MINDING THE GAP

ANTHONY HUGHES NCAD Dip, NCEA BA, Grad Dip UL

STUDENT ID: 0718084
COHORT 6

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Joe Collins, Msc.

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ABSTRACT

The elderly Learner who has had no previous experience with computers, has much to overcome in order to chose to take computer classes. Apart from negative past educational experiences and age related limitations, the computer interface has not been designed with them in mind, which is a fundamental obstacle to digital inclusion.

This research thesis aims to identify and explore the barriers that exist for the elderly person in taking computer classes for the first time. The barriers will include the impact of anxiety, cognitive difficulties secondary to age, hearing and vision difficulties. This research will access the impact that previously low levels of education have on the attitude to present day learning for this particular group. It will examine the forces that have had a primary impact on this low level of education, specifically, early childhood poverty, socio-economic background, early experience at school and rural isolation. It will examine the current layout of the computer course structure for the elderly learner and a need for further consultation on revising approaches for the delivery of these courses.

This research will conclude that there is scope for a discussion between those bodies that represent elderly people and those bodies that provide education in computers.
I hereby declare that this is entirely my own work and that it has not been submitted for any degree at any other university.

Signed _____________________
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CHAPTER 1. INTRODUCTION

1.0 BACKGROUND OF THE STUDY

In Ireland there is a generational divide of retired elderly adults, ranging from sixty five to eighty years of age, who have had an aversion to the personal computer. In their previous employment computers were not part of their workplace environment or the home and did not constitute part of their daily activities. However since the introduction of the Microsoft Windows based platform in the mid nineteen-nineties, and the advances in Internet and email technologies, the computer has become a more accessible user friendly tool and one of the most important and necessary commodities.

This generation of elderly adults witness their children and grandchildren operate with great ease the multi functionalities of the computer. Unfortunately, many elderly adults cannot engage in this activity because they do not understand how the machine works and some believe that they are too old to learn how to use them. This lack of computer knowledge or digital divide between the elderly adults and information technologies is an ongoing concern for elderly adults and can only harm their interests and make them vulnerable to societal discrimination.

It is the authors opinion that there is a necessity to examine the factors and forces which affect the possibilities of a digital divide among the potential elderly users of computer technology, with the ultimate aim of eliminating these forces where possible.

According to the Central Statistics Office in 2007, computer and Internet usage rates show relatively low levels of usage, 14.3% for those in the aged 65 to 74. This would suggest that there is a need to reinforce efforts to encourage elderly adults to use computers before the gap in the digital divide is too large to span.

A large proportion of the elderly population in Ireland are now beginning to show an interest in becoming computer literate. Some are hesitant to begin classes, feeling too embarrassed or incompetent with their lack of knowledge, but eventually a number of them make the leap and engage in beginners classes.
Many older people are interested in learning more about ICTs and that many would be prepared to attend a course for this purpose. (Cullen et al. 2008)

1.1 OBJECTIVES OF THE STUDY

This research will be based on the study of a cohort of fifteen elderly adult learners, comprising ten women and five men, who are currently studying computer literacy classes in the North Tipperary region. The majority of them have had no previous computer experience. They all have come to use the computer at a late stage in life and have a cautious approach to the technology. They come from a mix of socio-economic backgrounds. Some have had a formal education up to degree status while others have had very little, leaving school at an early age.

Some elderly Learners have a genuine fear of the computer, which has contributed to their reluctance to commit to computer classes. Some believe that they will physically break the computer if they work on it. Others believe that they will destroy the contents on the machine, whilst others feel that if they make mistakes in class it will inform their fellow learners of their incompetence.

These feelings of computer anxiety can lead to a lack of self-confidence. Some Learners begin classes but after one or two lessons drop out due to low self-esteem and being overwhelmed by their ‘futile’ attempts of interaction with the computer.

The elderly Learners who manage to complete the course contents have done so by overcoming their feelings of inadequacy. After repeating various tasks and assignments with Microsoft Word, the Internet and email, they can navigate their way, slowly but surely, through the basic features of the computers programmes. They are eager to continue their computer usage and fully intend to set themselves up at home.
1.2 SIGNIFICANCE OF THE STUDY
This research will investigate the barriers to computer usage experienced by this cohort of elderly Learners. The study will endeavour to determine the main issues that have contributed to these barriers and will investigate the levels of computer anxiety, previous educational experiences, employment experience and previous exposure to computers, if any.

As part of the literature review a number of studies will be investigated which examine those elements that impede elderly computer use in other countries. Ireland is not alone it seems with this elderly digital divide. Problematic issues do arise on a global scale when the elderly novices interact with computers.

The participants of this study are a cohort of elderly Learners that have marginal computer experience or none whatsoever. The elderly Learners that have had previous computer experience have returned to computer classes to be reminded of how things work. Most of them simply cannot remember the sequences of commands of inputting information in the computers operational hierarchy. This aspect of memory loss is a significant barrier to computer usage and will be investigated throughout this study.

1.3 OUTLINE OF THE STUDY
It is proposed to undertake a qualitative case study paradigm approach to this thesis. This qualitative method of research would best suit this small group of elderly Learners. The author of this research currently tutors four classes of elderly Learners on a weekly basis. For the purposes of this study the researcher has focused on a group of ten women and five men who are very eager and willing to participate.

An initial questionnaire will investigate their socio-demographic backgrounds and information concerning their current computer ability. A Likert scale investigation will then procure statistical information on the levels of confidence, computer ability, limitations, secondary to age that may affect their ability to interface with the computer.
The probing scales will be designed to extract exacting responses from the cohort of elderly Learners, which will indicate the strength of agreement or disagreement with the given series of statements.

A series of interviews will then take place with focus groups made up of three groups of the Learner classes. An important factor for delivering courses to elderly Learners is that the atmosphere must be positive and friendly to make the elderly Learner feel at ease. For most of these elderly Learners, it is their first time returning to education after a very long gap. It is imperative therefore that the questions asked in this focus group are delivered in a conversational manner and that they are conducted in a relaxed atmosphere. The interviews will be recorded digitally with their consent, documenting group and individual responses.

This triangulated methodological approach will facilitate a comparison of the findings of this case study, with those findings identified in a review of the literature. The data collected from all three research tools will be tabulated into graphs and charts which represent the positive and negative aspects of the elderly Learners computer experience.

The key responses from the series of focus group interviews will be listed in the findings section. These responses will be transcribed verbatim and it is anticipated that they will discuss their true feelings on the themes explored in the interview sessions. The issues that ultimately arise from the research will formulate a series of practical recommendations and suggestions that will hopefully benefit the teaching of computer classes to elderly Learners and tutors alike.
1.4 OVERVIEW OF THE RESEARCH

Chapter 1 Introduction, is an introduction to the research and contains a summary of the contents of the general body of work. It briefly outlines the background of the research and the methods used by the author in this investigation.

Chapter 2 Literature Review, examines the body of literature researched and referred to in this study. It will detail a number of international research projects of a similar nature, considering the various topics and viewpoints encountered. A number of key authors of Pedagogical and Androgogical journals, books and websites will be discussed and the theories therein will be adopted in the design of the methodology of research. A full bibliography of all references is available at the end of this study.

Chapter 3 Methodology gives an overview and describes the aims and objectives of the research. It discusses in detail the methodologies used and the rationale for their choice. It gives a detailed outline of how each instrument was planned. It also discusses the validity and limitations of this research. It briefly mentions ethics, timeframe, and setting of this research.

Chapter 4 Findings, details the research findings which include the data obtained from a questionnaire, a Likert-scale investigation and a series of three focus group interviews with the cohort of elderly Learners. A number of graphs, charts and interview quotes will be presented in this chapter.

Chapter 5 Data analysis analyses and presents the significant findings and discusses them in relation to the literature review.

Chapter 6 Conclusions and recommendations, discusses the principal findings of the research and presents a number of recommendations.
CHAPTER 2. LITERATURE REVIEW

2.0 REVIEW INTRODUCTION

In 2002 the Irish National Council on Ageing and Older People carried out a study which showed that using computers and the internet offers elderly people the potential to gain access to information relevant to them, share new communications experiences and overcome geographic isolation, (Heuston, 2002). However, despite this potential gain a number of barriers exist that prevent many older people from actively engaging in computer use.

This research will examine the literature on the state of knowledge of those barriers faced by older Learners as they pursue computer literacy training. Despite these barriers there is a cohort of elderly adults trying to integrate computer usage into their everyday lives.

2.1 DEFINING THE ELDERLY COHORT OF THIS STUDY

For the purposes of this study, the term elderly will refer to adults who are at or above the age of sixty-five years. According to the World Health Organisation (2008), most western developed countries have accepted that the chronological age of sixty-five years is the definition of 'elderly' or older person. The age of sixty-five, is the average retirement age in most developed countries, and is said to be the beginning of old age. ‘Old age in many developing countries is seen to begin at the point when active contribution is no longer possible.’ (Gorman, 1999)

In Ireland there is no single fixed age of retirement. In the case of some public servants the retirement age is set out in legislation and is generally sixty-five years. Though there is no mandatory retirement age unifying all employment sectors, sixty-five is generally regarded as the age at which most contracts of employment cease. The age of retirement is currently the subject of future review and legislation is attempting to increase the age at
which the mandatory state pension is available. The National Pensions Framework intends to ‘gradually increase the state pension age to 68 by 2028’ (NPF, 2010)

The term elderly is one that is used quite frequently to describe individuals that have reached a certain point in their lives where implicitly or explicitly there is some notion of deterioration in health, decline in vitality, independence and in social usefulness. Victor, (1987) identifies four main stages in the approach to the definition of elderly. These are: The biological age, the chronological age, the political economy approach to ageing and old age as a stage in the life cycle.

The biological age is characterised by variations in the length of the maximum probable human life span. In an ideal world where all diseases, illnesses and risks to the human body could be eliminated, this would be 115-120 years.

The chronological age is defined by ‘cultural ascriptions of society that is a surrogate indicator of biological ageing’ (Victor, 1987). It is used as an index where legal definitions are utilised to describe particular phases in the life cycle, such as the age of legal responsibility or retirement.

The political economy approach to ageing describes the exclusion of the elderly from employment, a rejection from the economic marketplace simply on the grounds of age. The prospect of retirement marks the boundaries between being independently self financing through employment and being dependent on the state for the majority of their income.

Old age as a stage in the life cycle is conceptualised as an element of the progression of human life stages from infancy, childhood, adolescence and adulthood to old age. These are categories in which the individual is encapsulated into the life span, the duration of an entire life, and as one gets older the body deteriorates due to general wear and tear. The ageing process thus affects the overall functionality of the body and mind
and can have a variety of implications for the ‘elderly’ individual’s continuation in education.

The participants in this study are all over the age of sixty-five and have been as such categorised as retired and elderly.

Many have not had the opportunity to avail of computer classes until this late stage in their lives, and for some, they have had no computer exposure at all.

As older people have not had the opportunity to come into contact with the technologies at a time earlier in their lives. (Encuentra, et al. 2009)

In their occupational past, computers were not commonplace machines and companies who were fortunate enough to have a computer delegated it to their accounts or administrative departments.

Throughout their adult life the participants of this Cohort have felt that their lives and occupations have been successful. They have obtained secure employment and managed to raise a family, buy a house, grow old and feel a sense of achievement. They have felt in control, to a certain degree, of their destiny. They have however, felt uncomfortable with their lack of computer knowledge compared to that of the generation behind them, which may seem discomforting or unsettling.

**2.2 ELDERLY LEARNERS AND ANDRAGOGY**

In order to pursue further education in computer training, the educational environment is a significant impetus to this group. Elderly Learners want to be perceived as being in control and being confident in their ability. Classes mainly consist of groups of elderly adults from active retirement affiliations. Within this educational context, comfort is drawn from a backdrop of peers who will have a similar lack of computer knowledge.
The individual Learner can develop a deep psychological need to be perceived by others as being self-directing. When they find themselves in a situation in which they are unable to work independently and to be self-directing, they experience a tension between that situation and their sense of self.

Any experience that they perceive as putting them in the position of being treated as children is bound to interface with their learning. (Knowles, 1978)

Knowles theory of Andragogy (1984) emphasises that adults are self-directed and expect to take responsibility for decisions. If adult learners are self-directing, instruction should allow them to discover things for themselves, providing guidance and help when mistakes are made. For Knowles the role of the tutor is to provide self-directing opportunities for individuals to learn and cannot take the responsibility for their failure or refusal to do so. The Learner will therefore own the task of learning.

Andragogy stipulates that adult learners need to know why they need to learn something before undertaking to learn it. They need to be responsible for their own decisions and to be treated as capable of self-direction. Their previous lives are a rich well of experiences that they can dip into, but these experiences are however permeated with bias and presumptions.

They encourage the learner to introduce past experiences into the process in order to re-examine that experience in the light of new data. (Knowles, 1984)

Adult Learners however have a readiness to learn those things they need to know in order to cope effectively with the curriculum and are motivated to learn to the extent that they perceive that it will help them perform tasks they confront. (Knowles, 1984)

They must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves. (Chickering & Gamson 1987)
Adult learning programmes must accommodate these fundamental aspects. Classes need to focus more on the process and less on the content being taught and should be task-oriented instead of asking the learners to memorise. Tutors need to become more facilitating, adopting the role of a resourceful and informative educator. By delivering the lesson plan in a friendly accommodating and interactive manner rather than lecturing from the top of the class, Learners become more self-confident and ease into their new educational settings.

In practical terms…strategies such as case studies, role playing, simulations, and self-evaluation are most useful. Educators adopt a role of facilitator or resource rather than lecturer or grader. (Merriam et al. 2007).

With these principles in mind specific computer classes have been designed to accommodate the elderly novice Learner. Before the beginning of the first semester the tutor must prepare the instruction according to the perceived computer ability and knowledge of the cohort. The lesson plans and class content are in the form of task assignments. Students discover more by making mistakes and trying different approaches to the assignments and with the guidance of the tutor eventually resolve correctly each individual task.

Knowles’s developed the five step model as follows:

1. Diagnosing learning needs.
2. Formulating learning needs.
3. Identifying human material resources for learning.
5. Evaluating learning outcomes.

These five steps involve a process of analysis of the Learners level of ability. By incorporating this strategy the educator can develop the appropriate lesson plans that will
suit them. When the Learner is evaluated prior to courses beginning, the specific leaning outcomes of each course can be greatly improved.

Bean, (2003) and Cornett, (2005) seem to agree that elderly Learners ‘seek to learn what is relevant to their lives’.

The distinguishing characteristics of Pedagogical and Andragogical learning generally apply to either children or adults. In previous Pedagogical learning, the younger learners are dependent on the tutor. In such cases the tutor is totally responsible for what is taught and how it is to be learned. The tutor is also responsible for the evaluation of the learning. However, as people get older, their self-concept moves from one of being a dependent to being independently self directing. Thus in Andragogical learning, learners have chosen to learn or do so in order to accomplish some goal. In this study, elderly Learners have chosen to overcome their fear and trepidation in order to become computer literate.

2.3 THE IMPACT OF ANXIETY

Many elderly people think that they are too old to learn, a perception that can lead to, as Czaja et al. (2006) describe, ‘a belief that they are left on the shelf.’ They can experience a form of computer anxiety, which is caused by a number of obstacles that prevent them from using computers.

To this cohort of elderly Learners the personal computer is an incredibly complex machine and is sometimes a complete mystery to them. When they interface with the personal computer for the first time, a sense of fear and anxiety can develop in them. These feelings can lead to a deliberate avoidance of the personal computer and procrastination when it comes to overcoming these anxieties and taking up computer classes. Sometimes they simply do not want to know anything about them.

Computer anxiety is commonly defined as emotional fear, apprehension and phobia felt by individuals towards interactions with computers or when they think about using computers (Herdman, 1983; Howard, 1986)
In 1999, Ellis & Allaire examined the effects of age, education, computer knowledge, and computer anxiety on computer interest in older adults and reported that computer anxiety has corresponding characteristics with age. The older the Learner, the more likely they are to report computer related anxieties. A sample of 330 older adults from local senior-citizen apartment buildings in Detroit, Michigan, completed questionnaires that consisted of four sections: demographics, computer knowledge, computer anxiety, and interest in public-access computer activities.

To assess their opinions on computer usage, a 10-item 5-point Likert scale was used to measure the responses. The parameters consisted of statements such as, "I am confident I could learn computer skills," and "I hesitate to use computers for fear of making mistakes." The respondents were asked to endorse these items along a scale ranging from strongly disagree to strongly agree. The study demonstrated that the deteriorating affects of age and previous education relate to the levels of computer anxiety in older adults. They went on to suggest:

That training programs must directly focus on increasing the computer-related knowledge of older adults and decreasing their level of computer anxiety.

(Ellis & Allaire 1999)

In their the studies carried out by (Doyle, Stamouli & Huggard, 2005; Howard, Murphy & Thomas, 1986) this anxiety is described as a manifestation of psycho-physiological phenomena, which creates a fear in elderly users of their impending interaction with computers. This inevitably leads to 'decreased computer use and avoidance of computers on the part of the users'.

In an effort to know more about computer-anxiety, Bhattacharjee, (2007), identified the underlying variables which instil computer-anxiety. It was found that there were a number of significant associations existing between the socio-economic and educational backgrounds of the participants of the study.
Some Americans are being left behind. Minorities, the...less-educated...particularly those who live in rural areas and central cities, are among the groups that lack access to information resources. (Enders & Spas 2000)

The inhibitory effect of computer anxiety leads the elderly user to have a higher rate of computer avoidance and lower levels of adjustment to computer technology. Computer anxiety produces a tendency to cause worry. The anxious user lacks the confidence in his/her ability to handle the technology and they can fear making mistakes, which decreases the ability of the mind to concentrate on a task.

2.4 THE IMPACT OF AGE RELATED PROBLEMS

Functional limitations secondary to visual, hearing and mobility difficulties and cognitive limitations related to memory are all identified as barriers. ‘One of the consequences of ageing is an increasing number of problems with physical health.’ (Ala-Mutka et al. 2008).

In Bhattacharjee's research, (2007), the elderly participants talked about their computer experiences in a negative manner. They feared making mistakes and were scared of clicking or using the mouse in the apprehension that they ‘may make mistakes or wipe things off.’ The cohort of elderly Learners participating in this Irish study, have similar computer interfacing problems. These can be the elderly Learner taking much longer to learn how to interface with the computer, finding it difficult to comprehend the navigation of the Graphic User Interface (GUI), problems manipulating and clicking the mouse and making numerous punctuation and grammatical errors while typing.

It is difficult for the elderly to see the symbol or text attached to the button and it is also difficult to hit only the correct button. (Jokisu et al. 2008)
There research carried out by Bhattacharjee, (2007), at Florida State University, focused on the factors and forces which affect the possibilities of a digital divide between the elderly and the other more proficient users of computer technology. Results of qualitative questionnaires and focus group interviews yielded a number of findings that contribute to computer related barriers.

Pointing out the psychosomatic…factors which create impediments for senior users in their effort to access and use computer technology for information seeking and information manipulation purposes. (Bhattacharjee, 2007)

Age-related-infirmity relates to a decrement in the elderly Learner’s memory structures, problems with vision and hearing and muscular arthritic deterioration. These physical degenerative limitations were identified as being major impediments ‘keeping older adults from effectively adapting to a culture spawned by the technology of computers’ (Bhattacharjee, 2007).

Hazzlewood, (2005), explains that in order for the elderly Learner to acquire previously un-encountered technological skills, the delivery of learning is especially important and requires significantly different approaches when compared to the training of younger people. In her study from Tasmania, the effect of training ICT literacy to active retirement adults, Hazzlewood, (2005) refers to the physical ageing issue of ‘sight impairment, which is a major computer training and Internet use problem for older adults’ and hearing loss which has significant implications for older adults when learning ICT.

A recent study in Finland by Jokisuu et al. (2008) discussed a category of problems the elderly users have relating to the elements of the technology of computers. A number of participants mentioned that using technology set too much strain on their cognitive capabilities. They quickly forgot the details of moving around the desktop and felt that ‘they were not able to think as quickly as the computer required’. Reading smaller text on screen while navigating between web pages, or inputting or copying text was far too complicated.
Most software packages and websites have small sized text and graphics which do not include the provision for enlarging text. Hearing loss is also a largely concealed age-related deficit and is a significant barrier to learning with implications for the tutor who delivers the lesson plan.

Cognitive issues such as attendant memory lapses mean that more time is needed by many older adults to select and carry out ICT procedures.

Motoric skills may cause problems for accessing learning resources and for participating in learning. In addition, cognitive abilities, such as working memory, reasoning, and speed of processing information decline with age, which can make it more difficult for older people to learn new things. (Ala-Mutka et al. 2008)

These factors are known to inhibit the older Learners opportunities of a smooth computer interaction, creating barriers between the computer and the user in the process. Zajicek, (2004) further concludes that the elements of memory loss and cognitive impairment impact most on computer usage. ‘Memory and cognitive ability are especially required to learn how to use the new features’. The elderly computer user knows that they will not be able to remember how to do it again if they don’t use it regularly. This in turn affects their willingness to engage in new technology.

A review of the literature repeatedly identifies anxiety and age related physical and cognitive limitations as being two of the most significant barriers to elderly computer users.
2.5 THE IMPACT OF PREVIOUS EDUCATION

2.5.0 A LOW LEVEL OF EDUCATION

A recent survey carried out by Cullen et al. (2008), on behalf of the Work Research Centre and Age Action Ireland, identified that there was a strong association between education and non-computer usage, mentioning that there was a ‘likelihood of non-usage being considerably higher amongst those with lower levels of educational attainment.’ Educational achievement seemed to impact on whether or not the elderly engaged in computer activity. The research identified an ‘up to a ten fold greater risk of non usage.’

2.5.1 THE IMPACT OF CORPORAL PUNISHMENT

There are some similarities amongst the participants of this study, primarily because they were educated in Ireland by an educational establishment that had a strict corporal punishment regime. Their aversion to education stems from a variety of sometimes extremely negative events from their formative educational years.

A number of witnesses reported that they attended second-level school but were unable to successfully complete their education due to the trauma of their abusive experiences. They described being fearful, unable to concentrate and distracted by the risk of further abuse or memories of past abuse. (Ryan, 2009)

Many people who were educated in Ireland in the 1940s - 1960s have had personal experience or have witnessed corporal punishment. At that time it was widely accepted that ‘a good beating never hurt anyone’ and that some corporal punishment was necessary to instill respect for authority, to maintain discipline, and to rear good citizens (Maguire, & O’ Cinneide, 2005). In this historical setting there was no evidence or concept that the physical abuse of children would have long lasting harmful effects.

With the publication of the Report of the Commission to Inquire into Child Abuse, May 2009, the brutalities inflicted on national school children in the public school system were exposed. This report verifies the long-term emotional and psychological damage that
corporal punishment has had on individuals from this period of Ireland's educational practices.

Many of the witnesses reported being abused on a daily basis while they were pupils in the class of particular teachers, including school Principals. Others reported acute single episodes of abuse in circumstances where they were isolated from their peer group. (Ryan, 2009)

Because of their experiences in the national school setting, a high percentage of pupils were early school leavers, leaving school before the age of 14. The level of employment attained by them was non-skilled manual employment, such as farm labourer or assembly line worker.

It is of note that the majority of female witnesses reported that they were from a non-manual or skilled manual background. The majority of male witnesses reported being from semi-skilled or unskilled backgrounds. (Ryan, 2009)

Their negative experiences in National school, which contributed to their avoidance of further education, may have in turn contributed to their non-engagement in computer activity and in computer classes.

Calder, (1993) suggests that the previous educational experiences of some of the elderly adult Learners has turned them against all aspects of the educational process.

Having had a short and often largely negative experience of a formal education system which labeled them as failures, it was logical that the vast majority would have no wish either to repeat the experience or to compound it with further confirmation with their lack of ability. (Calder, 1993)
2.5.2 THE SOCIO-ECONOMIC IMPACT ON EDUCATION

A high percentage of individuals in Ireland in the 1940s and 50s progressed only as far as the primary certificate in education. Leaving school at such an early stage can be related to a number of factors, primarily that of a socially disadvantaged background.

Eventually the student from a disadvantaged background is likely to leave school early, with poor formal qualifications and poor employment prospects. (Kellaghan et al. 2006)

Ireland at the time was seen as ‘narrow and bleak’. Poverty was commonplace.

Formal education of most Irish children ended with their completion of the primary cycle. The choices presented to many young people were narrow and bleak. Most 14-year olds were either ‘big’ boys or girls in a national school or had entered the workforce and finished with their education entirely. (Sweeney & Dunne. 2003)

‘Economic depression, emigration and unemployment blighted the 1950s’. (Ferriter, 2009). Poverty and poor salary earnings were also factors that determined whether children achieved educational standards past the Primary Certificate. Those wishing to further their education to secondary school had to come up with significant fees to do so. Denny & Harmon (2000), describe how the annual fees per pupil ‘were approximately 2 weeks wages for the average manual worker.’

Further education was seen as a waste of money and time and only preserved for the more financially suited. ‘There was no future education-wise unless you had money’ (Aontas, 2006).
2.5.3 THE IMPACT OF RURAL ISOLATION ON EDUCATION

Rural isolation also played a considerable part in determining whether children went on to further education. Almost every small town and village countrywide had a primary school where the majority of the children from the village and rural farms were educated. These were within reasonable walking distance. Sometimes children would walk up to five miles a day to attend primary school. But when it came to secondary education, the secondary schools were located in the bigger provincial towns.

The geographic distribution of secondary schools was uneven for much of the study period, so that in many parts of the country students could not attend a secondary school while living at home. (Raftery & Hout 1993)

A rural transport system did not exist that could bring students into the secondary schools in the bigger towns and parents could not travel the distance required because they did not own a vehicle.

A significant number of the community will never own a car. There is always likely to be a minority in the community, namely the young, the old and the poor, without cars available to them. (Hall, 1978)

The cohort of elderly Learners that make up the majority of this study were children at this time and lived in the town of, or on the outskirts of Thurles in County Tipperary. Access to any form of transport was limited to a horse and cart or a bicycle. Some of this cohort lived even further away in small rural villages up to twenty miles away from any educational establishment. Their chances of further education beyond the primary certificate were narrow.
2.6 THE BEGINNING OF THE DIGITAL DIVIDE

Towards the mid to late 1980s, computer terminals were increasingly becoming a fixture in the workplace. But as this specific cohort of elderly Learners progressed in their own areas of work, generations of workers behind them were being exposed to information technology. The new technology was being offered to those with higher educational qualifications and in particular those who came from a more financially established background that had gone on to second and third level education.

Those with higher levels of education…were more likely to report having first come to use computers in the context of their work. (Cullen, et al. 2008)

The Microsoft Corporation launched Windows ‘95 in September 1995. Windows 95 utilised the concept of the Graphic User Interface, GUI. This new interface offered the user a much easier way of interacting with the computer by using a mouse to click and drag objects, open folders and software applications. This user-friendly method made the interaction with computers much more appealing. The GUI has grown into a necessary part of all operating systems and application designs. (Brown, 2003)

At this time, the elderly Learners of this case study would have been in employment. Despite the computer being more widely available, more affordable and ‘user-friendly’ they still did not were not enticed to engage with the personal computer.

Figures released by the Central Statistics Office in 2009 report that two thirds of households now have a home computer and over 1.5 million people use a computer every day, or almost every day. Despite its popularity and the rapid growth in consumer consumption of the Personal Computer, this cohort of elderly Learners still did not actively seek either to purchase their computer or seek out classes that could introduce them to the PC.
2.7 TECHNOPHOBIA AND PC ENVY

This cohort of elderly Learners may have been aware of the presence of the Personal Computer, but have adopted a negative attitude to them. Similar attitudes can be seen with the introduction of the mobile phone into popular culture, where elderly generations of adults have adopted a negative attitude to their communicative implications.

Many respondents said that technology was too complicated and the devices and applications had too many features and functions…. A problem linked particularly with mobile telephones and remote controls, was that buttons were too small. (Jokisuu et al. 2006)

This trend can be seen in the assimilation of most technological advances into their lives; the microwave, the DVD player, satellite television etc.

Pavón, et al. (2001), produced a study which involved taking new technologies and the Internet to the elderly citizens of rural Spanish towns and villages. They describe how the elderly can be afraid of not being able to learn and that they are afraid of being ridiculed by their lack of knowledge. ‘For people of a certain age, technology, innovations and change create uncertainty as they alter their habits and mental structures’ Pavón, et al. (2001). New technology can make them feel overwhelmed and some believe in more traditional methods of communication and information gathering.

I do not like New Technologies. I think face to face communication is the most important. I also have my grandchildrens example, I sadden to see they do not play like we used to before, they spend a long time in front of the computer, the TV and the console. (Pavón, et al. 2001)

Technophobia, the fear of technology, is a common enough occurance, which is inherently linked to the psychological barriers that persist in the elderly learners sense of low self esteem. Technophobia is used to describe the fear, discomfort, or anxiety towards technology of various forms (Spresser, 1998; Brosnan, 1998)
Becker, (2004) also concludes that older adults have unprecedented access to the internet and email, and any amount of information, but it is the barriers due to ageing and lower education that also hinders their use of the computer.

Over the last ten years the elderly Learners of this cohort have also had many opportunities to avail of free computer classes, but it is these persistant barriers which prevent them from doing so.

Attitudes have also something to say in learning motivation, amongst elderly people, who usually have fears of using, breaking or not-knowing about ICT. Technology acceptance models provide one means to investigate the reasons why elderly people are more reluctant to act with new technologies. (Zajicek, 2007, Naumanen & Tukiainen 2008)
2.8 GOING ONLINE

This cohort witnessed or heard of such ‘extraordinary’ functions that could be done with the personal computer. While connected to the Internet flights could be booked, car tax paid, conversations could take place to family members thousands of miles away and photographs and videos of newborn grandchildren could be received in an instant. With their inability to do these basic computer functionalities, the feeling of ‘being left behind’ entered their psyche as generations of adults and children behind them engage with the information age.

Some argue that the new technology of email, online discussions, on-demand information, and web-powered information diffusion and interest aggregation will lead to a more informed, engaged, and influential mass public. (Norman & Lutz 2002)

The term ‘online’ entered the vocabulary of most computer literate people at least fifteen years ago, but to this cohort is was becoming the persistent little word that reminded them of their inability. ‘Usage of computers and the Internet is growing although as yet has only reached a minority of those aged 65-plus’ (Cullen, et al, 2008)

2.9 COMPUTER CLASSES FOR THE ELDERLY LEARNER

In designing courses for the student that have absolutely no experience of PC use and have a genuine fear of the computer’s functionalities, the curriculum has to be very basic in its outline. Classes have been designed with the fear factor in mind and have been dubbed ‘Computers for the terrified’ or ‘Computers for the absolute beginner’, in order to ease the potential participants into the classroom.

The first, and most important, step in easing individuals into computer use is to confront the preconceptions, fears and expectations they may have about becoming a computer user; both individually and collectively. (Selwyn, 1997)
There are however a number of presuppositions that the learner must overcome and conquer before entering the classroom. Sitting down and interfacing with a computer for probably the first time in their lives brings with it a whole host of feelings. The perception of being too old to learn (Turner & Van deWalle, 2007) and older peoples self-perceptions are, therefore, a possible hindrance to their initial engagement with new technology (Marquie, et al. 2002).

Fisher, (1991) suggested the strategy of utilising small group discussions when introducing older adults to computer classes. Using a group discussion before coming into contact with a computer has the advantage of breaking the ice and settling the atmosphere within the group. This serves to overcome the problems of isolation that many novice users feel when learning to use IT.

These courses are designed to offer the elderly learner an initial overview of the PCs functionality and how things interact on the desktop by using the keyboard and mouse. Learners begin by switching on the PC and by moving the mouse across the table and seeing the replicated movement of the cursor on the screen.

These basic sets of procedures can initially be quite frustrating for the elderly learner because they cannot manipulate the smooth movement of the mouse and cursor. The interface between the mouse, cursor and moveable desktop icons, and the command functions such as ‘double-click’, ‘scroll’ and ‘open’ seem too complicated for some to master in the class environment.

Other students literally did not have the faintest idea how to begin. Using the mouse was strange, and seemed all but impossible. (Tabrizi, et al. 2005)

Dickinson et al. (2005) suggest that poorly designed interfaces are a fundamental obstacle to digital inclusion and that elderly adults find it more difficult than younger adult learners to use standard interfaces. These interfaces can be too complex for the user to remember. Wilkniss, et al. (1997) suggests that elderly people have difficulty
remembering and navigating routes and particularly struggle to select the correct order of landmarks on a route.

They are also confronted with cognitive barriers that are defined as spatial visualisation and processing speed. It is the inability to connect two related tasks together, the movement of the mouse and its relationship to its movement on the monitor (Bean, 2003). Processing skills refer to how elderly adults process information presented to them. For example, if the task is a new concept, as in ‘icon’ versus ‘picture’, it will take longer for the older adult to process its meaning (McCort, et al.2000).

2.10 INTERFACE DESIGN PROBLEMS

There is an educational problem that still remains, computer training is predominantly designed for younger learners and is not “age appropriate” for the elderly (Bean, 2003; Burch & McGrath, 2004). Computer programs and their interfaces tend to be designed by relatively young people and aimed at a market of mostly young people. (Hawthorn, 2006).

The elderly Learners of this study, as with most adult Learners, began their classes by using Microsoft Word as an introduction to basic word processing. They are shown how to use the keyboard and mouse to type a few lines of information about themselves. They see the cause and effect actions of inputting text on screen and how the text and various fonts can be manipulated.

The interface and functionalities of Microsoft Word are designed to transfer to other Microsoft Office suite software, offering similar functionalities such as the drop down menus, font enhancement and save and print commands. These functionalities can however be too intricate and complex for the elderly learner to master. The processes of selecting text, words or whole sentences with the mouse and then altering the font size, style or font case, takes a considerable amount of time to achieve and can lead to high levels of frustration.
If a student is having difficulty with mouse control, change the instruction to use alternative means of accomplishing the task. This requires instructors to be prepared to teach to the needs, interests, and abilities of individual learning styles of each class student to limit frustration (Becker & Coleman, 2005).

It is here at the beginning of the first class that the variety of problems which inhibit the elderly Learner from interacting with the PC present themselves. The author has observed that this cohort of Learners differ greatly from the younger Learners. Their pace of learning is much slower and they need each lesson plan to be covered again and again.

Allow sufficient time during instruction for older adults to process events and information. It is important to build time into the course schedule to allow for a slower pace of instruction. (Jones & Bayen, 1998).

Bean and Laven (2003) observed that classes are predominantly targeted at younger learners and are too difficult for older adults. Bean, (2003) specifically noted that there is ‘a difference in learning capabilities between younger and older adults, and refers to the text comprehension, working memory, spatial visualisation ability, and processing speed as being major inhibitors for elderly Learners. Based on previous research and experience, Bean and Laven (2003), made considerable adaptations to instruction targeted at older adults. Some of those changes are:

1. When introducing new terms, use concepts associated with words familiar to the elderly, like using the word ‘picture’ to refer to ‘icon’.
2. Constant repetition of lessons, PC functionality, slower pace, and hands-on practice.
3. Use printed material printed in larger fonts that take account of age-related barriers.
4. Patience.
2.11 PATIENCE AND REPETITION

On the whole, however, it seems the most important elements of teaching the elderly is patience and empathy. In addition teaching the elderly requires time, patience and repetition of new concepts (Cornett, 2005; Bean, 2003).

It was discovered that the most important facet of teaching the elderly is patience and empathy… it’s worth it because they get there eventually, and they are most grateful! (Rajendran, et al. 2005)

Tutors need to be conscious that older adults have slower cognitive processing abilities and must allow sufficient time for course material to be absorbed. ‘Older adults suffer greater cognitive deficits when performing complex tasks than do younger adults’ (McCort et al. 2000).

It is important to bring creativity into the preparation of class material while maintaining your enthusiasm, patience and humour. ‘Be prepared to adapt the curriculum to individual learning styles and needs, and to teach to students’ interests and abilities’ (Becker & Coleman, 2005).

The individual rate of learning, or “at your own pace”, facilitates the more effective understanding of the content by the elderly persons, even though it might involve a longer time of learning. (Baigorri & Chaves, 2003)

2.12 MENTAL MODELS

To the elderly participants of all the literature reviewed, Cullen, et al, (2008), Bhattarcharjee, (2007), Pavón, et al. (2001), and the cohort of elderly Learners of this study, computers are very different from what they’ve experienced before in their lives, they seem to have trouble constructing a mental model of how the computer works. ‘The elderly benefit by learning that computers are neither magical nor breakable.’ (Fainges, 1999).
Bean and Laven (2003) also suggest that the elderly Learners process instruction, a lot slower than younger students and Tutors need to allow much more time for the repetition of instruction. Springer, S. (2004) recommends reviewing and repeating often, by using the “tell them what you’re going to tell them, tell them, and then tell them what you told them” approach. Computer Tutors benefit greatly by learning what teaching methods best work for the elderly to alleviate levels of frustration and enhance the teaching experience (Fainges, 1999).

2.13 PACE OF LEARNING

Baigorri & Chaves, (2005) reported that in the Extremadura region of Spain the digital divide affects the elderly very markedly. In their case study they researched two groups of elderly Learners participating in two different technological literacy initiative courses. One group comprised of six elderly persons, four men and two women who participated in computer classes organised by a private initiative which delivered classes in new technology literacy program to large groups of elderly adults.

The other group comprised of 13 elderly persons, five men and eight women, participated in a public initiative staffed with specialised motivational personnel, in order to facilitate the access of older adults to ICT. The majority of the elderly persons in both groups had an educational level corresponding to primary school and an income level associated with a retirement pension.

In their case study Baigorri & Chaves, (2005), presented a series of structured questionnaires given to all the elderly persons who were participating, the results established significant differences between the two initiatives for technological literacy, even though their pedagogical content might be similar. The group from the private initiative delivered its courses in groups, and with the pace determined by a schedule set by the directives of the organizers. Lesson plans were taught whether or not the elderly persons had learned the previous lesson. The tutor proceeded
as scheduled and Learners went on to the next part of the course without regard. This led to an insufficient understanding of the technology.

The public initiative, however, delivered its course with an individual or ‘at your own pace’ rate of learning. This gave the elderly Learner the opportunity to revise a specific lesson and the choice not to proceed to another topic until the previous information had been absorbed. Spending more time on acquiring the skill led to greater long-term success.

The differences found in knowledge related to dealing with the new technologies did not depend on educational level or previous experience, but on the teaching methods used in the two types of initiative. (Baigorri & Chaves, 2005)

It is very important to simplify the lessons presented to elderly Learners. Hawthorn, (2001), addressed this in his research on interface design for elder people. This research is somewhat relevant in the layout of instructional material for the elderly. To be more specific, age affects the “ability to focus on the task at hand” (Bean, 2003), and to filter out relevant information in the course material and simplify it for the elderly Learner, making the objectives of the curriculum more achievable.

2.14 SUMMARY

The literature reviewed in this chapter has yielded a number of significant findings that contribute to the barriers that elderly Learners have when they interface with the computer. The obstacles that arise when elderly adults engage in computer activity can be at most, frustrating, and interfere with the senior computer users enjoyment of the many beneficial aspects of computer activity.

The findings of this literature review identify a number of key areas that the author will explore throughout the body of this research. Early childhood, socio-economic experience, early education, employment, computer introduction or lack thereof, anxiety,
fear and any functional limitations secondary to age.

This qualitative study will involve a group of 15 elderly computer Learners from Thurles in county Tipperary.

The methodology and approach used and the instruments involved will be described in detail in Chapter 3. The objective of this body of work following on from a review of the literature is to see if similar barriers exist for this case study group and to explore and understand them.

Ultimately, the research will seek to inspire discussion with other elderly adult educators. As the ageing population continues to grow, more and more elderly Learners are applying for courses in computer instruction.
CHAPTER 3 METHODOLOGY

3.0 INTRODUCTION

This chapter outlines the aims and objectives of this research. It describes in detail the choice of methodology and why this design was chosen. It discusses the rationale of the case study paradigm and refers to triangulation within the body of the chapter. It describes in detail the instruments used and how they were planned. The validity of the approach is discussed, as are the limitations. Data collection is incorporated throughout the discussion on planning. Piloting, ethics, timeframe and setting are also addressed in this chapter.

3.1 RESEARCH OVERVIEW

This research project examines the barriers experienced by elderly learners in computer classes in North Tipperary. Over the past three years, the researcher has taught computer classes in North Tipperary and has observed that elderly learners experience recurring difficulties when learning computers. The literature reviewed in Chapter 2 reveals that these barriers are not unique to this group of elderly computer users, but rather they are representative of a universal experience. Specifically the work of Cullen et al. (2008), Bhattcharjee (2007) and Baigorri & Chaves (2008) which is discussed in detail in the literature review in Chapter 2 above.

The author has consistently observed that the elderly learners, who are the focus of this case study, perceive computers to be complicated, frightening and baffling. Ellis et al. (1999) noted that ‘older participants were more anxious about using computers.’ The author also noticed that these Learners experienced difficulty in processing instructions and information so that a lot of repetition was required. Again, a similar pattern has been described in the literature. Pavòn, et al. (2001) explains that
Memory difficulties affect the learning process among the elderly, as well as their lack of attention or incapacity to concentrate on the immediate task. Pavòn, et al. (2001)

Finally, the author observed, that a number of elderly learners lacked confidence. Some seemed anxious and intimidated by the very act of returning to education. Perhaps for the reasons mentioned by Bunyan;

‘Older adults have mixed feeling about former education. Some have unpleasant memories of school, which is a barrier to learning in later years.’ (Bunyan, 2004)

This research aims to discover what barriers exist for the elderly learner in computer classes. The literature suggests that early education experiences had left them scarred, a fact poignantly illustrated in the publication of The Report of the Commission to Inquire into Child Abuse (Ryan, 2009)

3.2 RESEARCH OBJECTIVE

This research seeks to discover if there is a commonality between those barriers described in the literature and those observed by the author, from the perspective of this cohort of elderly learners in North Tipperary. Specifically it aims to investigate;

- What impact, if any, their early educational experience has had on returning to education?
- What influence socio-economic factors had on their early education?
- Why elderly Learners perceive computers to be complicated, frightening or daunting?
- What functional limitations exist, secondary to age, that may inhibit this particular group from learning how to use the computer?

These questions are examined in detail in Chapter 4 below.
3.3 RESEARCH DESIGN

Yin, (1994) identified five components of research design that are important for case studies:

- A study’s questions
- Its propositions, if any
- Its unit(s) of analysis
- The logic linking the data to the propositions
- The criteria for interpreting the findings (Yin, 1994, p-20).

In order to answer these specific questions a qualitative case study paradigm was used. As described by Corbett, (2001) Qualitative research aims to explore, discover, understand or describe phenomena that have already been identified.

The instruments used in this case study were a survey questionnaire, a multiple choice Likert Scale investigation and in-depth focus group interviews. Tellis, (1997) says that these, or any other instruments, can be used in tandem and that ’No single source has a complete advantage over the others; rather, they might be complementary’. This triangulated strategy was useful in validating the results as it allowed the researcher to, as Laws, (2003:281) described ‘see the same thing from different perspectives’. Cohen et al. (2005) explains simply that triangulation is the use of two or more methods of data collection in the study of some aspect of human behaviour. This multi method approach can be useful where, as Adelman et al. (1980) explain, ‘a researcher is engaged in a case study, a particular example of complex phenomena.’

3.4 RATIONAL FOR THE CASE STUDY

In considering both a case study approach and an action research approach, the case study approach was chosen. Though action research can be used to understand practice better, it does to this extent, as Waters-Adams (2006) explains, ‘seek a solution.’ In seeking permission at the outset of this research study from the organisations involved, the author did explore the possibilities of an action research approach. But given the time
In choosing a case study approach, the author sought to examine the needs of the elderly learner, from the perspective of the elderly Learner, rather than to develop strategies. It is not the purpose of this research study ‘to arrive at recommendations for good practice’ (Denscombe 2002: p-27) nor does it intend ‘to provide evidence to support claims for action’ (Bell 2005: p-9). Though an action research project, in cooperation with the relevant bodies, would certainly be an area of future interest to the author.

The choice of case study, therefore, was made based on the type of information the author sought to acquire. Cohen et al. (2005) explained that ‘In determining the most appropriate methodology for research it is important to keep in mind the purpose of the research.’ As explained by Feagin, Orum & Sjoberg, (1991). ‘Case study is an ideal methodology when holistic, in-depth investigation is needed. In this case study the author needed to collect the authentic experience of the elderly Learner.

3.5 PLANNING THE RESEARCH QUESTIONS & INTERVIEWS

3.5.0 APPROVAL

Before carrying out any surveys, investigations or focus group interviews, approval was obtained from Deborah Ryan, the Community Education Officer for North Tipperary VEC and from Dr. Lorenz Egan the Coordinator of Coláiste Éile Centre for Education. Both were enthusiastic and supportive.
3.5.1 PLANNING THE SURVEY QUESTIONNAIRE

In the first instance the main data-gathering instrument used was the survey questionnaire. This tool was used in order to establish a demographical baseline for the group. Specifically; age, gender, previous education, previous employment before retirement, disability, age related illness or impairment, previous computer experience & lastly, computer ownership. The researcher was mindful not to ask any offensive questions. Bell explains that asking people their age, for example, can be considered offensive. To this end, a box indicating age category was used. Closed questions were asked in order to collect specific data. The data was collected from all 15 respondents on completion of the survey.

A complete list of the survey questions, responses and tabulated graphs are available in Appendix 1.

3.5.2 PLANNING THE LIKERT SCALE INVESTIGATION

The Likert scale investigation was centered on a series of carefully chosen statements. Participants were given five choices to every statement. The layout and structure of these statements was carefully designed to measure participant response to various probes such as computer anxiety, confidence and ability. The choices represented the degree of agreement or disagreement the participant had to a given statement. The researcher was careful not to make any double statements, offensive statements or presumptive statements. The wording was kept simple and the author was present throughout in case there were any questions.

These statements were constructed in order to discover the strength of feeling towards a given issue. The data was collected from all 15 respondents, on completion of the investigation.
Using the tabulated results, the researcher identified the key issues, which had a prohibitive effect on the elderly Learner. These tables are discussed in chapter 4 below.

A complete list of the Likert scale investigation is available in Appendix 2.

3.5.3 PLANNING THE FOCUS GROUP INTERVIEW

The third instrument used for data collection was a series of in-depth focus group interviews. The data from the Likert scale investigation identified specific issues, which gave focus, enabling the author to develop a checklist of questions. The same questions were asked in each of the three groups.

The preparation for the focus group questions followed much the same procedure as for the Likert scale investigation. There were no leading, presumptive or offensive questions and all were designed not to lead participants according to any personal bias. The type of question however, differed in that the questions were open-ended in order to promote discussion. The researcher was mindful not to express approval or disapproval to the answers given. The questions were asked in a friendly conversational manner in order to ensure that the respondents would be at ease.

Cohen et al. (2005) describes how focus group interviews allow the participants to interact with each other allowing their feelings on the topics discussed to emerge, so that they ‘yield insights that might not otherwise have been available in a straightforward interview’. Though the focus group interviews were centered on predetermined issues, the intent of the researcher was not to intervene once the discussion began, but rather to see what could be learned. This case study group shared a camaraderie and great conversational manner, which made them ideal candidates for participating in focus group research. The open-ended questions in particular, elicited some rich and revealing responses. For example: ‘What was it like in school when you were younger?’ or ‘What was the teacher like?’
The interviews included questions on educational progression, socio-economic conditions in childhood, geographical isolation, how they now feel about interfacing with the PC and how the respondents feel having completed an introductory computer course.

The focus group sessions were digitally recorded, with the full consent of the participants. In all, over 6 hours of group audio was documented which was then transcribed in full.

A sample selection of the transcripts is available in appendix 3 of this report. The full audio transcriptions are available on request from the author - they exceed 100 pages. A complete list of all the questions is available in Appendix 3. It is important to note that all quotes from the respondents are written verbatim.

3.6 PILOTING THE QUESTIONS

The survey questions were piloted to an elderly relative who took the time to fill in the survey questionnaire, Likert scale investigation and subsequently answered all 18 focus group questions. He found the survey and investigation ‘straightforward and easy to follow’. On the Focus group questions he said “that about covers it!” He was eager to talk about how words he “knew growing up weren’t at all relevant to the things being done.” The words “default” and “input” for example. He would have been an asset to the focus group.

3.7 THE QUESTION OF VALIDITY

The question here is, how accurate a picture of the barriers to the elderly learner are we getting? This research relies on the personal experience of the Learners involved and so could endure the same criticism as other qualitative case studies. Critics could assert that it is unscientific and not ‘widely’ applicable. Certainly the focus group sessions could not be replicated simply because they reflect the perceptions of the individuals involved. The validity of the respondents of this research relies on the integrity and honesty of their character. The reason for this case study is
precisely to identify the barriers that exist for this particular North Tipperary group, and no other. They are not a ‘sample’, representative of a greater whole. Cohen et al. (2005) say that there is authenticity and ultimately truth in the content of authentic experience. The benefit of these results lies in an increased understanding rather than in generalisations.

This does not mean that it is an inferior kind of understanding, but it does mean that it is different; it requires active participation of the reader to identify with the situation and to relate the findings to his own situation, (MacNaughton, 1996; 347)

This case study data confirmed the observations of the author over a period of three years. The collected data from the triangulated approach, further validated results as described in the literature. Though initially it was planned to have only one focus group session, the complex needs and commitments of the elderly Learners involved, meant that there were three distinct focus group interviews. This helped to further validate the findings by cross-referencing the data.

3.8 RESEARCH ETHICS

At all times the participants were treated with respect. They were assured that their identity would be protected throughout the course of this research and there after, so that the information they revealed in the interviews ‘does not embarrass them or in other ways harm them’ Bogdan & Biklen (1982). The author ensured that they knew what it meant to participate, what would be expected of them and that they could withdraw at any time. They participated on a voluntary basis and were free to ask questions at any time. Their role and that of the researcher was also explained, so that they knew what to expect.
3.9 TIMEFRAME AND SETTING

The main body of research was carried out at Colaiste Éile, in Thurles County Tipperary. The surveys, investigations and three focus group interviews were carried out over a three-month period from May to July 2009.

3.10 LIMITATIONS OF THE RESEARCH

Case studies are by their nature involve only a single group. They are therefore self-limiting and are not representative of the general public. Whilst this is a limitation for the general public, it can be of great benefit to that group for which it was intended. The limitations of the qualitative approach have been discussed in greater detail in section 3.7 above. It must be said here too that the author tried at all times to avoid bias or subjectivity.

The issue of strong personalities was certainly present in the focus groups. The author had to be careful that one or two very enthusiastic individuals didn’t take over. Some of the quieter, less assertive participants had to be prompted to speak. The author was able to do this through simple prompts, For example “And what does everybody else think?” According to Denscombe, (1998) men tend to dominate ‘the centre stage in group discussions’. Interestingly, this was the experience in all three groups, despite the fact that women outnumbered men. The author would have preferred if the groups were gender balanced, but this was not possible as participation was voluntary and not the choice of the author.

The ‘Hawthorne Effect’, (Landsberger, 1958), could have been an issue, fortunately it was not. This refers to the fact that the behaviour of persons who know themselves to be under observation changes. The advantage here was that the individuals knew each other very well and shared a commonality.

Finally, transcribing the recordings proved to be extremely laborious and time consuming.
CHAPTER 4. THE FINDINGS

4.0 INTRODUCTION

In this section results from the research investigation will be presented.

The findings from the initial demographics questionnaire have been tabulated into four bar charts. Before proceeding to the Likert scale questionnaire and Focus group interviews these questions sought to extract demographical statistics such as age, gender, employment and age related infirmity.

Findings from the Likert scale Investigation have been tabulated into three tables. These two instruments were analysed prior to the commencement of the focus group Interview sessions.

The findings of the focus group interviews present the key quotes detailing the overall sentiment and opinions of the participants.

The focus group comprised fifteen elderly participants, ten women and five men. As explained above the respondents were divided into three separate groups in order to facilitate their personal commitments. Group A included six participants, Group B four participants and Group C five participants respectively.

Groups A and B were questioned on two consecutive weeks following the completion of a ten-week computer training course.

Group C were questioned two months later, allowing for the completion of their ten-week computer training course.

All of the respondents were students of the author. The first questionnaire, designed to extract the demographical statistics was administered to groups A, B & C one week prior to the second questionnaire. The content of the analysis of the first questionnaire determined the construction and design of the Likert scale investigation.
The focus group interviews were subsequently carried out after both research instruments were analysed. The results of both instruments determined the content of the questions asked in the focus group sessions, which probed the participants further.

4.1 QUESTIONNAIRE ONE. THE DEMOGRAPHICS OF THE SAMPLED RESPONDENTS

This questionnaire was designed to provide information about important statistical variables. These were age, gender, previous employment, education, previous computer experience, computer-ownership, disability and the age-related-ailment status of the research participants.

The data was then analysed to relay the participants’ response patterns. The following section details the responses in a number of bar charts used to graphically represent the data supplied by the respondents.
4.1.2 THE QUESTIONS

**Question 1** asked the participants their age. 80% (12) of them were between 65 and 70 years old. 6.66% (1) was between 71 and 75. While 13.33% (2), were above the age of 76.

![Graph 1.1 Age of Participants](image)

**FIGURE 1.1 A BAR CHART REPRESENTING THE AGE OF THE RESPONDENTS**

**Question 2** asked the participants their gender. 66.66 % (10) were female and 33.33% (5) were male. There was a two to one ratio of female participants over male. This is a common occurrence amongst elderly Learner cohorts, the statistical analysis of which is not part of this study.

**Question 3** asked the participants their previous educational achievements. All 100% (15) of them received their Primary Certificate. However 53.33% (8) of them then went on to work, becoming early school leavers. Of the remaining group 46.66% (7) went on to do the Intermediate Certificate, 6.66% (1) of them dropped out to go to work. Then
40% (6) went on to do the Leaving Certificate. Of this group 13.33% (2) went on to third level education to achieve degree status.

![Bar Chart](image)

**FIGURE 1.2 BAR CHART REPRESENTING THE EDUCATIONAL STATUS OF THE RESPONDENTS**

**Question 4** asked the participants about their previous computer experience. 40% (6) of them had no experience of the computer whatsoever, making them complete novices and requiring more time to teach. 6.66% (1) had just less than six months experience from a previous course. 20% (3) had one year of computer experience again based on previous courses. 6.66% (1) had two years experience. 26.66% (4) had over five years experience. The participants who had previous computer experience, a total of 60% (9) all felt that they could greatly benefit from more computer classes. They expressed the need to refresh themselves in the nuances of computer interaction. All admitted to feeling a bit ‘rusty’ when it came to remembering the various functionalities of the interface.
Question 5 asked the participants if they owned a computer at home. 53.33% (8) said no. 66.66% (6) of these respondents were the participants that had expressed having no previous computer experience and 13.33% (2) having just under one year experience. The remaining 46.66% (7) that said yes, were the participants who had from two to over five years computer experience.

Question 6 asked the participants if they suffered from any form of disability. 100% (15) of them said no.

Question 7 asked the participants if they had any conditions such as arthritis, vision impairment, hearing loss that might have affected their interaction with the computer. 73.33% (11) of them said that they did not have any of these physical ailments. 26.66% (4) said that they did. 20% (3) expressed that their vision made it very difficult to read the
text on the screen, while 6.66% (1) said that their fingers were affected by arthritis making it difficult to use the mouse and the keyboard.

**Question 8** asked the participants about their previous employment. The categories listed in the question were Shop work, Semi Skilled, Office work, Clerical officer, Educator or Professional. 46.66% (7) participants were from the employment categories of Shop Work and Semi-Skilled work. They were also all from the category of early school leavers. 20% (3) of the participants were in the employment category of Office work, 6.66% (1) was and early school leaver, 6.66% (1) completed the Intermediate Certificate and 6.66% (1) completed the Leaving Certificate.

There were 13.33% (2) participants in the category of Educator, 6.66% (1) had just a Leaving Certificate and the other 6.66% (1) had achieved degree status. Only 6.66% (1) participant was at professional level having achieved degree status. A correlation can be found to the level of education and a comparison to employment achievement. The higher the education the higher the job prospects.

![Participating Employment Status Graph](image-url)

**Figure 1.4 Bar Chart Representing the Employment Level of the Respondents**
4.2 RESEARCH INSTRUMENT 2: THE LIKERT SCALE INVESTIGATION

The second research instrument consisted of a 5-point Likert scale investigation with response options ranging from “Strongly Agree” to “Strongly Disagree”. The scale was designed to measure the degree of computer anxiety, confidence and age-related ailment that the participants have and was devised by the researcher in accordance with the findings of the literature review.

The findings in the literature review revealed that elderly users of computer technology possess unique physical, sensory, and cognitive features that present significant barriers to their use of computer technologies. A high percentage of the elderly Learner participants of this study responded in similar if not exactly the same way to the data delineated from the literature review. Many of the respondents had admitted to having the same fears, anxieties and age related infirmities as the elderly participants of the various international research studies reviewed.

The questions in this section probed further the elderly Learners levels of barriers to computer usage by stating the content in a factual straightforward way in accordance to the level of importance to the respondent. The results of the Likert scale investigation are discussed and represented by a series of tables in the next section.

These Likert scale statements assess the variables of fear, anxiety, self-confidence and age related infirmities.

<table>
<thead>
<tr>
<th>Statement 1: Before I started this course I had a fear of the computer.</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Agree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
<td>66.66%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

TABLE 1.1: TABLE TO ASSESS RESPONSE ON STATEMENT 1
Investigation statement 1: ‘Before I started this course I had a fear of the computer’, yielded a high percentage of respondents, 66.66% (10), having a previous fear of the computer. They were all from the lower educational achievement groups. The remaining 33.33% (5) disagreed and strongly disagreed with this statement, all of which were from the higher educational and employment achievement background.

Investigation statement 2: ‘I fear that I might break the computer’ yielded similar responses to question one. 53.33% (8) strongly agreed and agreed with this. 13.33% were neutral. While 33.33% (5) strongly disagreed. The same educational categories emerged; those having a fear of breaking the computer were from the lower educational background while those with no fear of breaking the computer were from the higher background. 13.33% (2) of the respondents responded neutrally to this statement.

Investigation statement 3: ‘I feel very anxious when I use the computer’, 53.33% (8) strongly agreed and agreed with this statement. The respondents who admitted having anxiety while using the computer were again from the same lower educational background. 13.33% (2) responded neutral and these were from the group who had achieved a moderate education. 33.33% (5) strongly disagreed and were the participants who had two to five years previous computer experience and who had higher educations.

With Investigation statement 4: ‘I am confident in my ability when using the computer’, the majority, 53.33% (8) strongly disagreed and 13.33% (2) disagreed to with this, feeling very little confidence while using the computer. The same pattern emerged in these respondents most having lower educational achievements. There were however, two of these respondents (13.33%), who had achieved a Leaving certificate, both were female. The reason for their lack of confidence is perhaps due to their lack of exposure to the computer in their previous employment years, a factor discovered from the focus group.
interviews. Most places where the elderly Learners were previously employed did not have computers, or they were restricted to certain employee grades or professions. 23.33% (4) agreed and 6.66% (1) strongly agreed to having confidence while using the computer. These participants had longer experience in computer usage and had attained higher educational and employment status.

The responses from investigation statement 5: ‘I worry about making mistakes on the computer’ yielded high results in the Strongly Agree, 53.33% (8), and Agree, 6.66% (1), categories. 20% (3) Strongly Disagreed and 20% (3) Disagreed.

<table>
<thead>
<tr>
<th>Q6: Memory loss affects my learning of the computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
</tr>
<tr>
<td>Strongly Disagree</td>
</tr>
<tr>
<td>Disagree</td>
</tr>
<tr>
<td>Neutral</td>
</tr>
<tr>
<td>Agree</td>
</tr>
<tr>
<td>Strongly Agree</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

TABLE 1.2: TABLE TO ASSESS RESPONSE ON STATEMENT 6

Investigation statement 6: ‘Memory loss affects my learning of the computer’ is perhaps the most significant factor to the barriers to computer usage of the elderly Learner, returned some interesting results. None of the participants strongly disagreed or disagreed with this statement. A high percentage of them 80% (12) strongly agreed and agreed with this statement. The most interesting part of this result is that all of the higher educational achievers, 40% (6) were in this category of agreeance. It is also interesting to note that the two participants who had achieved degree status were in this group and these participants were also the oldest members, 76 years and older, of the elderly cohort. Memory loss, appears to be the most critical barriers to computer usage, and is related to the deteriorating affects of the ageing process. 20% (3) participants responded neutrally to this question.
The responses to investigation statement 7: ‘The menus and Icons can be very confusing’, as with investigation statement 9: ‘Sometimes there is too much happening on the screen’ and investigation statement 10: ‘The drop-down menus are too difficult to use’, returned some significant data relating to the design of the graphic user interface, (GUI). The majority of participants 80% (12) either strongly agreed or agreed with this statement, all having significant problems interfacing with the sequences of computer commands. Menus and icons are too small; the design of the desktop layout and Windows ‘Start’ menu is too confusing. And while working in Microsoft Office Suite software, changing font sizes, styles and font cases is far too difficult to master. Of the other 20% (3) participants, only 6.66% (1) strongly disagreed to these interface questions, while 13.33% (2) disagreed. These participants were from the category of having over 5 years previous computer experience.

With investigation statement 8: ‘I feel overwhelmed when working on the computer’; a total of 53.33% (8) strongly agreed and agreed with this statement. These were of the lower education and less computer experience categories. The remaining 33.33% (5) strongly disagreed with this statement, all of which had over five years previous computer experience.

Investigation statement 11: ‘Sometimes it’s very hard to see what’s on the screen’, investigation statement 13: ‘I find it too hard to use the keyboard because of my hands/fingers’, investigation statement 14: ‘I find it very hard to find the letters on the keyboard’ and investigation statement 17: ‘I’m very slow at using the computer.’ are all designed to yield information about other aspects of age related ailment. The majority of participants up to 80% (12) strongly agreed and agreed to statements 11, 14 and 17, which delineates this aspect of the cognitive problems while interacting with computers. The technology set too much strain on their cognitive capabilities. They were forgetting details and felt that they were not able to think as quickly as the computer required. However only 13.33% of participants agreed to statement 13, ‘I find it too hard to use the keyboard because of my hands/fingers’, admitting to having problems with their hands or
fingers while using the keyboard and mouse. The remaining 86.6% (13) had no dexterity issues with the computer.

**Investigation statement 12:** ‘I enjoy working with computers’ and investigation statement 15: ‘I feel relaxed when I am working on a computer’ returned a majority of strongly disagree and disagree answers, from 53.33% (8) up to 80% (12). They neither enjoyed nor felt relaxed while using computers, which infers that they were anxious during their computer interaction. To the elderly Learner some computer tasks can be very difficult to complete. The anxious computer user can have a sense of the fear of losing important information if each procedure is not followed correctly, thus making them very slow at inputting keyboard and mouse commands. The remaining 20% - 33% (3 - 5) strongly agreed and agreed with both statements, enjoying the interactive aspects of the PC.

**Investigation statement 18:** ‘I am frightened of the computer’, yielded 66.66% (10) strongly agree and agree responses. These participants were from the lower educational and less computer experience categories. 26.66% (4) strongly disagreed and disagreed with this statement. 6.66% (1) participant responded neutrally.

With the last **investigation statement 19:** ‘I know more now about the Computer than I did before’, 80% (12) strongly agreed and agreed with this statement. The remaining 20% (3) were neutral. This is a very positive response from the participants inferring that they have gained some knowledge of the computer functionalities. They do however remain overwhelmed by the multiple tasks required to operate it.

<table>
<thead>
<tr>
<th>Statement 19: I know more now about the Computer than I did before.</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td>Agree</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
<td>60%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

**TABLE 1.19: TABLE TO ASSESS RESPONSE ON STATEMENT 19**
4.3 INTERVIEW FOCUS GROUP RESEARCH

The following is the series of questions that were asked of the three focus groups. The questions were designed to garner significant feedback that might validate the evidence found from the demographics questionnaires and the Likert scale investigation. The themes discussed in the focus group interviews are the participants memories and experiences of their education, the economy at the time, their employment history, their first memories and experiences of the computer, their opinions on the interface, their confidence and their opinions of the course.

There are a number of key quotes from the respondents listed in the following section, that highlight their experiences and feelings on a given subject. The duration of all three interviews ran to over six hours. Each session being slightly in excess of two hours. The questions were asked in a conversational manner, applying the same informal pace utilised during the delivery of the computer courses. It is worth noting that some individuals had dominant personalities and enjoyed talking on all subjects. Others were more selective whilst a few answered only when directly approached with a question. The author was mindful to gentle encourage the quieter respondents. All candidates had some interesting observations, memories and opinions to contribute.

In group A there were six participants, with an age range from 65 to 71. In group B there were four participants with and age range of 67 -80. And in group C there were five participants with and age range of 67- 74

4.4 INTERVIEW RESEARCH QUESTIONS

(Note: All quotes are transcribed verbatim in order to avoid the frequent and distracting use of [sic], with respect to the rural vernacular.)

The following selection of quotes were chosen because of their relevance to the research topic. The responses are presented reference to the entire fifteen elderly adults as one group. The responses are divided into six areas as follows:
4.4.1 PREVIOUS EDUCATION PROBE QUESTIONS

PARTICIPANT RESPONSES TO QUESTION 1 (EDUCATION)

Q1: What was it like in school when you were younger?

Person 1 Group A: “A lot of fear and lot of beatings going on. There was an awful fear regime in operation.

Person 2 Group A: “Oh god, you get a big slap if you didn't get it right, a big slap across your arm. It was really terrible what went on.

Person 4 Group A: “We were terrified.”

Person 1 Group B: “I liked primary school, but I hated secondary school.”

Person 2 Group B: “I hated secondary school! I never regretted leaving”

Person 4 Group B: “The general rule in primary school then was you got plenty of slaps. If you didn't know something you got two slaps! If you didn't know the next one you got three slaps!

Person 1 Group C: “It would have been almost military fashion. It was basically beaten into if you can understand what I’m saying.”

Person 2 Group C: “The few days that I did go and spend in a corner with a Dunces hat on me because I was dyslexic”

PARTICIPANT RESPONSES TO QUESTION 2 (EDUCATION)

Q2: What was the teacher like?

Person 4 Group A: “We didn't have respect for the teachers and that's no good at all really.”

Person 1 Group A: “I said some of them were cruel but they were all like that”

Person 1 Group B: “A lot of the teachers back then, it was through fear, they frightened the children.”
Person 4 Group B: “He had… he had a kind of uncontrollable temper and he’d fly off the handle.”

Person 2 Group C: “To beat the hands off me and put a dunces hat on me a put me sitting in the corner!”

Person 5 Group C: “A lot of them weren’t very compassionate.”

PARTICIPANT RESPONSES TO QUESTION 4 (EDUCATION)

Q4: How far did you go with your education?

Person 3 Group A: I left school at 14. We were living at the country in the heart of the country, and at that time there was no transport to get in to secondary school.”

Person 1 Group A: “I went to the Leaving cert and then I went to America for a couple of years after that. And then I came back to UCC and then I finished my education there.”

Person 1 Group B: “I did my intermediate certificate and then I went on did a commercial course for a year and a half. And I got a job then in the office of the local creamery”

Person 2 Group B: “I was the only one was who didn't go on, I didn’t feel that I would be able like you know. So I left school then just after the intermediate certificate.”

Person 3 Group B: “I didn't finish in secondary school, I didn't do the intermediate, because I found it too hard and I wasn't able to handle it.”

Person 4 Group B: “I did the intermediate cert and then leaving certificate. I got two honours in the leaving certificate. I went to Bolton Street and then I did architecture.”

Person 1 Group C: “I had finished second year with little over 13 and a bit. And I got bronchitis and that developed and I was six or eight months and I never went back to school.”
PARTICIPANT RESPONSES TO QUESTION 13: (EDUCATION)

Q13: If there was anything you could change about your previous education what would it be?

Person 1 Group A: “My experience personally the bad ones like and that's what didn't help me like, my baggage from my attempts…… You judge things on your previous experience.”

Person 2 Group A: “I think it was the marriage ban clamped down on women here. Their fathers would say: no point in educating her. You know.”

Person 6 Group A: “I would have loved to have gotten an education.. I would have loved to have been a nurse.”

Person 4: Group B: “I served my time as an apprentice cabinet maker and I made tables etc. I spent five years doing that….I went to Bolton Street and they did architecture. And I got a job serving in a restaurant in the evenings.”

Person 1: Group C: “Years ago it was different. The teachers weren’t interested in what they were doing.”

Person 2: Group C: “It Damaged me I would say. Damaged my perception, my self esteem, all of that.”

Education discussion: The responses to education questions 1,2,4 and 13 revealed negative school memories. Respondants either experienced first hand or witnessed, corporal, emotional or psychological punishment which impacted them negatively. This finding may have been influential in leaving education at an early age. “It damaged me, I would say. Damaged my perception, my self esteem, all of that.”

For some, the absence of transportation to cover the lengthy distance between home and secondary school was a factor. However in this study, 80% (12) of the participants lived in proximity to secondary schools.

A principal finding in this data was that economic necessity was by far the leading reason for leaving early education. 13.3% went straight from secondary school to work and 40% (6) dropped out of school in favour of employment. All were female.
A social attitude towards education is also poignantly represented in the comment made by one female participant's father, “Girls, sure there’s no point in educating them.”

### 4.4.2 SOCIO-ECONOMICS & EMPLOYMENT PROBE QUESTIONS

#### PARTICIPANT RESPONSES TO QUESTION 3 (SOCIO-ECONOMICS & EMPLOYMENT)

**Q3: What was the economy like?**

Person 1 Group A: “It was a very dark … Commodities and money was so scarce right. And if something broken Jesus there was no way you could replace it.”

Person 4 Group B: “The economy was terrible. I remember when I went into infant class the first time, with the nice lady teacher I got a slate and stick up chalk. And that was our copybook!”

Person 1 Group C: “The economy again was completely different. I remember in that day,… and that time of course there was considerable emigration to England.

#### PARTICIPANT RESPONSES TO QUESTION 5 (SOCIO-ECONOMICS & EMPLOYMENT)

**Q5: Did you get a job soon after leaving school?**

Person 4 Group A: I was 16 and I went into the post office. I took the civil service exams and then I got established and became a Telegraphist. I was made me clerical assistance and then got made up to a clerical officer.

Person 1 Group B: “I was offered a job in the local creamery and I took it.”

Person 2 Group B: “When I left school the civil service were looking for telephonists, and your Intermediate Certificate would be enough like. And you had to have an Irish. You would have to do an Irish exam. So I took Irish lessons, and I got that”

Person 4 Group C: “When I left school I went to job in the county Council. Now we were graded in the county Council. There were typists, clerical officers, staff officers. I was in charge of the clerical officers.”
Socio-economic and employment discussion: At the time of the participants education, the 1940’s and 1950’s, Ireland was a poor country. The rate of emigration, especially for single women, remained high throughout the forties. Few women worked outside the home and those that did lost their jobs on marriage. Money was hard to come by and jobs were few. The offer of a good job was a strong motive to leave school. 53.33 % (8), of the participants took employment over education to avail of the financial gain to the household. The majority of them 46.66% (7) stayed in semi skilled / shop work type employment for all the working lives. The remaining 6.66% (1) progressed through the civil service becoming a supervisor to clerical administrators.

4.4.3 KNOWLEDGE OF THE COMPUTER PROBING QUESTIONS

PARTICIPANT RESPONSES TO QUESTION 6 (COMPUTER INTERFACE)

Q6: When did you first hear of the computer?

Person 1 Group A: “We saw them in the newspapers and like”

Person 3 Group A: “It was my grandchildren that told me about computers.”

Person 4 Group B: “It was my children who introduced me to the computer. They gave me a present of a computer, for my, I think it was my 70th birthday.”

Person 5 Group C: “I got a demonstration for about four hours one day. They showed me what a computer was like …a brief description of what computers can do. That would have been about 1972.”

PARTICIPANT RESPONSES TO QUESTION 7: (COMPUTER INTERFACE)

Q7: What were your first impressions of the computer?

Person 2 Group A: “I wasn't mechanically minded and I said I'd be no good at that.”

Person 3 Group A: “I wasn't frightened of it really. Maybe I was a bit stupid that I should be picking up a bit quicker because my eyesight is not that good.”
Person 6 Group A: “I couldn't manage the mouse…. I was a bit frightened all right but I'm not now. I thought I was a bit stupid at the beginning”

Person 2: Group B: “I think was about 2005. But even at that I would have no interest in it”

Person 1 Group C: “I got a loan of for a year, it became obsolete before I gave it back, a little Commodore 64 this was an amazing thing.”

Person 3 Group C: “I never even knew how to open that computer until I came in here. I had no interest in this because I didn’t know anything about it”

PARTICIPANT RESPONSES TO QUESTION 12: (COMPUTER INTERFACE)

Q12: How did you find the interface, the Mouse, the keyboard, the screen?

Person 2 Group A: “I was using the mouse. The one thing I did with it was played the solitaire. So it did teach me the mouse.”

Person 6 Group A: “I couldn’t manage the mouse.”

Person 1: Group B: ” To un- do to go back up on. It took me a little bit of time, maybe something that I had done wrong. God what am I going to do now like I'm after losing all that like you know.”

Person 2 Group B: “I was terrified that I was going to break it or lock it. I don't know what I thought…Now that was a big thing for me and I found it very very hard to do that.”

Person 5 Group C: “To get up the programme, that you want. I’m not sure, that I know enough how to do it.”

Person 2 Group C: “I find it hard to know which you hit like.”

Computer interface discussion: 40% (6) of the participants worked their entire adult life in their place of employment without ever coming into contact with a computer. 26.66% (4) were employed where computers were used but they were not part of their job, so they never received training. The remaining 33.33% (5) worked where computers were part of the workplace and had basic instruction, but it was before the arrival of the Internet, email and the information age.
26.66% (4) of the participants were introduced to the computer by their children and grandchildren, either by witnessing the use of them in their home or being given a present of one. They felt that they should now find the time to learn how to use them properly. A large percentage of the participants 66.66% (10) mentioned having significant problems interfacing with the computer and with the sequences of computer functions. They mentioned that the on-screen menus and icons are too small; the design of the desktop layout and Windows ‘Start’ menu was too confusing. Moving the mouse around the screen was very difficult and the function of double clicking to open a document or software was almost impossible to master and at times very frustrating.

4.4.4 ANXIETY PROBE QUESTIONS

PARTICIPANT RESPONSES TO QUESTION 8: (ANXIETY)

**Q8**: What were your interests / aversions to learning how to use the computer?

**Person 1 Group A**: “We expect to fail a lot of the time when were dealing with technology. We use it more and more and it is getting less and less, we’re not surprised when we fail.”

**Person 3 Group A**: Well I suppose really I wanted to learn. I wanted to know more about it, in everyday life now, it's nearly online everything.”

**Person 6 Group A**: “I was terrified to come. I said to myself how can I go and learn computers; people would laugh at me at my age wanting to learn computers.”

**Person 1 Group B**: “We wouldn't touch them we would have no interest in them.”

**Person 4 Group C**: “Well I consider I wouldn’t be technical minded. I suppose I shied away from it. To be honest. If a thing went wrong I’d have to call, some man, some place.”

PARTICIPANT RESPONSES TO QUESTION 10: (ANXIETY)

**Q10**: Did you have any confidence in you operating the computer?

**Person 3 Group A**: “Well I did really I think if you want to learn something you will try it”

**Person 1 Group B**: “God I didn't have any.”
Person 2 Group B: “No…I'm afraid of them! I am afraid to use them because people might think I am stupid!”

Person 3 Group C: “I will be afraid that’s maybe I’d lose everything that was on it. And then I’d say to you that I have to start it all again.”

PARTICIPANT RESPONSES TO QUESTION 16: (ANXIETY)

Q16: Are you still confused about the PC?

Person 2, Group A: I would say that I'm in the process of but I have a bit to go.”

Person 2: Group B: It’s the little things like, if you lose something, how do you get it back?

Person 3: Group B: “The two sides of the mouse”.

Person 3: Group C: “You know the way when you go to close it down. And maybe you might leave something up and it wouldn’t close for you. Now that terrifies me.”

PARTICIPANT RESPONSES TO QUESTION 9: (ANXIETY)

Q9: Why didn’t you take up computer classes when they first became popular?

Person 1 Group A: “We came from a time, but when you got a new gadget you were told put that down you break it. Right. And when you're teaching people of our age this is impertinent now, … something that you have to get across of them, you can't break it, unless you jump right on top of it. Because we have come from that era were people would say put away those glasses or you'll wear them out!”

Person 3 Group A: “You would think or maybe get a teacher and then they would think you were stupid and you can’t pick something up… you feel that you're going to make an idiot of yourself like.”

Person 1 Group B: “You’d be afraid that you would touch the wrong button and something would go wrong and you break it.”

Person 2 Group B: “Computers were way out of line for me, I didn't know anything about them, I never worked in places that there was one.”

Person 1 Group C: “I suppose I was more afraid. I didn’t have one at home.”

Person 2 Group C: “In case I break it like, do you know what I mean?”
Anxiety Discussion: The majority of participants 66.66% (10), expressed a number of negative emotions concerning their feelings towards the computer. The emotion ‘fear’ has manifested in them in a number of ways; the fear that they might break the computer, the fear that they might do something and it will disappear off the screen and the general perception of looking stupid. These fearful emotions may stem from their earlier years when the general sentiment was if something got broken, the money was not there to replace it.

Children were not allowed to touch things for the fear of breaking them; “when we were young we were never allowed to turn on or off the wireless”. The forbidding sentiment of not being allowed to touch expensive items or technology may have stayed with them throughout the years.

4.4.5 CONFIDENCE PROBE QUESTIONS.

PARTICIPANT RESPONSES TO QUESTION 11 (CONFIDENCE)

Q11: What inspired you to apply for this course?

Person 1 Group A: “Well I suppose really I wanted to learn. I wanted to know more about it, in everyday life now, it’s nearly online everything. A holiday is a book this book that or where ever you go.”

Person 3 Group B: Sure my grandchildren when they come over visiting .. they bring their laptops.

Person 2 Group C: “Before I just get much older I’d like to be able to send an email and to just do things and go on eBay or whatever.”

Person 4 Group C: “They gave me a present of one….so I said I better go and learn something then and that is what inspired me to do it.”

PARTICIPANT RESPONSES TO QUESTION 14: (CONFIDENCE)

Q14: Is it important to have confidence in the Tutor?

Person 2. Group A: “Yes it is. Sure it always is isn’t it? To feel that the teacher is approachable.”

Person 6 Group A: “I think it is”
**GROUP A PARTICIPANT RESPONSES TO QUESTION 15: (CONFIDENCE)**

Q15: Has the course benefited you in any way?

Person 1 Group A: “You can access information too you know. You know If I hear something on the radio, eh, www dot, www dot, motivation dot ie, slash, forward slash. You if actually want to get anything now, a programme, up on the radio like, you can get it up on that thing.”

Person 2 Group A: “Maybe it makes you feel a bit younger. You know what’s going on in the world more.”

Person 3 Group A: “You don’t feel stupid now.”

Person 4 Group A: “I have learned a lot by coming in ….things that…well I would have been scared of before.”

Person 2: Group B: “It’s important to keep at it though isn’t it?”

Person 3 Group B: “The big things are grand, but it’s the little things I still have problems with.”

Person 3: Group C: “I am still nervous of it, not as bad now but I still be I mean I won’t go ahead like on my own initiative I am always developing nervous like even though I can do a lot. I mean I’ve made some progress like.”

**PARTICIPANT RESPONSES TO QUESTION 17: (CONFIDENCE)**

Q17: Will you be buying your own PC soon?

Person 1: Group A: “I do intend to buy a laptop because I feel I would make more use of it.”

Person 4 Group A: “I got a laptop.”
Person 5 Group A: “My son brought one home from America for me. It isn't set up yet.”

Person 6 Group A: “I will get one.”

Person 4: Group B: “There’s a new laptop in my house that I might become accustomed to!”

Confidence discussion: These questions were designed to gauge the levels of confidence the respondents had prior to and after the completion of their computer course. The inspiration for them to take up tuition came from a number of areas: influence from their grandchildren, influence from their peers but most of all a feeling that they ought to do something about their lack of knowledge. Having confidence in the tutor, instilling a sense of trust that he or she is not going to be like their previous educators, was important to them. The majority of the participants, 53.33% (8) knew that they were lacking in the skills to operate a computer prior to the course and they do not want to feel that they will be ridiculed because of this; “You would think or maybe get a teacher and then they would think you were stupid and you can’t pick something up… you feel that you’re going to make an idiot of yourself like.”

As their classes progressed and they began to gain a basic understanding of how and why things work. This was beneficial for those who had no previous experience because they weren’t as ‘terrified’ of the computer.
CHAPTER 5 DATA ANALYSIS

5.0 INTRODUCTION
This chapter examines the findings from the previous chapters and discusses the issues emerging within the context of the literature review. The main areas are under the following headings;

1. Variables contributing to computer anxiety analysed from questionnaire one.
2. Analysis of the Likert scale investigation in terms of responses to anxiety /fear, age related ailment, interface and self-confidence.
3. Focus group interview, overview of responses.

5.1 QUESTIONNAIRE 1 VARIABLES
The demographical data collated from the first questionnaire, age, gender, education, employment, age related infirmities / disabilities and computer experience can separate the cohort of 15 elderly Learners into distinct groups. These groups are linked together based on the pattern of responses from the first questionnaire to the second Likert scale investigation. These general themes emerging from both initial investigations are probed further by asking similar themed questions to the cohort of elderly Learners in the focus group interview sessions.

There are two basic groups, the lower educated, semi-skilled job, no computer experience group and the higher educated, higher employment with previous computer experience group. The lower group responded the same way to questions relating to fear, anxiety and confidence, expressing an overall apprehensive and fearful approach to the PC. But the higher group expressed no fear and were confident and relaxed when it came to using the computer.

There was also a distinct gender divide in the analysis. 100% of the male participants had some previous computer experience, whilst 80% of the female participants had no previous computer experience at all. The remaining 13.33% (2) females had up to one-year computer experience. The majority of the males 26.66% (4) of the entire group, were
higher educated; 13.33% (2) of them to Degree status and 13.33% (2) to Leaving Certificate standard, while only 13.33% (2) of the females were higher educated (Leaving Certificate).

The main body of the group 53.33% (8) consisted of lower educated and no previous computer experienced females.

5.2 RESEARCH INSTRUMENT 2: LIKERT SCALE ANALYSIS

The analysis of the participant response data from the various probe statements designed in the Likert-scale investigation will be grouped together in order of the themes researched. These probe themes are anxiety /fear, age-related ailments, the computer interface and confidence.

5.2.1 ANXIETY / FEAR

By amalgamating the questions that probe the anxiety and fear factors that elderly Learners have, a strong pattern emerges that highlights that the same participants have the same feelings and opinions when it comes to computer usage.

A high percentage, 66.66% (10), strongly agreed or agreed with the questions pertaining to fear of the computer. They mentioned that they had a fear of the computer prior to their courses and still feared them after the computer courses had been completed.

To the elderly Learner fear has a number of manifestations; their belief that they are not smart enough to operate the computer and the rest of the class will know, that they will be ridiculed somehow by the teacher, that they will constantly make mistakes or that they might break the computer or damage it in some way.

Herdman, (1983), mentions the emotional fear, apprehension, and phobia that elderly Learners felt towards their interactions with computers or when they think about working with a computer. The fear of damaging the computer was a high scoring factor. A total of 53.33% (8) of the participants had a notion of that they would damage or break the computer if they interacted with it. With reference to some of the quotes from the focus
groups, some of the participants did mention that they grew up in a time where money was scarce and children were raised being told not to touch things because they might break them. Once broken, there would not be the money to replace the item.

“We came from a time, when you got a new gadget you were told put that down or you break it”

Zajicek, (2007) also mentions that ‘Elderly people, who usually have fears of using, breaking or not-knowing about ICT’. While Fainges, (1999) says; ‘The elderly benefit by learning that computers are neither magical nor breakable.’

A high percentage of the participants worried about making mistakes. A total of 66.66% (9) participants feared making mistakes. The fear of the machine and making errors results form a lack of self confidence. Fisher, (1991) mentions ‘Sometimes, lack of confidence manifests itself as computer anxiety or technophobia in older learners.’

Bhattacharjee, (2007) mentions that ‘Internally, an anxious user lacks confidence in his/her ability to handle the technology and fears making mistakes’.

They brought with them their anxiety or phobia of the computer. Older persons fear they will break their computers, erase programs, or feel ‘too dumb to learn.’ Saunders, (2004)

From the analysis of the first questionnaire that investigated the theme ‘education’, it was discovered that all of the participants that had fear, anxiety, worried about making mistakes or were overwhelmed by the computer had low educational levels. They all had left school before the completing Intermediate Certificate. 53.33% (8) of them were early school leavers.

Cullen et al. (2008), discuss in their study of older people and ICT usage in Ireland that elderly adults with lower educations were in the highest categories of non-computer usage. ‘Those having only a primary education were associated with an up to ten-fold greater risk of non-computer usage’ Older adults from a less educated background are far more likely not to engage in computer activity prior to doing computer courses. They have a negative attitude to computers such as ‘they were too difficult to learn to use’ (Cullen et al. 2008).
5.2.2 NO FEAR

33.33% (5) of the participants that did not fear, had no anxiety or did not worry about making mistakes were from a higher educational background. 13.33% (2) of which had third level qualifications. The other participants, 20% (3), had a leaving certificate.

Cullen, et al, (2008) mention ‘Those with higher levels of education…were more likely to report having first come to use computers’.

In this research, the author discovered that individuals with high self-efficacy used more computers, enjoyed using them, and experienced less computer-related anxiety.

5.2.3 INTERFACE

By amalgamating the questions that probe the computer interface of the drop down menus, the keyboard, the mouse and general interactivity there has been an overwhelmingly high percentage of elderly users who have great difficulty in mastering their interactive abilities. 80% (12) of the participants found the menus and icons on the computer interface too confusing. The Graphic User Interface (GUI), and all its operational aspects seem to be too difficult to use for the majority of the cohort of this study. A similar problem found in Hawthorn, (2001) ‘It also becomes hard to make new associations, for example identifying icons for different applications’ and Bean, (2003) ‘the double-click operation is one of the most problematic for older adults’.

Rajendran et al. (2005) discuss in their study of a free course designed to educate senior citizens in introductory-level computing, that many of the participants found ‘Using the mouse was strange, and seemed all but impossible.’ Hawthorn, (2001), also discusses that it also becomes hard for elderly users to remember the multiple tasks of computer interactivity.

There is difficulty in carrying out multiple tasks simultaneously. It also becomes more difficult to retain things in short-term memory. (Hawthorn, 2001).
Moving the cursor around the computer desktop and clicking open the icons on the screen are too difficult to master. 20% (3) did not have the problems of interactivity mainly because these were of the category of participants who had over five years experience of computer activity.

5.2.4 AGE RELATED AILMENTS

26.66% (4) of the participants said that they have conditions such as arthritis, vision impairment and hearing loss that may affect their interaction with the computer. This made it difficult to use the keyboard and mouse because of their hands or fingers being not as dexterous as they wished. The fact of elderly age-related-ailment encompasses a host of infirmities, which accompany old age.

Bean, (2003) notes that age affects the ‘ability to focus on the task at hand’ that physical conditions such as arthritis hamper mouse and keyboard usage. Deteriorating visual, auditory, cognitive, bone, joint, and muscular faculties affect computer interaction for elderly users (Bhattarcharjee, 2007). Rajendran et al. (2005) mention the elderly having certain physical issues relating to their visual, auditory and psychomotor abilities that hinder their computer interaction. While Jokisuu et al. (2008) discuss deteriorating eyesight and motor functions causing major problems with elderly computer users.

5.2.5 MEMORY LOSS

79.99% (12) of the participants strongly agreed and agreed to memory loss affecting their ability to learning the computer. This was one of the factors that almost all of the participants had in common, their inability to remember on a continual basis the interactive procedures that bring them from one computer function to another. The other 20% (3) participants were neutral to this fact, which implies that by not agreeing to this statement they may have memory issues themselves.

Bhattarcharjee, (2007) states that memory loss among the elderly reduces their ability to build conceptual models of the computers functioning interface. The activity of moving
from one place to another on the desktop relies on ‘remembering sequences of actions and reasoning among them, thereby hindering their abilities to retrace and navigate’. Bhattacharjee, (2007).

The slowing down of the elderly computer users working memory leads to a reduction in their processing speed. The impairment of these cognitive faculties can prohibit them from recalling complex operational procedures. This factor alone affected even those of a higher educational achievement, making it a determining barrier to the elderly Learners computer usage.

5.2.6 SELF-CONFIDENCE

The majority of the participants, 66.66% (10) were lacking in self-confidence when it came to computer usage. 73.33% (11) did not feel relaxed when they worked at the computer. These were the same group of participants who were from the category of early school leavers 53.33% (8) and 20% (3) with Intermediate certification.

This category of elderly Learners have come from and educationally disadvantaged background where their educational progression was halted due to a number of factors. Kellaghan et al. (2006), acknowledge that the term educational disadvantage is used to represent complex phenomena which results from the interaction of deep-seated economic, social and educational factors. Poverty, unemployment, parental education and occupational attainment give rise to disadvantage which in turn affect the knowledge, skills and attitudes which children and adolescents develop, creating a lack of continuity throughout life.

Eventually the student from a disadvantaged background is likely to leave school early, with poor formal qualifications and poor employment prospects. (Hannan, 1986; Hannan et al., 1991; Murphy & Whelan, 1995; Smith & Surridge, 1995)

The remainder of the participants, 26.66% (4), expressed confidence and were relaxed while operating the computer and were from the higher educated category. Some of the
literature reviewed provides evidence that education can provide a greater computer confidence in elderly users, leading to a reduction of computer-anxiety.

Participants with higher educational attainment were more likely to engage in computer-related activities, we expected that older adults with more education would have higher levels of computer knowledge and less computer anxiety. (Ellis & Allaire, 1999)

Users with more education tend to develop greater degrees of interest and understanding in computing, which tend to combat the strains of computer-phobia among them (Ellis & Allaire, 1999; Yang, Mohamed & Beyerbach, 1999).

5.2.7 HIGHER EDUCATED

In this study a correlation has emerged between the categories of education and previous computer experience. It has been validated by analysing the data from the research tools together with a review of the literature that having a higher education is a direct influencing factor on whether or not the elderly Learner engages in computer activity. In this study it was discovered that the elderly Learners with higher educational achievements engaged in computer activity at an earlier stage in life and did not suffer from computer anxiety.

With the questions asked in the Likert-scale investigation on previous educational achievements, fear of the computer and computer confidence, the same five participants who were from the higher educational group were confident and relaxed in their computer abilities and had no fear of the computer. 13.33% (2) participants, both male, had achieved a third level education and were amongst the category that had over five years computer experience. Another 13.33% (2) participants, one female one male, had over five years computer experience and they had achieved the Leaving Certificate. They had enough confidence and ability to persist in the computer classes. Their main problem with computer activity was memory loss. They simply forgot how things were
done. This relates to the aspect of age related ailments, the body does slow down and memory loss is a significant contributing factor to the barriers to computer usage.

Research also proves that education fosters greater computer confidence in users, leading to a reduction of computer-anxiety among them. Also users with more education tend to manifest greater degrees of interest and knowledge in computing, which tend to combat the strains of computer-phobia among them (Ellis & Allaire, 1999)

Higher educational attainment was related to higher levels of both computer knowledge and computer interest and lower levels of computer anxiety. (Ellis & Allaire, 1999)

5.3 FOCUS GROUP INTERVIEWS

The three interview interviews yielded a number of significant findings that can be validated in the literature review. This investigation researched the barriers that affect elderly Learners interactions with the computer. In the literature review the most significant factor that inhibited the various elderly participants of other studies was a low level of education. Second to that, age-related memory loss, fear and anxiety.

The focus group interviews yielded quotes from the respondents on their experiences with computers. The general sense prevailing from a high percentage of the participants 66.66% (10) is that they feared using the computer because they really believed that they would damage it. This unfortunate dilemma stems from their childhood.

“You’d be afraid that you would touch the wrong button and something would go wrong and you’d break it.”

Attitudes have also something to say in learning motivation, especially amongst elderly people, who usually have fears of using, breaking or not-knowing about ICT. (Naumanen & Tukiainen 2008)
This inhibiting state of being is a universal phenomenon that is replicated across all aspects of technology.

The responses concerned with technology in general or related specifically to computers, digital television, or mobile phones…..Many respondents said that technology was too complicated and the devices and applications had too many features and functions. (Jokisuu et al. 2008)

Saunders, (2004) remarks that it important that the elderly Learner know that computers and programmes are hardy and difficult to break. This aspect should be reinforced to each and every elderly Learner on a continual basis throughout their period of study in order to ease their minds and to enhance their performance.
6.0 CONCLUSION & RECOMMENDATIONS

6.1 INTRODUCTION

The results from this case study comprising fifteen elderly Learners arise from a synthesis of study results with a review of the literature. It is hoped that the following recommendations provide scope for consideration of a more varied approach to the delivery of computer classes to elderly Learners. It is also hoped that there will scope for consultation with those organisations that provide educational opportunities to these Learners.

6.2 PRINCIPAL FINDINGS OF THE RESEARCH

In accordance with a review of the literature, this study has identified the four most significant inhibitory barriers to computer usage for elderly Learners as follows:

6.2.1 The first significant finding in this study is the adverse affects of leaving school early with low educational achievements. The majority of the participants, 66.66% (10), reached a low level of educational accomplishment. They were not stimulated to engage in computer activity at a time when they were becoming easier to use. Cullen et al, (2008) noted ‘older people with low levels of education are much less likely to use computers’.

6.2.2 The second significant barrier identified is the effect of age-related memory loss on retaining information and computer functionality. It is generally accepted that aging results in a decline in intellectual performance (Zajicek, 2001). In this case study it was confirmed that the majority of participants, 80% (12), acknowledged that their biggest problem was an inability to remember the procedural operations of navigating from place to place in the computer interface. According to Craik & Bosman (1994), the biggest loss of memory occurs in the working memory, the ability to remember information over a
brief period of time and this makes it increasingly difficult for elderly people to learn new things.

6.2.3 The third significant barrier finding is an anxious fear of the computer. This anxiety can cause the elderly Learner to have a deliberate avoidance of the computer and procrastination when it comes to overcoming this anxiety. There is a very large ‘fear factor’ operating in the minds of older persons regarding computers. “You think you are going to break it.” … “Seniors are absolutely afraid of it” (Saunders, 2004). Some of the responses in this study are similar in this vain; “I was terrified that I was going to break it or lock it.” “I'm afraid of them! I am afraid to use them because people might think I am stupid!”

6.2.4 The fourth principal finding is the problems which arise from the current trend in the design of the computer interface which omits the needs of the elderly user. The modern computer interface design requires the use of memory, sight and strategy building, (Zajicek, 2001). The cause and affect of clicking various on screen icons and subsequent actions requires a quick response. These instantaneous actions can be bewildering for elderly computer users, happening too fast for them to follow, often leaving them wondering, where did it disappear to? Or what have I just done? Current interfaces require fluid memory, which is the use of memory to solve problems that have no solutions derivable from formal training or cultural practices (Zajicek, 2001).

Elderly adults rely on a neural model of reasoning whereby objects, phenomena and experiences, are stored over a lifetime of learning. These aspects are formed in the mind and develop their concepts of reasoning. This view of the ‘neural model’ (Lakoff & Johnson 1999) suggests that it may have an affect on the way in which they approach familiar environments and objects.

As fluid and working memory ability decreases with age, the elderly adult relies more and more on their stored concepts of experience to create new concepts. Their ability to
associate their past neural model of experience with contemporary computer jargon and interface design however, diminishes.

Vines & Thompson (2007) suggested in their paper on an inclusive cognitive interaction design for elderly adults that,

> By understanding something of the composition of these memories, the designer might begin to understand how an older user may appropriate their product, object or artifact into an activity. (Vines & Thompson 2007)

### 6.3 Recommendations

The following recommendations arise from the principal findings of this case study in an association with a review of the literature.

#### 6.3.1 To further develop the partnership between those organisations which represent the elderly and those organisation which currently provide education to the elderly Learner. This report identifies a need for professional training with regard to the the elderly learner. The growth of the elderly population in Ireland has been accelerating rapidly and educational opportunities for elderly people are set to increase.

> ‘As our elderly population continues to accelerate, educational opportunities are set to increase’ (Sheppard 1979). A clearly defined unified approach towards the development of teaching techniques specific to the elderly learner is needed. An area worth further study would be the development of a teaching programme offered at teacher training level in Ireland.

The development of a unified elderly Learner centered approach based on the principle of ‘Teach, review and repeat lessons often’ (Springer, 2004). It is necessary to reinforce lesson plans by repeating the instruction a number of times to ensure the information is retained. At the start of every new class, summerize and repeat the same content and detail of the previous class. Thereby addressing the age related problem of memory loss as identified in section 6.2.2
6.3.2 Course Structure: A review of the course structure for the elderly learner is necessary. The majority of computer classes are administered by the VECs and FETAC, (the Further Education and Training Awards Council), the national awarding body for further education and training in Ireland.

Computer training classes for the elderly need to be redesigned with the elderly Learner in mind. The existing lesson plan and course structures need to be modified. The lesson plans and class content could be in the form of task assignments. Tutors could be prepared to adapt the curriculum to individual learning styles and needs. More time should be allocated for the elderly Learner so that classes can be be summerised or repeated if necessary.

6.3.3 A review of the exam procedure is required. As identified, one of the principal barriers to education for the elderly Learner is anxiety. Examinations can be stressful, intimidating and most importantly can rekindle those feelings of anxiety that educators are trying so desperately to avoid. A shift in teaching rewards is required. The setting of different goals to allow for optimal results in Learner satisfaction and achievement. These goals may be very different from those set for the younger Learner. Computer training is often designed in ways specific to younger learners and is not “age appropriate” for the elderly (Bean, 2003; Burch and McGrath, 2004). The likes of speed typing tests for example need to be illiminated and replaced instead with the simple task of successfully sending and receiving an email.

6.3.4 Elderly users would benefit from interfaces that are user friendly, as ‘simple and intuitive as possible’ (Ala Mutka et al. 2008). However, the current trend in the design of the computer interface generally omits the needs of the elderly (Jacob, 2001). Icons are too small, there are too many things happening on the screen and navigation throughout the GUI is too complicated. The interface of a GUI designed specifically for the elderly learner could have familiar images to represent specific computer functions. Familiar images can be associated with basic operations such as an image of a pen and paper for
writing a letter, and image of an envelope for email etc. ‘The elderly prefer familiarity more than the young, and find technology that uses this familiarity and their experiences more acceptable’ (Ejeisa, 1996).

If these concepts of the elderly adults ‘stored associations’ in their long-term memory are used for their later procedural and semantic unconscious retrieval, a suitable computer platform could be designed to utilise these past-experiences.

6.4 LOOKING TO THE FUTURE: CONTEMPORARY SOLUTIONS FOR THE DIGITAL DIVIDE

Recent developments have brought about a number of newly designed interfaces specifically for the elderly user. These computers a host of attractive features such as ‘a computer you can’t break, crash or confuse’ and ‘a computer that won’t lose what’s put into it, and that’s protected from viruses and spam!’

The ‘Go’ Computer launched in 2009 by the American company ‘firstSTREET’ boasts an interface and operational software that is ‘failure-free’ and a machine that is a ‘fear-free computer’. The Go computer was launched

To accommodate the needs and wishes of a demographic that has traditionally resisted the world of computers or had the hardest time accessing it. (Orlov, 2009).

Specially designed features such as a large-letter keyboard, an easy-rolling trackball mouse and a zoom feature that magnifies up to 200 percent make this computer easier to use.

Another innovation, the ‘SimplicITy’ computer was developed in the United Kingdom by Wessex Computers and Discount Age and launched in 2009. The SimplicITy computer is a stripped-down version of a desktop PC operating on a Linux platform. It has only six simple on-screen buttons to guide the user to do simple tasks like surf the internet or send e-mail. When the computer powers up it goes directly to a front page named ‘Square
One’, which contains the six buttons for web browsing, e-mail, files, chat, and user profile.

If these machines become more commonplace, classes designed for the elderly Learner may become more beneficial for the participants and the tutor. However, the implementation of such new interfaces will require a considerable financial investment on the behalf of the institutions that deliver courses in computer instruction.

Overcoming these problems and teaching the elderly Learner how to use the computer can be challenging to all educators.

On the whole, however, it was discovered that the most important facet of teaching the elderly is patience and empathy… to overcome this requires infinite patience on the part of the tutor. However, it’s worth it because they get there eventually, and they are most grateful! (Rajendran et al. 2005).

6.5 CONCLUSION

The elderly Learners at the core of this research are unique in that they are one of the last cohorts to be educated in the most basic principals of computer practice. Future generations will have had a more widespread exposure to computer-based technologies. However, in keeping with the principal findings of this report it is likely that age-related infirmities will persist. To this end the implementation of an elderly Learner centred approach requires further exploration.

Such is the pace of these rapidly evolving technologies, the computer skills in which we find ourselves proficient today will likely be obsolete tomorrow, the elderly Learner of the future may in turn find themselves equally daunted and equally perplexed. But we too will eventually get there, and we too will be most grateful.
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United States Department of Education, Office of Special Education and Rehabilitative Services, Office of Special Education Programs
Technology and Media Services for Individuals with Disabilities. Steppingstones of Technology Innovation for Students with Disabilities (CFDA 84.327A)
PR # H327A000000071


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APPENDIX 1: QUESTIONNAIRE 1 PARTICIPANTS RESPONSES.
Figures and table responses

Q1: YOUR AGE (IN YEARS): PLEASE TICK

60-64 ____________
65-70 ____________
71-75 ____________
76 and Above ____________

Figure 1.1 Bar Chart representing the Age of the participants

<table>
<thead>
<tr>
<th>Age Variation</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 - 64</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>65 - 70</td>
<td>12</td>
<td>80%</td>
</tr>
<tr>
<td>71 - 75</td>
<td>1</td>
<td>6.66%</td>
</tr>
<tr>
<td>76 &amp; Above</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1.1 Table to assess response to question 1
Q2: YOUR GENDER STATUS: PLEASE TICK

Male__________

Female__________

<table>
<thead>
<tr>
<th>Validity</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>5</td>
<td>33.33%</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>66.66%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1.2: Table to assess response on question 2

FIGURE 1.2: BAR CHART REPRESENTING THE GENDER STATUS OF THE RESPONDENTS
Q3: YOUR PREVIOUS EDUCATIONAL ACHIEVEMENTS. PLEASE TICK

Primary School Certificate

Group Certificate

Intermediate Certificate

Leaving Certificate

Bachelors Degree

FIGURE 1.3: BAR CHART REPRESENTING PREVIOUS EDUCATION OF THE RESPONDENTS

<table>
<thead>
<tr>
<th>Previous Education Achievements</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Cert</td>
<td>15</td>
<td>100%</td>
</tr>
<tr>
<td>Early Leavers</td>
<td>8</td>
<td>53.33%</td>
</tr>
<tr>
<td>Inter cert</td>
<td>7</td>
<td>46.66%</td>
</tr>
<tr>
<td>Leaving Cert</td>
<td>6</td>
<td>40%</td>
</tr>
<tr>
<td>Degree</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Table 1.3: Table to assess response on question 3
Q4: YOUR PREVIOUS COMPUTER EXPERIENCE. PLEASE TICK

None
Below 1/2 year
1-year
2-years
3-years
4-years
5-years and above

FIGURE 1.4: BAR CHART REPRESENTING THE PC EXPERIENCE OF THE RESPONDENTS

<table>
<thead>
<tr>
<th>Previous Computer Experience</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>6</td>
<td>40%</td>
</tr>
<tr>
<td>Below ½ Year</td>
<td>1</td>
<td>6.66%</td>
</tr>
<tr>
<td>1 Year</td>
<td>3</td>
<td>20.00%</td>
</tr>
<tr>
<td>2-Years</td>
<td>1</td>
<td>6.66%</td>
</tr>
<tr>
<td>3-Years</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>4-Years</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>5-Years &amp; Above</td>
<td>4</td>
<td>26.66%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

TABLE 1.4: TABLE TO ASSESS RESPONSE ON QUESTION 4
Q5: DO YOU OWN A COMPUTER AT HOME? PLEASE TICK

(Yes)________

(No) _________

FIGURE 1.5 BAR CHART REPRESENTING THE COMPUTER OWNERSHIP OF THE RESPONDENTS

<table>
<thead>
<tr>
<th>Validity</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>7</td>
<td>46.62%</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
<td>53.28%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1.5: Table to Assess Response on Question 5
Q6: DO YOU SUFFER FROM ANY DISABILITY / DISABILITIES? PLEASE TICK

(Yes) _________

(No) _________

FIGURE 1.6: BAR CHART REPRESENTING THE NUMBER OF RESPONDENTS WHO REPORTED HAVING CONGENITAL DISABILITIES

<table>
<thead>
<tr>
<th>Validity</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1.6: Table to Assess Response on Question 6
Q7: DO YOU HAVE ANY CONDITIONS SUCH AS ARTHRITIS, VISION IMPAIRMENT, HEARING LOSS THAT MAY AFFECT YOUR INTERACTION WITH THE COMPUTER? PLEASE TICK.

(Yes) ___________
(No) ___________

FIGURE 1.7 BAR CHART REPRESENTING THE NUMBER OF RESPONDENTS WHO REPORTED HAVING IMPAIRMENTS

<table>
<thead>
<tr>
<th>Impairments</th>
<th>Impairment</th>
<th>No Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

Q7. Do you have any conditions such as Arthritis, Vision impairment, Hearing loss that may affect your interaction with the computer?

<table>
<thead>
<tr>
<th>Validity</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4</td>
<td>26.64%</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>73.26%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 1.7. Table to Assess Response on Question 7
Q8: WHAT PROFESSION DID YOU OBTAIN BEFORE YOU RETIRED?

Shop work_______
Semi Skilled_______
Office work_______
Clerical officer____
Educator_________
Professional_______

PARTICIPANT EMPLOYMENT STATUS GRAPH

FIGURE 1.7: BAR CHART REPRESENTING THE EMPLOYMENT STATUS OF THE RESPONDENTS

<table>
<thead>
<tr>
<th>Profession</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shop work</td>
<td>5</td>
<td>33.33%</td>
</tr>
<tr>
<td>Semi Skilled</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Office work</td>
<td>3</td>
<td>19.98%</td>
</tr>
<tr>
<td>Clerical officer</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Educator</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Professional</td>
<td>1</td>
<td>6.66%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

TABLE 1.8: TABLE TO ASSESS RESPONSE ON QUESTION 8
APPENDIX 2 LIKERT SCALE INVESTIGATIONS

Responses to Likert scale investigation. Actual tabulated percentages and numbers.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Before you started this course I had a fear of the computer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
<td>20%</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
<td>66.66%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2.1: Table to Assess Response on Statement 1

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2: I fear that I might break the computer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>5</td>
<td>33.33%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Agree</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>6</td>
<td>39.99%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2.2: Table to Assess Response on Statement 2

<table>
<thead>
<tr>
<th>Statement</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>3: I feel very anxious when I use the computer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>5</td>
<td>33.33%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>2</td>
<td>13.33%</td>
</tr>
<tr>
<td>Agree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
<td>53.33%</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2.3: Table to Assess Response on Statement 3
4: I am confident in my ability when using the computer.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>8</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

*Table 2.4: Table to Assess Response on Statement 4*

5: I worry about making mistakes on the computer.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>3</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
</tr>
<tr>
<td>Agree</td>
<td>1</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

*Table 2.5: Table to Assess Response on Statement 5*

6: Memory loss affects my learning of the computer

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>3</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

*Table 2.6: Table to Assess Response on Statement 6*
7: The menus and icons can be very confusing.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>3</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
</tr>
<tr>
<td>Agree</td>
<td>4</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

*Table 2.7: Table to Assess Response on Statement 7*

8: I feel overwhelmed when I am working on a computer.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>5</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
<td>2</td>
</tr>
<tr>
<td>Agree</td>
<td>3</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

*Table 2.8: Table to Assess Response on Statement 8*

9: Sometimes there is too much happening on the screen

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>1</td>
</tr>
<tr>
<td>Neutral</td>
<td>2</td>
</tr>
<tr>
<td>Agree</td>
<td>5</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
</tbody>
</table>

*Table 2.9: Table to Assess Response on Statement 9*
10: The drop-down menus are too difficult to use

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>1</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
</tr>
<tr>
<td>Agree</td>
<td>2</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

*Table 2.10: Table to Assess Response on Statement 10*

11: Sometimes it’s very hard to see what’s on the screen

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Neutral</td>
<td>2</td>
</tr>
<tr>
<td>Agree</td>
<td>2</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

*Table 2.11: Table to Assess Response on Statement 11*

12: I enjoy working with computers.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>8</td>
</tr>
<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
</tr>
<tr>
<td>Agree</td>
<td>2</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

*Table 2.12: Table to Assess Response on Question 12*
13: I find it hard to use the keyboard because of my hands/fingers.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
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<tr>
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<td>6</td>
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<tr>
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</tr>
<tr>
<td>Strongly Agree</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
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Table 2.13: Table to Assess Response on Statement 13

14: I find it very hard to find the letters on the keyboard.

<table>
<thead>
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<th>Percent</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>Disagree</td>
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</tr>
<tr>
<td>Neutral</td>
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<tr>
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<tr>
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<tr>
<td><strong>Total</strong></td>
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Table 2.14: Table to Assess Response on Statement 14

15: I feel relaxed when I am working on a computer.

<table>
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<tbody>
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<tr>
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<tr>
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<td><strong>Total</strong></td>
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</tbody>
</table>

Table: 2.15 Table to Assess Response on Question 2.15
16: I find it hard to use the mouse.

<table>
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<tr>
<th>Frequency</th>
<th>Percent</th>
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</thead>
<tbody>
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<tr>
<td>Disagree</td>
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Table 2.16: Table to Assess Response on Statement 16

17: I’m very slow at using the computer.

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<tbody>
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<tr>
<td>Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Neutral</td>
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<tr>
<td>Agree</td>
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<tr>
<td>Total</td>
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Table 2.17: Table to Assess Response on Statement 17

18: I am frightened of the computer.

<table>
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<th>Frequency</th>
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</thead>
<tbody>
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<tr>
<td>Disagree</td>
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</tr>
<tr>
<td>Neutral</td>
<td>1</td>
</tr>
<tr>
<td>Agree</td>
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</tr>
<tr>
<td>Strongly Agree</td>
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</tr>
<tr>
<td>Total</td>
<td>15</td>
</tr>
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</table>

Table 2.18: Table to Assess Response on Statement 18
19: I know more now about the Computer than I did before.

<table>
<thead>
<tr>
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<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neutral</td>
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<td>20%</td>
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<tr>
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<td>100%</td>
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</table>

*Table 2.19: Table to Assess Response on Statement 19*
APPENDIX 3 FOCUS GROUP INTERVIEW QUESTIONS

Q1: What was it like in school when you were younger?
Q2: What was the teacher like?
Q3: What was the economy like?
Q4: How far did you go with your education?
Q5: Did you get a job soon after leaving school?
Q6: When did you first hear of the computer?
Q7: What were your first impressions of the computer?
Q8: What were your interests / aversions to learning how to use the computer?
Q9: Why didn’t you take up computer classes when they first became popular?
Q10: Did you have any confidence in your operating the computer?
Q11: What inspired you to apply for this course?
Q12: How did you find the interface, the Mouse, the keyboard, the screen?
Q13: If there was anything you could change about your previous education what would it be?
Q14: Is it important to have confidence in the Tutor?
Q15: Has the course benefited you in any way?
Q16: Are you still confused about the PC?
Q17: Will you be buying your own PC soon?
APPENDIX 3.1 FOCUS GROUP A

Samples of questions and answers from respondents.

Group A: 18 May 2009
Location: Colaiste Éile, Thurles, Co. Tipperary
Time: 14.00 – 16.10 Hrs

Question: What was it like in school when you were growing up?

Person number one: “A lot of fear and a lot of beatings going on Christian Brothers. And lay teachers give you a fear to come back into school. You would be afraid to come back into school. It varied from school to school and place to place. There was an awful fear regime in operation. I don't know what it was, really you were afraid to make mistakes, there was always consequences, and always seemed to be corporal punishment, beatings and the leather and the stick and that was just our school now. And when I went into secondary school which was directly upstairs it was all the one building, it was a completely different ethos altogether. It was nice and friendly and you wouldn't get it unless you really had it coming. But you could get it down in primary school from just looking sideways.”

Person to number two: “I remember when I was about seven or 8, I had an accident getting of the bike, on my two knees, and when I went back to school two days later I told her that I cut my two knees, and she got me out and made me kneel down on the floor. And my mother to go to school and we told her. I was crying my eyes out and she was so horrible and she was really cruel. And then we had a priest and he used to, the first thing he got out was was the stick, and you froze. You were not able to answer the catechism or anything like that. And if you didn't know the hands would get out a right Wallop! He would have been put away today. You couldn't learn really if you didn't know your catechism God help you.”

Person number three: “Oh god, you get a big slap if you didn't get it right, a big slap across you are relaxed. It was really terrible what went on. A long time ago now. That's almost 70 years ago, but it's changed completely now.”

Person number four: “Well it wasn't too bad over there you get the odd slap, but then you deserve that. They weren't hard over there. Although people who went to Catholic school they learned their catechism, they weren't hard on you if you didn't know what. And you never complained you got slapped. I went home one day and I had got slapped and I saw my mother waiting for me and now I'll get sympathy and I walked there I started crying and she said what's the matter and I said the teacher gave me a slap. She said there you must have deserved and I got a slap off my mother as well!”
Question: What was the economy like back then?

Person number four: “Well the biggest thing was a woman, for women, the marriage ban, no matter what job you had you had to give up. If you were a child, if you're in the civil service, the Post Office, nursing. If you get married you couldn't work. Your job is done if you have a government job.”

Question: Before you came to do this course what was your opinion of the PC?

Person number three: “Well I suppose really I wanted to learn. I wanted to know more about it, in everyday life now, it's nearly online everything. A holiday is a book this, book that or where ever you go. You know really. I feel sorry some people because were not into it in a big way really you know. I ranks in place of the day and they said no you have to go online to do this you have to send an e-mail. And I just said about not able to send an e-mail, and I'm not just write to you? and they said no you cant, get some body to send an e-mail for you. I mean I just didn't want them to send an e-mail for me I find know that if I'm less you know a bit now you're left behind sort of thing.”

Question: How did you find the interface, the mouse, keyboard, the screen, can be defined connecting with all that ... at the start?

Person number one: “Yeah and two un- do to go back up on. It took me a little bit of time, maybe something that I had done wrong. God what am I going to do now like I'm after losing that like you know. But you would come on now and you bring it all back.”

Person number two: “I still can’t do that! And even when we were doing the exams if I put two words together, I knew you would put the cursor in between the two and you would click it and I was terrified like. And the next thing is that it's all gone! That's why I didn't do any of that.”
APPENDIX 3.2 FOCUS GROUP (B) SAMPLES OF RESPONDENTS

Group B. 18 May 2009
Location: Colaiste Éile, Thurles, Co. Tipperary
Time: 14.00 – 16.20 Hrs

Question: Did you have any self-confidence in operating the PC when you for started?

Person number two: “God I didn't have any."

The rest of the group of say no.

Person number two: “Well I were trying to last if I could, I would not like to give up. If people were way ahead of me I'd lose heart.”

Person number one: “It wasn't so much confidence as to just go and do it, to motivate, motivation for me.”

Question: After the first class what are your impressions of the PC?

Person number one: “Yeah, well my first impressions, when I was delighted I was thrilled. I'm going to learn now what I want to learn. You know that it was just the basic things, you know. You know I'm saying should go back over it. You know when the exam paper was put in front of me last week I started panicking. Because I haven't gone over the stuff. Now there, I would have no problem now but a lot of the language, the computer language, goes right over my head. You know and they see young people growing up that they know all the bits and pieces. But the basic, I'm happy with what I know now.”

Person number two: “Well it say first of all I was glad that was wrote down. What you have saved otherwise I wouldn't have remembered. And then I'd write it down and sometimes I would have written it down wrong (laughs). And I was as bad as ever. I'd say now nearly half of the course, I didn't feel, I usen’t to look forward to it that much really like as I did then. When I knew I wasn't going to break it. I was terrified that I was going to break it or lock it. I don't know what I thought. But now I'm not a bit afraid about it now. You know what I mean? The first day you said to type will stop of the word was ocean, I would have to look at the book. O…C… my spelling and all, everything was sort of gone from lack of all those years of never doing anything you know. And now I can do maybe three or four words together like! I've come on a bit like you know.”

Person number one: “But you have been very patient, free you coming from what you know and trying to get across to people our age. It must be very frustrating? Whereas you have a young class they take in everything.”
Person number two: “You know if you cut your hands now it would take twice as long to heal as you would your daughters. Everything is slower. We used to clean all the windows in one day with now it would take two weeks! We have definitely slowed down but you don't realise it like you know. But you wouldn't like you know. But we have definitely come a long way.

Question: How did you find the interface, the mouse, keyboard, the screen, can be defined connecting with all that ... at the start?

Person number two: “Well I was trying to and I succeeded eventually. I didn't want to use the mouse because D**** doesn't have a mouse (husband). When we do have mice in our house but not that kind of mouse (all laugh) and I was trying to do it on the pad like and I think I have it, except for scrolling. You have to use the mouse and a black scrolling across (highlighting text),. Now that was a big thing for me and I found it very very hard to do that. Just like I felt -- I could do it here but I wouldn't let myself. So I don't use the mouse now at all hardly.”

Person number one: “I preferred the mouse. And there's a lot of other bits and pieces that you can do with the mouse that we don't know of isn't there?”

Person number two: yeah. Well I never had very much confidence anyway I am lacking very much in confidence.

Question: so do any of you regret not doing computer classes? Why didn’t you take up computer classes when they first became popular?

Person number two: “Not really this might be my time for doing it like you know. You mean like I never, I gone back now over 20 years taking swimming lessons, I went to 3 different teachers and I couldn't learn. And then my doctor said that her sister was 64 and she learnt, and said M*** sure why not give it another chance. No I never regret anything really it's funny I think things just happen and you shouldn't read it.”

Person number one: “Now you can go back was no point in regretting it.”

Person number two: “You can never go back. Now I mean the things they are, (pointing to the laptop), I used to be terrified of it. I was terrified that I was going to break it. But now I have the idea that you can get out of everything else. Took me a long time to get that way about it.”

Person number one: “That comes from the time that we were reared.”

Person number two: “Yeah. You were always kind of kept down.”

Person number one: yes. “Whereas children now, I mean my own children and my grandchildren, there are a lot more confident they speak up for themselves were as yourself you had no say in anything.”
APPENDIX 3.1 FOCUS GROUP (C) SAMPLES OF RESPONDENTS

**Group C:** 10 July 2009  
Location: Colaiste Éile, Thurles, Co. Tipperary  
Time: 14.00 – 16.05 Hrs

**Question:** When did you first hear of computers?

**Person 3:** I have got a very little to say because I didn’t know anything about computers, because I got married in 1973 and marriage bar came in. So I had to leave work, so I never worked since 1973. So used never computers in at home or never in an office…I never even knew how to open that computer until I came in here. I had no interest in this because I didn’t know anything about it…But I am still nervous of it, not as bad now but I still be I mean I won’t go ahead like on my own initiative I am always developing nervous like even though I can do a lot. I mean I’ve made some progress like. I miss some proper structure, but all thank god and thank you again for me.”

**Question:** Nervousness?

**Person 3:** “In case I break it like, do you know what I mean? I will be afraid that’s maybe I’d lose everything that was on it. And then I’d say to you that I have to start it all again. I’d try to hang on to what I did. Rather than take a chance I am losing it. Do you know the way things can just disappear?”

**Person 1:** “One thing I always believe in and I think it’s something everybody believe that. M*** if you lose everything at the computer you are not gone out before a firing squad! No matter what I goes wrong at home or I could just something I wrong I break something and I will be doing something it can’t happen I always say that to my wife. If I am doing a job something can go wrong and if I cannot I am not going to face a firing squad, I’m not going to be shot. There worst you can do with the computer nearly is lose everything. You might at some stage mess up a program or something you might, it’s a very vague possibility. If you do they are not going to come you and stand you up against the wall.”

**Question:** And M*** where would that stem from that fear of breaking it?

**Person 3:** Well I suppose I’m kind of a nervous person anyway. P**** (Husband) now came at home and he, the internet, he’s after putting up on the website, pictures they took in Scotland now and he said to me last night, M***could you put them into a folder for me? And I said What?! (Class Laughs). And he said, aren’t you going to your computer class? So I looked up the few bits a pieces and I think I know how to do it. I know 90% how to do it and I’d like to 100% now.”

**Question:** And do you think there is still something preventing you from doing it independently? Are you still confused about the PC?
**Person 3:** “No I wouldn’t. You know the way when you go to close it down. And maybe you might leave something up and it won’t close for you. Now that terrifies me.”

**Person 1:** “What the hell does it matter if it doesn’t shutdown? My computer hasn’t shutdown number of times, so what do I do? I pull out the bloody plug! Who cares!” (Laughter)

**Question:** I am going to continue on this P** When did you first hear of computers?

**Person 4:** “Well I have a long memory of computers, Longer I think than anybody here because when I left school I went to job in the county Council. Now we were graded in the county Council. There were typists, clerical officers, staff officers. I was in charge of the clerical officers. The clerical officers were not allowed to type…And the typist has to punch a punch card. And it worked from that. It was a big thing. But this seemingly was the start of it. That’s my longest memory of computers like. We weren’t allowed go near that. It wasn’t for us that job. They had a pool of typists and that was it. That was their work.”

**Question:** What were your interests / aversions to learning how to use the computer?

**Person 4:** “Well I consider I wouldn’t be technical minded. I suppose I shied away from it. To be honest. I wouldn’t be technical minded. If a thing went wrong I’d have to call, some man, some place. Well as I said when we were young we were never allowed to turn on or off the wireless. We were never allowed at those things. So I suppose you grew up with it.”

**Person 3:** “Maybe we’re not interested – We have a phone now and it does all kind of things, it’s all on it. I couldn’t be bothered with it, even reading the book we got with it like.”

**Question:** And did any of you find hard to navigate or still find it hard to navigate from powering of the computer to finding what themes are on the desktop?

**Person 2** “I find it hard to know which to press. I know you will hit the space bar or that to take it off. And the next one is the comma, down and down. But sometimes only the cursor comes down and the word won’t, and sometimes the two will come down. Now that’s the simplest thing that we’ve learned since we started and I found that the hardest thing.”

**Interviewer:** “Now isn’t it interesting to hear you talk computer language now. Cursor and tool bar and backspace. So I mean, you have the vocabulary now!” (All participants laugh)