expectancy	did not answer	don't agree at all	mostly don't agree	agree some- what	mostly agree	agree completely
	% Responses N = 120					
I would find ICT useful in my job	11.67	0	2.5	16.67	11.67	57.5
Using ICT increases my productivity at work	15.3	5	5.83	13.33	17.5	42.5
If I use ICT it will increase my chances of getting promotion/a raise	13.33	8.33	5	19.17	16.67	37.5
I would find ICT useful in my life	5	0	2.5	5.83	20.83	65.83
Using ICT enables me to get things I want more quickly	8.33	0	1.67	6.67	20.83	62.5
If I use ICT I will communicate with friends and family more effectively	5.83	0	.83	12.5	14.17	66.67

Table 15 A Know IT Survey Group Effort Expectancy

Effort Expectancy	did not answer	don't agree at all	mostly don't agree	agree some- what	mostly agree	agree completely
	% Responses N = 120					
I expect my interactions would be clear and understandable when I learn with Know IT	5	.83	.83	10	28.33	55
It would be difficult for me to get new ICT skills	12.5	22.5	11.67	14.17	20	19.17
I would find Know IT easy to use	5	1.67	1.67	8.33	26.67	56.67
Learning to navigate Know IT is easy for me	8.33	1.67	3.33	11.67	30	45

Table 16 A Know IT Survey Group Social Influence

Social Influence	did not answer	don't agree at all	mostly don't agree	agree some- what	mostly agree	agree completely
	% Responses N = 120					
People who influence me think I should use more ICT	9.17	3.33	7.5	21.67	25.83	32.5
People who are important to me think that I should use more ICT	11.67	5	2.5	10.17	26.67	35
The senior management in my work has been helpful in the use of ICT	12.5	6.67	6.67	20	16.67	37.5

Table 17 A Know IT Survey Group Behavioural Intent

Behavioural Intent	did not answer	don't agree at all	mostly don't agree	agree some- what	mostly agree	agree completely
	% Responses N = 120					
I intend to complete the Know IT course in the next 2 months	10.83	.83	1.67	6.76	17.5	62.5
I predict I will complete the Know IT course in the next 2 months	22.5	0	1.67	5.83	19.17	50.83
I plan to complete the Know IT course in the next 2 months	18.33	.83	1.67	3.33	16.67	59.17