Gibson, Marcia (2006) Social exclusion and ICT: barriers and incentives to digital inclusion. PhD thesis.

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Social Exclusion and ICT; Barriers And Incentives To Digital Inclusion

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Doctoral thesis conducted in the Department of Urban Studies.

Submitted to the Faculty of Law, Business and Social Sciences.

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September 2006.

This thesis is dedicated to
Professor Robina Goodlad

1950 - 2005

Acknowledgements

Abstract

In light of survey evidence suggesting that non-use of ICT and indicators of social exclusion are strongly correlated, and a widespread belief that use of ICT is essential to living in the 'Information Society', the emergence of 'digital exclusion' has been identified as a potentially serious problem by policy-makers and academics. However, few analyses to date have employed any statistical techniques more sophisticated than bivariate descriptives to explore the relationships between indicators of social exclusion, or any other demographic factors, and ICT use. Many surveys have indicated that factors such as lack of interest are often cited as a reason for non-use, but little qualitative research has been conducted to explore motivations for ICT use and reasons for non-use in more depth from the perspective of the groups in question. This research aimed to investigate the links between digital and social exclusion in Scotland using both quantitative and qualitative methodologies. In the first phase of the research, logistic regression analysis was conducted on the dataset generated by the 2001 wave of the Scottish Household Survey both in order to establish how closely related the two forms of exclusion are and to investigate which factors are most strongly related to ICT use. The statistical analysis informed the development of a sampling frame for the second phase of the research, in which 29 qualitative interviews were conducted with socially excluded users and non-users of ICT, with a view to investigating the barriers and incentives to ICT use among such groups. The research found that, although factors which indicate social exclusion are related to non-use of ICT, collectively they do not explain a high proportion of the variance in ICT use. The qualitative interviews suggested that definitions of ICT use based on a user/non-user model do not reflect the manner in which people use ICT. They also indicated that more socially excluded people than surveys would suggest use ICT. However, many do not self-define as ICT users. In tandem with the findings of the statistical analysis, this called into question the existence of a straightforward causal link between social and digital exclusion.

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List of Abbreviations

ACORN	A Classification of Residential Neighbourhoods
BHPS	British Household Panel Survey
BSA	British Social Attitudes
CAQDAS	Computer aided qualitative data analysis
CTC	Community Technology Centre
DfES	Department for Education and Skills
DLA	Disability Living Allowance
DWP	Department for Work and Pensions
ECDL	European Computer Driving Licence
GCC	Glasgow City Council
HBAI	Households Below Average Income
HNC	Higher National Certificate
HTML	Hyper Text Markup Language
IB	Incapacity Benefit
ICT	Information and communication technology
IS	Income Support
JSA	Job Seekers' Allowance
MDI	Multiple Deprivation Index
NTIA	National Telecommunications Administration
NVQ	National Vocational Qualification
ONS	Office of National Statistics
OxIS	Oxford Internet Survey
PAT 15	Policy Action Team 15
PIAP	Public Internet Access Point
PICT	Programme on Information and Communication Technologies
QDA	Qualitative Data Analysis
SE	Scottish Enterprise
SEU	Social Exclusion Unit
SHS	Scottish Household Survey
SIP	Social Inclusion Partnership
SQA	Scottish Qualifications Authority

Chapter 1 Introduction

1.1 Introduction

In this introductory chapter, the context for this research is laid out in some detail. A brief overview of theories of the Information Society serves as an introduction to the main themes of the research. Fears regarding the possible role of information and communication technologies in social inequality are explored, prior to a consideration of UK and Scottish policy responses to these fears. This provides the context for the aims and objectives of this research, which are subsequently laid out, with some discussion of the choice of methodologies used to achieve these aims. Finally, the structure of the thesis is described, with a brief overview of the content of each chapter.

1.2 The 'Information Society'

Recent years have seen the use and influence of information and communication technologies (ICT) expand at an enormous rate. These technologies have grown and spread such that, in the developed world, they now encroach on virtually every aspect of life. Many argue that they have effected a fundamental transformation in the structure of society itself. Variously referred to as the 'Information Age'; 'information society'; 'network society', 'new economy'; 'knowledge economy', the abundance of terms used to denote this transformation, and their ubiquity in academic and political discourse, reflects the importance many afford the phenomenon. Within the context of this seemingly exponential increase in the use and influence of information and communication technologies (ICTs), many analysts have attempted to develop accounts which describe and explain the changes engendered by these technologies.

There are many approaches to theorising the Information Society, or the societal changes that some consider to have been engendered by the increasing role and influence of information and communication technologies in the contemporary context. The majority of these share the fundamental belief that the advent of such technologies has, in one way or another, wrought a change in society of such

magnitude that it represents a shift of epochal proportions. Hence the use of the term 'Information Revolution' which implies that the break with the past is as significant as that caused by the development of industrial technology and mass production of goods. It is unfortunately outwith the scope of the current work to review the many theories of the Information Society in depth. However, a brief consideration of two of the most influential accounts of the Information Society, will suffice to provide the context for the research reported here.

The theorist credited with originating the Information Society thesis is Daniel Bell. In *The coming of post-industrial society* (1973), he argued that the production and distribution of knowledge and information was in the process of replacing the industrial production of material goods as the primary organising principle of society. Similarly, Castells' seminal trilogy on the Information Society (1996, 1997, 1998), argued that the production of material goods no longer underpins capitalism, having been replaced by the production, circulation and consumption of information and knowledge as the key source of value creation within capitalism. These accounts have been highly influential in recent years, and responses to the Information Society inform much policy in the contemporary context. However, there are those who question the validity of the Information Society thesis, arguing that it reflects a simplistic, deterministic view of the relationship between society and technology, and that the empirical evidence to support the contention that society as a whole has undergone a structural transformation of epochal proportions is neither conclusive nor compelling (Loader 1998, Webster 1995).

Notwithstanding such critiques however, few would deny that ICT is spreading, and that it is having major impacts on society. One such impact relates to the effects of differential access to and use of ICT at an individual level.

1.3 Disparities in ICT use

One very apparent aspect of the changes engendered by the increasing importance of ICT is the rapid spread of personal computing and Internet use. In the 1998 Family Expenditure Survey, 9% of households in the UK had home access to the Internet. The 2004 Expenditure and Food Survey showed that this had risen to 52% (ONS

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2004). In the context of this seemingly exponential rise in Internet access and use, there has been concern in some quarters that the expansion of ICT may risk generating a new form of social inequality. Study after study has found evidence of large disparities in levels of ICT access and use. Some such studies are considered in detail in the following chapter. In brief however, it seems clear that some social groups use ICT less than others. In many cases these disparities appear to mirror existing social inequalities such as those of income, class and employment status. Indeed, many have argued that those who make the least use of ICT are those groups most likely to suffer, or to be at risk of suffering, from social exclusion. Such disparities have come to be known as both the 'digital divide' and 'digital exclusion'. This latter term highlights the putative links between digital and social exclusion, and thus the reasons why increasing uptake of ICT, particularly among excluded groups, has been a policy priority, with much funding directed toward promoting ICT and improving accessibility through the provision of public access points. The nature of the potential links between social exclusion and digital exclusion is outlined below.

1.4 Digital exclusion

The importance of non-use of ICT in the contemporary context hinges on its perceived relationship with social exclusion. Many in academic and policy circles have argued that those who do not make use of digital technologies risk becoming increasingly excluded, not just from the use of ICT, but also from society as whole. Definitions of social exclusion are discussed in greater depth in Chapter 2, but for present purposes, it will suffice to provide a brief overview of the concept. Many contemporary definitions are framed in terms of a four-fold model of 'spheres' or 'dimensions' of society (such as consumption, production, political engagement and social interaction (Burchardt et al 2002b), participation in all of which is deemed to be a necessary condition of social inclusion. If any individual is prevented, by whatever means, from participating fully in any of these systems, they are deemed to be socially excluded. Since evermore functions relating to participation in these spheres are now conducted via ICT, it is argued that inclusion in all of these dimensions will come to be increasingly dependent upon the ability to use ICT (PAT 15 2000). Thus it is feared that those who cannot or do not make use of these technologies risk becoming increasingly excluded, not just from the use of ICT, but

from all of the spheres on which inclusion in society as whole depends. To compound the problem, it appears that those who are already excluded are less likely to use ICT. Thus, it is argued that failure to increase uptake of ICT is likely to lead both to a worsening of exclusion among excluded groups and also, potentially, to the emergence of a new form of exclusion:

> digital exclusion is seen as a dual threat, with access to ICT and the ability to use it potentially creating a *new* form of exclusion as well as reinforcing *existing* patterns of exclusion from society. (Selwyn 2002a p.4, original emphasis)

Conversely, many believe that ICT has the potential to assist in overcoming social exclusion:

> ICTs have a key role to play in helping people in deprived neighbourhoods overcome some of the obstacles they face. (PAT15 2000, p.16).

Thus on the one hand there is a belief that non-use of ICT will exacerbate exclusion, while use of ICT may help to ameliorate it. On the other there is evidence to suggest that fewer excluded people use ICT. Consequently, those who are already excluded risk becoming more excluded by virtue of their non-use of ICT. If however, they can be encouraged to use ICT, they may become less excluded. Social exclusion and digital exclusion are thus seen to be connected in two separate but linked ways:

1) Socially excluded people are less likely to use ICT.

2) Non-use of ICT may exacerbate social exclusion.

And as a corollary to these connections:

1) Non-use of ICT by people who are currently included may lead to their becoming excluded.

2) Using ICT may help excluded people to become included.

Hence, there is an implicit assumption underlying the policy rhetoric that a two-way causal relationship between digital and social exclusion exists; one the one hand social exclusion is seen to cause non-use of ICT, whilst on the other, non-use of ICT is seen to cause (or to risk causing in the future) social exclusion. This relationship could also be conceived of in terms of a feedback loop, wherein each condition is seen to be mutually reinforcing. As discussion of the existing research and policy literature in Chapter 2 will show however, to date these relationships have not been tested: all existing survey analyses are cross-sectional and simply establish that there is a correlation between factors seen to represent social exclusion and non-use of ICT. Indeed at the present time it would not be possible to test for causal relationships, as the longitudinal data necessary to test for causation do not currently exist. Nonetheless, the data are frequently presented in such a way as to suggest that they 'prove' the existence of a causal relationship between social exclusion and non-use of ICT. The causal relationship tested in the present work is explicated further in Chapter 3. However, the existence of such relationships between digital and social exclusion is not beyond doubt. In relation to the first connection outlined above, some groups who use ICT less, such as women and older people, may be at higher risk of social exclusion, but they are not by definition excluded. Only multivariate inferential analyses of appropriate data would suffice to establish which factors are most strongly associated with non-use of ICT. In relation to the second connection, it seems unlikely that all of those who do not use ICT are socially excluded, or that all of those who do use ICT are socially included. Further, there is a distinct lack of firm evidence to support contentions regarding the role of ICT use in overcoming exclusion, or the benefits of ICT specifically for excluded people. Again, the only means of establishing the impact or otherwise of ICT use or non-use would be by using longitudinal research to track changes over time. These issues are of central concern to this research, and are discussed more fully in Chapter 2.

The identification of unequal levels of ICT use as a social problem, and consequent state intervention designed to rectify the problem, are relatively recent phenomena. In the following section, the emergence of concern at the level of the state and the development of policies aiming to address the 'digital divide' are traced. Unequal levels of ICT use first caused alarm in the United States. Accordingly, an early

example of a US report on the issue is considered first, followed by a selection of influential UK reports.

1.5 The history of the 'digital divide'

Disparities in levels of ICT use were identified as a social problem in a report produced by the U.S. National Telecommunications and Information Administration (NTIA) in 1995. *Falling through the Net: A survey of the 'Have Nots' in Rural and Urban America* moved the US administration's focus in providing universal telecommunications access from telephone penetration to PC and modem ownership for the first time. The NTIA had commissioned the Census Bureau to collect data on PC and modem ownership alongside that for telephone ownership in 1994. The resulting report found that there were large disparities in PC and modem ownership. Age, race, education, location and income were found to relate to computer ownership, with the poor, ethnic minorities, senior citizens, and those resident in rural areas and in central cities having the lowest levels of ownership. Identifying use of the Internet as 'the keys to the vault' of 'the riches of the Information Age', the report recommended that public schools and libraries provide public access to the Internet for the benefit of the 'information disadvantaged'. These recommendations were enthusiastically adopted by the Clinton/Gore administration, which also saw computer use as an essential aspect of living in the Information Society.

The actual origins of the term 'digital divide' are unclear; it did not appear in this report and Larry Irving, then head of the NTIA, himself confessed ignorance of the first coining of the term in a 2001 web discussion between Internet experts (Irving 2001). Nonetheless, it is clear that the NTIA's first report was instrumental in placing the issue of unequal access to ICT onto the political agenda. Shortly thereafter, the term came into common usage and from 1998 on, subsequent NTIA reports utilised the expression. Since the mid 1990s a thriving 'community technology centre' (CTC) movement has been working to address issues of digital exclusion in the US, mostly through independent and self-sustaining centres (Servon 2002). Under the Clinton administration, the findings of the NTIA's reports were used to justify large-scale state funding of initiatives geared towards closing the digital divide. The Bush administration has taken a very different approach however. In line with their neo-

liberal outlook, they have concluded that the market will address the issue and state funding of many such projects has been cut (Wilhelm 2002).

1.6 The United Kingdom

The identification of unequal access to ICT as a pressing social issue in the U.K. did not occur until some time later. In three successive major ESRC research programmes on the social impact of ICT, the issue of unequal access gained increasing prominence. The Programme on Information and Communication Technologies (PICT), which ran from 1985 to 1995, produced a synthesis of the many projects' findings in the book *Information and Communication Technologies: Visions and Realities* (Dutton (ed.) 1996). Here, Silverstone's study of 'ICTS in Everyday Life' voiced some concerns about the issue of unequal access which:

> ... could lead to a systematic alienation from the infrastructure of our society of those who are, for one or [sic] reason or another, systematically denied access to the ICTs and services which increasingly provide that infrastructure. (1996 p.231)

He argued that public policies would have to be developed which prevented this from occurring. Such public policies should focus on the 'the issues of universal service and public interest' (ibid.) However, information inequality was not a major focus of the PICT programme, and the notion of state provision of public access was as yet just that. Another piece in the same volume suggested that 'electronic equivalents of the public library.' (Dutton *et al*, p.399) may be a solution to the problem of unequal access. By contrast, the Virtual Society? Programme (1998-2002) included a number of projects on the issue of digital exclusion, non-use of ICT and on the impact and use of public access sites. E-society, the latest ESRC programme (2003-2007) has two dedicated projects investigating the issues of non-use of ICT and digital exclusion.

This has been reflected in the increasing concern with which the 'digital divide' has been viewed by the UK government. The siting of public access facilities in libraries, educational institutions and community centres has become a central plank of policy

designed to tackle the divide. The increasing importance, not to say urgency, afforded the issue has been reflected in the publication of numerous surveys, studies, reports, articles and policy statements, produced by an array of government organisations at every level from the global to the local. In addition, many private and public sector bodies, academics, quangos, NGOs, voluntary organisations and charities have produced reports on the issue. A selection of the most authoritative and/or relevant reports and policy statements, focussing primarily on those produced by the UK government and the devolved Scottish administration, is considered below, followed by a brief summary of digital inclusion policy at both United Kingdom and Scottish levels.

1.7 Reports

1.7 a) Achieving Universal Access

In 2000 the UK government commissioned the consultants Booz Allen & Hamilton to prepare a report on ICT access and use. The report, *Achieving Universal Access*, highlighted fears regarding disparities in levels of ICT use. Describing the Internet as 'the most profoundly influential force of our era' (p.3), the report attributed 'the longest period of uninterrupted non-inflationary growth this century' (p.5) to the use of ICT in the 'Knowledge Economy'. However, the report cited figures which showed that Internet use was stratified by age, class, level of education, and other factors. It predicted that, at the then current rate of growth, Internet penetration would 'naturally' pass 60% of the UK population by 2003. However, since an estimated 20 million citizens were expected to remain unconnected, this growth would only serve to exacerbate the digital divide, creating an 'information underclass'. Thus, existing policy initiatives in conjunction with the market would be insufficient to overcome the divide. Realising potential cost savings in public services was also identified as an 'imperative' reason for government to promote Internet use. The authors recommended that the UK government should 'aggressively' pursue the goal of universal access and provided a range of policy proposals designed to achieve this aim. Prefiguring some later debates on the inadequacy of simply providing access, the report suggested that this would be insufficient if the UK was to realise all of the potential benefits of the 'knowledge economy'. Rather, the aim should be to create

'power users' who used the Internet for political debate, creating their own websites, starting businesses and other advanced activities. In this way ICT was seen to be capable of delivering wider social objectives.

In the report, the principal barriers to Internet use were identified as: the cost of access; lack of awareness of the benefits of Internet use; lack of ICT skills and/or anxiety about technology. However, no evidence was cited for any of these. The report's authors acknowledged that the Internet was not for everyone and many people would remain uninterested in ICT. However they argued that non-use of the Internet represented a serious social problem because: employers would increasingly demand ICT skills; in a bid to cut costs, companies would move all of their customer services online; it would become essential to use the Internet for homework, and central government services would soon cease to be available off-line.

1.7 b) Closing the digital divide

The New Labour government's Social Exclusion Unit (SEU), created soon after their 1997 election victory, signalled their commitment to the use of the relatively novel concept of social exclusion as a framework for tackling disadvantage. Under its aegis, some 18 'Policy Action Teams' were set up, each charged with investigating and producing policy recommendations on a specific aspect of exclusion. The remit of Policy Action Team 15 (PAT 15) was to investigate issues relating to the use of ICT by 'people living in deprived neighbourhoods', with the aim of developing strategies for increasing ICT use in such areas. The team conducted a review of the existing literature on the topic, and researched local authority provision of public access sites in deprived areas via a postal questionnaire. Further research consisted of PAT 15 members visiting existing ICT projects, and holding 6 workshops in deprived areas with the intention of assessing residents' attitudes to ICT. It is not clear how the visiting sites or the workshop participants were selected.

The outcome of the investigation was a report entitled *Closing the Digital Divide; Information and Communication Technologies in Deprived Areas* (PAT 15 2000), which informed much subsequent government policy in this area. The report was

clearly based on wholehearted acceptance of the Information Society thesis, as illustrated by the following quote:

> The rapid spread of information and communication technologies (ICT) is changing many aspects of modern life. Economic commentators such as Alvin Toffler call this the third, or 'Information' revolution. It is seen as a turning point, a major leap for society equivalent to the Industrial revolution. (p.6)

On this basis it was argued that in the Information Society:

> Individuals can expect easy access to a wealth of information, entertainment, and to cheaper, more individually tailored goods and services, with new opportunities for choice, participation, communication, lifelong learning and leisure. (p.10)

The report highlighted the lack of research into use of ICT in deprived neighbourhoods, whilst identifying as one of its key tasks: 'demonstrating that access to ICTs can make a difference and a positive contribution to neighbourhood renewal' (p.7). With specific reference to those living in deprived neighbourhoods, it stated, 'gaining and exploiting ICT skills can lead to opportunities to participate fully in the local and national economy' (p.15). Conversely however, 'lack of access to ICTs leads to or reinforces disadvantage at a number of levels' (ibid). These were defined as inability to succeed in education, labour market disadvantage, and difficulty in accessing public services.

A number of benefits of ICT use specific to people living in deprived neighbourhoods were identified by the report. Firstly, labour market benefits such as increased employability, skills development and self-employment could arise from ICT use. Self-development, creativity and building self-esteem were also seen to be of benefit to such residents. Further, ICT could help to 'foster a sense of community identity' through the development of community networks. Finally, residents of deprived neighbourhoods would be particularly likely to benefit from improved access to services both public (e.g. benefits, housing) and private (e.g. shopping, banking).

However, the report asserted that certain factors could act as barriers to ICT use specifically for the residents of deprived neighbourhoods. The high level of unemployment in deprived areas meant that residents did not have opportunities to gain ICT skills at work. Many people in such neighbourhoods had bad experiences of compulsory education which could put them off formal training. Deprived neighbourhoods had higher proportions of people with disabilities or long-term health problems. Areas with high proportions of ethnic minority residents may have language issues with using ICT. Women were said to be 'generally less likely to be interested in ICT than men' (p.16), and finally, lack of awareness of the benefits was seen to hinder uptake of ICT. In some cases it is unclear how these factors were believed to prevent ICT use.

A further, somewhat heterogeneous, list of barriers to increasing uptake of ICT identified by the report included: a fragmented policy framework; lack of promotion; Internet content inappropriate to the needs of deprived people; difficulty accessing centres or equipment; poorly skilled staff; difficulty in accessing and retaining sustainable funding; and costs of access and equipment for those on low incomes. The report made numerous policy recommendations designed to overcome these barriers, many of which were subsequently adopted. Prominent amongst these was the promotion of public access as the primary means of encouraging those in deprived areas to use ICT. Arguing that:

> Home based provision does not provide such a good opportunity to develop social cohesion. If people do not actually meet each other, community spirit will not be encouraged. (p.39)

the report outlined a 'vision for ... [ICT] use to enable communities to achieve greater social inclusion' (p.21) in which 3 out of 5 aims directly concerned the promotion of community involvement, activity and cohesion. Thus the digital inclusion agenda clearly included a range of social objectives beyond that of individual benefits.

1.7 c) The Digital Divide in a World City

In 2002, Foley, Alfonso and Ghani conducted a literature review of research related to the digital divide, and produced recommendations for developing a strategy to overcome it on behalf of the Greater London Authority. While the report focused specifically on London, it contains much that is salient to a broader discussion of connected issues.

Citing existing data on ICT use among socially excluded groups, the report described factors linked with low levels of ICT use as barriers to use. Foley *et al* identified three types of barrier to ICT use. One type were socio-economic barriers: low income; low qualifications; being in a low-skilled job; being unemployed; and lack of skills. Another set of factors which acted as barriers to use were 'life characteristics' such as age, gender, disability and ethnicity. The final group of factors were termed 'socio-personal' barriers and included 'issues such as levels of interest, awareness, understanding and acceptance of ICTs.' (p.11). Thus each of these factors was implicitly ascribed a causal role in non-use of ICT, although there was little consideration of how they might act as such. Low educational attainment and adverse experiences of formal education were also identified as key barriers to ICT use among socially excluded groups.

The report argued that while cost or access were often assumed to be the greatest barriers to ICT use, much evidence suggested that socio-personal factors such as lack of interest were more often cited by excluded non-users of ICT. The authors could find little research into the effect of such factors on ICT use, although they suggested that socially excluded groups were more likely to be resistant to new technologies because of such socio-personal characteristics. Socially excluded individuals, they argued,

> had little awareness of ICTs and little knowledge of ICTs and the way in which it could improve their quality of life. (p.15)

Thus they suggested that if lack of interest or awareness were greater barriers to ICT use than cost or access, simply providing public access would not guarantee use by socially excluded groups. Research on use patterns also indicated that most people preferred to access the Internet in their own or another person's home, or in a

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workplace/educational institution. The report argued that more research on the role of socio-personal characteristics in ICT use was urgently required.

The report listed a broad range of political, economic, social and environmental benefits attributed to ICT use in earlier literature. Political benefits included: 'democracy'; 'empowerment'; access to information; 'community networking', and '24/7 public service delivery'. Economic benefits were said to encompass: the development of ICT skills; improved job prospects; better access to employment information; and cheaper goods and services. Social benefits were: improved access to education, better communication, access to health information, and overcoming the constraints of physical disabilities. Environmental benefits were said to accrue from tele-working and consequent decreases in travelling. However, it was pointed out that little evidence existed to support these claims in relation to either affluent or excluded groups:

> No studies were found which examined the way in which socially excluded individuals use ICT, what proportion use ICTs and the qualities of computing equipment and time they have available. This scarcity of information makes it very difficult to accurately determine what benefits the use of ICT provides for socially excluded groups. (p.35)

Thus the authors argued that there were assumptions implicit in much existing digital inclusion policy regarding the manner in which socially excluded people were likely to use ICT. In the absence of any evidence to support this notion, they suggested that education, public services and job searching were assumed to be the most attractive uses of ICT for such groups. The report recommended that more research should be done to establish what features of ICT would in reality be more attractive to excluded people. However, although the report highlighted the lack of research confirming the benefits of ICT use for excluded people, it was in no doubt about the existence of such benefits.

1.7 d) 'UK online'

Launched by the UK government in September 2000, 'UK online' was a cross-departmental initiative, under the overall control of the Office of the e-Envoy, intended to 'ensure the UK's place as a leader in today's global economy' (p.4). In its 2002 report, UK online (Office of the e-Envoy 2002) set out the targets and objectives for delivering this objective in three key areas; business (promoting ecommerce), government (enabling electronic delivery of public services) and opportunity. The opportunity strand was specifically aimed at developing strategies to overcome the digital divide. Arguing that the most 'disadvantaged' groups in society (the elderly, those on low incomes and the disabled) were least likely to use the Internet yet most likely to benefit from electronic service delivery, the report stated: 'without access to the internet or the skills to use it confidently, these groups may face further social exclusion' (p.6). Drawing on ONS figures, the report pointed out that overall Internet access and use had been growing rapidly, the gender gap was decreasing, and those who did use the Internet were using it for increasingly sophisticated functions. However significant gaps still remained, especially in respect of income, age and geography.

The overarching targets of the UK online strategy were 'to ensure that everyone *who wants it* has access to the Internet by 2005' (ibid., emphasis added), and to provide all government services online by 2005. Despite the apparent acceptance contained in the preceding quote that everyone would not want to use the Internet, the strategy appeared to be very much focussed on achieving exactly that aim, as the name of the organisation implies. The report identified motivation, access, skills and trust as the primary barriers to ICT use, and set out a four-fold strategy to tackle these:

Motivation: 'lack of understanding of the benefits' of Internet use, and 'entrenched negative views' (p.76) about the Internet were identified as the greatest barriers to Internet use, based on ONS figures showing that the majority of non-users cited lack of interest as their main reason for non-use. Accordingly, the government planned to launch initiatives aimed at raising awareness of the benefits among socially excluded groups, and at creating attractive and relevant content.

Access: The first UK Online Annual Report, produced in 2000, had set the target of creating 6000 UK online centres providing public Internet access and free training

specifically targeted at excluded groups. The 2002 report indicated that this target had been reached, and that the centres had been largely successful at reaching the target groups[1]. Ensuring that these centres continued to provide services and to promote the use of e-Government services was the target set by the new report. However, the report also stated; 'The market has been and will continue to be the primary driver to achieving Internet access' (p.79).

Skills: It was reported that 99% of schools now had Internet access, up from 28% 4 years previously. The DfES had a target of providing 2mb and 8mb broadband to primary and secondary schools respectively by 2006. In addition there was a wide range of initiatives and funding streams designed to embed ICT at all levels of education, including the Learndirect centres offering ICT courses for adult learners.

Trust: The introduction of new regulations and public awareness campaigns on safe online shopping were intended to promote trust in using the Internet for financial transactions. In addition, a marketing campaign explaining safe Internet practices to children and parents had been run and was deemed to have been successful in allaying many parents' fears.

The report was very clear about the necessity of ensuring that everyone, especially excluded people, was able to realise the benefits of Internet use. Beyond accessing public services and (implicitly) avoiding becoming more excluded, however, it was less clear about precisely what these benefits might be. 'Lack of interest' in the Internet, as a response to a question in the ONS survey, was translated directly into 'lack of understanding of its benefits'. It seems that the benefits of ICT use were seen to be so self-evident that describing them was unnecessary. In this sense the policy strategy appeared to be based on applying a 'literacy' model to ICT use, wherein it was thought that ICT skills would become as fundamental a requirement of life as the ability to read and write.

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[1] However, the evaluation from which this information was drawn also highlighted the relatively high levels of PC ownership and Internet access among centre users, which were commensurate with the then national average (Hall Aitken/DfES 2002).

1.8 The Scottish Context

1.8 a) Digital Scotland Task Force

In May 2000, the Digital Scotland Task Force reported to the Scottish Executive on issues pertaining to ICT in Scotland. Likening the impact of the 'Information Revolution' with that of the agricultural and industrial revolutions, the report highlighted the connections between digital and social exclusion, arguing that in the 'information society' ICT had the potential to overcome social exclusion:

> ICTs can promote social inclusion by providing additional opportunities to involve people in their local communities, by providing new and better public and commercial services made possible through ICT; by making public services more accessible to people who are housebound or disabled; by bringing education and training opportunities to where people live; and by opening up employment opportunities. (p.27)

Simultaneously however, there was a danger that non-use of ICT might exacerbate exclusion:

> The danger here is that a digital divide develops, with lack of familiarity with ICTs reinforcing the conditions that make inclusion less likely. ICTs might therefore be seen as a threat to potentially excluded individuals and communities. (ibid.)

The report argued that public funding should be focused on providing public access, as this was the most effective means of providing learning support to people with low ICT skills. Community based facilities were seen to be the best way of providing such access. Many of the report's recommendations were accepted by the Scottish Executive, and subsequently fed into their digital inclusion strategy, which is described below.

1.8 b) Digital Inclusion

In 2001, the Scottish Executive set out their digital inclusion strategy for Scotland in the document *'Digital Inclusion. Connecting Scotland's People'* (Scottish Executive 2001). In the foreword Wendy Alexander, then Minister responsible for digital inclusion, stated that after the 'digital revolution', a digitally inclusive society was necessary to avoid 'the formation of an unconnected section of the community, who could become increasingly excluded from society' (p.i). The most recent Scottish Household Survey figures showed that household Internet access in Scotland had increased from 15% in 1999 to 25% in 2000. However, this was some way short of the UK average of 33%, and, as elsewhere, there were substantial disparities between social groups. The report identified: the unemployed; people on low incomes; older people; disabled people; those with poor literacy and numeracy; 'disadvantaged' communities; young people; and women as being at greatest risk of digital exclusion. Enhanced access to education, training, shopping, entertainment, communications and jobs were identified as the benefits of Internet use. Cost, access, skills, 'cultural issues' (i.e. lacking ICT users in one's social network) and personal factors including lack of confidence, fear of technology, and lack of interest were listed as barriers to Internet use. Again, lack of interest was highlighted as the most important factor preventing people using the Internet, and again this was attributed to 'a lack of understanding about the facilities and benefits that the web can offer,' (p.20).

The Executive's digital inclusion strategy was to be focussed on raising awareness, involving deprived communities and providing access, support and the opportunity to gain skills. In line with the UK government's strategy, a principal target was that of providing universal access to the Internet by 2005. Delivering these aims involved a number of bodies and initiatives, notably the creation of the Digital Champions Team, the launch of the Public Internet Access Point (PIAP) initiative and the pilot Digital Communities project. The PIAP initiative was designed to create 1000 new public access points by inviting venues such as pubs, shops, hairdressers etc. to bid to host up to two publicly funded Internet access points. The Digital Communities project invited disadvantaged communities to bid for the provision of home Internet access and training to every household in the community. Of the bidders, 2 communities would be chosen to host the pilot. The Digital Champions Team, working in conjunction with Scottish Enterprise (the national economic development agency), was intended to foster and support the development of community based ICT projects

in deprived areas. They also supported research on digital exclusion, and as such were co-sponsors of this research.

1.8 c) Summary

In general, the policy literature and related initiatives were heavily influenced by the Information Society thesis. Flowing from this influence was a belief that use of ICT was or would soon be essential to every individual and thus that non-use of ICT would have a detrimental effect on individuals and communities, leading to an increase in 'social exclusion'. Conversely, use of ICT was almost universally held to lead to benefits of all kinds for individuals and communities, and to contribute to the promotion of social inclusion. 'Social exclusion' however, was rarely, if ever, defined. The policy rhetoric around ICT use was concerned with the notion of achieving universal access as a pressing and urgent aim. The primary policy instrument intended to deliver this objective was the provision of public access. One of the principal barriers to use was identified as lack of interest, which was seen to result from lack of awareness of the benefits of ICT use. ICT use was seen to deliver much broader social objectives than simply enhancing individuals' lives however; cheaper public service delivery, improved economic performance and increased social cohesion were also pressing reasons to promote ICT use.

1.9 Aims & Objectives

Within the context of the above outlined concern about the negative impacts of non-use of ICT, and of the policy responses to this concern, this research set out to investigate the nature of the links between social and digital exclusion. More specifically, given the lack of analyses investigating the relative impact on ICT use of factors indicative of social exclusion as opposed to other demographic factors such as age and gender, the intention was to use more sophisticated statistical techniques which allowed these to be estimated. Also, given the lack of evidence regarding the nature of barriers and incentives to ICT use for excluded groups, the research aimed to explore these in more depth, from the perspective of individuals belonging to such groups. In particular, the issue of lack of interest in ICT, often translated in policy documents into lack of awareness of the benefits, was of great interest. The research

was conducted in two phases. In phase one, quantitative methods were employed to analyse the Scottish Household Survey (SHS) dataset for 2001. In phase two, qualitative research was conducted, consisting of one-to-one interviews with specific groups of respondents identified by the preceding statistical analysis. The specific research questions, the development of which was informed by the relevant literature, are set out at the end of Chapter 2. The overarching aims informing the research as a whole are set out below.

Overarching aims

- To explore the relationship between digital and social exclusion.

- To investigate the nature of barriers and incentives to ICT use for excluded people in greater depth.

- To gain a deeper understanding of the above questions through the application of both qualitative and quantitative research methods.

1.10 Methodologies

From the outset, the intention in this research was to employ both quantitative and qualitative methodologies to meet the above outlined aims. Since there is still some degree of controversy surrounding the use of mixed methods in the social sciences, it is perhaps necessary to briefly summarise the arguments surrounding this issue, in order to situate the position adopted here.

The long-running debate within the social sciences on the issue of methodology has traditionally involved a split between two opposing camps, each advocating its own approach to research. Broadly speaking, on the one hand, interpretivists have insisted that the goal of social research should be to uncover meanings, perspectives and motivations at the level of the individual. Grounded in an idealist epistemological position which sees social reality as (inter) subjectively and dynamically constructed by individual actors, those of the interpretivist school have focussed on developing

methods which allow these to be investigated. Research undertaken within this paradigm has tended to focus on description rather than explanation as its primary goal. The most effective means of achieving this has been seen to be through the use of qualitative methods such as in-depth unstructured interviews and participant observation (Bryman 1998).

On the other hand positivists, working within a 'natural science' model of the social sciences which views social reality as having an objective existence both external to and independent from individual actors, have focused on explanation rather than description, searching for cause and effect models of social behaviour. Thus they have advocated the pursuit of objectivity, typically using statistical analysis of large-scale survey data collected via structured questionnaires to investigate social phenomena (Hammersley 1992).

Some authors have suggested that while qualitative research sees itself as grounded in an idealist or constructionist epistemology, in fact both schools are equally grounded in an underlying realism. Indeed, the very act of researching by whatever means implies a belief in an external knowable reality, and in practice most research of whatever type will employ aspects of both realist and idealist epistemological approaches at different points. For instance, it is pointed out that the distinction often drawn between quantitative and qualitative methods regarding the former's use of numbers in contrast to the latter's use of words is simplistic, since qualitative reporting often uses quantifying language such as 'many', 'a few' etc. Thus many now argue that simplistic dichotomous approaches to classifying research methods are neither valid nor helpful, and a pragmatic rather than an epistemologically purist position is more appropriate (Hammersley 1992). This is reflected in the increasing use of mixed methods studies in all branches of the social sciences, and the decreasing levels of controversy such studies now excite. Often, such studies are undertaken with the intention of 'triangulating' research findings, that is seeking to confirm the validity of findings generated using one type of method by comparing them with data gathered using the opposing method. In this approach, there is clearly a commitment to a realist position (Bryman 1999). However, an alternative approach to triangulation is to use mixed method studies to locate inconsistencies between data gathered using alternative methods, thus permitting deeper investigation of the subject at hand, and

possibly informing improvements in data collection methods. Yet another approach is that of 'facilitation', that is using the results of research generated with one type of method to inform the research design of a subsequent phase of study using a different method (Devine & Heath 1998). There is an emerging consensus that the two approaches should be viewed as complementary rather than conflicting. As such, many authors now advocate a pragmatic 'toolkit' approach to social research, recommending that methods be selected on the basis of their suitability for the subject of study rather than the researcher's adherence to any epistemological position (Ritchie & Lewis 2003). It should be noted that while many researchers find in this approach a useful compromise, it is not without its critics.

Both approaches have been criticised on various grounds. Interpretivists accuse those of the positivist school of failing to account for action and power (May 1997). Objectivity, they argue, should not be the goal of the social sciences. In any case, research of this nature cannot be truly objective as the orientations (political and otherwise) of the researcher will inevitably be implicit within the research design and thus colour any findings. An obvious example of this is the design of survey questions which only permit responses corresponding to the researcher's predetermined perspective on the subject of the research. In this way, some argue, the researcher's world-view is imposed on the subject in a manner which has political implications. It is further argued that the results of such research can never be truly objective because the act of researching alters the subject's perception of the issue and influences the results thus generated (Gouldner 1971). However, it has been pointed out that many of these same criticisms can be applied to qualitative research methods; the perspectives of the researcher are just likely to colour the research design, and the act of researching is just as likely (if not more so) to alter the research setting when methods such as participant observation are used (Hammersley 1992). Further, it is argued, qualitative studies are neither generalisable (although in fact there are a number of approaches to generalisability in qualitative research; see Silverman 2001 and Ritchie & Lewis 2003 for discussions of some of these) nor reliable, and as such those of a more positivist bent have questioned their utility.

These divisions in the social sciences to some degree mirror the traditional split between those who emphasis structure as the primary determining force in society and

those who would argue for the primacy of the role of agency. Both qualitative and quantitative methods have been criticised for underplaying the role of structural factors (qualitative) or agency (quantitative). However, a number of social theorists have developed theories of society which attempt to resolve such disputes by integrating both elements into all-encompassing theories of social life. Giddens' structuration theory (1984) is one particularly renowned example of an approach to social theory that sees the social world as dialectically constituted through both individual action and structural factors. If one adopts such a theoretical position, the use of mixed methods seems ideally placed to allow for individual agency whilst also accounting for the structures which modify and constrain such action.

A number of authors have also highlighted the particular applicability of mixed methods research to the study of issues connected with Internet use or non-use. Selwyn (2003c), arguing that agency is too often ignored in studies of ICT non-use contends that:

> ... individuals' non use of technology is enabled and constrained by structures which themselves are the result of previous agency. In identifying the factors underlying individuals' non-use of technology we need to recognise both these structures and agency. (p.110)

Dutton and Shepherd (2003) have also suggested that the complementary ability of qualitative approaches to capture 'detailed contextual knowledge and ... the full complexity of individual beliefs, motivations and actions' and quantitative approaches to permit generalisation and 'the exploration of underlying patterns' (p.25) render the use of mixed methods particularly appropriate for the study of Internet-related phenomena.

Due to the suitability of mixed methods approaches to the study of Internet non/use, this research employed the toolkit approach outlined above. Initially it could be said that the intention was to employ both qualitative and quantitative methods as a form of facilitation – the results of the statistical analysis were to be used to inform the development of the sampling frame for the subsequent qualitative research. As events transpired however, a form of triangulation resulted – the findings of the qualitative

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phase reflected back onto the quantitative findings in interesting and unanticipated ways, which are discussed in the concluding chapter. The specific nature of the methodology used in each phase of the study is described in the relevant chapters. All that remains for the present chapter is to provide an outline of the thesis structure and the content of each chapter.

1.11 The structure of the thesis

Chapter 1 provides a brief overview of Information Society theory in order to provide some context for the emergence of concerns about disparities in ICT use and their identification as a serious social problem under the labels of the 'digital divide' and digital exclusion. The nature of the putative connections between social and digital exclusion is considered in some depth, prior to a review of some of the policy literature and strategies which arise from these concerns with non-use of ICT. Some discussion of arguments around the use of mixed methods follows. Finally, the overarching aims of the research within the context of fears about digital exclusion and attendant policy responses are elucidated.

Chapter 2 the first half of the chapter considers some competing perspectives on the digital divide before reviewing statistical evidence for inequalities in ICT use. In the first section, the focus is on descriptive analyses of nationally representative data collected by or on behalf of the UK and Scottish administrations. The second section deals with some multivariate analyses of data on ICT use, in order to investigate which factors have the strongest relationship with ICT use when other factors are held constant. Debate around how the digital divide should be defined is then considered, followed by a review of some more nuanced, largely qualitative research on barriers and incentives to ICT use, including a consideration of some evidence for the benefits of ICT use. In the second half of the chapter, theories and definitions of social exclusion are considered; including some attempts to operationalise the concept for use in quantitative research. Here, the operational definition of social exclusion used in this study is explicated in some depth. A brief overview of social exclusion and related inclusion policy in Scotland follows. Finally, the research questions this study aims to address are laid out in detail.

Chapter 3 opens with information about the dataset analysed in this study, the Scottish Household Survey, including the characteristics of the sample. It then explains how the concepts used in the research, namely digital and social exclusion, were operationalised for the purposes of the analysis. The manner in which each variable used was modified prior to inclusion in the analysis is then described, alongside descriptive statistics for and bivariate percentages of ICT use by each of these variables. The chapter then describes the methods used in, and the findings of the preliminary analyses, namely bivariate correlations and linear regression. A detailed explanation of logit regression, the method used for the primary analysis of the dataset then follows. The results of each logit regression model are reported in some detail, and finally there is a discussion of the conclusions drawn from these results.

Chapter 4 describes the methods used in the qualitative phase of the research in some detail. Firstly, the manner in which the sampling frame was developed is described, followed by a discussion of how the concept of social exclusion was operationalised for use in this qualitative context. The process of gaining ethical approval is discussed, prior to a detailed explication of the content of the interview schedules. The processes of gaining access to and recruiting the qualitative respondents are described, followed by an overview of the sample characteristics. The manner in which the interviews were conducted, transcribed and analysed is then described, with some consideration of the role of the researcher as a subject within the research setting.

Chapter 5 in this chapter, the findings generated by the analysis of the ICT user data are considered in depth. Some general characteristics of the group are described, including the respondents' histories of ICT use, the prevalence of home access in the sample and the range of locations where respondents used ICT. The findings are then described thematically, focussing first on incentives to ICT use among the sample, then on barriers to ICT use. Factors, which impacted on the respondents' current use of ICT, are then discussed, followed by a consideration of the conclusions drawn from these findings.

Chapter 6 presents the findings generated by the analysis of the ICT non-user interview data. Again, the chapter opens with a brief description of the group's characteristics. The remainder of the chapter is presented as a series of case histories, describing aspects each respondent's circumstances and relationship with ICT in some detail. In each of these case histories, the respondent's history of ICT use is described, and barriers and incentives to ICT use experienced by each respondent are also considered in some depth. The barriers and incentives to ICT across the group as a whole are then discussed, prior to a consideration of the implications of these findings.

Chapter 7 in the concluding chapter, a brief discussion of how the use of mixed methods in this study contributes to understanding the research questions is followed by an overview of more recent literature on the digital divide. The findings of each phase of the research, and each sub-group within the qualitative sample, are considered in unison, in the light of more recent developments in the field. How, when considered as a whole, these contribute to answering the research questions forms the main body of the chapter. The overarching conclusions drawn from these findings are then considered. Finally, there is a brief discussion of the policy implications of these conclusions.

Chapter 2 Current perspectives on digital and social exclusion

2.1 Introduction

The first section of this chapter focuses on literature relevant to ICT use and digital exclusion. In the second section, theoretical literature on social exclusion is considered in some depth, with reference to empirical literature where appropriate. Reflecting perhaps the speed of technological development, the field of digital exclusion is such that new developments in thinking occur at a rapid rate. The rationale for this research is grounded in the literature that was current when it began in 2002-3. Hence, this review focuses on the literature which was extant at the inception of research, returning to consider more recent developments in the field in the concluding chapter.

2.2 The digital divide

Firstly, by way of contextualisation, some competing perspectives on the prospects for the future of the divide are considered. Empirical evidence for the divide is then considered, firstly nationally representative descriptive analyses conducted by, or on behalf of UK and Scottish government agencies, or by respected academic institutions. Secondly, inferential analyses of nationally representative data from a number of countries are presented. Debate around the manner in which the digital divide is defined, and some of the attendant implications for policy, are then examined in some depth, followed by consideration of some more nuanced evidence on the barriers to ICT use among excluded groups. This leads into discussion of debate concerning the validity of non-use as a response to ICT. Some of the available evidence on the positive or negative impacts of use or non-use of ICT for excluded people is examined, followed by evidence on the incentives for ICT use from the perspective of excluded groups.

2.2 a) Competing perspectives on the divide

Norris (2001) distinguishes three forms of the divide: the global divide, referring to disparities in access to ICT between developed and undeveloped countries; the democratic divide, referring to variations in the propensity of ICT users to engage in political activity using digital technology; and the social divide, referring to 'the gap between information rich and information poor in each nation.' (p.4). It is the latter form of the divide with which this research is concerned. Norris suggests that perspectives on the social divide within developed countries can be categorised thus:

1) Cyber-optimists: The combined action of the market and the state will address any inequalities occurring in the early years of the Internet. Use of the Internet will help to overcome existing inequalities.

2) Cyber-pessimists: Early adopters are typically high socio-economic status; their socio-economic status will be reinforced by their Internet use. Therefore, they will always be at a relative advantage, and the Internet will reinforce existing inequalities.

3) Cyber-sceptics: Technology is shaped by and reflects society; therefore the Internet will not change existing patterns of inequality.

Models of technology diffusion or adoption are typically graphically represented by an S-shaped curve. The lower line of the 'S' represents the slow rate of initial adoption, followed by the surge upwards as the technology gains in popularity. The upper line of the 'S' represents the plateau after market saturation has been reached. This pattern has been observed in studies of the adoption of numerous technologies from new types of seed to televisions. However, there are two versions of the S-curve model, consonant with the optimistic and pessimistic views of the digital divide outlined above. In the optimistic or normalisation model, initial inequalities in uptake are ironed out as the cost of technology falls, and in the case of the Internet, becomes more user-friendly with more popular content (e.g. mass market entertainment). For the pessimistic or stratification model however, initial inequalities are exacerbated as early, typically high socio-economic status, adopters reinforce their original

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advantage. Norris contends that there is some evidence to support the former model in the case of the Internet, although it is as yet too early to be certain of this.

Her analysis of correlations between Internet use and ownership of a wide range of consumer goods showed that relative inequalities in ICT use mirrored those found in relation to all communication technologies, both old and new. Thus she argues that these inequalities are not caused by any features specific to computing technology, such as cost or lack of skills - rather, similar rates of inequality imply 'that broad and deep-rooted patterns of social stratification are the major explanations for patterns of Internet diffusion.' (p.89). Thus she argues that government intervention and initiatives aimed at tackling the divide are unlikely to have much impact.

Some commentators argue that leaving the market to do its job is the most efficient way to close the digital divide, and therefore government intervention should be kept to a minimum (e.g. Compaine 2001). Others vehemently disagree with this position however. Van Dijk and Hacker (2003), characterising approaches to the digital divide in terms of the political orientation of those who espouse them, argue that the right wing market-based approach will not work in the case of the Internet because it has distinctive features which render the traditional S-curve model redundant. The rate of technological development is such that it will outstrip the ability of poorer people to constantly replace and renew equipment. Further, due to the ongoing costs associated with Internet access it cannot be compared to goods requiring only a one-off purchase such as TV. More importantly however, they argue that access *per se* will not solve the digital divide since gaps in skills and usage will persist. Hence the 'hardware orientation' of the free market proponents is misplaced. This points to some important issues around definitions of the divide which are revisited in Section 2.4 below. As they point out, governments of every ideological persuasion have intervened in mass communications markets throughout the 20th century. Van Dijk and Hacker also reject the position, which they characterise as belonging to the left wing, of those who argue that the divide merely reflects existing inequalities. Instead they argue, the growth of the divide 'might lead to new inequalities of a nature not known before' (p.322). Hence they argue for a wide variety of government interventions to address the divide.

Clearly, perspectives on the divide condition the policy responses considered appropriate to it. Whatever the view taken, these perspectives rest on an acceptance that the divide exists, which is predicated on the existing evidence. Some of this evidence is now considered.

2.3 Empirical evidence

2.3 a) Descriptive analyses

Data on UK Internet or PC use prior to 2000 is somewhat sparse (though for some examples see Stewart 2000); the PAT 15 report produced by the DTI on behalf of the Social Exclusion Unit (2000) references data gathered by the British Marketing Research Board in 1998. According to this sample of 3000 adults interviewed by telephone, 58% of British adults had ever used a PC and 29% had used the Internet (DTI 1998, cited in DTI 2000). The following year, Motorola conducted a survey of 1037 adults' ICT use which found that 25% used a home PC regularly (Motorola 1999, cited in DTI 2000). After 2000, the picture changed rapidly: many surveys produced by a broad range of organisations repeatedly confirmed the same findings; groups more at risk of exclusion or inequality used ICT less than other groups. Women and older people also used ICT less. These surveys employed solely descriptive statistics however; it should be borne in mind that the results did not control for the confounding effect of inter-related variables such as education and income, preventing the estimation of the relative magnitude of the effects of such factors on ICT use.

Office for National Statistics

The Office for National Statistics (ONS) started publishing data on ICT use in 1998. Their nationally representative sample of 2000 households, repeated quarterly, showed that as at October 2000, women and older people used the Internet less. While 40% of the sample as a whole had used the Internet in the 3 months prior to interview, 47% of men had done so compared to only 33% of women. Similarly, while 70% of 16-24 year olds had used the Internet, only 24% of 55-64 year olds had done so. Data

from the Family Expenditure Survey for 2000 showed that while 32% of all UK households had home Internet access, this applied to only 7% of those in the lowest income decile, compared with 80% of those in the highest income decile. Household access in Scotland (24%) was lower than the UK average, and substantially lower than areas such as London (40%). This stratification by income would appear to suggest that cost acted as a barrier to use. However, when those who did not use the Internet were asked why they did not, the majority (55%) said they had no need or desire to use, or interest in using, the Internet. Only 8% cited cost as an issue (ONS 2006).

Trends in ICT Access and Use

In 2000 and 2001, the Department for Education and Skills (DfES) commissioned Taylor Nelson Sofres to conduct a large-scale survey of use of and attitudes towards ICT. These were reported in *Trends in ICT Access and Use* (DfES 2002). A nationally representative quota sample of 3905 adults was interviewed about many aspects of awareness, ownership and usage of ICT. Those who did not use ICT were asked about their reasons for non-use. The data were analysed by age, gender, social class, Multiple Deprivation Index (MDI), disability, ethnicity, presence of children in the household and 'ACORN'2 group. The survey found that overall Internet use had increased from 44% to 55% between 2000 and 2001. However, social class made a difference to the propensity to ever have used the Internet – 79% of ABs had ever used it compared to only 31% of DEs. Although use in both groups had increased during the year in question, the increase was greater among the ABs, so that the divide was growing. Similar patterns were found in relation to age and gender, with men and young people more likely to have used the Internet. Households without children were less likely to have used the Internet, as were those belonging to ACORN groups associated with deprivation, and those with high MDI indices. Fewer disabled respondents had ever used the Internet. More non-white respondents had done so (68% compared to 54% of white respondents). The survey also reported

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[2] 'A Classification of Residential Neighbourhoods'; a geo-demographic classification originally developed by a marketing company.

patterns in the nature of use – those from higher social classes were apparently more likely to use ICT for educational purposes, although most of the reported differences were very small.

Barriers and incentives to use

The 'Trends' survey also asked non-users about their level of interest in ICT use, their reasons for non-use and what might encourage them to use in the future, reporting these by age and social class. Since data on perceived barriers to Internet use which have been analysed by such characteristics are unusual, these are worth considering in a little detail. 17% of the sample did not use the Internet but expressed an interest in doing so. 34% of the sample did not use the Internet and did not want to do so. Of those who did not want to use the Internet, 66% said that they were not interested in doing so. Only 5% cited cost as their reason for non-use. As table 2.1 below shows, when both interested and uninterested non-using respondents were considered as a whole, reasons for non-use differed by class and age.

	not interested	don't know about it	can't afford equipment
% of all non users	36	22	16
16-34	18	10	31
35-54	35	21	17
55+	43	27	10
ABC1	37	19	10
C2DE	36	23	19

Table 2.1: Reasons given for not using the Internet (% of all non-users; rows do not sum to 100% because only selected responses reported in original text) Source: Trends in ICT Access and Use. (DfES 2002)

More of those in the 16-34 age group said they could not afford equipment (31%) and less said that they were not interested (18%). Conversely, more of those in the over-55 age group said they were not interested (43%) and fewer said that they could not afford equipment (10%). More of them also said that they did not know anything about it (27%). The same percentage of ABC1s and C2DEs said they were not interested, but more C2DEs said that they could not afford equipment. Bearing in mind that these figures do not control for confounding factors, it seems that cost was a

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greater issue for younger people and people belonging to lower social grades, while lack of interest was a greater issue for older people. Overall however, lack of interest was the most commonly cited reason for non-use, outnumbering other factors in all groups other than the 16-34s. Further, the majority of non-using respondents (51%) said that nothing would encourage them to use the Internet. Those who did cite incentives mentioned free or cheaper Internet access (17%) and free or cheap lessons (13%).

Whose Net?

Whose Net? Characteristics of Household Internet Users in Britain (Foley 2002), commissioned by PAT 15, the Office of the e-envoy and the DTI, focused entirely on levels of household connectivity. Using data provided by all of the leading UK ISPs (broken down by post-code) in combination with Experian's MOSAIC classification of areas, Foley produced a very large data set which permitted postcode-level analysis. By calculating the national average of connectivity for each socio-demographic group, and using this as an index (valued at 100) with which to compare relative connectivity in each area against expected connectivity (given the socio-demographic composition of the area), he developed a 'standardised adoption value'. The study claimed that 'Socio-demographic characteristics are a major determinant of Internet connectivity'; income in particular had a major impact on levels of connectivity, with 3 times as many of the wealthiest households being connected than the poorest. Those resident in deprived areas also had lower levels of home access. The report also found that there were strong regional trends in connectivity; some areas had much higher than average adoption values (e.g. London, with a value of 128), whilst others were much lower than expected. Levels in Scotland were almost commensurate with expected connectivity for the country at just over 100. This survey measured only home access, and therefore did not account for use or access outwith the home. However, the results underline the message that ICT use differs by characteristics indicative of inequality, in particular income.

The Oxford Internet Survey

The first round of the Oxford Internet Survey was conducted by the Oxford Internet Institute in 2003. A nationally representative (UK) sample of 2030 randomly selected individual respondents aged 14 or over was surveyed on their Internet use habits. In 2003 the survey found that 59% of those over 14 currently used the Internet. However, this varied widely by age: 98% of 'pupils' (aged 14-22 and in full-time education) used the Internet, compared with only 22% of retired people (aged over 55 and not in employment). Similarly, level of education impacted on Internet use: amongst those of working age (i.e.: employed people of any age and unemployed people under 55), 95% of those with a degree used the Internet, whilst only 51% of those with no qualifications did so. In the OxIS sample, it did not seem that lacking access to a computer was a primary obstacle to use; only 4% of those surveyed had nowhere that they could access the Internet if they wanted to. Many respondents had a computer at home, but still chose not to use the Internet. The majority of non-users said that they simply felt no need to use the Internet, and 96% did not feel that they had experienced any disadvantage arising from their non-use of the Internet. 9% of the sample were proxy users, asking others to perform tasks for them if required (OxIS 2003). 6% of the sample were identified as 'dropouts', having ceased to use the Internet.

Scottish Household Survey

The 2001/2 Scottish Household Survey report *Scotland's People Volume 7* (Scottish Executive 2003) reported the results of questions on individual access to the Internet (both in any location and in the home) in their survey (n=13414) by gender, age, household income, household type and local authority. It found that overall 37% of individuals had access to the Internet in any location and 31% of households had home Internet access. Again, these varied by a number of characteristics. 41% of men had access to the Internet in any location compared with only 34% of women. 60% of 16-24 year olds had Internet access (any location), whilst only 14% of 60-74s and 3% of over 75s did so. There were wide variations in household access by local authority area; East Dumbartonshire and Shetland were highest, with 47% of individuals having

Internet access (any location). Glasgow was among the lowest, with only 28% of individuals doing so. 55% of large families had home Internet access, but only 23% of single parent households and 3% of single pensioner household did so. In households with an (unequivalised) annual income below £6000, 11% had home access; in those with an annual income of over £20,000, the figure was 62%. However, levels of home Internet access overall had increased quite rapidly, from 26% in the first quarter of 2001 to 38% in the last quarter of 2002. These data measured only the ability to access the Internet, either personally or in the home; as later discussion shows, access does not necessarily equate to use.

Digital Glasgow

In 2001 Scottish Enterprise (SE) commissioned Market Research UK to conduct a survey of use and attitudes toward ICT in Glasgow. Sampling 2000 Glasgow residents, the quasi-random survey was intended to inform SE's digital inclusion strategy. The results indicated that ICT use and ownership in Glasgow were lower than the UK average – 37% reported using the Internet 'nowadays' compared with the 55% recorded in the Trends survey (DfES 2002). This figure is somewhat higher than that reported by the SHS for the same period. As in other surveys, ICT use varied by a broad range of socio-demographic characteristics. Fewer unemployed people, single parents, poorly educated people, council or housing association tenants, elderly people, sick/disabled people or people in receipt of state benefits used ICT. Again in contrast to the SHS findings and those of other surveys, women reported higher levels of PC and Internet use than men, although they used both for less time and for fewer functions than men. Also unusually, those resident in deprived areas did not have lower levels of access to or use of ICT than others. The report's authors do not comment on these unusual findings. In the case of residents of deprived areas this may be because although most areas of Glasgow are officially defined as deprived, many residents of such areas are not necessarily personally deprived. Any suppositions as to why women in Glasgow apparently used the Internet more would be purely speculative, although again it should be borne in mind that these data do not control for possible confounding factors such as employment status or income.

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Barriers and Incentives

When the respondents were asked to give a spontaneous response to the question of why they did not use the Internet at home, 63% of non-users said they did not own a computer. However, when provided with prompted responses, 51% of non-users said they had no interest in using the Internet in future and a further 41% cited cost as a barrier. Other barriers cited centred around being 'too old' and lack of skills. The most popular potential motivating factors cited were based on cost – 48% said free access would encourage them to use the Internet. However, 32% said none of the suggested incentives would motivate them to use the Internet (Scottish Enterprise 2002). Fewer respondents reported using the Internet nowadays (37%) than had ever used it (46%), suggesting that some people had discontinued use. Although many people in the sample were aware of public access locations, only a tiny proportion actually made use of these (Scottish Enterprise 2002).

Summary

When Internet use during this time period is analysed using descriptive techniques, a wide range of socio-demographic factors appear to be connected to low or non-use of ICT. Income, class, area of residence, household composition, housing tenure, employment status, age, gender, sickness or disability, receipt of benefits and level of education all appear to play a part in ICT use. Many of these factors are also seen as indicators of disadvantage or social exclusion, which leads many to suppose that cost or access are the primary barriers to use. However, some of these factors, such as age and gender, are not indicative of exclusion. Further, where non-users are asked about their reasons for non-use, lack of interest seems to figure far more strongly than the expected barriers of cost, access or skills. It would appear that use in Scotland is lower than in the UK as a whole (SHS 2002), although not lower than would be expected given Scotland's socio-demographic composition (Foley *et al* 2002). The figures available are somewhat contradictory, but it would also appear that use in Glasgow is even lower than the Scottish average (Scottish Executive 2003), although living in a deprived area of Glasgow does not seem to play a role in ICT use (Scottish Enterprise 2002). These data render Glasgow a highly interesting site for further

research on the issue of digital exclusion. For further insights on the role of various factors, we now turn to some multivariate analyses of ICT use.

2.3 b) Inferential analyses

As noted above, the majority of quantitative studies of ICT use have utilised only descriptive analyses, hindering investigation of which factors have the greatest impact on ICT use. Those which have employed anything more sophisticated are few and far between, and the majority of these are based on non-UK data. However, it is worth briefly considering some of these to gain a sense of which factors emerge as the strongest predictors of ICT use when all other factors are held constant. It should also be noted that in these analyses, the dependent variable is ICT use (howsoever operationalised) and thus the causal relationships which are tested involve the impact of social factors upon use of ICT, rather than the reverse. Since appropriate longitudinal data which would permit testing of the proposition that non-use of ICT causes social disadvantage do not exist, testing this causal relationship is not yet possible.

In 1995, Katz and Aspenden (1997) conducted a random national telephone survey (n=2500) in the United States. Their descriptive analyses showed that at that time 8% of the US population were Internet users. However, they also found that an equal number were former Internet users, having used in the past and since discontinued use. 69% had heard of the Internet but did not use it, and a further 15% had never heard of the Internet. As in other such surveys, descriptive analyses indicated that levels of Internet use differed according to income, age, gender, race and education. They polled respondents on barriers and motivations to Internet use, and concluded that what they termed 'socio-personal development' (i.e.: communicating via email and finding information about special interests) was the primary driver for use. Amongst all groups (i.e.: current, former and aware non-users), they found that cost, access and skills respectively were the greatest barriers to use. Among former users, the primary reason for stopping was loss of access. Unlike UK surveys on barriers to use, lack of interest does not appear to have been an important factor. Using log-linear modelling, a multivariate statistical technique, they were able to estimate which

factors had the greatest impact on Internet use and awareness. In terms of awareness of the Internet, they found that race was the strongest predictor of non-awareness by a high margin, with age, education and income also having strong effects. The effect of gender was negligible. For use however, the picture was quite different; education emerged as by far the strongest predictor of use, age had a very strong effect, income fairly strong, gender was much weaker and race was negligible. Thus they concluded that there were two digital divides, one relating to Internet use and the other to awareness.

In their follow up to this study, Katz, Rice and Aspenden (2001) reported the results of survey data collected between 1995 and 2000. By 2000, the proportion of Internet users had mushroomed to 65%, while 11.4% were former users. Logistic regressions run on awareness and use found that although the gaps between different groups were decreasing, factors predicting awareness had not changed since 1995. Gender and race no longer predicted use, although education, age and income were still significant predictors. However, as only the significance levels are reported in this analysis, the magnitude of effect of each variable is unclear. Now referring to the incidence of former use as the 'Internet dropout phenomenon', the authors found that those who discontinued use were younger, poorer and less educated than continuing users. Loss of access, cost and loss of interest were the most commonly cited reasons for cessation of use.

In their chapter 'Internet use: the digital divide' in the 2001 report of the British Social Attitudes survey, Oswald and Gardner used logistic and linear regression to analyse the BSA data on Internet use for 2000. Responses to a question about ever using the Internet for non-work purposes indicated that 33% did use the Internet at that time. Logistic regression analysis of this variable indicated that with other factors held constant, age had the strongest effect on Internet use, followed by education and income. The effect of gender was insignificant, but there were quite strong regional effects, with use in Scotland being significantly lower than in the South East of England. Surprisingly, the analysis found no significant difference in Internet use between the employed and the unemployed. Nor were ethnicity, household tenure or household size significantly related to Internet use. However, the strength of the statistical relationship is unclear from the manner in which the results are reported.

Van Dijk and Hacker (2003) report the findings of multiple regression analyses conducted by the Dutch government on ICT use in 1998. These are of particular interest here because the models went beyond using socio-demographic characteristics as explanatory variables and instead operationalised three types of resources considered to be of particular relevance to ICT use. These were: material resources (involving income and a possession of a range of other consumer goods including computers); social resources (involving having people in one's social network who both use computers and could offer support in using them); and cognitive resources (involving literacy, numeracy and 'informacy' or the ability to seek information from digital sources). They found that cognitive resources appeared to explain more of the variance in ICT possession than did material resources, although how this interpretation was arrived at is not entirely clear.

Summary

Taken as a whole, the statistical evidence seems to indicate that when other factors are controlled for, age, education and income respectively are the strongest factors associated with ICT use. Race and gender appear not to be significantly related to ICT use. Even when other factors are controlled for, use in Scotland is significantly lower than many other areas of the UK, although the reasons why this should be the case are unclear (Oswald & Gardner 2001). This yet again highlights the particular interest of Scotland as a site for research on digital exclusion.

Where barriers and incentives to ICT use are considered in surveys, these are self-reported responses to a limited set of answers provided in the questionnaire. They further tend not to be disaggregated by demographic characteristics, hampering investigation of circumstances specific to excluded groups. As such, it is possible that they fail to capture the complexity of barriers to and motivations for ICT use from the perspective of excluded users and non-users. In some cases, factors associated with non-use of ICT are conflated with barriers to ICT use and attributed a causal effect, with little consideration of how such a factor may act as a barrier to ICT use. Accordingly, it is necessary to consider more nuanced research evidence on these

topics. Prior to this however, it is useful to consider another aspect of this survey evidence in more depth, namely the issue of how digital exclusion is defined for the purposes of investigation.

2.4 Disputed definitions of the digital divide

It is notable that in the majority of the surveys and reports outlined above, a dichotomous model of digital exclusion or the digital divide is employed: one either uses or does not use ICT. If one does not use ICT, one is digitally excluded; if one does use ICT, then one is digitally included. Questions in surveys tend to be based on this model; respondents are provided with a choice of responses which permit only a yes or no answer. Similarly, it is generally considered that one either does or does not have access to ICT. Thus, digital divide discourse has tended to be framed in terms of a dichotomy; one is either on this side or that side of the divide. As Selwyn (2002b) puts it:

> Political and popular conceptualisations of the digital divide have tended to be
> strictly dichotomous – you either have 'access' to ICT or you do not, you are
> either 'connected' or 'not connected' … (p.5)

As we have seen, this translates into policy solutions based on the notion that providing public access is sufficient to remedy digital exclusion. However, for some years it has been argued that this definition is too simplistic and fails to take account of a number of other issues which are central to the uptake of ICT among excluded groups. In some cases, such as in Katz *et al* (2001) above, there has been a recognition that transitions around ICT use are not necessarily uni-directional; people can begin to use ICT and then stop again. Further criticisms made of the dichotomous divide model centre around issues of quality of access and use. These criticisms are considered below, utilising appropriate evidence where available.

Servon (2002), who has combined her research on the digital divide with active participation in the US community technology centre (CTC) movement, argues that digital exclusion is a dynamic problem, with many once digitally excluded groups (in

the US) making significant gains, while others continue to lag behind. Thus she suggests that rather than one, homogenous digital divide, it is more accurate to think in terms of *multiple* divides. She argues that even when excluded groups are provided with access to ICT, patterns of use alter little. Thus she contends that three related issues must be considered when defining digital exclusion: access, training and content. In order to make effective use of technology, people must be provided with the skills required to use it, but they must also be able to access 'content that serves their interests and meets their needs.' (p.225). For Mansell (2002), who argues for a 'rights-based approach' to tackling digital inequality, both access and basic ICT skills are insufficient to ensure digital inclusion; making effective use of the opportunities provided by digital technologies requires the development of 'new media literacies', including the ability to analyse and make use of the information available via the Internet. Without this, she argues that digital exclusion will continue even in conditions of universal access.

Selwyn (2002b) argues that what constitutes ICT must be considered more broadly, as there are divides in ownership and use in the whole spectrum of such products. He is very critical of the notion that providing public access to ICT will close the digital divide, arguing that this constitutes merely 'formal' access and provides no guarantees that individuals will use it. Similarly, use does not necessarily equate to effective use. Thus he proposes a model of ICT access and use that is both hierarchical and processual, beginning with formal ICT access and culminating in 'meaningful' access, wherein the individual is able to use ICT in such a way as to enhance their participation in all spheres of society, as per Berghman's (1995) 4-fold model of social exclusion. However, economic, social, cultural and ultimately technological capital are required if this outcome is to be realised. Developing this model in his survey of ICT use in the north of England, Selwyn proposes 5 categories of ICT user to replace the dichotomous access/no access formulation: core, peripheral home access, peripheral family access, peripheral public access and excluded.

In their evaluation of the Wired up Communities initiative, Devins, Darlow, Burden & Petrie (2002) also argue that focusing on physical access to ICT oversimplifies the issue. New divides in terms of hardware, software and infrastructure are emerging continuously. Thus, they argue that access in itself is no guarantee of digital inclusion

(see also Castells 2001). The need for content which addresses the needs of excluded groups is emphasised. They conclude that 'there are multiple and reinforcing divides in relation to the use of the Internet,' (p.13) which require ongoing research. Similarly, Foley, Alfonso & Ghani's (2002) report on ICT use in London asserts that the digital divide must be viewed in terms that go beyond questions of access -

> ... it is not as simple as haves and have-nots. There will always be a divide between high, medium, low and non-users. Disadvantaged users always have to play catch up in obtaining access ... (p.6)

In her major comparative study of patterns of Internet use internationally, Norris (2001) also argues that the term 'access' can mask differences in the quality and level of Internet connection; the ability to use the Internet in a public setting such as a library or cyber-café is not commensurate with 24/7 broadband access in the home or workplace. This argument is supported by Skinner, Biscope & Poland's (2003) qualitative study of young Canadians' use of the Internet (among whom use then stood at 99%) for finding health information. In focus groups conducted with 210 ethnically and socio-economically diverse Canadians, they found that respondents' ability to seek sexual health information online was heavily context dependent. In public access settings, they identified four types of constraint on Internet use: 'privacy', or rather lack thereof in public spaces; 'gate-keeping' through the use of filtering software; 'timelines', that is restrictions on the period of use, and 'functionality', i.e.: poor quality connections or equipment. Clearly in this setting, access to and use of the Internet did not overcome all of the obstacles to effective use.

Jung, Qiu, & Kim's (2002) in-depth study of the nature of Internet use among different social groups in the US also concludes that binary measures (such as access or use), or time-based indicators of Internet use, fail to capture the nature of one's connection, that is 'people's subjective and objective perceptions about their goals and orientations in using the Internet.' (p.512), which differ among social groups. They argue that 'Existing inequalities . . . can directly affect the capacity . . . of people to utilize their connections for purposes of social mobility.' (p.511). Thus they distinguish between 'use' and 'connectedness' to emphasise the multi-dimensional and socially embedded nature of relationships between individuals and technology,

arguing that one's cultural capital directly affects the extent to which one is able to benefit from the use of technology. Hacker and van Dijk (2003) advance a similar argument, distinguishing 3 types of barrier to use which must be overcome before meaningful access can be attained: mental (lack of interest, anxiety); skills and usage (insufficient skills or opportunities to use ICT); and material (physical access). Like Selwyn (2002b) and Jung *et al* (2002), they conclude that social and cultural capital are essential to make effective use of ICT. Van Dijk and Hacker (2003) also argues that the divide is complex and dynamic, as different groups come on line and technology changes. They assert that the issue of gaps in skills and usage is so crucial that the divide would persist even if everyone were provided with free home computers and Internet access.

Summary

By 2003, there were some common themes emerging among a range of commentators regarding the definition of the digital divide. Physical access, or lack of it, was deemed insufficient to distinguish the digitally excluded from the digitally included. It was argued that a wide range of skills and resources beyond those of basic ICT access and literacy were required to make effective use of these technologies, and that the distribution of these skills could contribute as much to continuing digital inequalities as the distribution of hardware. Further, quality of access was seen to be equally important. Thus simply providing 'formal' access through public provision would not address digital exclusion, as it would never be commensurate with always-on home access (Hacker & Mason 2003). Neither access to nor use of ICT in themselves entailed digital inclusion. The rate of technological innovation was also seen to militate against digital equality, as both hardware and infrastructure rapidly become outdated, necessitating costly replacement. Lack of relevant content was also believed to contribute to exclusion.

Digital exclusion was increasingly seen to be a multi-faceted and dynamic phenomenon, with differential rates of use among different groups shifting over time. Thus a neat dichotomy between haves and have-nots was no longer considered valid by some. These arguments have implications for how digital exclusion is measured,

and for the types of policy instruments deemed most likely to be successful in tackling the problem. Many of these authors were critical of the focus on public access as a solution to the digital divide, arguing that it was based on the dichotomous definition of access and use and was thus overly focussed on simplistic hardware-oriented solutions (Selwyn 2002b, van Dijk & Hacker 2003). Notwithstanding these calls for a more nuanced understanding of digital exclusion, policy and much research on digital exclusion have arguably continued to be grounded in the dichotomous conception of the divide. Similarly, despite increasing evidence indicating that interest rather than access plays a greater role in non-use of ICT, policy has continued to be geared toward providing public access. Many authors have also highlighted the paucity of research on various aspects of ICT use, including use by excluded groups, evidence on the benefits of ICT use for any group and the role of attitudes in determining ICT use. Where such evidence exists, it tends to support the above critiques of dichotomous definitions of the divide. Accordingly, some such evidence is reviewed below.

2.5 Evidence on use and non-use among excluded groups

In this section more nuanced, largely qualitative, empirical evidence on use and non-use among excluded groups is considered. Firstly the nature of barriers to use for excluded groups is considered in some depth, particularly the role of lack of interest. This feeds into a discussion of whether this can be seen as a legitimate response to ICT and thus to consideration of objective evidence for the beneficial impact of ICT use. Finally, evidence concerning incentives for ICT use from the perspective of excluded people is considered.

2.5 a) Barriers to use

It has frequently been acknowledged that little research on barriers to use or reasons for non-use of ICT has been conducted, particularly among excluded groups (Foley 2002, Selwyn 2002b, 2003c, Wyatt, Thomas & Terranova 2002). Beyond the fairly limited scope of self-reporting via pre-formulated responses to survey questions, little

is known about the attitudes and motivations of non-users, or what, if any, barriers to ICT use are faced by them. Barriers reported in surveys or suggested by commentators include cost, access, skills, anxiety/technophobia, low educational attainment, literacy, inappropriate content, trust, age and gender. As we have seen, the most prominent reason selected by non-users in surveys is lack of interest (ONS 2002, DfES 2002). In combination with data indicating that very low proportions of the population make use of PIAPs even when they are aware of this possibility (Scottish Enterprise 2002, Stanley 2003), and that even where people are provided with gratis home access and training they may still choose not to use ICT (Devins *et al* 2002, Scottish Executive 2004), this suggests that contrary to expectations, cost, access and skills may not be the primary impediments to ICT use. Since lack of interest/relevance has emerged as such a major reason for non-use, the available literature on this topic will be considered in some depth. Literature on the other barriers enumerated above is also considered, drawing where possible on evidence directly relating to excluded groups.

Age

Selwyn, Gorard, Furlong and Madden's (2003) research on patterns of ICT use involved a household survey of 1001 adults in 4 English and Welsh local authorities, selected to be representative of England and Wales as a whole. The article reported that there was a statistically significant relationship between age and ICT use. Summarising the literature on age and ICT use, the authors hypothesised that several factors may explain the decreased likelihood of the elderly using ICT. Firstly, older adults are less likely to have been exposed to ICT in an educational or labour market setting; the rate at which new developments occurs is likely to exacerbate this problem. However, even where adults over 60 were exposed to ICT in the workplace, they tended to be more hesitant about using it. Secondly, there may be physical constraints connected with age such as poor hearing or impaired dexterity which limit ability to use computers, and thirdly older people are more likely to have a low income and therefore have more difficulty with purchasing equipment. However, as the authors point out, even when factors such as employment status and income are controlled for, age has a stronger relationship with ICT use. In fact, as we shall see

below, the majority of the respondents cited lack of relevance as their reason for not using ICT. Similarly, in Millward's (2003) small-scale study of a PIAP initiative aimed at older people in a deprived Northern English town (questionnaire: n=58, interviews: n=5) he found that most elderly non ICT users cited lack of interest as their principal reason for non-use. However, when questioned further, some respondents admitted that a combination of anxiety and lack of skills prevented them from using. Many also perceived themselves as 'too old' for ICT. These and related issues are discussed further below.

Gender

For some years the fields of personal computing and the Internet were heavily skewed towards men, apparently because women were more anxious about computers due to their construction as technological artefacts belonging to the male domain (Sørensen 2002). However, statistical evidence from a number of countries indicates that gender gaps in Internet use have been closing (Katz *et al* 2001, Oswald & Gardner 2001). This was the conclusion of the SIGIS (Strategies of Inclusion: Gender and the Information Society) project's review of the evidence on Internet use in 5 European countries, including the UK. This was stratified by age however; while younger women were as likely to use ICT as men, older women were much less likely to do so than men of a similar age (Sørensen 2002). Further, in line with the contention that use does not necessarily equal digital inclusion, evidence suggests that other secondary barriers may exist for women. In their analysis of the 2003 OxIS survey data, Liff, Shepherd, Wajcman, Rice and Hargittai (2004) pointed out that women were less likely to have either home or work Internet access. They spent less time online than men and used the Internet for different things – 'more sophisticated' functions such as creating websites were dominated by men. Women also seemed to have more fears about sexual material and harassment in connection with the Internet. Kennedy, Wellman and Klement (2003), comparing data from several large-scale American surveys, also found that men and women differed in how they used the Internet. Women were more likely to use it for social purposes while men were more likely to use it for recreational and instrumental functions. Women were also constrained in their use by childcare responsibilities.

Skills

Michigan State University's HomeNetToo project provided home Internet access to 90 low-income families and tracked their usage of the Internet. Many such studies have utilised self-reporting, which has a tendency to be inaccurate. HomeNetToo, however, used server-logging to accurately record Internet use. Although the participants were provided with home Internet access, training was not included in the project. Analysis of the first 6 months of usage data, reported in Jackson, Barbatsis, Biocca, Zhao, von Eye and Fitzgerald (2002), found that while many used the Internet for a range of functions, many were frustrated by their inability to use it effectively because of their limited skills.

Attitudes

Anxiety and/or so-called 'technophobia', i.e.: fear of computers, have been linked to age, gender and computer experience in many previous studies (Chua, Chen & Wong, 1999), although some studies have found that there is no measurable gender difference in levels of computer anxiety (Brosnan & Lee 1998). The linked issue of poor 'self-efficacy', or how competent a person believes themselves to be at a given task, has also been found to be both implicated in levels of ICT use and more prevalent in women and the elderly (Selwyn *et al* 2003, Liff *et al* 2004). In the US, Stanley's (2003) mixed-method study on the impact of 'psychosocial' barriers to ICT use, conducted among low-income Latino and African Americans participating in basic ICT courses, suggested that several linked attitudinal factors acted as greater barriers to ICT use than did cost. Indeed, many respondents had purchased computers before deciding to attend ICT classes, suggesting that cost, access and skills were not barriers to computer ownership. Stanley's typology of these attitudinal factors included 'comfort zone', involving both having insufficient time to learn ICT skills and a marked fear of computers, which many respondents retrospectively admitted to experiencing. 'Self-concept' also played an important role – the majority of the respondents had a mental image of a typical 'computer user' as a wealthy

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professional, a picture which did not accord with their own self-image. The further issue of 'relevance', or rather a perceived lack of it to the users also had an impact on ICT use, which is discussed further below. Stanley suggests that even where non-users cited cost as a barrier to ICT use, this may have functioned as something of a 'smokescreen' for other issues, since often the same respondents owned expensive items such as large-screen TVs (Stanley 2003). Fears about the potential harmful effects of the Internet were also found to influence the participants of the HomeNetToo project. Those who believed that the Internet was dangerous for children, or could be potentially addictive, used the Internet less (Jackson, von Eye, Biocca, Barbatsis, Fitzgerald, & Zhao, 2003). Dutton and Shepherd's (2003) regression analysis of the OxIS survey data found that 'cybertrust' determined online behaviours such as shopping; those who had low levels of trust in the Internet were significantly less likely to shop online. Further, Internet dropouts had lower levels of cybertrust, suggesting that fears about using the Internet may have influenced their decision to stop using.

Time

Many of Stanley's participants reported lacking time to spend learning to use the Internet and to explore it properly. The majority were working and raising families, and found that the demands of daily life were such that learning to use the Internet was low on their list of priorities (2003). Similarly, the HomeNetToo project participants, many of whom were working single parents, felt that getting to grips with the Internet was impossible because they simply did not have spare time in their day to permit it (Jackson *et al* 2002).

Lack of interest

As we have seen, much survey evidence on barriers to ICT use suggests that lack of interest and/or relevance of ICT acts as a greater obstacle to use than many more tangible/physical barriers such as cost or access. This is often equated with 'lack of awareness of the benefits' of ICT use (Office of the e-Envoy 2002, Scottish Executive

2001). Evidence from the evaluation of the Wired up Communities initiative, whereby the UK government provided home Internet access and training to all households in 7 deprived English communities, further highlights the role of interest in determining ICT use. Among recipients of free home access and training, 25% had not accessed the Internet by the end of the project, with almost half of these citing lack of interest (Devins *et al*, 2002). Little research has been conducted which sheds light on the role of such issues in facilitating or constraining ICT use. As such, it seems that greater scrutiny of the role of such factors is needed to illuminate these issues. Some examples of research which has been conducted on the role of interest and related factors are reviewed below.

Crump and McIlroy's (2003) small-scale survey (n=125) investigating non-use of a community computing centre by the excluded residents of a New Zealand public housing development found that the majority of non-users again cited no interest, despite attempts to increase the accessibility and convenience of the centre. They suggest that ICT use may be related to fulfilling the need for self-actualisation, highest on the rung of Maslow's (1998, cited in Crump & McIlroy 2003) hierarchy of needs. Thus until the lower level needs (physiological, safety and security, love and belonging, and esteem) have been fulfilled, using ICT may appear less than pressing. The authors concluded that it may be necessary to accept that there will always be some in society who choose not to use computers. Facer & Furlongs' (2001) study of patterns of computer use among English and Welsh school-age children (survey n=855, focus groups of low users n=46) found that while access was a key issue constraining use, issues of relevance were also crucial in configuring patterns of use, with many children reporting that ICT was simply not relevant to them. It seems likely that the two issues are very closely linked, in that lack of interest is likely to stem from a belief that computers are not relevant. This is discussed further below.

Some evidence appears to contradict these arguments however. Foley, Alfonso, Brown & Fisher (2003) were commissioned by the Greater London Authority to conduct focus groups with 130 socially excluded Londoners. The results were reported in *Connecting people: tackling exclusion?*. The study found no evidence of lack of interest in non-users – indeed a marked curiosity regarding ICT was the most common response they identified. However, as the authors point out, non-users

represented only 14 of the 130 people sampled, all of whom were self-selecting to some degree, having responded to an invitation to attend the focus group. The greatest barriers cited by all respondents were access, skills and cost. Interestingly many respondents had grossly overestimated the actual cost of purchasing equipment and Internet connections. Further issues raised by this report are discussed where relevant below.

Notwithstanding Foley *et al*'s evidence on the role of lack of interest, the overwhelming body of quantitative and qualitative evidence suggests that this and related factors, which may collectively be termed as mental or motivational, act as greater obstacles to ICT use than physical factors such as cost or access. Some evidence also appears to suggest that these factors are more prevalent in excluded groups. Accordingly, investigating the role of such factors in patterning ICT use among excluded groups is one of the central aims of this study.

Summary

Age seems to act as a barrier to ICT use in that older people are less likely to see ICT as relevant to their needs, or are more likely to experience anxiety regarding computers. Overall, the gender gap in use appears to be closing, although differences remain in usage patterns and women apparently still experience lower self-efficacy with regard to ICT. However, neither of these factors is indicative of social exclusion, and age clearly influences ICT use even after factors such as income have been controlled for. Anxiety, self-concept, self-efficacy, fears about the Internet and lack of trust also appear to act as barriers to ICT use. Lack of time and lack of skills also appear to be issues, particularly for excluded people. Lack of interest appears to be a particularly salient factor, and one which has generated some debate as to its precise nature. This debate is considered in some depth below.

2.5 b) Relevance or awareness?

Lack of interest and lack of relevance are closely linked in that lack of interest presumably derives from a belief that the Internet has nothing to offer the individual. However, some debate exists as to whether this is a legitimate response to ICT or, as policy-makers often assume, in fact results from a lack of awareness of the benefits and can therefore be said to be a 'barrier' to use. This is clearly based in a position which sees non-use as inherently problematic; however, there is some debate around this issue. Below some evidence on the role of perceived relevance in ICT use and debate around the validity of this as a response to ICT is considered.

In common with policy-makers, some academics also argue that lack of interest is merely a symptom of lack of awareness. Hacker & Van Dijk (2003) have argued that it would be dangerous to dismiss the 'not-interested' as 'want-nots'. Conflating lack of interest and anxiety under the heading of 'mental access', they argue that it is a motivational problem and is more prevalent among the elderly, women and those with poor education. Hacker & Mason (2003) argue that given the existence of 'tangible benefits that come from computer and Internet usage' (p.100), dismissing non-users as information want-nots:

> ... raises ethical issues regarding the morality of categorizing people as uninterested in ICT when they may not understand or cannot afford the intricacies of ICT. (ibid p.101)

Thus they contend that lack of interest does result from lack of awareness. Stanley's study of ethnic minority Communty Technology Centre users and non-ICT users in the US would appear to support the view that perceived relevance is connected to awareness. Interviewing low-income recent ICT adopters, she found that many reported seeing ICT as irrelevant prior to commencing use. Having been persuaded to start using, often by members of their social network, many described amazement and pleasure at the wide range of activities ICT use opened up to them (Stanley 2003). Similarly, Millward reports that some of the older non-users in his small sample who said they were not interested or had no need to use ICT acknowledged when the issue was pursued that lack of skills and/or anxiety were the real barriers to use (2003).

Other authors have advanced the opposing case however. Wyatt, Thomas and Terranova (2002) noting that very little is known about the many former users and non-users, propose that automatically problematising non-use may be over-hasty:

> Maybe some people will not use it all and ... maybe its lack does not have to be a source of inequality and disadvantage.' (p.25)

They propose a four-fold taxonomy of non-users: resisters, who have never used the Internet because they do not want to; rejectors, who have stopped using the Internet voluntarily because they find it too expensive or have other adequate means of fulfilling such functions; the 'excluded' who are prevented from using by lack of access, and the 'expelled' who have stopped using involuntarily through the loss of institutional access. They also argue that the definition of Internet 'user' should be much more nuanced, allowing for wide variations in the level and nature of use. Drawing an analogy with driving, they argue that even in an environment where driving is very much the normal, dominant form of transport, there remain qualified, economically able individuals for whom driving is not convenient, pleasurable or simply does not meet their needs. This could equally be the case for some individuals' relationship with ICT, as the phenomenon of former users implies. The dominant policy discourse however, is that 'everyone can or should be connected' (p.25). Selwyn and his team's work on non-use and relevance also suggests that in many cases non-users simply do not perceive any relevance of ICT to their lives. Selwyn's qualitative study (2003a) of students' relationships with ICT (focus groups: n=77) found that even amongst young people in higher education, by all indications the group most likely to use ICT, attitudes to ICT were highly ambivalent. In many cases ICT was used only where it was a course requirement, and was viewed in a highly instrumental fashion. Often it was avoided, again because the students saw it as of limited relevance to their needs, and because they believed that they could acquire such ICT skills as they required for the labour market as and when needed. Similarly Selwyn, Gorard, Madden and Furlong's study of older non-users (2003), found that for many the irrelevance of ICT to their specific circumstances was at the heart of their non-use. Thus they argue that:

Non-users are not a homogenous group of disempowered, under-resourced and under-skilled individuals. (2003, p.576)

Arguing that it is necessary to question the assumption that ICT use is inherently and universally beneficial, they contend that existing accounts of non-use are deterministic and deny agency to non-users. They makes a case for adopting the concept of 'situational relevance', that is, accepting that for many individuals who have been functioning effectively in society for their entire lifetime, the relevance of ICT to their individual needs may indeed be limited. As such, non-use of ICT by those who cite lack of interest or relevance may represent a rational choice on their part. They further point out that the categories of 'user' and 'non-user' are not immutable; many individuals may move between use and non-use according to their needs at different times in their lives. Thus it is essential to view people's relationships with technology within the context of their social worlds (Selwyn 2003c). Facer & Furlong's study of use among school children underlines this point; some children ceased to use ICT after being labelled as 'swots', whilst others used them primarily because the school computer room was a good place to escape bullying (2001).

Further evidence on the role of relevance in ICT use by excluded groups is provided by Hersberger (2003). Utilising Chatman's model of information poverty (1996, cited in Hersberger 2003) to analyse data generated by qualitative research with 25 homeless American families, she found that while most did not use the Internet, they did not perceive themselves as 'information poor', or disadvantaged by lack of Internet access in any way. Although they spent much time engaged in seeking information about housing, benefits, jobs etc., they doubted that information relevant to these pressing daily needs would be available online, and in most cases it was necessary to interact with specific individuals from various agencies to access such information. This may have reflected in part the quality of the necessary services available on line, an issue to which I return elsewhere. Some respondents who had used the Internet in the past had used it primarily for health information, but were often dubious about the quality of this information. Many felt that travelling to their nearest PIAP to use the Internet was a waste of time. A number also said that if they needed to access information online, they would ask their children (who were learning

ICT skills at school) to do it for them. In general, it seems that ICT was not relevant to these homeless individuals, although some participants did use it, as the following section shows.

Some evidence suggests that when lack of interest or relevance are cited as reasons for non-use of ICT, this may be connected with other issues such as lack of awareness, anxiety, lack of skills or a belief that ICT is somehow not 'for' the individual. However, there is also evidence to suggest that relevance is indeed an important issue, and that individuals make rational decisions regarding whether to make use of ICT depending on its 'fit' with their particular circumstances and needs. In any event, the evidence suggests that the term 'barrier' to describe lack of interest in ICT should be used with caution. The view taken on this issue depends to some extent on whether one considers that non-use of ICT is a problem for the individual or for society. The latter position is clearly based in a view that it does matter, because individuals who do not or cannot use ICT risk becoming (further) excluded from society, whilst those who do use it may thereby become more included. For the former group, these contentions are by no means foregone conclusions. In part, the answer hinges on a central question of this thesis – how are digital exclusion and social exclusion linked? It also has implications for the policy response deemed appropriate to low or non-use of ICT. A further question of interest here concerns the role of socio-demographic factors in patterning lack of interest. If the contention that lack of interest is more prevalent among excluded people is accurate, it begs the question of why this should be the case? This issue will be discussed further in light of the findings of this research. For the present, some consideration of evidence for the role of ICT use in mediating exclusion is warranted.

2.5 c) Evidence for the benefits of ICT use

The word 'benefits' is used here to denote what are seen by policy makers as the advantages of ICT use specifically for excluded people. 'Incentives' is used to denote the motivations for and advantages of ICT use identified by excluded people themselves. Evidence to confirm or refute the notion that digital and social exclusion are connected, in the sense that non/ICT use can ameliorate or reinforce exclusion, is

extremely limited. Similarly, there is little evidence to support the existence of the putative benefits of ICT use specifically for excluded people. As Foley *et al* (2002) have noted, the perceived benefits or incentives (and thus also the policy focus) are often based on assumptions regarding the needs and motivations of such groups, specifically regarding labour market, educational and other goal-oriented uses of ICT. Accessing public services and e-commerce are also seen as uses of ICT likely to be of specific benefit to excluded people (Office of the e-Envoy 2002, Foley *et al* 2002). There is however little empirical evidence to either support or refute these assumptions. Stanley points out that while many of her respondents were motivated to gain ICT skills by a desire to improve their employability, in fact there was little evidence that ICT skills would enhance their earning power (2003). Southern's (2002) critique of digital exclusion policy warns against assuming a causal link between deprivation and ICT non-use, and thus as a corollary to this, that 'ICT can address matters of deprivation' (p.699). There is, he suggests, no firm evidence for either contention. The results of the 2003 OxIS survey indicated that 96% of Internet non-users did not believe that their non-use had disadvantaged them in any way, although this could be a function of being unaware of the benefits of use.

One possible means of measuring the benefits of ICT use would be by conducting longitudinal research comparing ICT users and non-users to establish whether either group had experienced any benefits or disbenefits arising from their non/use of ICT. Much existing research is cross-sectional and thus suffers from lack of clarity about the direction of the causal relationship. For instance, some research appears to show that Internet users have more social capital or are more politically engaged (e.g. Katz, Rice & Aspenden 2001), a belief which is reflected in many of the assumptions underpinning digital inclusion policy literature. Quite possibly all of this is true, but it is impossible to gauge from such research whether Internet users have these qualities because they use the Internet, or use the Internet because they have these qualities. Some evidence on the connection between social capital and the Internet at the level of the community seems to suggest that levels of pre-existing social capital determine the impact of the Internet upon a given community. Comparing the impacts of new community networking initiatives in two rural Minnesota towns, Oxendine, Borgida, Sullivan & Jackson's (2003) multi-method longitudinal study seemed to show that existing levels of social capital influenced the nature of the initiatives and thus their

outcomes. The authors concluded that while the 'causal arrow is assumed to point from the network to social capital', in fact:

> respondents who are involved in their communities and high in trust are more likely to be supportive of computers ... as well as supportive of the community electronic network ... pre-existing social connections shaped the character of community electronic projects (p.693)

Foley *et al*'s (2003) study of socially excluded Londoners explicitly set out to critically analyse the assumptions regarding the beneficial impacts of ICT use highlighted in their previous study for the Greater London Authority (2002). The study compared the types of information sought by Internet users and non-users in the previous year. On the basis that more of the Internet users had sought information about education, jobs and health care by any means, the study concluded that the Internet had increased the ability of socially excluded people to access information. Again there is an issue here with the causal relationship – it is quite possible that the people who chose to start using the Internet were more motivated in general and that this explains their higher rate of information seeking. Quicker and cheaper communication was highlighted as of particular benefit to excluded people. Using the Internet also appeared to save people time compared to phoning companies and organisations. Offsetting the costs of Internet access against the respondents' estimates of money saved by purchasing goods online, the report concluded that long-term users saved up to £268 per year. As the authors acknowledge however, 'this approach is relatively simplistic and self-estimation is a relatively crude approach' (p.63). Finally, some of the users described feelings of accomplishment and increased self-confidence arising from mastering the Internet. Based on these findings the report concluded that:

> This analysis has shown that Internet access can enhance participation, reduce isolation and access to information can provide an entrée to wider opportunities. These benefits should help to overcome some aspect of social exclusion. (p. 64)

However, given the limitations of the study, (n=130 in total, of whom 14 were non-users), one should be cautious about generalising from this sample. Further, on what

basis the respondents were defined as 'socially excluded' and the manner in which they were recruited is unclear.

It seems that there is little evidence for the benefits of ICT use, or to support the view that it is inherently and universally beneficial, in terms of objectively measurable outcomes. Investigating factors which incentivise excluded people to use ICT should shed some light on their reasons for using ICT, and thus help to establish if there are any aspects of ICT use likely to be particularly attractive to excluded people.

2.5 d) Incentives for ICT use

Little if any research has been done which focuses on the motivations or incentives for ICT use among excluded groups from their own perspective. In some cases, there is evidence on the uses made of ICT specifically by excluded people. It seems reasonable to conclude that if a particular function is popular amongst excluded people, it is acting as an incentive for use. Thus in some cases, it is only possible to surmise what the incentives are by considering evidence on usage patterns.

The majority of the respondents in Stanley's US study of excluded ICT users reported that improving labour market skills was indeed a primary motivation for commencing use, although many appeared to view gaining ICT skills as an end in itself. Having users in one's immediate social network also appeared to play a significant role in encouraging people to start using, as did the desire to help children with learning to use ICT (2003).

In Clark's (2003) study of a corporate funded US community technology centre, she utilised both participant observation and in-depth interviews to investigate disjunctures between policy rhetoric on appropriate uses of ICT for excluded people, and the actual uses to which they put ICT in the context of the centre. Although the funders stressed the 'social good' aims of the centre, in terms of labour market outcomes and increasing political participation, as laudable uses of the Internet, the low income 8-16 year olds who were the centre's core users had other ideas. Despite the emplacement of technical restrictions on the use of violent games, the young

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people found ways to access these. In general, games, music and celebrity websites were the most popular destinations for the centre users. As Clark points out however, national surveys indicate that these are also the top uses of the Internet for middle-class children.

The manner in which women on low incomes integrated ICT into their lives was studied by Merkell (2003), who conducted ethnographic research with 3 women who had received home Internet access and training through a US digital inclusion initiative. She documented a process whereby:

> the adoption of technology is characterized by a series of stops and starts influenced by events and changes in the participants' lives and by their understanding of what the technology can do for them. (2003 p.198)

She found that each of the women adopted uses of the Internet that were specifically patterned by their unique needs and circumstances. For one woman, maintaining contact with her social network after losing her job, and dealing with the consequences of cancer became the primary uses of the Internet. In another case, a woman who knew very little about her family background used it for genealogical research, providing her older and younger family members with 'a lifeline between the generations' (p.196). However, she often went for long periods without using the computer at all, and had latterly lost her Internet connection because of a drop in income. A further participant, who had a young family, decided to take part in the programme to improve her job opportunities and to stay abreast of her children's use at school. She began using the computer to organise the family, budgeting and record keeping, as well as designing and producing cards and suchlike. Thus in each case, use of the computer was highly idiosyncratic, being patterned by individual circumstances and aspirations.

Hersberger's (2003) study of homeless families in the US found that 6 out of 25 respondents used the Internet to varying degrees. 3 of these frequently travelled to a public library specifically to use the Internet for finding information on employment, healthcare and other personal interests, whilst another 3 used it occasionally,

primarily for recreational purposes. Some of the other respondents had used the Internet occasionally, primarily for health information.

Foley *et al*'s study of socially excluded Londoners (2003), found that email, educational uses, and finding information about employment and health were the most popular uses of the Internet among their sample. Levels of use of all of these functions were considerably higher among this sample than in ONS survey data for the corresponding period. Only shopping and banking were used less by the sample, possibly because these are of less utility to those on low incomes. However, benefits, council and government sites were very unpopular, being seen as difficult to use by many. This may reflect the quality of public services available via the Internet. The primary advantage of Internet use, in the view of both users and non-users, was access to information. Most of the information sought concerned specific questions and national news and sports, but not local information which most felt was poor quality. Many respondents commented that they saved time and money by using the Internet. Disabled respondents found it particularly useful for shopping and health information. Respondents with family overseas highlighted the cost savings over telephone communication. Overall, the respondents were extremely positive about their experiences of using the Internet.

The findings of the HomeNetToo project showed that the most popular use of the Internet was finding information of specific relevance to the user. Ethnographic data from the study showed that use of the Internet for interpersonal communication was particularly valued by many participants, as it allowed them to maintain relationships while saving on the cost of phone calls. Finding information to support their children's education was also seen as particularly useful. There was also a general sense that the Internet represented the 'future'. A number of respondents reported a sensation of escaping the demands of daily life and enjoyed the feeling of being connected to a wider world through the Internet (Jackson *et al* 2002).

The available evidence seems to show that the incentives for using ICT are highly idiosyncratic and very much conditioned by the specific circumstances of the individual. There appear to be situations in which Internet use is not an appropriate solution to a given problem, either because of individual circumstances (e.g.

ecommerce is not necessarily useful for those on low incomes) or because the quality of the service is not good enough (e.g. government services). This may suggest that developing policy initiatives based on pre-conceived notions about the benefits of ICT use for excluded groups is unlikely to be effective.

2.6 The digital divide – directions for research

There are differing perspectives on the digital divide, the prospects for the future of digital inequality, and policy instruments recommended to deal with it. There is strong empirical evidence from both descriptive and multivariate analyses of survey data that a range of socio-demographic factors is connected with ICT use. Many of these are also associated with poverty or social exclusion, though others, such as age and gender are not. Use is lower in Scotland than in the UK as a whole, and appears to be lower still in Glasgow. Multivariate analyses indicate that when other factors are controlled for, age, income and education respectively have the greatest impact on ICT use. The strong association between low income and non-use might appear to suggest that cost or access are the greatest barriers to use. However, in surveys, lack of interest is the most commonly cited reason for non-use.

The prevailing definition of the digital divide in much policy and academic literature has been based on a dichotomous model of digital inclusion or exclusion. This is increasingly contested however, with many arguing that the quality of access and use is equally important. Thus simply having access to or using ICT does not necessarily equate to digital inclusion. Notwithstanding these arguments and the evidence on the role of lack of interest, much policy has continued to be based on the dichotomous divide notion, wherein providing public access is assumed to address digital exclusion.

More nuanced empirical evidence suggests that mental or motivational factors such as trust, self-efficacy, anxiety and self-concept play a role in non-use of ICT. Lack of interest or perceived irrelevance stand out as particularly strong reasons for non-use. However, there is some dispute as to whether this represents a rational response to ICT, or results from lack of awareness. The position taken on this issue to some extent depends upon whether non-use of ICT is seen is problematic. This in turn is based on

whether, and in what way, digital exclusion is seen to be connected to social exclusion. Evidence for the beneficial impacts of ICT use for excluded people often proclaimed by policy makers is limited. There is some evidence on incentives for ICT use from the perspectives of excluded people, which suggests that ICT is used in ways that are structured by the individual's needs and circumstances, and that people may use ICT intermittently as and when it suits them.

Social exclusion, the other key concept employed in this research, is considered below.

2.7 Social Exclusion

2.7 a) Introduction

Although the digital inclusion policy literature is peppered with the term 'social exclusion' this is seldom defined. It is generally used interchangeably with terms such as 'deprived' or 'disadvantaged', and appears to refer to a somewhat loosely defined concept of inequality or poverty rather than any systematic measures. However, given the explicit links frequently made in the same literature between the role of ICT in either ameliorating or exacerbating social exclusion, and the role of social exclusion in non-use of ICT, it is arguably necessary to employ a more sophisticated definition of social exclusion in order to frame a robust and rigorous approach to researching its connections with ICT use. The confluence of digital and social exclusion around the issue of participation in different spheres of life also renders social exclusion a useful conceptual tool with which to investigate non/use of ICT and any attendant impacts. A further aspect of social exclusion, developed further below, is of interest when considering non-use of ICT; that of agency. Measuring non-participation in various spheres of life is a central concern of social exclusion research; however, some authors acknowledge that in a number of cases, such non-participation may well be voluntary (Burchardt, Le Grand & Piachaud 2002b). For instance, not owning a television or not voting may be consciously made choices on the part of the individual, although in quantitative studies they will be treated as indicators of exclusion. As the literature on the digital divide showed, there is some dispute as to

whether non-use of ICT can be seen as a valid and rational response to ICT or to represent a form of exclusionary inability to participate in this sphere of life.

This research employed a method of operationalising social exclusion originally developed by Burchardt, Le Grand and Piachaud (2002b) of the LSE's Centre for the Analysis of Social Exclusion (CASE) to facilitate longitudinal analysis of the British Household Panel Survey (BHPS) dataset. Prior to outlining this model in detail, it is necessary to provide some context for its genesis by considering some aspects of the theoretical development of the concept. Since it was not the intention of this research to conduct an empirical investigation of social exclusion *per se*, primarily theoretical literature on social exclusion is considered in this section, focussing on some of that offered by key theorists working in the field. Firstly, the historical development of the concept of social exclusion and its integration into the UK policy landscape are examined. Competing theoretical definitions of the concept and their attendant policy implications are then scrutinized in some depth followed by a brief summary of some critiques of the concept and of the manner in which it informs social policy. A consideration of some more concrete variants of the concept leads into a detailed exposition of Burchardt *et al's* operationalised model and some discussion of the results of their analysis. Although the purpose here is not exhaustively to examine either empirical data or policy on social exclusion in the UK, a brief overview of these in the Scottish context is necessary to provide some picture of conditions pertaining in the research setting.

2.7 b) Context

The term social exclusion has recently become ubiquitous in both public and political discourse. It is employed loosely to describe all manner of social deprivation and disadvantage, and as Barnes (2005) has argued, even in policy literature on social exclusion it is frequently ill defined. Its predominance in the U.K. policy context was signalled by the launch of New Labour's Social Exclusion Unit in 1997, which was accompanied by a plethora of policy initiatives designed explicitly to combat 'exclusion' (Levitas 2000). Yet as a concept it is relatively novel, having first been adopted in the European institutional context only in 1989. Indeed, as recently as 1994, Hilary Silver was able to conclude that 'the English-speaking countries use the

rhetoric of exclusion relatively rarely.' (p.541). The definition of social exclusion offered by the Social Exclusion Unit is somewhat vague:

> a shorthand term for what can happen when people or areas suffer from a combination of linked problems such as unemployment, poor skills, low incomes, poor housing, high crime environments, bad health and family breakdown. (2001, p.11)

As will become apparent however, definitions of exclusion offered by those working in the field are a great deal more complex. As such, the above definition fails to capture much of what is considered important or distinctive about the concept. There is a general consensus that defining social exclusion, much less measuring its incidence or manifestations, is a difficult and complicated matter. As Silver observes - 'the expression is so evocative, ambiguous, multidimensional and elastic that it can be defined in many different ways' (1994 p.536) This elasticity lends itself to use in political rhetoric, rendering it adaptable to many political purposes (Stewart 2000). Yet, as Silver argues, this flexibility also provides an opportunity; by interrogating the manner in which the term is used, it is possible to learn much about the agenda of the user (ibid.). This highlights a crucial aspect of the analysis of the concept - it is necessary to be aware of the political perspective underlying any given interpretation of 'social exclusion' and of how this influences the nature of the policies developed to combat social exclusion 'in order to clarify the implicit objectives of anti-exclusion policies.' (p.540). Any analysis of this concept must also take account of the distinctions between abstract theoretical concepts, operational definitions and the political implications and/or policy manifestations of these, while recognising the complex and diverse linkages between each of these categories. The focus here will be on the first two of these aspects in turn, prior to consideration of a number of critiques of the concept. Some of the more influential accounts of social exclusion are considered below.

2.7 c) Origins and development

Daly (2006) attributes the term 'social exclusion' to René Lenoir, a French policy maker, who first referred to 'les exclus' in the early 1970s. According to Silver

(1994), the term gained currency in France after the economic crisis of the 1970s, and was initially used to refer to marginalised groups such as the disabled and lone parents. Throughout the late 1970s and the 1980s its meaning expanded to include groups such as school-leavers and immigrants, and subsequently acquired a spatial dimension when it came to encompass the conditions of the *banlieues* (deprived suburbs). Throughout this period, myriad initiatives, and ultimately an entire government ministry, were dedicated to the fight against exclusion, having the aim of social 'insertion' or 'integration' as the proposed solution to exclusion. The adoption of the term was in part a struggle for the control of public discourse around inequality - the political opposition had coined the term 'new poverty' to describe the effects of growing unemployment and economic instability. In response, the government favoured the use of 'exclusion' to refer not only to the effects of unemployment, but also to the perceived breakdown in social bonds. This reflects the deep influence of the Republican tradition underlying the dominant paradigm within French social exclusion discourse, discussed further below. The language of exclusion soon spread to the institutions of the EU - by 1989 'social exclusion' had replaced 'poverty' as the target of policy initiatives (see also Berghman 1995) – and from thence filtered down to many of the member states. At this point, some consideration of the differences between these concepts is warranted, prior to a discussion of theoretical definitions.

2.7 d) From poverty to social exclusion

The concept of poverty as employed in early social research has its origins in 19th century British liberal individualism. Conceiving of society as a collection of atomised individuals motivated by self-interest to participate in market exchange, liberalism viewed poverty as a purely economic phenomenon, involving the lack of sufficient material resources to compete in the market place. It was thus the goal of social policy to 'ensure that each person had sufficient resources to survive in this competitive arena' (Room 1995, p.6). By virtue of this focus on resources, analysis of poverty has been concerned chiefly with the measurement of income and/or income proxies (i.e.: consumption levels) since this time.

As employed by Joseph Rowntree (1901, in Barnes 2005), 'poverty' referred to lacking the absolute minimum of resources required for subsistence. It was latterly

developed by theorists such as Townsend (1979, in Barnes 2005) to take account of the norms and expectations prevailing in a given society. Hence, it acquired a relative aspect in that it was measured in terms of the proportion of the average income of individuals in poverty. Although the UK has no officially defined poverty line, the generally accepted measure used by government agencies (e.g. in the DWP's *Households Below Average Income* reports) and in studies of poverty, is income below 60% of median (Barnes 2005). Because of this focus on income, 'poverty' is seen to be overly concerned with distributional issues, viewing inequality purely in terms of one's relationship to the market (Room 1995, Berghman 1995) and thereby, arguably, in terms of class (Lister 2000). This approach has been criticised on various grounds, including: insensitivity to the manner in which 'difference' (race, gender, disability, sexual orientation, etc.) may generate inequalities unrelated to income or class (ibid.); failure to take account of disadvantage in spheres other than the market (Shucksmith & Philip 2000); describing only a static 'outcome' of processes which lead to poverty (Berghman 1995); and neglect of the role of agency (of those who exclude and those who are excluded) both in the generation of poverty and in attempts to overcome it (Byrne 1999, Lister 2000). Townsend's 'relative deprivation' model (1993, in Berghman 1995) represents an attempt to expand 'poverty' to take account of relational issues by linking access to resources with the ability to participate in society, but it is still considered by many to be overly focused on income thresholds, as well as overly static (Bergman 1995, Room 1995).[3]

The concept of 'social exclusion', as we have seen, has its roots in a distinctively French conception of society. According to Berghman and Room (ibid.) the manner in which it is now used in the European context results from attempts to synthesise these French (relational) and Anglo-Saxon (distributional) understandings of inequality, through the medium of the Marshallian citizenship model (1950, cited in Room, ibid.), in which citizenship is seen to bestow civil, political and social rights upon those who hold it. 'Exclusion' is seen to overcome many of these difficulties with 'poverty' in that it considers not just material resources, but views deprivation in more

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[3] Although, as Berghman observes: 'in market economies . . . access to a certain standard of living depends upon the resources available to buy them in the market. In this sense, the monetary indicator ... should not be considered as a unidimensional indicator' (1995, p.18).

holistic terms, considering the individual's level of integration into all spheres of society. It thus encompasses the Marshallian notion of citizenship rights and views social exclusion 'in terms of the denial – or non-realisation - of citizenship rights'. Thus social exclusion and poverty are not seen as contiguous, and poverty is only one possible form of exclusion (Berghman 1995, p.19). This also allows for consideration of the effect of 'difference' (i.e.: race, gender, etc.) on one's integration in society, rendering exclusion a multidimensional concept. Contrary to poverty, exclusion is dynamic in that it examines processes rather than outcomes (Lister 2000), and that it recognises movements into and out of exclusion over time. This processual aspect permits the incorporation of agency into debates around inequality – whereas 'poverty' is a passive state, 'exclusion' implies action on the part of an (excluded or excluding) agent (Byrne 1999). Consequently, it has the capacity to integrate a diverse range of issues which many consider to have been neglected in the past. In large part, this explains the rapid adoption of the term. However, at a theoretical level the concept is more complex and is open to a variety of interpretations, which will be explored below.

2.7 e) Definitions

As Silver (1994) observes, the emergence of new concepts is symptomatic of social change; as underlying conditions alter, so new theoretical models are developed with which to describe and explain such social transformation. Thus, just as the concepts of 'poverty' and 'unemployment' emerged in the wake of the Industrial Revolution, so today the concept of social exclusion has emerged as a result of the post-Keynesian economic restructuring experienced in the advanced capitalist nations since the mid 1970s. Many commentators similarly site their analyses of social exclusion in the context of recent social and economic change, expressed in terms such as globalisation, post-industrialism, post-modernity, 'late', 'high' and 'reflexive' modernity, 'knowledge economy', 'information society' and so on, which are seen to generate a need to 'identify new models of social order and justice' (Stewart 2000, p.2). Some leading accounts of social exclusion are considered below.

Solidarity, specialisation and monopoly

In Silver's highly influential article on social exclusion, she elucidates the social, political and economic theory underlying what she sees as the three major paradigms of social exclusion. Silver suggests that in its passage from France to the European Union, and from there to distinctive national contexts, the concept of social exclusion acquired meanings consistent with approaches to inequality historically specific to the political culture of nation-states. Thus she distinguishes between the *solidarity*, *specialisation*, and *monopoly* paradigms of social exclusion, each of which 'attributes exclusion to a different cause and is grounded in a different political philosophy' (1994, p.539). As Silver notes, each of these paradigms are 'ideal types'; in practice, empirical studies may employ any combination of the above.

Solidarity

The French discourse of social exclusion grew out of the distinctive revolutionary and Republican political culture of that nation. Within Republican discourse, the concepts of the 'social bond' and 'social solidarity', propounded by social theorists from Rousseau to Durkheim have been key drivers of political thought and social policy. The attempt to find a 'third way' between 19th century utilitarian liberal individualism and socialist collectivism, and in so doing to reconcile the conflicting needs of the individual and the State, has generated a conception of social solidarity in which the bonds between the individual and the collectivity are not merely political and economic, but also cultural, moral, external and normative (as in Durkheim's conception of the *conscience collective)*. Thus, '"exclusion" is conceived of not simply as an economic or political phenomenon, but as a deficiency of "solidarity"'. In this model, the State is the embodiment of the collective will, and assistance for the less fortunate is a collective responsibility, discharged by the State, in the interests of social solidarity. Within the Republic, citizens have a right to subsistence and/or work. Conversely, 'assisted citizens have a duty to work and to participate in public life.' (p.537). The economic theory underlying this paradigm is that of 'flexible specialisation' which conceives of a decentralised productive process, allowing workers a high degree of autonomy, that is thus more fully integrated with the wider

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society. Within this model, economic competition is limited, but a certain degree of inequality results from the formation of group boundaries. Such 'moderate inequality' (p.550) is however seen to be acceptable insofar as it is a product of group formation, which ultimately promotes solidarity.

Specialisation

The specialisation paradigm is underpinned by liberal political and economic theory. Naturally occurring differences between individuals give rise to social differentiation, and thus to the emergence of distinct spheres in society: the market, the polity and civil society. These operate most effectively when they are wholly separate; thus state intervention in the economy is discouraged. This contrasts with the solidarity paradigm in which all spheres of society are seen to be closely interrelated. Within the specialisation paradigm, 'the social order' is conceived of as 'networks of voluntary exchanges between individuals with their own interests and motivations.' (p.542). Citizenship is thus seen in terms of reciprocal contractual arrangements between autonomous individuals and the discrete spheres of society. While these spheres are seen to be competing, this need not imply the existence of any inequality so long as there are no barriers to entry or movement between them. Exclusion arises where such barriers exist; it is thus seen as a form of 'discrimination'. The focus on individual behaviour leads liberals to view exclusion and inequality in these terms; it is the individual attributes of the excluded, rather than social or political circumstances, which cause their exclusion. It is within this paradigm that we find the notion of the 'underclass'. Hence inclusion strategies focus on 'supply-side' problems – education, training, 'workfare'-style programmes - rather than considering the impact of structural conditions, such as low demand for labour, on the incidence of inequality. However, Silver distinguishes between classical and social liberalism – within the former, the emphasis is entirely on individual behaviours and supply-side theories, while the latter approach accepts the existence of demand-side or structural causes of inequality. Individual liberty is considered to be of greater importance than inequality – hence continuing social inequality is considered preferable to state intervention which promotes equality at the expense of individual freedom. So long as the spheres

are sufficiently separate, and there is competition between them, extreme exclusion should not occur.[4]

Monopoly

Silver identifies this notion of exclusion, informed by social democratic principles, as the predominant paradigm both within the European Union and among the centre left parties of the member states. Here, the social order is seen to be 'coercive, imposed through a set of hierarchical power relations.' (p.543). Social 'closure' creates barriers to entry into institutions or social groups. Those within such entities benefit from a monopoly over resources, while those outside are both excluded and dominated. In contrast to the specialisation paradigm, the existence of discrete social groups or spheres necessarily creates exclusion. Thus, 'the overlap or coincidence of group distinctions with inequality' (ibid.) is central to the monopoly paradigm, and exclusion is seen as 'a consequence of the formation of group monopolies.' (p.570). In economic terms, this is expressed through the theory of 'labour market segmentation'; group monopolies lead to the formation of dual labour markets in which access to highly paid, secure employment is restricted to certain types of worker, while those in the secondary labour market are limited to low-paid, precarious, or no employment. While proponents of this paradigm see inequality within capitalist society as inevitable, they maintain that, in combination with a redistributive welfare state, 'social citizenship' (derived from the Marshallian citizenship model referred to above) has the capacity to ameliorate the effects of such disparities. Exclusion occurs when groups or individuals are prevented from participating in society and thus denied full citizenship. The monopoly paradigm sees income inequality as a problematic aspect of exclusion, in contrast with both the solidarity and specialisation paradigms. Social exclusion is also seen to encompass new patterns of inequality, resulting from a generalised decrease in employment security occasioned by the rise of neo-liberalism.

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[4] However, in this paradigm it is also accepted that 'long-term structural unemployment may be consistent with market efficiency' (Silver 1994, p.557).

Social integration, redistribution and moral underclass

Another highly influential analysis of social exclusion discourses is that of Levitas (2000), who, like Silver, posits the existence of three underlying paradigms. These are – the *social integrationist* (SID), *redistributionist* (RED), and *moral underclass* (MUD) discourses of social exclusion. Each reflects a differing political outlook and identifies differing causal factors in its analysis of exclusion.

Social integration

Within the SID model, the principal cause of exclusion is worklessness. Thus the primary force for social integration is seen to be paid employment, and the solution to exclusion is the promotion of labour market integration. Inequalities within the labour market are ascribed little significance. Similarly, the existence of structural unemployment and other external barriers to labour market participation are not afforded great importance. Thus the policy focus is on altering individual behaviour - improving employability through training and other (often coercive) supply-side initiatives. There are similarities between this and the social liberal version of Silver's specialisation paradigm, although the emphasis on 'integration' has echoes in the solidarity paradigm.

Redistribution

The RED model locates the primary cause of social exclusion in poverty. If people are denied access to goods and services because they lack material resources, they are denied the ability to participate fully in society. This draws on both Townsend's definition of poverty (1979, in Barnes 2000) and the Marshallian citizenship model. As is implied by the name, redistributive policies are considered key to tackling social exclusion, including raising benefit levels so that those who are excluded from the

labour market are not thereby excluded from society as a whole. Levitas argues that despite its focus on poverty, this approach overcomes the problems associated with income-based models in that it is 'dynamic, processual multidimensional, and relational,' (p.359), allowing for the existence of elements other than poverty in the experience of exclusion. Silver's monopoly paradigm is most closely related to this variant of social exclusion discourse.

Moral Underclass

The MUD approach places the responsibility for exclusion firmly on the excluded. Certain groups, such as unemployed young men and single parents, are engaged in a 'culture of dependency' stimulated by over-generous State benefits which create a disincentive to work. There is a focus on the threat to social order posed by such groups, whose alleged moral degeneracy and criminality stems from their cultural background. Where the focus in the SID model is on workless individuals, here it is on workless households. No account is taken of structural conditions. This corresponds most closely to Silver's classical liberal model.

Levitas, writing on policy in the UK context, argues that social inclusion policies may be informed by any combination of the three discourses. According to Levitas, SID now predominates in New Labour's inclusion rhetoric, although elements of MUD have been influential, and aspects of RED may also be discerned. She is fiercely critical of both the SID model and New Labour's social exclusion policies, chiefly because she contends that they place no value on unpaid domestic labour.

Cohesion vs. Justice

Notwithstanding the threefold typologies advanced by Silver and Levitas, many current commentators distinguish between just two approaches to social exclusion. These may be described as the social liberal and social democratic approaches to exclusion (Gray 2000). Gray (2000) is an exemplar of the former, whilst Lister (2000) represents the latter. Unlike many other theorists, these writers are presenting

arguments concerning the optimal approach to tackling exclusion, rather than disinterested overviews of the different possible approaches – they are prescriptive rather than discursive. The divergence between the two perspectives can be summarised in terms of a fundamental disagreement over the importance of structural inequality to any understanding of exclusion, or to any future project of social progress.

Cohesion

In Gray's view (2000), the project of the European left has shifted from egalitarianism to inclusion as a response both to political conditions in which traditional left-wing values are no longer seen to be electorally successful, and to economic globalisation, which is seen to render such values unattainable in practical terms. At the core of social democratic egalitarian values is the belief that distributive equality is a necessary condition of justice, and thus a moral imperative. In contrast, for social liberals, social cohesion or inclusion is of primary importance – if distributive inequality threatens cohesion, it is problematic, but where it does not, it need be of no concern. Individual well-being is the primary aim of social liberals, and an inclusive society, expressed in terms of 'the idea that every member of society should participate fully in it.' (p.23), is seen as the best means of promoting it. It is argued that egalitarianism may threaten individual well-being if it restricts individual freedom and mobility. Thus, although social liberalism is 'distribution sensitive', in that it will curb extreme inequality in the interests of cohesion, 'it attaches only an instrumental importance to distribution.' (p.28). It may also justify policies which actively promote inequality, such as offering the middle classes incentives not to opt out of state provision. However, Gray is insistent that the goal of 'inclusion' must go beyond labour market integration. He argues that inclusion is unattainable within the current context of unregulated global markets, which both increase exclusion and restrict the ability of national governments to prevent it.

Social justice

Lister (2000) advances the opposing case, arguing for the pursuit of 'social justice', to which distributive equality is central. She argues that while the goal of the inclusive society is widely shared, there is little consensus as to what this might involve. The pursuit of 'social cohesion' is equated with 'equality of opportunity in an unequal labour market and wider society', and thus contrasted with 'social justice' which would 'aim to go further and . . . reduce the more fundamental inequalities that propel the forces of exclusion.' (p.37). Following Levitas, she asserts that approaches to social exclusion can be classified as SID, RED and MUD, of which the SID model is dominant in both the UK and the EU. As with Levitas, much of the discussion is framed in terms of a critique of New Labour's inclusion strategies, in particular their perceived focus on labour market integration. However, the RED approach is seen to provide a means of reconciling the universalistic egalitarianism of the traditional left with the claims for recognition generated by the rise of the politics of difference.

2.7 f) Critique

Although there are many critiques of the concept of social exclusion, considering these in great depth is not directly relevant to this research. A brief overview of some such critiques will suffice for present purposes. As noted above, the concept is seen by many to represent a significant advance on the arguably narrower concept of poverty. In terms of its ability to encompass dimensions of inequality which go beyond simple income indicators, and thus to incorporate multiple forms of difference and disadvantage, it is clearly welcomed by many. In its consideration of relational issues, it is argued that exclusion can address 'social relations of participation, integration and power,' (Lister 2000, p.38). Similarly, the processual aspect which allows analysis of the role of agency in exclusion, is warmly greeted (Byrne 2000, Shucksmith & Philip 2000). Silver (writing in 1994) identifies the potential for exclusion to act as the basis for much needed welfare-state reform. It is also important to note that use of the concept or term social exclusion does not necessarily imply the displacement of 'poverty' as an analytical tool; it has been argued that the concepts should be employed in a complementary manner in social research (Milbourne 2002).

The concept of social exclusion, however, is not without its problems or its critics. Many criticisms appear to focus on the actual or potential applications of the concept in the policy context. Perhaps the most common criticism of policy manifestations centres around the labour market focus of UK social inclusion policy, as exemplified by the shift in emphasis within welfare provision to policies in the 'Workfare' mould. Thus, insofar as current policy is based in the social integrationist discourse, there is arguably a contradiction inherent in New Labour's enthusiastic embracing of the term social exclusion whilst simultaneously disregarding the multi-dimensional aspect of the concept and focussing only on the labour market or production dimension of social life. Critics also highlight the potential for the use of exclusion in practice to obscure persistent structural economic inequality, and in so doing to lay responsibility for exclusion at the door of the excluded (Stewart 2000, Lister 2000, Silver 1994). Milbourne (2002) has argued that within most interpretations and policy manifestations of social exclusion discourse:

> Despite the focus on the multidimensional nature of social exclusion, these interpretations rest heavily on individual or household isolation; and the remedies on re-inclusion and membership of mainstream social institutions. Little change is therefore implied to the social institutions themselves, nor do such interpretations recognise the need to address the accumulation of wealth elsewhere, nor other dominant and powerful institutions which promote inequality and potentially exclude and define those outside as disadvantaged, whether by race, class, gender, age or disability. Social exclusion then fails to address equality in the wider sense. (p.328)

A further criticism is of the tendency for some variants of exclusion discourse (especially as they manifest in policy output) to contain a somewhat moralistic or normative element (Bailey et al, 2003). There is also the danger, identified by Silver, that insofar as the specialisation paradigm is employed to analyse exclusion there is a risk of 'ghettoizing risk categories under a new label and publicizing the more spectacular forms of poverty,' (1994 p.572). Again this would appear to be borne out in the UK policy context by the SEU's focus on particularly disadvantaged groups such as rough sleepers and teenage mothers (SEU 2001). It is also pointed out that the 'inclusion' of certain groups and individuals into society of necessity involves the

exclusion of others. In the contemporary context, immigrant groups are seen to represent the most salient example of this (Silver 1994, Stewart 2000, Lister 2000).

Notwithstanding these criticisms, the convergence of the concepts of digital and social exclusion around the issue of participation in different spheres of social life renders social exclusion a particularly useful medium with which to study digital inequality. In this context, this necessitates the selection of a means of operationalising social exclusion for empirical research. Accordingly, some attempts to operationalise the above theoretical formulations for use in quantitative research are discussed below.

2.8 Operational definitions

Some less abstract formulations of social exclusion, which move closer to operationalising the concept for research purposes, are now considered. The models considered here appear to be grounded in the monopoly or RED paradigms in that they draw more or less explicitly upon Marshall's citizenship model.

2.8 a) Systems of integration

Berghman (1995) refers to the model suggested by the European Commission's Poverty 3 research programme, in which exclusion is defined in relation to the failure of one or more of the four systems which promote integration into society. These are:

- The democratic and legal system, which promotes civic integration

- The labour market, which promotes economic integration

- The welfare state system, promoting . . . social integration

- The family and community system, which promotes interpersonal integration (ibid. p.19)

Berghman likens this to Marshall's citizenship model because it refers to discrete areas of life in which one's ability to exercise rights is seen to be indicative of participation in society, and thus of citizenship. Hence, social exclusion is 'a

comprehensive concept . . . that refers to a breakdown or malfunctioning of the major societal systems that should guarantee full citizenship.' (p.20). However, Berghman argues that both poverty and social exclusion have static as well as dynamic connotations, suggesting that impoverishment (process) and poverty (outcome) should be used to denote simple income poverty, while exclusion (process) and deprivation (outcome) should be used to denote multidimensional disadvantage.

2.8 b) Resource allocation systems

This model has been modified by Shucksmith & Philip (2000), who draw on the work of Reimer (1998), to suggest that rather than the systems of integration employed in the above model, the concept of systems of *resource allocation* may be more usefully employed to analyse social exclusion. Thus they propose the following systems:

Private systems, representing market processes

- State systems, incorporating authority structures with bureaucratic and legal processes

- Voluntary systems, encompassing collective action processes

- Family and friends networks, a system associated with cultural processes. (p.7)

Social exclusion 'refers to a breakdown or malfunctioning of the major societal systems that should guarantee the social integration of the individual or household.' (ibid.). However, in neither model does there appear to be any consideration of the causes of such system failure.

2.8 c) Dimensions

At the time of writing, there were few examples of the above models being applied in a quantitative research setting. Indeed, there have been few attempts to operationalise the concept of exclusion for use in such research (for a discussion of some such

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attempts, see Burchardt, Le Grand, & Piachaud 2002a). Given the conceptual controversy surrounding social exclusion, it is generally accepted that it is possible only to develop a working definition with which to attempt such an operationalisation. Burchardt, Le Grand, and Piachaud's working definition of social exclusion is as follows:

> An individual is socially excluded if he or she does not participate in key activities of the society in which he or she lives. (2002b p.30)

They developed a method of operationalising exclusion for use in quantitative research based on this definition. Within their definition of social exclusion, the separate areas of society are denoted by the term 'dimensions', and are categorised as follows:

> *Consumption*: the capacity to purchase goods and services
> *Production*: participation in economically or socially valuable activities
> *Political engagement*: involvement in local or national decision-making
> *Social interaction*: integration with family, friends, and community (p.31)

Inability to participate in any of these dimensions is defined as an 'outcome' of exclusion, as opposed to other social, economic or demographic factors (they refer to ethnicity, area of residence, etc., but one assumes that this includes factors such as age, gender and so on), which are defined as causal or 'risk' factors. This model was used by Burchardt *et al* to analyse 8 successive waves of the British Household Panel Survey (BHPS 1991-1998), thus allowing the multidimensional and dynamic aspects of social exclusion to be operationalised through investigation of movements in and out of exclusion in each of the dimensions, and comparison of the incidence of exclusion on one or more dimensions both concurrently and across time.

As is often the case with analysis of such datasets, there are issues of various kinds with each of the indicators the study used to measure social exclusion. However one particularly relevant aspect the authors wished, but were unable, to operationalise is that of agency. Their original definition of exclusion included two clauses relating to this:

1. the individual is not participating for reasons beyond his/her control, and

2. he or she would like to participate. (p.42)

It was not possible to measure either of these using variables available in the BHPS. However, they argue that in most cases it is unlikely that anyone would choose to live below the thresholds they set for measuring exclusion, such as income below 50% of mean (all thresholds described in detail in Chapter 3). In the case of political participation, they mount an alternative case, stating that while voluntary non-participation in the political sphere may not be problematic for the individual, it may undermine the democratic process and thus be problematic for the state. As has been discussed, the role of agency in determining ICT non/use is a contested area in digital exclusion research. This issue will be revisited in the concluding chapter.

Another issue identified by the authors is what is defined as an 'economically or socially valuable activity'. They wished to include voluntary work in their category of 'included' economic statuses. Since there was no measure of this in the survey they were unable to do so. Their 'included' category does however include 'family care'. As we have seen, a central criticism of New Labour's exclusion policy is of its focus on labour market integration as the primary route to inclusion. Thus Burchartd *et al* would wish to categorise some people as included who would not be categorised thus in the eyes of policy-makers. In this sense, it would seem that this model is grounded in a redistributionist paradigm, and as such illuminates disjunctures between current policy and influential researchers.

Findings

Analysis of the BHPS data using this model found that the incidence of exclusion on multiple dimensions at one point in time was rare; cross-sectional analysis of Wave 7 (1997: n=7502) of the survey found that 57.5% of the working-age population were not excluded on any of the four dimensions. 30.1% were excluded on one dimension, 10% on two, 2.3% on three and only 0.1% on all four dimensions. When movements into and out of exclusion over time were examined, it was found that the incidence of

persistent exclusion on all four dimensions was also extremely rare; 0.1% of the population were excluded on all dimensions in 3 waves of the survey, but none were excluded on all four dimensions for any more than 3 waves. Only 37% of the sample had never experienced exclusion on any dimension in all 8 waves of the survey (due to attrition, n for all 8 waves=3279). The authors conclude that this shows that persistent severe exclusion is extremely rare, casting the existence of an enduring 'underclass' into doubt. Conversely, there are few in the population who never experience exclusion of any kind. Thus, movements into and out of exclusion appear to be more frequent and fluid than may be supposed. However, there were strong and significant correlations between exclusion on a given dimension in consecutive waves of the survey. For instance, if an individual was excluded on the consumption dimension in one wave of the survey the correlation coefficient with consumption exclusion in the previous wave was 0.521.

Due to the lack of other operationalisation precedents, and since this model is both relatively simple and effective, the multi-dimensional aspect of it is used in this research to analyse the links between social exclusion and ICT use in Scotland. Since the Scottish Household Survey is cross-sectional, clearly it will not be possible to apply the dynamic aspect of the model. The precise manner in which the model is operationalised is explained fully in Chapter 3.

2.9 The Scottish context

Since this research was conducted in Scotland, and specifically in Glasgow, some discussion of the extent of social exclusion and associated policy measures in these locations is warranted. However, since no comparable analysis of social exclusion in Scotland has been conducted, it is not possible to directly compare the incidence of exclusion in Scotland with the UK as a whole. Even existing data sources, such as the Multiple Indices of Deprivation (MDI), are compiled using different procedures, hampering comparison of social conditions between the separate nations of the UK (RSS 2005). However, it is possible to compare relatively crude measures such as income across the UK for the relevant time period, and to compare Glasgow with the rest of Scotland using more sophisticated measures such as the MDI.

2.9 a) Social exclusion in Scotland

The Joseph Rowntree Foundation report *Measuring poverty and social exclusion in Scotland* (Kenway, Fuller, Rahman, Street & Palmer 2002) showed that the proportion of the Scottish population on low incomes (measured as below 60% of median) was similar to that of the UK as a whole, at just below 25%.[5] Income inequality had risen in the preceding 7 years, but was still lower than in England and Wales. Glasgow was host to 44 out of the 92 Scottish local council wards with high numbers of people on low incomes. At 34%, Glasgow had the highest level of claimants of a key benefit (i.e.: Income Support, Job Seeker's Allowance, Invalidity Benefit) of all local authority areas in Scotland.

The *Scottish Index of Multiple Deprivation* (2003), produced on behalf of the Scottish Executive, comes closer to measuring social exclusion in that it measures deprivation in a range of dimensions and thus goes beyond simply measuring income. Measures of deprivation in: income; employment; health; education, skills and training; and access to key services are derived from a wide range of data sources and compiled to produce an area-based index of deprivation for each area in Scotland, disaggregated to local ward level. Figure 2.1 below shows the results of the analysis for 2003, with the darkest areas representing the most deprived wards. As can clearly be seen, the greatest concentrations of multiple deprivation were in Glasgow.

2.9 b) Social inclusion policy

As noted, a central plank of social inclusion policy at a UK level involved the creation of the Social Exclusion Unit (SEU) and the designation of 18 'Policy Action Teams' dedicated to tackling exclusion in different areas, including that of digital exclusion (PAT 15). At a Scottish level there was also a plethora of policies and initiatives geared toward tackling disadvantage and exclusion (for a comprehensive summary of

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[5] The JRF used figures from the DWP's HBAI dataset, which are equivalised to account for household size and composition.

these see Kenway *et al* 2002). A key element of these was the creation of Social Inclusion Partnerships (SIPs) in 1999. Designed to direct funding at areas and groups experiencing maximum social disadvantage, there were both area-based and thematic SIPs. To qualify for area-based SIP status, local communities had to place a bid with the Scottish Executive. If the bid was successful, increased funding was made available to the community. Unsurprisingly, given the high levels of deprivation prevailing in Glasgow, much of the city gained SIP status. The SIP policy was intended to lead into a new funding structure for deprived areas after several years. Thus Community Planning Partnerships replaced SIPs in 2005. The high concentrations of social exclusion in Glasgow, in combination with the lower than average levels of ICT use highlighted by the relevant literature, once more underline the particular interest of Glasgow as a site for the study of issues around the role of exclusion in non-use of ICT.

Scottish Index of Multiple Deprivation 2003
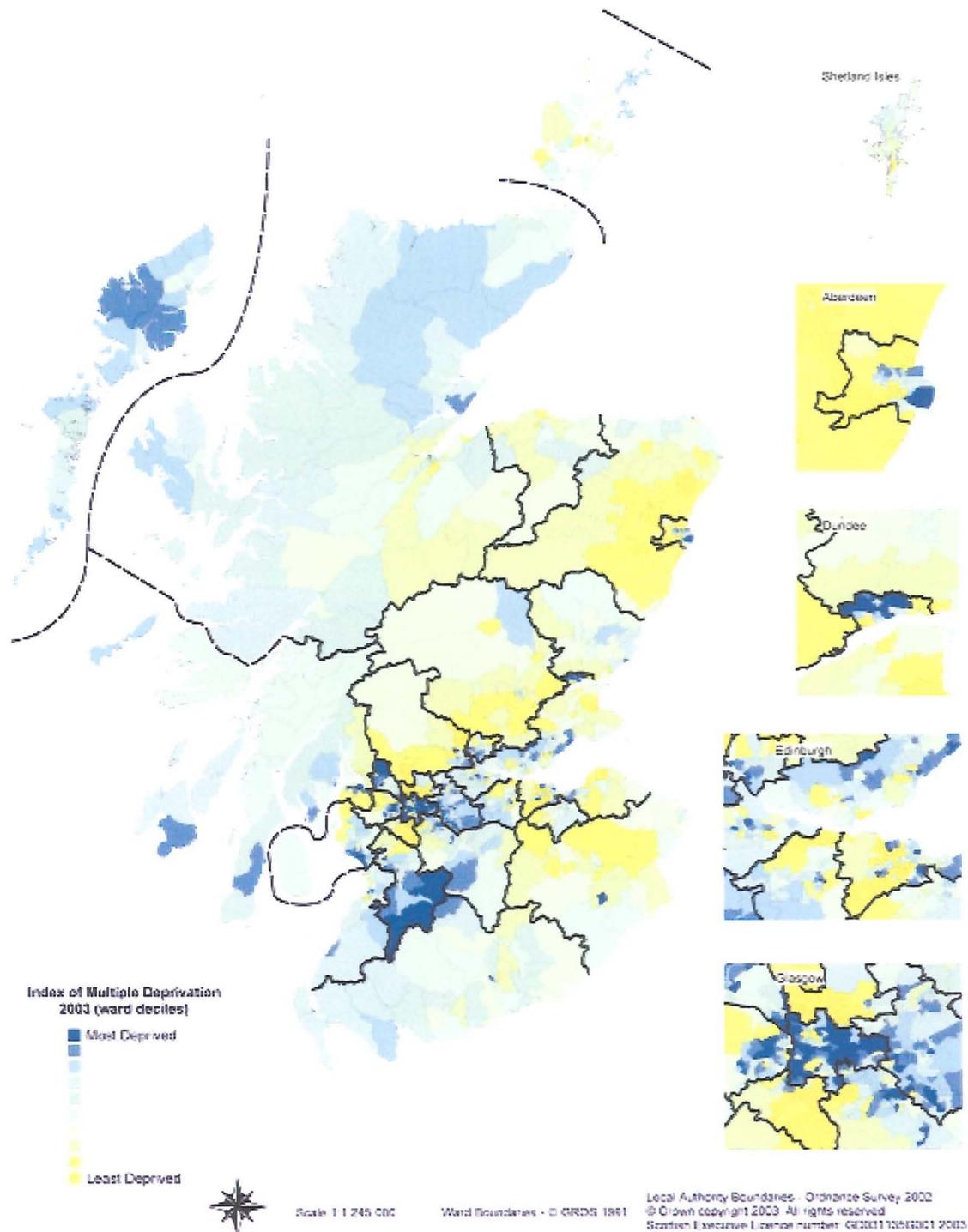
Figure 2.1: Concentrations of multiple deprivation in Scotland. Source: Scottish Index of Multiple Deprivation 2003

2. 10 Research questions

There is a paucity of research in many areas connected with digital exclusion. In particular, the review of literature on the digital divide highlighted gaps in: multivariate analyses which control for the effects of inter-related factors on ICT use; empirical research on digital exclusion in Scotland, and more nuanced research on reasons for use or non-use of ICT among excluded groups. In particular, the role of factors such as lack of interest or perceived irrelevance in determining ICT use had received little attention.

The tendency for research on connections between social exclusion and ICT use to employ vague or one-dimensional indicators of exclusion has also been highlighted. Reviewing the literature on social exclusion revealed that few empirical studies of any kind have utilised a systematically defined and operationalised model of exclusion. Thus this research employs Burchardt *et al's* systematically operationalised model of social exclusion delineated above, in combination with multivariate statistical techniques, to investigate the relationship between social and digital exclusion. The literature had also emphasised the high levels of deprivation and lower than average levels of ICT use in Glasgow. Thus the overarching aims of the research, as laid out in Chapter 1 were:

- To explore the relationship between digital and social exclusion.

- To investigate the nature of barriers and incentives to ICT use for excluded people in greater depth.

- To gain a deeper understanding of the above questions through the application of both qualitative and quantitative research methods.

Accordingly, this research aimed to answer the following questions, in two phases of investigation:

Quantitative research:

In order to test the proposition that social exclusion causes non-use of ICT, using ICT use as the dependent variable, models will be developed which seek to illuminate which factors are the strongest and most significant predictors of ICT use in Scotland? This will involve the use of multivariate techniques which hold other factors constant

When an operationalised model of social exclusion is used for analysis, is social exclusion more strongly associated with non-use of ICT than demographic factors common to the population as a whole?

- Which indicators of social exclusion have the greatest impact on ICT use?

- What proportion of the variance in ICT use is explained by social exclusion relative to other demographic factors?

- How closely related are digital and social exclusion? Can digital exclusion be explained by social exclusion?

Qualitative research:

- What are the barriers and incentives to ICT use among excluded individuals in Glasgow?

- What does qualitative investigation add to the understanding of these issues gained through survey evidence?

- How are digital and social exclusion connected?

The first set of these questions was addressed using logistic regression analysis of the Scottish Household Survey dataset for 2002. The methods used in, and the findings of, this analysis are described in the following chapter.

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Chapter 3 ICT use and social exclusion in the Scottish Household Survey

3.1 Introduction

This chapter describes the methods used in, and the findings of, the statistical analysis. First, the research questions the investigation set out to address are considered in some depth. Some characteristics of the sample in The Scottish Household Survey dataset are then described, followed by a discussion of the manner in which the relevant concepts were operationalised. The variables included in the analysis are then described in some detail, accompanied by descriptive statistics for each. This is followed by a comprehensive account of the methods employed to carry out the analysis. The remainder of the chapter considers the results thus generated.

3.1 a) Research questions

Existing surveys of ICT use had identified a number of factors which appeared to be related to non-use of ICT. These included: income; age; gender; social class; sickness or disability; employment status; educational attainment; area of residence; household composition and housing tenure (DfES 2002, ONS 2002, Scottish Enterprise 2002). Implicit within these analyses was the assumption that such factors cause non-use of ICT, although as noted, much policy literature is based an on an implicit understanding of the relationship between ICT use and social exclusion wherein it is believed that; a) non-use of ICT will lead to or worsen social exclusion, and conversely b) that social exclusion leads to, non-use of ICT.

However, existing quantitative data on the topic, including the dataset at hand, do not in fact permit the testing of causal relationships. This is because only cross-sectional data on the topic exist at the current time, whilst longitudinal data would be required to test for causal relationships. Indeed cross-sectional data permit us only to investigate correlations between ICT use and social

exclusion, and do not allow us to infer any causal relationships between the two. Thus, the hypothesised causal relationship tested in the current analysis is that the factors included as explanatory variables in the analyses cause non-use of ICT, with ICT use included in the relevant models as the dependent variable. The relationship tested can be graphically represented thus:

Social exclusion ————————————————————▶ Non-use of ICT

Many of the factors included in existing analyses of ICT use were indicative of disadvantage or 'social exclusion' as it is generally understood in common sense discourse. However, whilst many of these studies had referred to the connection between 'social exclusion' and low ICT use, none had explicitly operationalised the concept as it is understood from an academic perspective, that is as a multi-dimensional and dynamic concept, in order to investigate systematically the links between the two phenomena. Very few of these studies utilised anything more sophisticated than descriptive analyses of the data available. Thus it was not possible to assess the relative magnitude of the impact of any such factors on propensity to use ICT, nor to estimate how much of the variance in ICT use any of these factors individually or collectively explained. Neither was it possible to test the statistical significance of any of these associations, nor to investigate to what extent it was 'social exclusion' *per se*, as compared to other demographic factors not necessarily associated with exclusion, which explained low levels of ICT use among some groups. Further, no such analysis had utilised such techniques to investigate non-use of ICT in Scotland. As such, the analysis reported here represents one of only a few attempts to go beyond descriptives in investigating the links between any social or demographic factors and ICT use, and the first attempt to explore the relationship between ICT use and a systematically applied model of 'social exclusion'. It is also the first to apply relatively sophisticated statistical techniques to the analysis of ICT use in Scotland.

Thus a key element of the task at hand was to utilise a method of investigating the links between social exclusion and ICT use which both operationalised social exclusion effectively and allowed the unique effects of each variable to be estimated by controlling for the effect other variables. In order to do so, the method of operationalising the concept of social exclusion developed by Burchardt, Le Grand and Piachaud (2002b) for their longitudinal analysis of social exclusion in the BHPS was to be applied in a modified form to analyse the links between social exclusion and ICT use in the Scottish household survey. It was also necessary to investigate the relationship between ICT use and other demographic factors highlighted in the literature, such as age and gender, in order to assess to what extent it was social exclusion *per se* which influenced levels of ICT use rather than such demographic factors. Thus the analysis was conducted in such a way as to answer the following research questions:

- Which factors are the strongest and most significant predictors of ICT use in Scotland, when multivariate techniques are used which hold other factors constant?

- When an operationalised model of social exclusion is used for analysis, is social exclusion more strongly associated with non-use of ICT than demographic factors common to the population as a whole?

- Which indicators of social exclusion have the greatest impact on ICT use?

- What proportion of the variance in ICT use is explained by social exclusion relative to other demographic factors?

- How closely related are digital and social exclusion? Can digital exclusion be explained by social exclusion?

In order to answer these research questions, a statistical technique was required which allowed analysis of the relationship between multiple explanatory variables and one dependent variable, whilst holding values for each variable constant so as to estimate the unique effects of each variable. Regression modelling techniques, both linear and logistic, provide estimates of the relative magnitude of the effects of different explanatory variables on a single dependent variable, as well as providing an estimate of the proportion of the variance in the dependent variable accounted for by a number of explanatory variables. Thus it was possible to develop different sets of models allowing comparative testing of the collective impact of social exclusion and demographic factors on ICT use, as well as estimating the effects of each variable individually. These modelling techniques were used to analyse the Scottish Household Survey dataset with a view to answering the above research questions.

3.1 b) The Scottish Household Survey

The Scottish Household Survey (SHS) is a continuous, cross-sectional survey conducted annually by the Scottish Executive. It is the only nationally representative survey of the Scottish population which includes data on Internet use. The survey is administered in two sections. In one section the highest income householder is asked questions relating to issues at the household level, and in the other a 'random adult' member of the household is asked questions relating to individual issues or behaviour. In most cases, the variables used in the analysis were individual level data generated by the random adult section of the survey. The 2001 dataset (n = 15566) was used in this analysis.

Although the sample aims to be nationally representative, as is often the case with such surveys, there are issues caused by non-response bias which skew the sample towards women and older people, in the random adult section of the dataset and towards certain geographical areas in the household section of the dataset. It is possible to use weights provided with the dataset to correct

for this effect whilst running analyses; for the individual level data the random adult weight is used, and for the household level data the local authority weight is used. Since in most cases random adult data were used in the analyses presented here, the random adult weight was used. However, even when the weight is applied, men and younger people are slightly under-represented. Use of the weight also results in a decrease in sample size, from 15566 to 14643. Nonetheless, correcting as far as possible for non-response bias is preferable, and thus the weight was used at all times when running statistical procedures.

A further issue with the dataset is that income and economic status data collected by the SHS are acknowledged to be somewhat inaccurate, and thus are not intended to be used for analysis of these areas in themselves, only as background variables for investigation of other topics. Income tends to be under-reported, and as there are always missing data for many cases, net income figures for up to a third of cases are imputed (Scottish Executive 2001, 2004). After imputation, a number of missing and implausible values remain – of 14643 cases in the dataset; only 14382 have values for net income. Inspection revealed that a number of these had recorded implausibly low incomes of £800 p.a. or less. Following removal of these, a total of 14081 cases remained, which was the baseline sample size used in the majority of the analyses reported here.

3.1 c) Characteristics of the sample

Descriptive statistics for each of the variables included in the analysis are provided in section 3.3 below. The broad characteristics of the sample were as follows:

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	8160	55.7	55.7	55.7
	male	6483	44.3	44.3	100.0
	Total	14643	100.0	100.0	

Table 3.1: Gender in SHS 2001 dataset (random adult weight applied n=14643)

As table 3.1 above shows, after the appropriate weight was applied, 55.7% of the sample was female and 44.3% were male. As noted, due to non-response bias, this is some way off the actual population figure, which is closer to parity between males (49%) and females (51%) (Scottish Executive 2004).

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	16 to 24	1563	10.7	10.7	10.7
	25 to 34	2283	15.6	15.6	26.3
	35 to 44	2813	19.2	19.2	45.5
	45 to 59	3663	25.0	25.0	70.5
	60 to 74	2955	20.2	20.2	90.7
	75 plus	1366	9.3	9.3	100.0
	Total	14643	100.0	100.0	

Table 3.2: Age (categorical) in SHS 2001 dataset (random adult weight applied n=14643)

Tables 3.2 and 3.3 show that the largest category in the sample was the 45-59 age group (25%), and the mean age was 48.27. Again this will not be entirely representative due to non-response bias. Kurtosis and skewness close to zero indicate that a variable is close to the normal distribution. Since this was the case here, age was quite normally distributed.

	Statistic	Std. Error
Mean	48.2743	.15087
Median	47.0000	
Variance	333.298	
Std. Deviation	18.25646	
Minimum	16.00	
Maximum	103.00	
Range	87.00	
Interquartile Range	29.00	
Skewness	.186	.020
Kurtosis	-.870	.040

Table 3.3: Age (continuous) in SHS 2001 dataset (random adult weight applied n=14643)

Income

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		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-10000	3778	25.8	26.8	26.8
	10-20000	6767	46.2	48.1	74.9
	20-30000	2498	17.1	17.7	92.6
	30000+	1038	7.1	7.4	100.0
	Total	14081	96.2	100.0	
Missing	System	562	3.8		
Total		14643	100.0		

Table 3.4: Annual net household income (categorical) equivalalised using McLement's scales. (weight applied n=14081)

Nearly half of the sample was in the income bracket £10-20000 p.a., with another quarter below £10000. Very few households had an income in excess of £30000 p.a. As is generally the case, income was extremely non-normally distributed, having skewness and kurtosis far in excess of zero at 39 and 3891.46 respectively.

Mean	16146.7902
Median	14010.6948
Variance	156243567
Std. Deviation	12499.74268
Minimum	800.00
Maximum	1311475
Skewness	39.038
Kurtosis	3891.461

Table 3.5: Annual net equivalalised household income (continuous) n=14081

ICT use in the sample

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	6070	39.0	39.0	39.0
	No	9480	60.9	60.9	99.9
	Don't know	15	.1	.1	100.0
	Total	15565	100.0	100.0	
Missing	System	1	.0		
Total		15566	100.0		

Table 3.6:Ownership of computers (% of households n=15566, local authority weight applied)

This variable was generated in response to the question 'Does your household have a computer/PC in your accommodation?' The number of households owning a computer (39%) was somewhat higher than the number of adults who reported using the Internet (31.3%), suggesting either that a substantial number of households had PCs but not Internet access, or, as in the OxIS dataset for 2003, that a number of people have computers in their home that they do not personally use.

Method used to access Internet	% of Internet users
Personal computer	94.6
Laptop computer	6.3
WAP/Mobile phone	1.0
Television	1.6
Games console	0.3
Digital personal organiser/palm top	0.2
Combination mobile phone/personal organiser	0.1
Other	0.9

Table 3.7: Methods used to access the Internet n=4581 (more than one response permitted)

Table 3.7 above shows the Internet users' responses to the question 'What methods do you use to access the Internet nowadays?'. Clearly the overwhelming majority of people used a desktop PC to access the Internet. The alternative methods were rare in the extreme, with only access via a laptop registering any substantial number of responses. Given the rapidly

changing nature of this technology, it is quite possible that a similar question today would generate quite different responses from those gathered in 2001. In particular accessing the Internet via a mobile phone has become easier and cheaper and laptops are now marketed as replacement desktops, suggesting that more people may now use these for Internet access.

Use of internet	Has ever used for	Would like to in future
E-mail	80.3	6.1
General browsing	72.2	5.9
Info about goods/services	65.8	6.8
Info about education	42.6	9.4
Buying/ordering tickets/services	35.4	17.6
Non-grocery shopping	26.3	10.2
Banking/investment activities	23.1	18.4
Playing/downloading music	22.8	8.8
Govt/official sites (use or access)	22.4	5.6
Playing/downloading games	20.7	4.9
Looking for work	18.3	10.1
On-line learning	15.2	14.1
Chat rooms/sites	12.9	3.6
Grocery shopping	7.0	19.5
None of these	3.1	29.9
Voting	0.8	14.5
Paying rent	0.3	2.2

Table 3.8: Self-reported current and potential future uses of Internet (% of Internet users. n=4581)

Table 3.8 above shows the Internet users' responses to the questions 'Which of the following things have you ever used the Internet for?' (column 1) and 'Which others, if any, do you think you would like to use the Internet for in the future?' (column 2). Clearly the use categories are not mutually exclusive. E-mail, general browsing and searching for information about goods or services stand out as the most common uses of the Internet by a wide margin. On-line learning, looking for work, using government or official sites, and both grocery and non-grocery shopping were perhaps surprisingly rare uses of

the Internet, particularly in light of policy-makers' hopes regarding the use of ICT for labour market activities, enhancing education, e-commerce and accessing government services (PAT 15 2000). However, respondents seemed more likely to use the Internet for finding information about certain things such as goods/services and education, than to actually conduct these activities online. Responses to the second question are presumably restricted to those who do not already use the Internet for these purposes, as reflected in the relatively low numbers who have responded positively. Again, activities such as looking for work, online learning and accessing government services did not seem to figure strongly in respondents' future Internet use plans.

Having established the broad characteristics of the dataset, it was necessary to develop means of operationalising the key concepts used in the analysis, namely social exclusion and digital exclusion. The manner in which this was done is described below.

3.2 Operationalising concepts

3.2 a) Social exclusion

Burchardt *et al's* method of operationalising the dynamic and multidimensional aspects of social exclusion in their analysis of successive waves of the BHPS dataset was employed to investigate the role of such factors in ICT use, with the aim of capturing the manner in which the multiple dimensions of social exclusion interact with ICT use. Since the SHS dataset includes data only for a single year, the analysis is cross-sectional. Longitudinal data would be required to investigate the changing nature of ICT use across time.

As discussed in Chapter 2, Burchardt *et al's* approach involved selecting certain outcome or indicator variables to represent exclusion in each sphere of society. These were:

Consumption: this was represented by income in their model. It was measured in their analysis using equivalised net household income before housing costs, with exclusion on this dimension being defined as 'under half mean equivalized income'.

Production: engagement in the production dimension was measured by self-defined economic activity. They defined exclusion as 'not employed or self-employed, in education or training, or looking after family (i.e.: unemployed, long-term sick or disabled, early-retired or 'other') (p.35)

Political engagement: this was represented in their analysis by whether the individual was a member of or active in one of a number of organisations, including: political party, trade union, parents', tenants' or residents' association, or whether they voted in recent general elections. Exclusion was defined as did not vote and not active in any such organisation.

Social interaction: this was gauged by responses to the questions 'Is there anyone who . . . ' 'you can really count on to listen to you when you need to talk?'; 'you can really count on to help you out in a crisis?'; 'you can totally be yourself with?'; 'you feel really appreciates you as a person?'; 'you can really count on to comfort you when you are very upset?' (ibid.). They defined exclusion as lacking somebody in relation to any one of these areas.

Analogues for each of these indicators were identified in the SHS dataset. These are detailed in section 3.3 below.

3.2 b) Demographic factors

Burchardt *et al* also discuss 'risk factors', that is factors which may increase an individual's risk of being excluded, such as age, gender, ethnicity, area of residence and so on. These are generally factors which are common to the population as a whole, or background socio-demographic variables. Such factors have also often been found to be associated with low or non-use of

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ICT. In order to compare the effects on ICT use of such socio-demographic factors with those of social exclusion, it was decided to test for the effects of some of these factors both separately and in conjunction with the outcome factors identified above. On the basis of existing survey data, age and gender were obvious candidates for inclusion in such a model. In addition the effect of differing levels of educational qualification was also tested for since it had been identified as having a strong relationship with ICT use in much literature (Scottish Enterprise 2002, Foley *et al* 2002). Ethnicity was not included in the model as the numbers of differing ethnicities present in the SHS were too small to derive robust statistics. Other demographic factors such as area and household composition were included in exploratory model building attempts, but proved generally insignificant and unstable across different models, and so were dropped at an early stage.

3.2 c) Digital exclusion

As the review of the literature showed, the definition and measurement of 'digital exclusion' and the use of indicators such as ICT non/use or amount of time spent using ICT as the basis for any such definition are highly contentious (Jung *et al* 2002, Selwyn 2002b, van Dijk 2003). However, as with the majority of such surveys, the questions in the SHS were based on the dichotomous definition of use/non-use. Further, in the context of the SHS the only available means of measuring individual ICT use was via the proxy measure of self-reported time spent using the Internet for personal purposes per week, generated in response to the question 'Generally speaking, about how many hours a week do you spend using the Internet for your own personal use?'. Thus the measure used here is of Internet, rather than ICT use. This approach did not capture those who use PCs but not the Internet, or those who used the Internet solely for work related purposes. However, the only alternative available in the survey was to investigate PC ownership at the level of the household, which would not have captured either individual use or use outwith the home, resulting in a substantial loss of richness in the data. It is not possible to be certain that every individual resident in a home with a PC

uses ICT, but it is possible to be reasonably certain that everybody who reports using the Internet is an ICT user. Further, it seemed possible that the groups of most interest for the research used ICT outwith the home, in public access facilities or other people's homes. Thus the strategy followed was the most effective in terms of capturing those who definitely use ICT and belong to the groups of interest. It could not however, provide any sense of quality of use or access which many authors had begun to regard as crucial to defining digital inclusion (Selwyn 2002b, Jung et al 2002, van Dijk & Hacker 2003)

3.3 Variables used in the analysis

3.3 a) Dependent variable; ICT use

As discussed above, the measure of ICT use was derived from answers to a question measuring the length of time the random adult respondent reported spending using the Internet per week. This had been entered in the dataset as a categorical variable, with categories corresponding to 'doesn't use', less than 1 hour, 1-5, 5-10, 10-20 or over 20 hours. The values for this variable are presented in table 3.9 below.

	Frequency	Percent	Valid Percent	Cumulative Percent
Doesn't use	10063	68.7	68.7	68.7
>1h	1937	13.2	13.2	81.9
1-5hrs	1865	12.7	12.7	94.7
5-10hrs	475	3.2	3.2	97.9
10-20hrs	201	1.4	1.4	99.3
20+hr	101	.7	.7	100.0
Total	1464	100.	100.	

Table 3.9: Hours spent using Internet per week (% of random adults n=14643)

Given the issues raised by some authors (Jung et al 2002, Selwyn 2002b), regarding the inefficacy of definitions of digital exclusion based solely on a dichotomous use/non-use formulation; there was a case for using this time-based indicator of Internet use in the analysis. Such authors argue that simply

focussing on whether an individual uses ICT fails to capture the quality or nature of such use. However, Jung *et al* also advance the same argument regarding time-based indicators of use. In the context of a large-scale survey such as the SHS, there is a very strong possibility of measurement error with such a question. Firstly, respondents' estimates of the length of time they spend using the Internet are likely to be somewhat inaccurate, since few people keep any sort of mental tally of such activity. Secondly, there is the possibility that respondents' answers will be influenced by socially desirable response bias, wherein survey respondents provide the answers that they believe to be most socially acceptable (Nancarrow & Brace 2000). This may have lead to under- or over-reporting of time spent on the Internet. A further issue of this nature relates to the tendency of respondents to provide responses which require the least possible intellectual effort. This phenomenon, known as 'satisficing' is particularly prevalent in the context of very long surveys such as the SHS (Holbrook, Green, & Krosnick 2003).

Further, there were a number of practical issues around the use of this variable in the appropriate multivariate statistical tests. Linear regression ideally requires a continuous, normally distributed dependent variable. The measure of Internet use based on time was neither of these. It was possible to remedy the first issue by recoding the original categorical variable into a 'pseudo-continuous' variable, having values corresponding to the mid-point of the categories in each value of the original variable. However, the issue of non-normality was more difficult to solve, given the extreme non-normality of the distribution as illustrated by figure 3.1 below. Exploratory linear regression modelling indicated that the model had little explanatory power. Logit regression modelling on the other hand, is suitable for use with a dichotomous dependent variable, and has no requirements regarding the distribution of either the dependent or explanatory variables. Hence it was decided that some degree of richness in the data should be sacrificed in order to ensure a higher degree of accuracy in the dependent variable and robustness of the analysis.

Thus the original variable was recoded into a dichotomous variable having values only for use or non-use of the Internet. As figure 3.1 shows, the vast

majority of the population as a whole did not self-report as Internet users –
only 31.3% of cases responded to the question regarding time spent using the
Internet, whilst 68.7% did not.
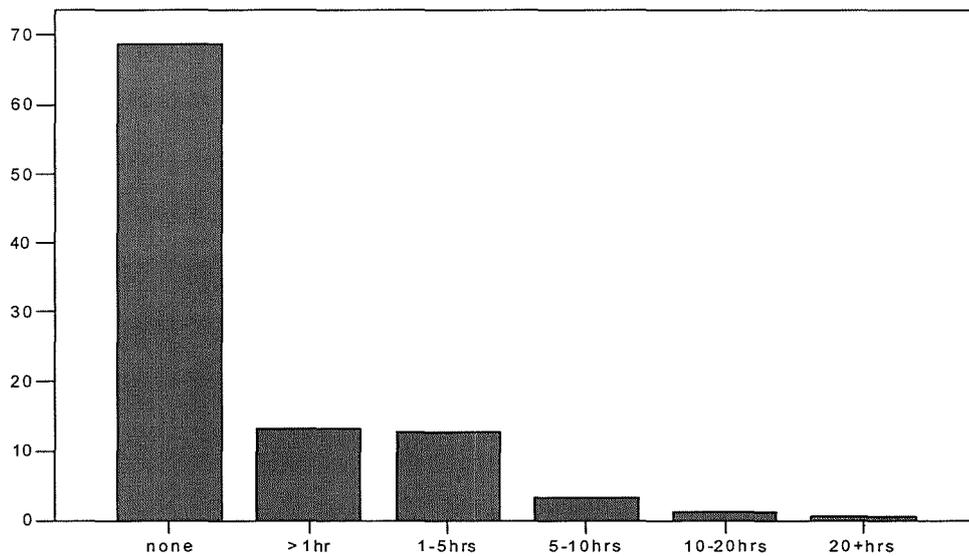
Figure 3.1: Distribution of time spent using Internet for personal purposes per week (% of random adults n=14643)

3.3 b) 'Outcome' explanatory variables and Internet use

Consumption/Income

Numerous studies have identified a link between low income and low ICT use
(ONS 2002, DfES 2002). It was therefore necessary to include income in the
analysis in order to answer the research questions set out above. Although the
unit of analysis here is the random adult respondent rather than the household,
no variable exists in the SHS that provides a net annual income figure at the
individual level. In the absence of such a measure, it was necessary to use
reported household income to provide an indication of the individual's
economic circumstances. Since the measure used here is equivalised to take
account of household size and composition, it perhaps provides a more

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accurate measure than would income collected at the individual level, which would give no indication of whether the individual had dependants, still lived with parents, or was pooling their personal income with that of other household members. The continuous variable 'Annual net income', already present in the data set, was equivalised using McLement's scales before housing costs (1978, in DWP 2002). The before housing costs measure was chosen in preference to that after housing costs because there were a great many missing values for housing costs, and up to a third of the dataset would have been lost had this measure been used. As noted earlier, when missing and implausible income values were excluded from the analysis, 14081 cases remained. The resulting continuous variable was then recoded into a categorical variable, 'categorical equivalised income', representing income bands. These variables are shown in table 3.11 below. In their analysis of the BHPS, Burchardt *et al* designated annual income below 50% of the mean as indicating exclusion on the consumption dimension. Mean income in this sample was £16148, providing a threshold of £8074. However since this would have provided a category with which it was difficult to work, income below £10000 p.a. was taken to indicate exclusion, as it captured all of those households with income below, or very close to, 50% of the mean. As Figure 3.2 below shows, in 2001 just over 25% of the population fell into this category.
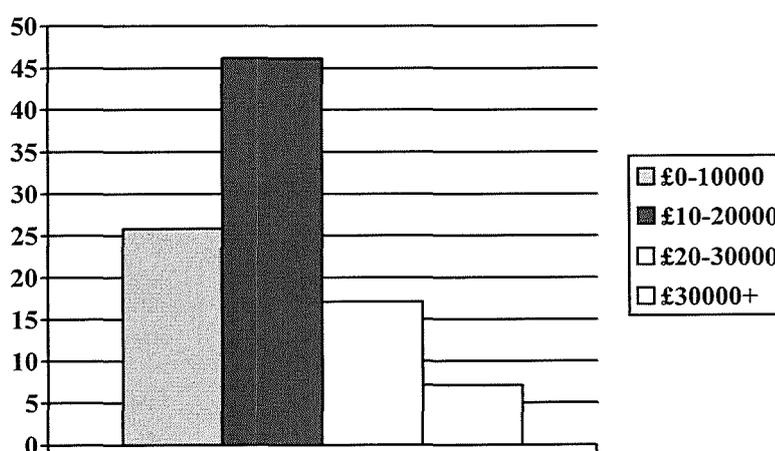
Figure 3.2: Annual net equivalised income (% of households n=14081)

Figure 3.3 below clearly shows the relationship between Internet use and income; in the lowest income bracket, here defined as 'excluded', just over 15% of the sample used the Internet. By contrast, in the highest income bracket over 65% were Internet users. This clearly concurs with existing research and indicates that fewer of those who are excluded in the consumption dimension use the Internet for personal purposes than others.
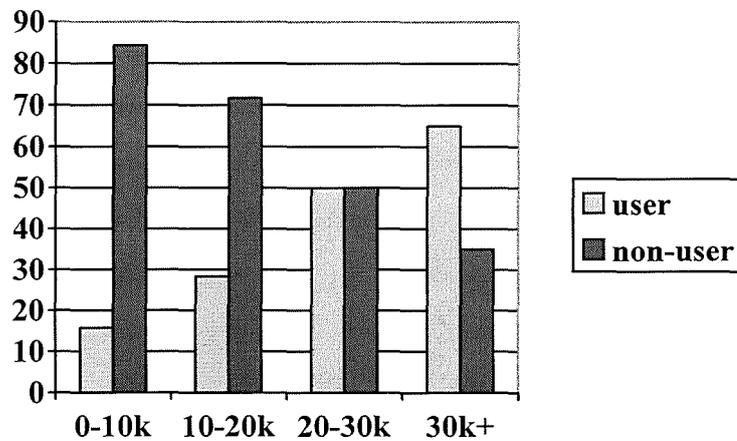
Figure 3.3: Household income and Internet use (% of random adults n=14080)

Production/Employment status

Many earlier studies have identified links between employment status and Internet use, with those employment statuses most associated with social exclusion being least likely to use ICT. Scottish Enterprise's *Digital Glasgow* survey, published in 2002, identified the retired, the long-term unemployed and the sick or disabled among the groups with the lowest rates of ICT use. This was therefore also included in the analysis to facilitate investigation of the relationship between exclusion on the production dimension and ICT use.

A total of 12 categories were included in the original variable 'Economic status of random adult'. As in Burchardt *et al*'s operationalisation of social exclusion, the categories of 'unemployed' and 'long-term sick or disabled' were taken to indicate exclusion, as was 'short-term sick or disabled'. 3.4, 5.2 and 0.7% of the population fell into these categories respectively, totalling 9.3% who could be described as excluded on the production dimension. Figure 3.4 below shows the percentage of the population belonging to each employment status category, with legend entries from top to bottom

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corresponding to bars from left to right. This is a derived variable based on the highest income householder's ascription of economic status to the random adult selected for interview. As such, it is probably subject to a higher than usual degree of measurement error. Nonetheless it was the only variable in the survey which captured the aspects of interest.
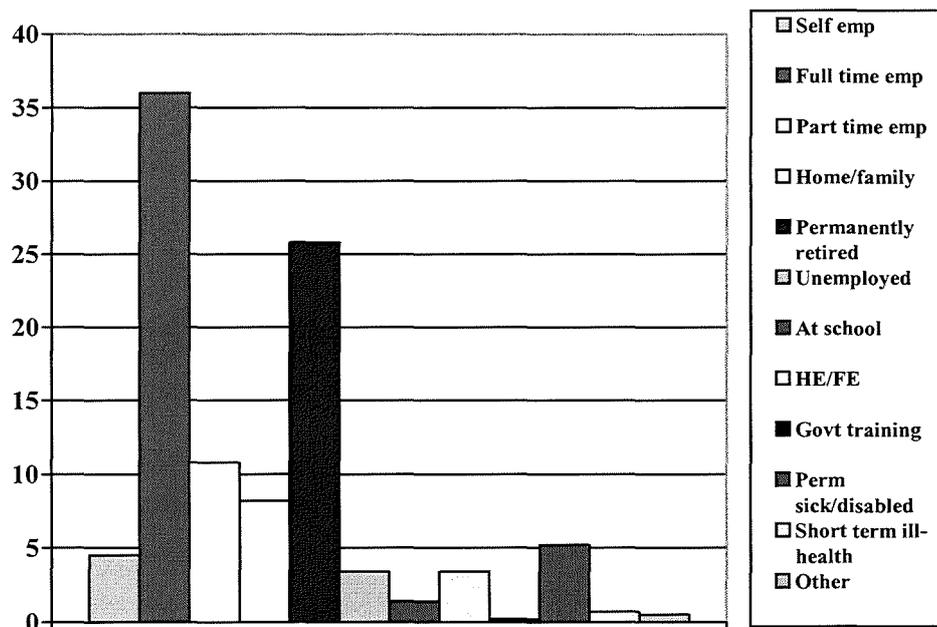
Figure 3.4: Employment status (% of random adults n=14643)

Figure 3.5 below depicts the large variations in levels of personal Internet use among different employment statuses. Internet use was most common in those in higher/further education at 71.1%. 60.9% of those at school used the Internet, and for full-time employees and the self-employed use rates were 47.1 and 48.9% respectively. The groups least likely to use were the permanently retired (7.4%), the permanently sick/disabled (9%), the short-term sick (16.7%), 'home-makers' (20.9%), and the unemployed (22.9%). For the purposes of this analysis, unemployed, permanently sick/disabled and short-term sick were defined as excluded, so on this basis it seems that there is some connection between exclusion in the production dimension and low Internet use. However, the retired and home-makers are not deemed to be excluded. Those working part-time also had low rates of Internet use. Thus it would appear that employment statuses other than those which indicate

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exclusion are associated with low personal Internet use. However, even where the measure is of personal Internet use, use is higher amongst those in work.
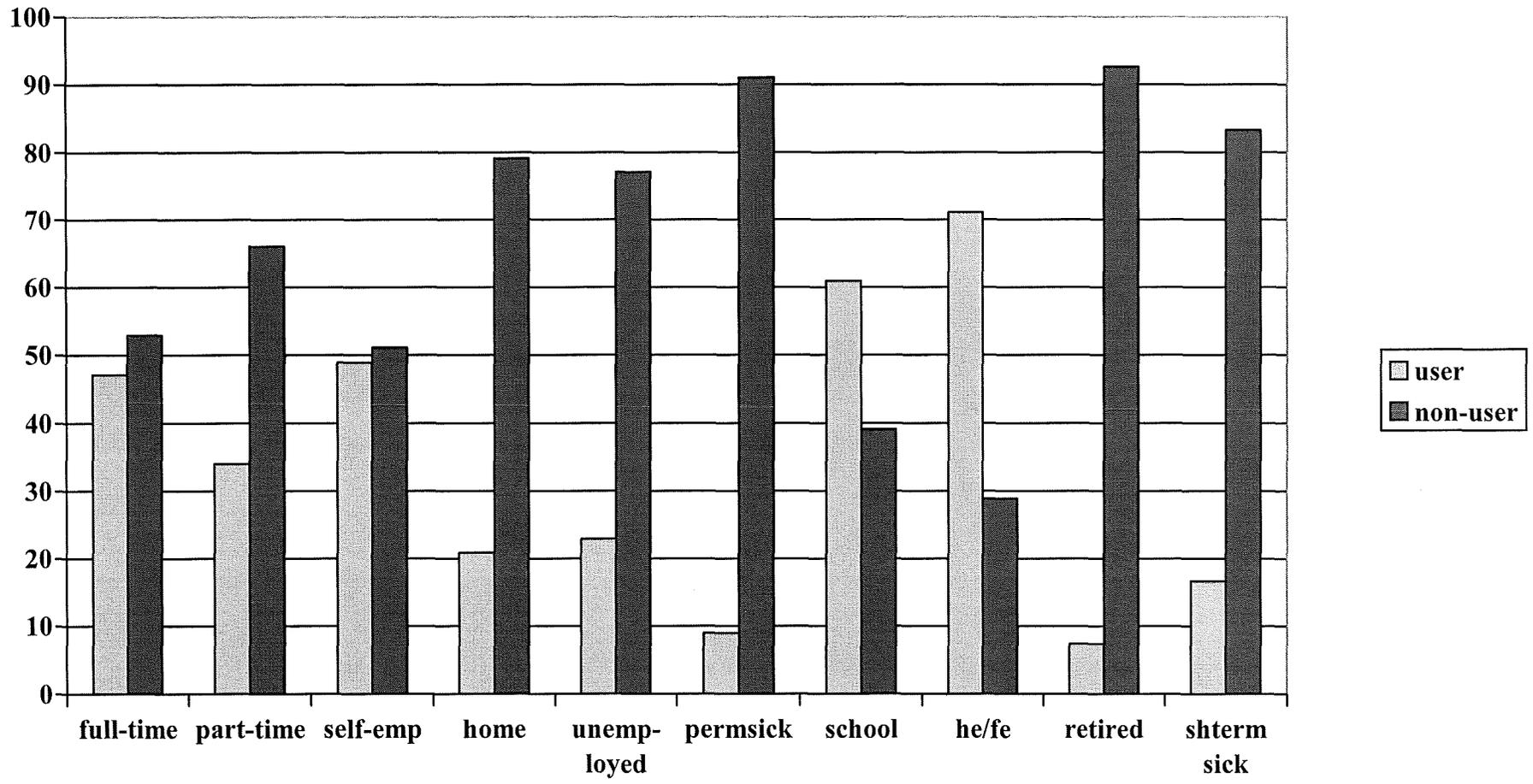
Figure 3.5: Employment status and Internet use (% of random adults n=14642)

Social interaction

Since social interaction is identified as an indicator of level of inclusion in society within the model of social exclusion employed here, it was necessary to include some indicator of interaction in the analysis. The SHS questionnaire asked respondents about 9 types of interaction with people outwith their own household to establish in how many of these the respondent had engaged in the fortnight prior to the survey. These had originally been entered into the dataset as 10 separate variables (including one for no such interactions). These were recoded into a single continuous variable which counted the number of types of interaction for each case in the dataset, thus giving each a value from 0 to 9. This variable was suitable for inclusion in some types of procedure, but for others, it was necessary to recode the variable further. First it was recoded as a categorical variable having the values 0-3 (low social interaction), 4-6 (moderate social interaction) and 7-9 (high social interaction). Each of these categories was then recoded as a discrete dichotomous variable suitable for inclusion in logistic regression. Burchardt *et al* used a 5-category classification of social support from the BHPS, and defined exclusion as lacking someone in any one of those 5 areas. For the purposes of this analysis, 'low social interaction' was treated as excluded on this dimension. Figure 3.6 below shows that 17.9% of the population fell into this category.

Again there are potential problems with this variable – for instance, there may well be many people who are highly socially engaged but do not often socialise with people outwith their household or immediate family. Such people will obviously be counted as not very engaged using this measure. However, in the absence of any other variable which captures degree of social engagement, this measure suffices to give a broad picture of the issue.
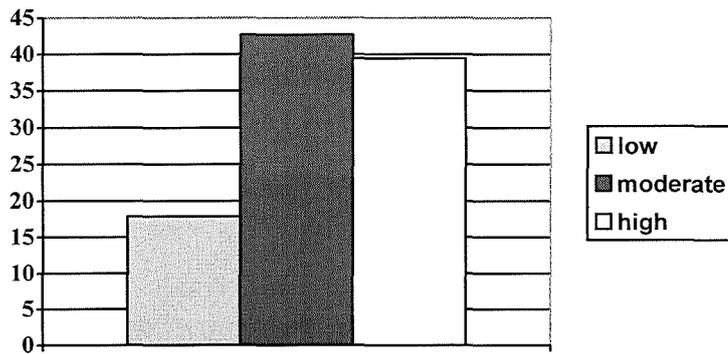
Figure 3.6: Level of social interaction (% of random adults n=14643)

In figure 3.7 below the association between social interaction and Internet use can be seen; in the category defined as excluded for present purposes, 'low social interaction', only 17.6% of the sample were Internet users. However in the 'high social interaction' category 39.2% used the Internet. This is in accordance with the findings of previous studies which have indicated that Internet users have higher levels of social interaction (e.g.: Katz, Rice & Aspenden 2001, Oswald & Gardner 2001).
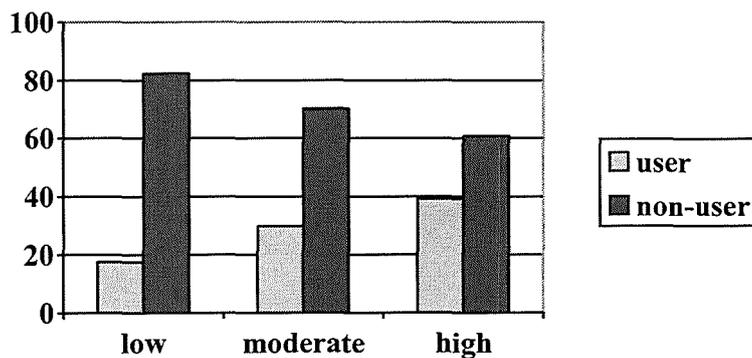
Figure 3.7: Level of social interaction and Internet use (% of random adults n=14643)

Political/civic engagement

In Burchardt *et al*'s model of social exclusion, political engagement is one of the 4 spheres in which inclusion is measured. Data from the BHPS relating to voting behaviour and membership of evidently political organisations such as trade unions and residents' associations was used by them to measure political engagement. Hence in order to investigate the relationship between Internet use and this aspect of exclusion in the SHS, it was necessary to identify a comparable indicator. Unfortunately, the SHS contained no questions relating to voting behaviour and the only analogous question about involvement in organisations covered the following 25 types of organisation:

Working with older people	School board
Working with people with disabilities	Parent/teacher association
Working with vulnerable people	Community Council
Working in support of the environment	Community Safety
Providing adult education	Church/religious activities
Working in the area of health	Residents/tenants groups or organisations
Providing advice	
Working with animals	Local economic/employment initiatives
Political party	
Professional societies or organisations	Promoting equal opportunities
Trade Union	Tackling social inclusion/poverty
Playgroups or children's activities	Arts, culture
Activities or organisations working with young people	Sports activities
	Other

Clearly, this covers a very broad range of activities, many of which cannot be described as political. In addition, it asked only whether the respondent had given up any of their time to assist such an organisation in the previous 12 months. As such, the measure used (derived from a filtering question which preceded the list of organisations about which respondents were asked) clearly does not provide a very accurate measure of political engagement. However, in the absence of any other more accurate measure it was felt that this did at least convey some idea of the numbers in the population involved in some form of civic, voluntary or political activity outwith the sphere of their own immediate concerns. Hence, here the term civic engagement is

used to reflect the broader nature of the category. The responses to this filtering question were used to create a dichotomous variable, with the values 'not engaged' or 'engaged'. According to this measure, the vast majority of the population would be described as 'not engaged' - 74.4% had not given up any of their time to help such organisations in the last 12 months, although clearly this figure must be treated with caution, as 'giving up some of your time' is a very vague measure of civic engagement and could encompass a broad range of levels of engagement.

As figure 3.8 below shows, 44% of those who were civically engaged used the Internet, compared with only 27% of those who were not. Previous work on political engagement and Internet use has also suggested that Internet users are more politically engaged. The descriptives appear to indicate that a relationship between Internet use and civic engagement does exist.
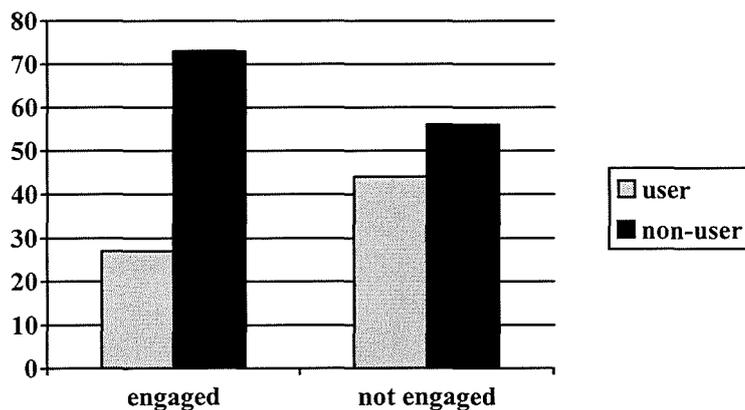
Figure 3.8: Civic engagement and Internet use (% of random adults n=14609)

3.3 c) Demographic variables

Age

Many earlier studies have emphasised the link between age and ICT use, with those in older age groups being less likely to use ICT (DfES 2002). Age was therefore included in the analysis to test both its unique effect on ICT use and to compare the strength of the effect of this demographic variable as compared with social exclusion factors. Age was present in the dataset as a both a continuous and a categorical

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variable, each of which was used for different types of analysis where appropriate. As figure 3.9 shows, 45-59 was the largest category, comprising 25% of the population.
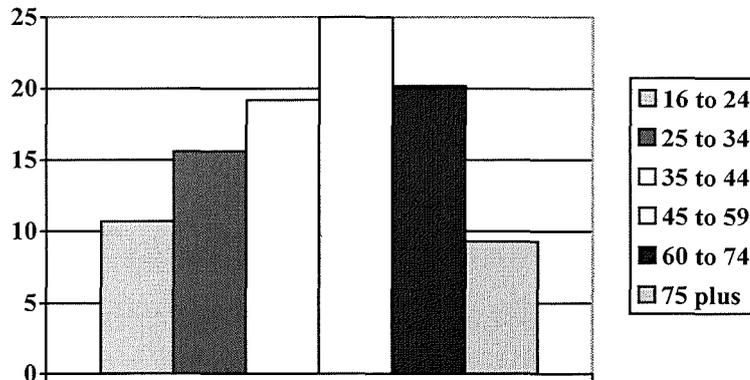
Figure 3.9: Age (% of random adults n=14643)

As figure 3.10 shows, Internet use varied widely in different age groups. In the 16-24 age group use and non-use was almost equal at 47.9 and 52.1% respectively. Levels of use declined in every subsequent age group, such that in the over 75s users comprised only 2.2% of the age group. This is in line with the findings of earlier studies which have shown that far fewer older people use the Internet.
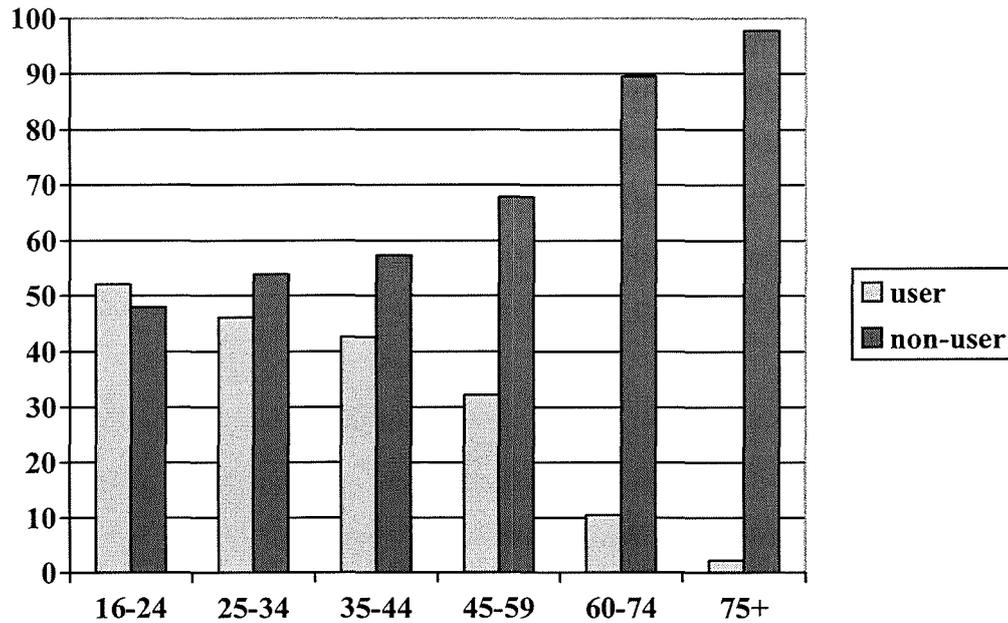
Figure 3.10: Age and Internet use (% of random adults n=14643)

Gender

Since many earlier studies had suggested that women used ICT less than men (DfES 2002, ONS 2002), gender was also included in the analysis. As noted above, non-response bias causes the sample to be skewed in favour of women. Thus, even with the weight applied, women account for 55.7% of the sample and men for only 44.3%, which is some way off the true population figures (Scottish Executive 2004). As figure 3.11 shows, men used the Internet somewhat more than women, with 35.8% of men being Internet users as against only 27.7% of women. This is similar to the findings of contemporary research on the topic of ICT use and gender, which indicated that more men than women use ICT. However, much evidence now points towards a narrowing of the gap in actual use (Katz *et al* 2001, Oswald & Gardner 2001), with differences in the nature and extent of use becoming apparent (Liff, *et al* 2004, Kennedy, Wellman & Klement 2003).
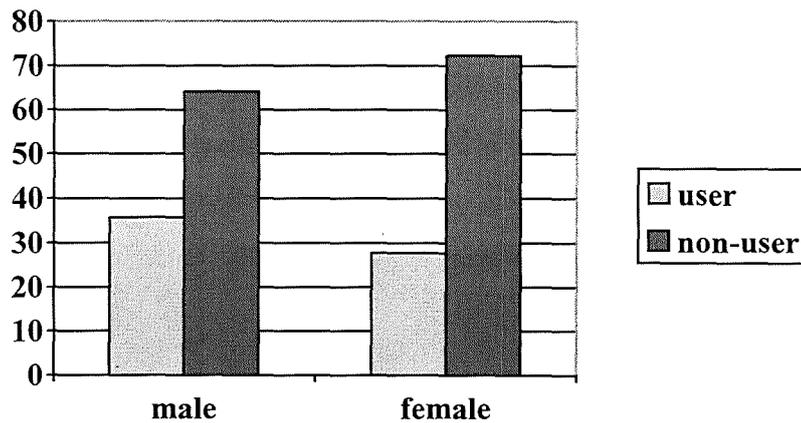
Figure 3.11: Gender and Internet use (% of random adults n=14643)

Educational attainment

The identification of a connection between educational attainment and ICT use in previous studies (Scottish Enterprise 2002, Foley *et al* 2002), in combination the increasingly complementary nature of ICT and education, rendered this a factor of great interest for inclusion in the analysis. Deriving a meaningful variable to represent level of educational attainment proved one of the more challenging procedures. In the first instance, educational qualifications were present in the dataset as 11 discrete variables, each representing different academic and vocational qualifications at different levels. These would have been unworkable in the context of logistic regression, producing little in the way of meaningful results. It was thus necessary to create a single variable with a smaller number of categories, each of which represented academic and vocational qualifications of approximately equal value. The original variables included categories such as 'professional', which was clearly highly ambiguous. Similarly, 'City and Guilds' (C & G) existed as a single category, despite the fact that such qualifications can range from very brief modular courses to full-term apprenticeships. The SHS categories also included qualifications such as the School Leaving, Senior and Advanced Senior Certificates which are long outdated and difficult to find contemporary analogues for. Nonetheless it was necessary to find some means of equivalising all of these disparate qualifications. The Scottish Credit and Qualifications Framework, issued by the Scottish Qualifications Authority (SQA

2002), provided some guidance as to how to compare contemporary academic and vocational qualifications, and consultations with educational professionals assisted with assigning categories for the rest. Finally, 4 categories were created, ranging from no qualifications to very highly qualified. A complete list of the original variables and the categories to which they were assigned can be viewed in appendix 1. Inevitably this involved compromises; for instance, C & G was ultimately included in level 3 with Highers and SVQ 3s because this represented the mid-point of the possible level of C & G qualification, and also the level at which most such qualifications are awarded. Nonetheless, clearly a loss of accuracy will result from such a measure. The original variables were then recoded so that only the highest qualification recorded for the random adult was counted, and each case was thus assigned a value from 1 to 4 representing level of educational attainment. This was subsequently coded into 4 discrete dichotomous variables suitable for inclusion in logistic regression models.

At this stage it was discovered that there were a large number of missing values for this variable – 3487 in total. Further investigation established that the SHS questionnaire instructs staff not to ask retired people about educational qualifications. This was somewhat frustrating, as education had been highlighted as an important factor in much digital exclusion literature, and investigating its effects was a matter of great interest. To further complicate matters, this instruction had not been systematically followed – in fact large numbers of retired people (711) had been asked about their educational qualifications, whilst a number of non-retired people had not. However, the vast majority of the missing values for education were concentrated in the over 60s – 3277 in total. A further 202 missing values were recorded for the 16-24 age group, possibly because these respondents were still in the process of attaining qualifications. Thus in order to investigate the effects of education, it was necessary to split the sample at 60 so that only the under 60s were included in some types of analysis. Because some 1044 over 60s had been asked about education, this entailed the loss of their cases from the sample, such that the sample in use when educational qualifications were included was only 11157.

As figure 3.12 shows, just under 30% of the sample had no qualifications, while just over 30% were qualified to HNC, degree or professional level.

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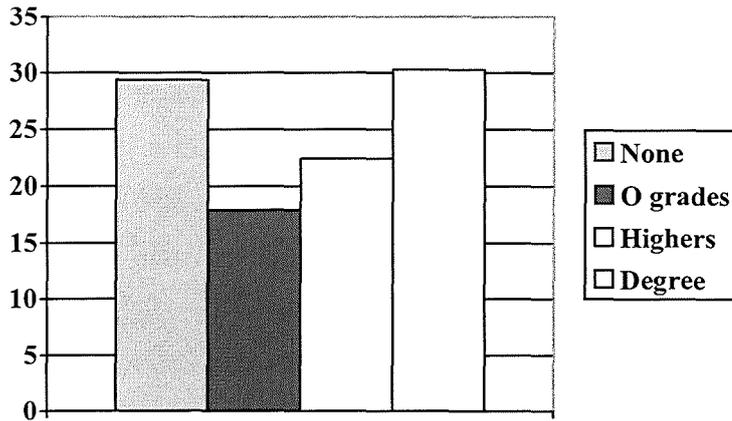
Figure 3.12: Educational attainment (% of random adults asked about qualifications n=11157)

As previous literature has suggested, the SHS data shown in figure 3.13 below indicated that educational attainment and Internet use were associated. Whilst 63.8% of those with a degree, HNC or professional qualification were Internet users, this figure fell steeply to only 11.3% among those with no qualifications.
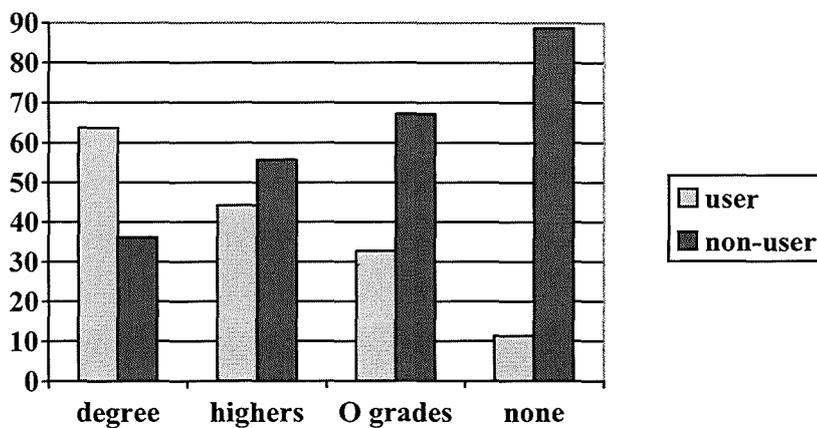
Figure 3.13: Educational attainment and Internet use (% of random adults n=11156)

Summary

Descriptive analysis of this Scottish dataset indicated that patterns of Internet use in Scotland were broadly similar to those found in the UK as a whole. In the ONS First Release on Internet Access (2003), which provides descriptive statistics on Internet use in the UK, usage was higher across the board, but similar trends were evident. In contrast to the 31.7% of adults who self-reported as Internet users in the SHS, 54% of all adults in the ONS sample reported having used the Internet in the previous three

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months, although it is unclear whether this question restricted respondents to personal use only. 78% of 16-24s in the ONS sample similarly self-reported, compared to only 16% of over 65s. 57% of men and 51% of women had used the Internet in the previous 3 months. In the ONS report, household Internet access varied widely by income; while 46% of all households had home access, only 12% of the lowest income decile had it as compared to 86% in the highest income decile. The results of the *Digital Glasgow* survey (n=2000), conducted on behalf of Scottish Enterprise in 2002, indicated that 37% of Glaswegians currently used the Internet, slightly more than in the SHS sample. The figures for certain groups were much lower however – 11% of retired people. 22% of long-term unemployed people and 21% of those with no formal qualifications reported ever having used the Internet. Thus using descriptive techniques to analyse Internet use in Scotland indicated that factors implicated in other surveys such as age, gender, income, employment status and level of education were connected to ICT use. In addition the analysis established that civic engagement and social interaction, both factors connected with social exclusion, were also connected with Internet use, with the civically and socially engaged using the Internet more than those not so engaged.

However, these descriptive statistics have several disadvantages; since they can only be used for bivariate calculations, they cannot account for the influence of different but related factors. Further, they provide no indication of whether an effect is statistically significant or merely the result of chance. By contrast, techniques such as regression modelling can be used to analyse the relationship between one dependent variable and multiple explanatory variables, and control for the effects of other factors by holding these constant. Thus it is possible to estimate the unique effects of each variable. They also test the significance of the relationship between variables, that is whether the result could have occurred by chance. Linear and logit regression were therefore used to analyse the relationship between the explanatory variables described above and Internet use, the dependent variable. In addition, bivariate correlations, which give an indication of the strength and direction of the association between two variables, were conducted on each explanatory variable and Internet use. These also have an associated significance test.

Significance is expressed as a value ranging from 0 to 1, where values below 0.05 indicate that there is a statistically significant relationship between the variables. Statistical significance gives no indication of the strength of the relationship however; it merely indicates that the result in question is very unlikely to have occurred by chance. All analyses were conducted using the statistical software package SPSS. Each method used, and the findings thus generated, are comprehensively described in the following sections.

3.4 Preliminary analyses

3.4 a) Correlations

Bivariate tests of correlation provide an indication of how strongly associated two variables are, with an associated significance test to indicate whether this result could have occurred by chance. Values of correlation coefficients (r) can range from -1 to $+1$, with negative values indicating a negative relationship between the variables and positive values indicating a positive relationship. A value for r of 0.10 to 0.29 is generally taken to indicate a weak relationship between the variables; 0.30 to 0.49 suggests a moderate relationship, while 0.5 or above is indicative of a strong relationship (Pallant 2000). A relationship is deemed to be significant if the value of p is ≤ 0.05. The test of correlation used was Spearman's rho, which is suitable for both non-normal continuous and categorical variables (Pallant 2000). Each of the explanatory variables was correlated with Internet use where possible.

Variable	Spearman's rho	Sig.
Age	-0.360	0.00
Gender	-0.095	0.00
Income	0.313	0.00
Social interaction	0.175	0.00
Civic engagement	0.161	0.00
Education	0.427	0.00

Table 3.10: Correlations of Internet use and other relevant variables using Spearman's rho

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As table 3.10 above shows, there are a number of highly significant and moderately strong correlations between the explanatory variables and Internet use. Age and income were moderately strongly correlated at −0.360 and 0.313 respectively, indicating that as age increases, Internet use decreases and as income increases, Internet use also increases. These relationships are in the direction expected given the results of the descriptive analysis. The strongest correlation, at 0.427, was between education and Internet use, indicating that as level of educational attainment increases, so does Internet use.

3.4 b) Linear Regression

Linear regression is suitable for investigating relationships between one continuous, normally distributed dependent variable and a number of categorical or normal continuous explanatory variables. When linear regression is run on SPSS, a large amount of information is generated, relating to the model as a whole and to the individual variables. A series of exploratory models were created and tested using linear regression, which generated all of the said information. However, since the data violated a number of the assumptions of linear regression, much of this output is of limited value. Hence, only the Adjusted R^2, which provides an estimate of the proportion of the variance in the dependent variable accounted for by the explanatory variables, is reported here.

Exploratory linear regression modelling indicated that the explanatory variables accounted for a very low proportion of the variance in the dependent variable. The final regression model, containing all possible relevant variables and run on the entire sample, generated an Adj. R^2 of only 0.083, indicating that only 8.3% of the variance in reported Internet use was explained. However, as mentioned, the data violated a number of linear regression assumptions. The dependent variable, based on the amount of time individuals reported spending using the Internet, was not truly continuous. It was also very non-normally distributed, this being in fact the very reason for the interest in it. A number of the continuous explanatory variables, most especially income, were also very far from the normal distribution. These issues with the data may well have accounted for the very low Adj. R^2.

3.5 Logit Regression

Logistic regression analysis is a statistical technique which permits investigation of the relationship between one dependent variable (Y) and a number of explanatory variables (X) where the dependent variable is dichotomous. Explanatory variables can be categorical or continuous, and need not be normally distributed. In this case the dependent variable is Internet use, which can take the value 'use the Internet' or 'don't use the Internet'. Like linear regression, logistic regression holds the values for all other explanatory variables in the model constant, thus providing an estimate of the unique effects of each variable. While a bivariate correlation gives an estimate of the relationship between, for instance, income and Internet use, it cannot control for the relationship between education and income. In regression analysis, the model is estimating the effects of one variable when values for all other variables are held constant. Thus when considering the effect of for instance, being in higher or further education, it is possible to be certain that this is not merely a manifestation of the fact that those in education are likely to be young. Thereby, it is possible to establish which factors have the strongest unique effects on the dependent variable. However, these estimates are based on a situation which does not occur in reality, in the sense that real people do not have identical values for age, income etc. When logit regression is conducted using SPSS, a number of values are generated which provide information about the relationship between the dependent and independent variables. These include:

R^2: This provides a measure of the substantive significance of the model (Field 2000). It is analogous to the Adjusted R^2 measure in linear regression, in that it indicates how much of the variance in the dependent variable is accounted for by the explanatory variables. Its value varies from 0 to 1, and is converted into a percentage by multiplying by 100. Thus, if the R^2 is 0.2, the variables in the model are explaining 20% of the variance or change in the dependent variable. In the social sciences, an R^2 of 30% or over is usually taken to indicate a moderately strong relationship between the independent and dependent variables (Field 2000).

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Exp(B): A value for Exponent (B), also known as the odds ratio, is generated for each of the independent variables in the model. Put very simply, it represents the change in the odds of the outcome occurring for every unit change in the independent variable. If the value of Exp(B) is above 1, there is a positive relationship between the independent and the dependent variables. If it is below 1, there is a negative relationship between them. However, since the lowest possible value is 0, in order to find the magnitude of the effect of X upon Y, it is necessary to take the inverse of values below 1, by dividing 1 by the number in question. Thus, an Exp(B) of 2.53 indicates that for every unit increase in X, the odds of Y occurring increase by 2.53. If Exp(B) is 0.786, the odds of Y occurring decrease by 1/0.786, or 1.272. Another way of putting this is to say that a value for Exp(B) of 2.53 indicates that an individual in the category in question is 2.53 times more likely to have a positive value for the dependent variable than an individual belonging to the reference category, when values for all other variable are held constant. In this case, if Exp(B) for 'male' is 2.53, men are 2.53 times more likely than women to use the Internet. Alternatively, if the value of Exp(B) is negative and its inverse = 1.272, an individual belonging to the category in question is 1.272 times less likely to use the Internet than one belonging to the reference category. Thus values for Exp(B) provide an indication of both the strength and the direction of the relationship between the independent and dependent variables. Exp(B) has an associated significance test; variables should be significant at the $p \leq 0.05$ level to be judged influential.

Confidence intervals for Exp(B): These provide an indication of how safely values of Exp(B) for each variable can be generalised from the sample to the population. The upper and lower values indicate the boundaries within which 95% of the population are likely to fall. The interval between the upper and lower values should be small, indicating that the variance in the population is small and close to the value estimated by the model. The values of the confidence intervals should not cross 0, as this would indicate that the direction of the relationship between X and Y is not stable across samples (Field 2000).

In addition, a number of diagnostic tests should be run on a logit regression model. These were conducted according to the protocol laid down by Menard (1995), and are reported fully in appendix 2.

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3.5 a) Design Variables

Where a continuous variable is included in a logistic regression model, the value of Exp(B) represents the increase in the odds of the Y occurring for every unit increase in X. For instance, if age in years was included in a model as a continuous variable, its value for Exp(B) would represent the amount by which the odds of Y occurring increase for every extra year of age. However, in this case the variables included in the model have been entered as 'design' or 'dummy' variables. There are two reasons for this. Firstly, where an explanatory variable is nominal, including it in the model as a single variable will generate meaningless results, since the difference between say 'full-time employment' and 'part-time employment' cannot be represented in terms of a 'unit increase' in the manner of a continuous variable. Secondly, where a continuous variable is used, interpreting Exp(B) as the difference in the odds of Y occurring for every unit increase in X assumes a linear relationship between X and Y, such that the increase in Y is the same no matter what value of X. However, this is very frequently not the case; it is more likely that the effects of, for instance, age will be different among the 16-24 group than among the 60-74 group. Thus transforming continuous into categorical dummy variables prevents problems of non-linearity arising.

In effect this means that variables which existed in the dataset as a single variable with a number of categories were broken down into discrete variables. For example, income, which was represented by a single variable with 4 categories, was separated into 4 individual variables. When this is done, one category must be excluded from the model to avoid collinearity. This category is known as the reference category, and when interpreting the values of Exp(B) for the other categories of that variable, it is the category against which the values are being compared. In the case of income the reference category is £10-20000 p.a., so that the values of Exp(B) for other income variables indicate how much more or less likely a member of that category is to use the Internet. The choice of reference category may be theoretically guided if there is some reason to investigate a particular category. Otherwise the generally accepted protocol is to use the largest category as the reference category (Field 2000). Where the variable concerned is a dichotomous variable, such as gender, one of its values is

chosen to act as the reference category. Interpretation of results is facilitated by using the category which is expected to have a negative relationship with Y as the reference category. Variables included in the analysis, with their value labels and reference categories, are detailed in tables 3.12 and 3.13 below.

Set	Categories	Variable label	Reference categories
Social exclusion 'outcome' variables			
Income (consumption)	Income below £10000 pa	inc0_10k	All models: 20-30k
	Income £10-20000 pa.	inc10_20k	
	Income £20-30000 pa.	inc20_30k	
	Income over £30000 pa.	incov30k	
Employment status (production)	Retired	retired	All models: fulltime held out as largest group. selfemp, govtrain and other held out because not significant.
	Part-time employment	pt	
	Higher/further education	he_fe	
	Looking after home/family	home	
	Permanently sick or disabled	permsick	Under 60: pt and retired dropped because no longer sig.
	Short-term sick or disabled	shtersik	
	At school	school	
	Unemployed	unemp	
	Full-time employment	fulltime	
	Self-employed	selfemp	
	Government training scheme	govtrain	
	Other	other	
Social interaction	0-3 types of interaction in last fortnight	lsocin	All models: hsocin
	4-6 types of interaction	msocin	
	7-9 types of interaction	hsocin	

| Civic engagement | Given time to organisation in last 12 months | poleng | All models: not civically engaged |
| | Not given time | | |

Table 3.11: Social exclusion outcome variables included in logistic regression analysis

Set	Categories	Variable label	Reference categories
Demographic variables			
Gender	Male or female	male	All models: female
Age	16-24	age16_24	Full sample: 44-59
	25-34	age25_34	
	35-44	age35_44	Under 60: 44_59
	45-59	age45_59	
	60-74	age60_74	
	over 75	ag75plus	
Educational attainment	No qualifications/School Leaving Certificate	noquals	Full sample: not included
	'O' Grades/SVQ Levels 1/2	Ogrds	
	Highers, SVQ Level 3 or City and Guilds	highers	Under 60 'O' grades/SVQ Levels 1/2
	Degree, HNC or professional qualification	degree	

Table 3.12: Demographic variables included in logistic regression analysis

3.5 b) Modelling Strategy

The modelling strategy employed was 'general to specific', that is each initial model included every relevant explanatory variable, each of which was inspected for significance. Those that proved not to be significant were excluded from the model sequentially in descending order until a model containing only significant variables was arrived at. This approach has the advantage of ensuring that all relevant variables are included in the model (Pryce 2003). In order to address the research questions regarding the relationship between Internet use, social exclusion and other demographic factors, a number of regression models were developed. A model including all social exclusion outcome variables was created, to establish what proportion of the variance in Internet use was explained by social exclusion alone. A further model including the demographic factors age and gender was developed to allow comparison of the variance explained by these factors with the variance explained by social exclusion. Finally, a model including all of these factors collectively was developed in order to establish how much of the variance was explained by these, and to compare the relative impact of each of the variables included in the model. By this means it was possible to establish to what extent Internet non/use was related to social exclusion, and which factors, either demographic or exclusion indicators, had the greatest impact on Internet use. In each case the practice of testing all available variables and sequentially dropping those that proved to be insignificant was followed. Thus where a model is referred to as a 'social exclusion' model, it includes all significant social exclusion outcome variables described above, that is income, employment status, social interaction, and civic engagement. Where it is referred to as a 'demographic' model, the model contains age and gender only. If the model is described as 'all factors', it includes both sets of variables in conjunction with one another.

In order to test the effects of education, it was necessary to split the sample at age 60 and run a series of models on the under 60s. As with the model which included the whole sample, models including social exclusion factors, demographic factors and all of these in combination were run. Finally, a model

including all of these variables and the education variables was run. Each model is not reported in its entirety; for the models including the social exclusion and demographic variables separately, only the R^2 is reported. For the final model including the entire sample, the odds ratios are presented and discussed in depth. The final model run on the under 60s including education as well as all social exclusion and demographic variables is similarly reported.

3.5 c) Whole sample

Sample	Model	R^2	n
All ages	social exclusion	31.1	14049
All ages	demographics	20.3	14642
All ages	all factors	33.9	14050

Table 3.13: R^2 and n of all models run on whole sample

As table 3.13 above shows, the highest proportion of the variance explained by any model which included the whole sample was 33.9%, for the model which included all available relevant variables. The social exclusion model alone accounted for 31.1% of the variance. As noted, around 30% is taken to indicate a moderately strong relationship in the social sciences. There is more to be gleaned about the role of individual variables by examining the odds ratios for each variable in the model. The odds ratios for the final model, which included all available factors, are presented in table 3.14 below, and discussed individually in the following section.

| | | Sig. | Exp(B) | 95.0% C.I.for EXP(B) | |
				Lower	Upper
Step 1	male	.000	1.431	1.306	1.568
	age16_24	.000	1.986	1.697	2.324
	age25_34	.000	1.651	1.463	1.864
	age35_44	.000	1.505	1.344	1.685
	age60_74	.000	.400	.322	.497
	ag75plus	.000	.114	.075	.176
	inc0_10k	.000	.559	.496	.632
	in20_30k	.000	1.948	1.754	2.164
	incov30k	.000	3.458	2.976	4.019
	retired	.000	.534	.421	.676
	pt	.003	.818	.716	.934
	home	.000	.585	.492	.695
	school	.000	1.921	1.373	2.687
	he_fe	.000	3.670	2.886	4.667
	permsick	.000	.284	.217	.370
	shtersik	.001	.388	.221	.680
	unemp	.000	.498	.388	.640
	poleng	.000	1.949	1.778	2.138
	lsocin	.000	.569	.498	.649
	msocin	.000	.820	.750	.897
	Constant	.000	.395		

Table 3.14: Logit regression model of all variables run on whole sample (n=14050)

Social exclusion factors

Income

The odds ratios for income indicated that there was a strong relationship between income and Internet use. Comparing the Exp(B) values of the income variables with the reference category of £10-20000 p.a., and taking the inverse of those values below 1, shows that, when values for all other variables are held constant, those on £30000 p.a. or more were almost 3 and a half times more likely to use the Internet than the reference category. Those on £20-30000 p.a. were nearly twice as likely, whilst those on below £10000 p.a. were 1.78 times less likely to use the Internet. Hence, the group defined as excluded in the dimension of consumption were less likely to use the Internet than those who were not excluded on this dimension, with all other variables held constant.

However, the unique effect of earning over £30000 p.a. on the odds of personal Internet use was the strongest with, an odds ratio of 3.458.

Employment status

Examination of the odds ratios for the employment status variables revealed that, with all other variables held constant, being in full-time education had the strongest impact on Internet use: being in higher or further education increased the odds of using the Internet by over 3.67, and being at school by 1.921 more than the reference category of full-time employment. This controls for the effects of age – while younger people are already more likely to use the Internet, the majority of those in higher or further education belong to the 16-24 age group; therefore when the additive effects of these variables are taken into account, this group would be even more likely to use the Internet. Clearly, Internet use is increasingly obligatory in education, particularly at college or university. However, since the dependent variable is measuring personal Internet use, suggesting that those who have been exposed to the Internet through education are far more likely to then begin to use it for personal reasons. Those employment statuses most associated with social exclusion, namely unemployed and long-term sick or disabled people, were less likely to use the Internet – twice and 3 and a half times less respectively, with values for income held constant. However, there were also some categories not associated with social exclusion which had a negative relationship with Internet use – those working part-time were 1.223 times less likely, and those looking after home or family were 1.709 times less likely to use the Internet for personal purposes than those who worked full-time, with all other variables held constant. The effect of being retired decreased the odds of using the Internet by 1.873, independently of the effects of belonging to an older age group, as the majority of retired people in the sample did. In addition, the short-term sick were over 2 and a half times less likely to use the Internet than the reference category. A number of employment status variables were dropped because they were not significant. Hence the reference category for this variable, which was initially full-time, includes the self-employed, those on government training schemes, and those categorised as 'other'. In the case of the latter 3 categories, the samples were so small that it was not surprising to find that they were insignificant. However, this was not the

case for the self-employed. Possibly the odds ratio for this group was insignificant because self-employment encompasses a diverse range of fields which may or may not entail exposure to the Internet which then carries over into personal use. It should be borne in mind that the effect of each of these variables is measured with all other factors held constant; thus there are additive effects of variables which are likely to coexist. For instance, those who are unemployed are very likely to have a low income, and thus in such cases the odds of using the Internet will be even lower.

Social interaction

The odds ratios for social interaction showed that those with lower levels of social interaction were less likely to use the Internet than those in the reference category of high social interaction, when values for all other variables were held constant. The effect of having moderate levels of interaction decreased the odds of Internet use by 1.219, while that of having low levels of interaction, here defined as excluded, decreased the odds by 1.759. This may suggest that for those who have strong social networks, maintaining relationships is a driver for Internet use.

Civic engagement

Civic engagement did have a relationship with Internet use, as indicated by the odds ratio, which showed that with all other factors held constant, the effect of being civically engaged increased the odds of using the Internet by 1.949. This may suggest that looking for information acts as an incentive for Internet use for the 27% of the sample who are civically engaged. It is a surprisingly strong relationship. Again, it seems that there is a relationship between lack of civic engagement and non-use of the Internet.

Demographic factors

Age

Analysis of the odds ratios for the age categories indicated that age was strongly related to Internet use. With all other factors held constant, all younger age

groups were more likely to use the Internet than the reference category (44-59). The effect of belonging to the 16-24 age group increased the odds of using the Internet by 1.986, and to the 35-44 age group by 1.505. However, the effects of belonging to the older age groups were much stronger; with all other factors held constant, the 60-74 age group were 2.497 times less likely, and the over 75 age group fully 8.73 times less likely to use the Internet than the 44-59s. The odds ratio for the over 75s was the highest for any single variable in the model, indicating that belonging to an older age group has a very strong negative relationship with Internet use, independent of other factors such as income or employment status.

Gender

The odds ratios for gender indicated that, with all other factors held constant, being male increases the odds of using the Internet by 1.431 compared with the reference category of female. This is somewhat surprising, as recent literature suggests that the gender gap in Internet use is decreasing (Norris 2001). However, compared to the other variables in the model, this is one of the weaker effects.

Summary

Logistic regression models including the whole sample and all relevant variables indicated that the factors which indicate social exclusion collectively explained a moderately high proportion of the variance in Internet use. When age and gender were added to the model, 33.9% of the variance was explained, suggesting that the model explains a reasonable amount of the variance, although it is not a very high amount given the stress in the literature on the impact of these factors on Internet use. The odds ratios showed that factors indicative of exclusion impacted negatively upon Internet use. In table 3.15 below, the odds ratio for each variable is presented in descending order of magnitude, with the inverse of the value for those variables whose impact upon Internet use was negative. This facilitates comparison of the relative magnitude of the effects across all variables.

Variable	Exp B	Magnitude
ag75plus	0.114	-8.736
he_fe	3.670	3.670
permsick	0.284	-3.527
incov30k	3.458	3.458
shtersik	0.388	-2.579
age60_74	0.400	-2.497
unemp	0.498	-2.006
age16_24	1.986	1.986
poleng	1.949	1.949
in20_30k	1.948	1.948
school	1.921	1.921
retired	0.534	-1.873
inc0_10k	0.559	-1.787
lsocin	0.569	-1.759
home	0.585	-1.709
age25_34	1.651	1.651
age35_44	1.505	1.505
male	1.431	1.431
pt	0.818	-1.223
msocin	0.820	-1.219

Table 3.15: Order of magnitude of individual variable effects in model.

Belonging to the over 75 age group had the strongest effect by a wide margin, decreasing the odds of Internet use by 8.736 compared with the reference group of 45-59. Being in higher or further education also had a strong effect, increasing the odds by 3.67 as against the reference category (full-time). The effect of having an income of over £30000 p.a. was also one of the strongest, at 3.458. Each of the social exclusion indicator variables had a negative impact on the odds of Internet use, with being permanently sick or disabled (3.527), short term sick or disabled (2.579) or unemployed (2.006) having the strongest effects. In addition, not being civically engaged, having low social interaction and having income below £10000 p.a. had a negative, though weaker, effect on

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the odds of Internet use. Thus it would seem that while social exclusion indicators have a negative impact on Internet use, individually they are not the strongest predictors and collectively they do not explain a high proportion of the variance in Internet use. Of the social exclusion indicators, those relating to employment status have the strongest effects. In addition, other factors which are not indicative of exclusion impact negatively on Internet use, most notably increasing age, but also being female, being retired, working part-time or looking after home/family.

3.5 d) Under 60s

Sample	Model	R^2	n
Under 60	social exclusion	19.8	9962
Under 60	demographics	3.8	10321
Under 60	all factors	21.3	9962
Under 60	education	29.8	9768

Table 3.16: R^2 and n of all models run on under 60s only

The R^2 for all models run only on the under 60s was lower than that for the models in which the whole sample was included. The model including only age and gender explained 20.3% of the variance in Internet use in the whole sample, but only 3.8% in a sample of the under 60s. This would imply that these factors have a stronger effect in the over 60s. When all social exclusion and demographic factors were included in the model, 21.3% of the variance was accounted for. The addition of education to the model increased the R^2 to 29.8%, almost equal to that of the all factors model with the whole sample included. It is only possible to speculate about the effect of adding education to the full sample model, but this suggests that such a model may have generated a larger R^2. In any case, this increase indicates that level of educational attainment explained a substantial proportion of the variance in Internet use among the under 60s. The odds ratios for this model also suggested that education played an important role in Internet use, as table 3.17 below shows.

| | | Sig. | Exp(B) | 95.0% C.I.for EXP(B) | |
				Lower	Upper
Step 1	male	.000	1.408	1.278	1.551
	age16_24	.000	1.515	1.282	1.789
	age25_34	.000	1.311	1.154	1.490
	age35_44	.000	1.311	1.164	1.477
	inc0_10k	.000	.614	.534	.706
	in20_30k	.000	1.492	1.328	1.675
	incov30k	.000	2.013	1.705	2.375
	home	.001	.745	.624	.890
	school	.001	2.744	1.553	4.850
	he_fe	.000	3.627	2.812	4.680
	permsick	.000	.448	.338	.594
	shtersik	.014	.479	.265	.864
	unemp	.000	.571	.435	.750
	lsocin	.000	.667	.574	.774
	msocin	.013	.882	.799	.974
	poleng	.000	1.431	1.290	1.589
	highers	.001	1.248	1.091	1.428
	noquals	.000	.378	.321	.445
	degree	.000	2.680	2.353	3.052
	Constant	.000	.384		

Table 3.17: Logit regression model of all variables plus education, run on under 60s only (n=9768)

Social exclusion factors

Income

In this sample of the under 60s with educational qualifications added to the model, the odds ratios for income indicated that it has an impact on Internet use. With all other factors held constant, having household income in excess of £30000 p.a. increased the odds of Internet use by 2.013, and household income between £20000 and £30000 p.a. increased the odds by 1.492, in comparison to the reference category of £10-20000 p.a.

Employment status

Odds ratios for all employment statuses linked to exclusion indicated that with all other factors held constant these were less likely to use the Internet than

those in the reference categories – the permanently sick or disabled 2.232 times less, the short-term sick 2.087 times less, and the unemployed 1.75 times less. Being in higher or further education increased the odds of using the Internet by 3.627, while being at school increased them by 2.744. 'Retired' was not significant in this model, because very few of the under 60s belonged to this category, therefore it was dropped at an early stage. Similarly, 'part-time' proved not to be significant, and was also excluded from the model.

Social interaction

With all other factors held constant, those with lower levels of social interaction were somewhat less likely to use the Internet than the reference category of high social interaction – the effect of having low social interactions decreased the odds of using the Internet by 1.5. That for moderate social interaction was 1.126, indicating a very marginal effect. These effects may suggest that being more socially connected acts as a driver for Internet use.

Civic engagement

The odds ratio for civic engagement indicated that with all other factors held constant the effect of being civically engaged increased the odds of Internet use by 1.431.

Demographic factors

Age

All age categories in the model were more likely to use the Internet than the reference category of 45-59. With all other factors held constant, the effect of belonging to both the 25-34 and 35-44 age groups increased the odds of using the Internet by 1.311. The youngest age group was the most likely to use the Internet; the odds for those aged 16-24 were 1.515. It should be noted that since the model estimates the unique effect of age, this increase in the odds is independent of the effect of being in education, as many of those in this age group are. Hence for 16-24 year olds who are in education, the odds of using the Internet will be much higher.

Gender

The odds ratio for gender indicated that with all other factors held constant, the effect of being male increased the odds of using the Internet by 1.408 in the under 60s.

Education

The odds ratios for educational attainment indicated that level of educational qualification was strongly related to Internet use. With all other factors held constant, the effect of having no qualifications decreased the odds of using the Internet by 2.645 compared to the reference category of 'O' Grades, whilst having a degree increased the odds by 2.68. The odds of those with Highers using the Internet were 1.248 times greater than the reference category. Each of these effects is independent of the effects of income, which is known to be highly correlated with education. Hence, an individual with a degree and a high income would have a much higher probability of Internet use. These results indicate that level of education has a strong relationship with Internet use.

Summary

The model including all social exclusion and demographic factors run on a sample of under 60s generated an R^2 of only 21.3%, suggesting that these factors collectively account for a modest amount of the variance in Internet use in this age group. Adding educational attainment to this model rendered an increase in the R^2 to 29.8%, suggesting that education has some impact on propensity to use the Internet. Table 3.18 below presents the odds ratios and their inverse for each variable in the model, in descending order of magnitude.

Variable	Exp B	Magnitude
he_fe	3.627	3.627
school	2.744	2.744
degree	2.680	2.680
noquals	0.378	-2.645
permsick	0.448	-2.232
shtersik	0.479	-2.089
incov30k	2.013	2.013
unemp	0.571	-1.751
inc0_10k	0.614	-1.629
age16_24	1.515	1.515
lsocin	0.667	-1.500
in20_30k	1.492	1.492
poleng	1.431	1.431
male	1.408	1.408
home	0.745	-1.342
age35_44	1.311	1.311
age25_34	1.311	1.311
highers	1.248	1.248
msocin	0.882	-1.134

Table 3.18: Order of magnitude of individual variable effects in education model.

In the under 60s, with educational attainment taken into account, education-related variables had the strongest effects on Internet use. With all other factors held constant, being in higher/further education or at school, having a degree or having no qualifications had the greatest effects on the odds of using the Internet. Sickness and disability also had a strong negative impact on the odds of Internet use, as did unemployment. All social exclusion indicators had a relationship with Internet use, but not as marked as that of either being in education or having post-school qualifications. Nonetheless as noted, these factors collectively do not explain the majority of the variance in Internet use. Some of the reasons why this might be the case are explored below.

3.6 Conclusions

This analysis confirms that with all factors held constant, there are statistically significant relationships in the Scottish Household Survey between Internet use and many factors identified in previous descriptive analyses. When all other factors are held constant, income, employment status, social interaction, civic engagement, age, gender and educational attainment have an impact on the likelihood of an individual using the Internet for personal purposes. The odds ratios show that as age increases, the probability of an individual using the Internet decrease. As income increases, the likelihood of Internet use increases. Those who belong to employment statuses associated with exclusion, i.e. the permanently sick or disabled, the short-term sick and disabled, and the unemployed, have a lower probability of Internet use than those in full-time employment. However, some employment statuses not associated with social exclusion – the retired, those who are engaged in running a home and part-time workers - also have a lower likelihood of Internet use. Those in formal education, either school or post-school, have higher probability of Internet use. Women have a lower likelihood of Internet use than men. Being civically engaged increases the probability of Internet use, while having low levels of social interaction decreases them. Among the under 60s, higher levels of educational attainment correspond to a higher probability of Internet use.

The odds ratios assist in answering the research questions of which factors are the strongest predictors of personal Internet use and whether factors which indicate social exclusion are more strongly associated with non-use of the Internet. In the model including the whole sample, the odds ratios indicate that being aged 60-74 or over 75, and each of the employment statuses associated with exclusion have the strongest negative effect on the probability of Internet use. Being in higher/further education, having an income over £30000 p.a., being aged 16-24 or being civically engaged have the strongest positive effects on the probability.

Age, not a factor which indicates social exclusion, has the strongest negative relationship with Internet use. This is in line with the findings of previous

multivariate analyses, which also indicated that age had the strongest effect on Internet use. Unlike such earlier analyses however, gender was found to have a significant, though not very strong, relationship with Internet use (Katz *et al* 2001, Oswald & Gardner 2001). Why this should be the case is unclear; it is possible that different factors influence women's use of the Internet in Scotland. It seems that of the factors taken to represent social exclusion, it is employment status which has the greatest negative impact on Internet use, outweighing that of low income. It would appear then that exclusion from the sphere of production has a greater impact than exclusion from the sphere of consumption. This could suggest that there is a functional rather than an economic basis to non-use of the Internet, that is that for people who are unemployed or disabled there is less of a requirement to use the Internet, whereas for those categories where Internet use is required, such as in formal education, the likelihood of using the Internet is far higher. This is supported by the fact that other categories less likely to involve a requirement to use the Internet for work – part-time workers, home-makers and the retired - also have a somewhat lower probability of Internet use. The strongest negative relationships with employment status are, respectively, long and short-term sick, suggesting that it is distance from the labour market which influences Internet use. However, since the phenomena being measured here is personal Internet use, it would appear that those who are required to use the Internet for purposes related to work or education are then more likely to begin using it for personal reasons. In Oswald and Gardner's (2001) logit regression analysis of the BSA's data on Internet use in the UK, they found that after income and education had been controlled for, the unemployed were no less likely than those in work to use the Internet. This is in direct contrast to the result of this analysis, which found a strong and significant relationship between unemployment and Internet use. Again, the reasons for this are unclear, and may relate to some distinctive feature of Scotland which is as yet unknown.

Similarly, civic engagement has a greater impact on the odds of Internet use than income exclusion, again suggesting that where people have a pressing personal motivation to use the Internet, the likelihood of their doing so increases. In this case, since the measure of civic engagement is broad, it may

simply suggest that people who are more engaged in general are more likely to have a desire to use the Internet. Some previous work on the connection between civic engagement and Internet use has suggested the existence of a causal relationship, such that Internet use is said to increase levels of civic engagement (e.g.: Katz *et al* 2001). However, it is not possible to infer the direction of the causal relationship from such an analysis, and, as Oswald and Gardner (2001) suggest, it is possible that it is civic engagement which acts as the driver to Internet use. Social interaction has a significant and again surprisingly strong relationship with Internet use. This once more contrasts with Oswald and Gardner's (2001) findings, which indicated that levels of social interaction among Internet users and non-users were the same, although Katz *et al's* (2001) analysis of North American data found that Internet users' levels of social interaction were higher, and concluded that using the Internet made people more sociable. Again, it is not possible to infer a causal relationship in such a situation, and it is probable that having higher levels of social interaction acts as a driver for Internet use rather than vice versa.

Overall, it would appear that where the whole sample is included in the model, old age, excluded employment statuses and lack of civic engagement are the strongest predictors of non-use, whilst being in post-school education, having an income over £20000 p.a., being young and being civically engaged are the strongest predictors of use.

When the model is run on a sample which excludes the over 60s and includes educational qualifications, education-related variables emerge as the strongest predictors of Internet use. With all other factors held constant, being in higher/further education, at school or having a degree, HNC or professional qualification have the greatest positive impacts on the odds of Internet use, while having no qualifications has the strongest negative impact. Sickness and disability also have a strong negative impact on the odds of Internet use, as does unemployment. The lower R^2 when the over 60s are excluded from the model, and the lower odds ratios for the age groups included in this model imply that old age explains a significant amount of the variance in Internet use.

Given that the R^2 produced by models containing only social exclusion factors is rather low, and that the odds ratios indicate that social exclusion factors are not the strongest predictors of Internet non-use, it would seem on this evidence that digital exclusion and social exclusion are not contiguous phenomena, and social exclusion in and of itself does not account for non-use of the Internet. Even when other factors cited in the literature are included in regression models, the majority of the variance in Internet use remains unexplained. However, there are strong and significant relationships between factors indicative of social exclusion and personal Internet use, as well as between age, gender and personal Internet use. There are several possible reasons for the relatively low R^2. A low R^2 can be caused by measurement error in the definition or collection of either the explanatory or dependent variables. As we have seen, in many cases the variables used here are less than perfect approximations of the phenomena they are designed to represent. In addition, there may be issues of which it is impossible to be aware connected with the survey design and/or implementation which lead to inaccuracies in recording a given variable. Another common cause of a low R^2 is the omission of relevant variables from the model. According to Menard (1995), this may occur 'because available theories have failed to identify all of the relevant predictors or causes of a dependent variable' (p.82). In this case, we know that at the very least level of education has, perforce, been omitted from the model that included all age groups. There is also the contentious issue of lack of interest, which is so frequently cited as a reason for non-use in surveys which ask respondents about this. Since there were no such questions in the SHS, it was impossible to investigate the role of this factor. As we have seen, there is much debate as to what such 'lack of interest' really signifies. In any case, factors related to personal views and motivations are generally more effectively investigated using qualitative methods. Thus it was hoped that the qualitative phase of the study, described in the following chapters, would shed further light on this or any other unanticipated factors.

Chapter 4 Qualitative methodology

4.1 Introduction

In this chapter, the methodology employed during the qualitative phase of the research is described in detail. Prior to considering the approach, conduct and analysis of the qualitative phase of the research, it is perhaps useful to recap the aims of this phase. The original research questions, developed during the proposal stage, are laid out below.

- What are the barriers and incentives to ICT use among excluded individuals in Glasgow?

- What does qualitative investigation add to the understanding of these issues gained through survey evidence?

- How are digital and social exclusion connected?

The chapter opens with a discussion of the broad methodological approach employed in the qualitative research. The manner in which the results of the statistical analysis informed the development of the sampling frame, and the rationale behind the sampling criteria used, are discussed in the following section. The remainder of the chapter describes the manner in which the research was conducted, including: the process of applying for ethical approval; the development and content of the interview schedules; the process of accessing and recruiting the respondents; the venues at which respondents were recruited; and the sample characteristics in some detail. Finally, the manner in which the interviews were conducted and the data thus generated subsequently analysed is described.

4.2 Methodology

The qualitative phase of the research was conducted from an interpretative perspective in the sense that the intention was to elucidate the experiences and perceptions of the respondents from their own viewpoint, and within the terms of their own value-systems (Bryman 2001). One to one, in-depth semi-structured interviews were considered the most effective means of achieving this. Non-use of ICT was not seen or presented as a 'problem', as it often is in the policy literature (Selwyn 2003c); rather the probable rationality of any choice not to use ICT was respected. Interviews with socially excluded ICT users were geared towards exploring the benefits of use in the user's perception, not in terms of what might be viewed as desirable outcomes by others. In other words, the existence and application of agency by the respondents involved was recognised as integral to the process of understanding the nature of interactions with ICT. However, the foregoing is not intended to suggest any lack of regard for the importance of structural factors in constructing and constraining individuals' beliefs and actions.

4.3 Sampling frame and criteria

4.3 a) Sampling frame

In pursuit of such generalisability as is attainable through qualitative research, a theoretical sampling approach was adopted (Silverman 2001). Thus the sample was selected 'on the basis of its relevance to . . . [my] research questions' (Mason 1996, cited in Silverman ibid. p.252.). In order to be relevant to the research questions, the sample needed to include socially excluded users and non-users of ICT. Since gender had emerged as a significant factor in the statistical analysis, approximate parity between male and female respondents was sought to allow comparison of gendered relationships with ICT. Accordingly, it was necessary to interview 4 distinct groups of respondents, comprising 2 male groups (ICT users and non-users), and 2 female groups (ICT users and non-users). For practical reasons,

it was necessary to limit the size of the sample, but in order to gain any useful insights into the phenomena of interest, there had to be a reasonable number of respondents in each sub-group. It was decided that a minimum of 8 per group would suffice to gain such insights, whilst keeping the overall sample to a manageable size. Thus, a total of 32 respondents were sought. Table 4.1 below illustrates the target-sampling frame.

Gender	ICT user	ICT non-user	Total
Male	8	8	16
Female	8	8	16
Total	16	16	32

Table 4.1 Target sampling frame

4.3 b) Selecting the target age group

The logistic regression analysis had shown that young people were very much more likely to use the Internet than older people. However, although the majority of older people did not use ICT, there was a small group of Internet using over 60s who bucked the trend. Similarly, there was a group of under 35s who continued not to use the Internet despite the fact that many of their peers were Internet users. In terms of the research aims surrounding motivating factors, both groups were of interest – in the older group, it would be most interesting to find out what led them to choose to use ICT despite all the presumed barriers of unfamiliarity with new technology, and conversely, in the younger group, to find out why they opted not to use ICT despite most likely being exposed to it in the school, workplace or amongst their peer group. Unfortunately within the strictures imposed by the research context, it was not possible to interview sufficient numbers from both groups. Therefore, a difficult decision had to be made regarding which group to target.

The young people least likely to use the Internet were those who were excluded in some way. Conversely, older Internet users were least likely to be experiencing exclusion of any form. Hence it was in keeping with the research aim of investigating ICT use among socially excluded people to choose to focus on the younger age group. The potentially

greater relevance of non-ICT use among the young in the longer-term policy context was also taken into consideration when making this decision, which was supported by Scottish Enterprise for this reason. For the purposes of the research 'young' was defined as 18-35.

4.3 c) Operationalising social exclusion

Clearly, since the purpose of the research was to investigate ICT use among socially excluded people, it was necessary to sample people who could be defined as such. Thus, a further issue requiring resolution at this point was that of how to operationalise the concept of 'social exclusion' within a qualitative research context, or how to define 'socially excluded' for sampling purposes. It was decided that this should build on Burchardt *et al's* (2002b) method of operationalising social exclusion, which was developed for use in the BHPS and used, in a modified form, to analyse the SHS in this study. This model is discussed in detail in Chapters 2 and 3. Residence in a Social Inclusion Partnership (SIP)[6] or Pathfinder area alone was not considered a sufficient basis for inclusion in the sample, as many such residents are not personally excluded in any other sense. Attempting to select respondents on the basis of income would also have been problematic, necessitating a lengthy and intrusive filtering process to establish whether a respondent's income was low enough for inclusion, as well as the designation of a most likely fairly arbitrary and unsatisfactory threshold. After some thought, it was decided that only respondents in receipt of subsistence benefits such as Job Seeker's Allowance, Income Support or Disability Living Allowance *and* resident in a SIP or Pathfinder area would be sought, as recipients of such benefits are unambiguously excluded in the consumption dimension within Burchardt *et al's* framework of social exclusion (i.e.: income below 50% of mean). This would have the unfortunate effect of excluding those in low paid work, but it was felt that this was a reasonable compromise given the difficulties inherent in the alternative approach.

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[6]Social Inclusion Partnerships were areas of high deprivation which received extra funding from central government. Pathfinders were areas not sufficiently deprived to qualify for SIP status, but having levels of deprivation which entitled them to some extra funding. These are explained more fully in Chapter 2.

One effect of this approach to sampling was that within the terms of Burchardt *et al's* model of social exclusion employed in the research, the sampling criteria captured only 1 of the 4 'outcome' dimensions of exclusion, i.e.: consumption as represented by income. Thus the other outcome dimensions - production, political engagement and social interaction - were not accounted for by the criteria. In relation to the production dimension, Burchardt *et al's* framework would classify those engaged in voluntary work, education/training, or looking after family as 'included'. However, as discussed in Chapter 2, it does not seem likely that policy makers would so designate such people if they were also benefit recipients. Clearly it would not have been appropriate in a qualitative research context to attempt to establish respondents' status on all of these dimensions in advance. However, in order to fulfil the aims of the research it was necessary to gauge how excluded respondents were on these dimensions. In addition, some of the factors which had emerged as strong predictors of ICT use in the statistical analysis, such as level of educational attainment and disability, would have been equally problematic to operationalise as sampling criteria. These issues were addressed by including questions on these areas in the interview schedule, which is discussed in section 4.5 below. Although this approach cannot be described strictly as longitudinal, some degree of insight into changes over time and particularly into the respondents' histories of ICT use was attained from the 'life history' element of the interview data.

4.3 d) Location

As the map of Scottish Multiple Deprivation indices in Chapter 2 showed, concentrations of multiple deprivation in Glasgow are higher than in any other area of Scotland. This is the only available data which approximates to a measure of social exclusion in Scotland, and it demonstrates that Glasgow represented an eminently suitable location for the recruitment of appropriate respondents. In addition, there are many digital inclusion initiatives in Glasgow, which, it was hoped, would facilitate the recruitment of suitable respondents. Since the criteria required that respondents be resident in SIP or Pathfinder areas, the specific venues for recruitment also had to be so designated. However, beyond

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that requirement, no other spatial criteria were used. Rather, locations were selected pragmatically on the basis of availability.

Thus the sampling criteria were that respondents should be:

Aged 18-35
Resident in SIP or Pathfinder area in Glasgow
In receipt of subsistence benefit

In addition it was hoped that an approximately equal distribution of male and female ICT users and non-users could be attained.

4.4 Ethical approval

Having chosen the methods to be employed and the sampling criteria for respondents, it was then necessary to seek ethical approval for the research from the University authorities. This required that the nature of the research be explicated, showing that appropriate measures had been taken to gain fully informed consent from the respondents, and that any other issues or problems likely to arise in the course of the research had been anticipated, with steps being in place to deal with them. To this end, an information sheet and consent form for respondents were drawn up. These, along with the ethical approval form submitted to the University, can be seen in appendices 3 and 4. In formulating the information sheets, there was some debate as to how the issue of 'social exclusion' should be dealt with, as the term 'excluded' can have derogatory connotations. Consequently, it was decided that the sheets should refer simply to people on low incomes. Certain issues were anticipated, among them the possibility that some respondents might make use of the Internet for viewing pornographic material, and may therefore be embarrassed by detailed questioning regarding their use of the Internet. A further, more serious issue regarded use of the Internet for viewing illegal material such as child pornography. Since University ethical guidelines state that any such illegal activity must be reported to the police, it was

decided that a warning to this effect should be included in the information sheet, with a related clause in the consent form. In the event, neither issue arose. No problems arose during the process and ethical approval was granted without delay. The ethical approval form can be viewed in appendix

4.5 Interview schedules

Two topic guides were developed, one for ICT users and the other for non-users. These were designed to elicit as much information as possible about the respondents' experiences of and views about ICT, with a view to establishing what factors encourage or hinder ICT use among socially excluded people. As noted above, the intention was to elicit this information from the respondents' perspectives, and to avoid imposing any prior assumptions during the course of the interview. To this end, the questions were designed in such a way as to avoid 'leading' the respondents to answer in a particular way. For both groups, sections 1 to 3 were identical, and were aimed at establishing how excluded respondents were in different dimensions, what risk factors were present and how these different outcomes of, and risk factors for, exclusion impacted on ICT use. In order to develop the interview guides, the relevant literature was reviewed to establish which issues should be included. Some questions were also intended to be approximately analogous to those included in the SHS survey, which were used to derive variables representing social exclusion outcomes and risk factors for the purposes of the statistical analysis. Although there was not a discrete piloting stage, several revisions were made to the schedule as the research progressed. The content of the interview schedules and the purpose of the questions is summarised below. The complete schedules can be seen in appendix 5.

4.5 a) Section 1: Background information

The first section was designed to obtain primarily demographic data such as age, gender, incidence of ill-health or disability and area of residence. Respondents were also asked some questions aimed at establishing their household type, as this has been implicated in

propensity to use ICT in earlier statistical analyses (DfES 2002, Scottish Enterprise 2002). Length of residence in the area was included in order to establish whether the respondent was a long-term SIP resident. Respondents were asked about ease of access to amenities to find out whether difficulty in accessing amenities was a driver for ICT use, or in the case of non-users, whether using ICT could be particularly useful to them due to poor access to amenities in their area.

4.5 b) Section 2: Experience of labour market/education

In this section respondents were asked about their educational history, including at what age they left school, what qualifications they gained, how they experienced school and whether they had engaged, or planned to engage, in post-school education. In both the literature (e.g. Oswald & Gardner 2001) and the analysis of the SHS, level of education is strongly related with propensity to use ICT. Some authors have suggested that negative experiences of formal education, and other issues such as poor literacy, can disincentivise adults from learning to use ICT (Foley *et al* 2002). There is also the question of the use of ICT as a 'hook' to engage adults with lifelong learning – it is not as yet clear whether the desire to engage in education acts as a driver to ICT use or vice versa. Since low educational attainment could also be a social exclusion risk factor, these questions facilitated investigation of how this aspect of exclusion interacted with ICT use. A question about ICT use at school was also included, to investigate how common this was across the age range, and whether it influenced ICT use in later life.

Respondents were also asked about their labour market history, in order to establish how engaged in the labour market they had been, how long they had been out of work, and what their primary occupation had been prior to their current period of unemployment. These questions were asked to investigate whether exclusion from the labour market influences ICT use, and also to explore whether type of occupation and skills used in a labour market context have any influence on ICT use outwith the labour market. Some further questions about the respondent's plans to look for work, any perceived barriers to employment and any skills which the respondent thought might be useful were included. These were

designed to establish how disengaged or otherwise the respondent was from the labour market, whether labour market advantage acted as an incentive to using ICT, and also whether the respondent referred to the acquisition of ICT skills as being of use in a labour market context without prompting from the interviewer.

4.5 c) Section 3: Civic and social interaction

This section included questions about the respondent's social network, engagement in voluntary work or political activity and their pursuit of personal interests, the purpose of which was again to establish whether the respondent was excluded on the outcome dimensions of social interaction and civic engagement. There was also a lengthy list of activities, such as writing to or contacting friends or relatives, using the library, listening to music etc., which can be conducted both on and offline. The respondent was asked if they engaged in these activities by any means, with a view to establishing a) how broad a range of activities respondents used ICT for and b) whether non-users engaged in activities which could potentially be done more easily using ICT, or if in fact for the very excluded there could be said to be little obvious purpose in using ICT since they did not engage in such activities in any case.

Initially there were a number of questions regarding social networks, such as how many family members the respondent was in contact with, how often they saw them and so forth. In a number of the earlier interviews it was felt that these questions were overly intrusive, and in cases where the respondent had poor relationships with their family often seemed insensitive. Since the answers to them were often implicit in answers to earlier questions, it was decided to drop most of these, only asking one or two if the answers had not become apparent earlier in the interview.

Much of the data generated by these sections of the schedule were, as has been mentioned, designed primarily to gain a sense of how excluded the respondent was in a number of dimensions. As such, although the questions were asked in the format of a semi-structured

interview, the data were amenable to reduction into a more or less quantitative format, the results of which are presented in section 4.8.

4.5 d) Section 4: Experience of ICT – users

Questions in this section were principally designed to capture the primary incentive for the respondent to begin using ICT as well as any barriers to initial use they might have encountered, and how these were overcome. Respondents were asked how long they had been using ICT, and how and where they first started to use it. The latter questions were of interest in establishing initial drivers for ICT use and in order to find out whether respondents had commenced use in a labour market or educational setting in which they were required to use ICT, or if their motivation to start using was more personal in nature. The question of where use commenced was also of interest because some have suggested that people find PIAPs situated in places such as learning centres off-putting (PAT 15), and also that for many the initial context of use is more likely to be in the home of a friend or relative than a PIAP (Foley *et al* 2002). They were also asked whether they had encountered difficulty in finding somewhere to use ICT. This is of interest because some evidence indicates that many people are unaware of existing public provision (Foley *et al* 2002).

One of the key questions in this section concerned the initial incentive to use ICT. Respondents were asked if they had wanted to use it for particular functions such as helping children with schoolwork. Clearly, the purpose of this was to investigate the primary motivating factors for ICT use. At this stage, respondents were also asked whether they felt anything in particular had prevented them from using ICT, again with a view to establishing whether barriers to use exist for excluded people. A further question concerning use among the respondent's social network prior to their commencing use was also asked in order to establish whether exposure to ICT in this manner influenced the respondent's decision to commence use, as this had emerged as a possible incentive to use in the literature (Stanley 2003).

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A number of questions about prior awareness of ICT and the Internet were also asked, including one about the respondent's perception of the difficulty of using ICT prior to commencing use. A number of authors had suggested that lack of awareness was a barrier to use and may in fact underlie reported lack of interest (van Dijk 2003, Hacker & Mason 2003). Similarly, the literature had suggested that anxiety about learning to use ICT or lacking skills may act as a barrier for some (Stanley 2003, Millward 2003). There were a series of questions relating to the process of learning to use ICT, including where the respondent learned, whether they learned formally or informally, whether they found it more or less difficult to learn than they expected, and whether they had gained, or intended to gain, formal ICT qualifications.

Respondents were asked about the place, frequency and nature of their ICT use. Place of use was of interest again to investigate attitudes to PIAPs and prevalence of use in the home of a friend or relative. This section included a list of possible ICT-based activities, which respondents were asked if they used or had ever used ICT for. This allowed a picture of the respondent's skills level and breadth of use to emerge, as well as illuminating areas where there were reasons for non-use of particular functions, and indeed where the respondent had certain highly individual uses for ICT. This assisted with investigating the role of 'situational relevance' as outlined by Selwyn *et al* (2003). For instance, one much promoted use of the Internet is ecommerce. However, where the respondent is excluded in consumption dimension either because they lack the funds or cannot avail themselves of a credit/debit card with which to pay online, it is difficult to see what the relevance of this particular function might be. Respondents were also asked if they found using ICT for these activities quicker or easier than using traditional methods.

The final questions which were asked specifically of ICT users concerned what they liked about using ICT, what they perceived the benefits of ICT use to be, and whether they felt that ICT skills were useful in other areas of life. Again this was with a view to exploring the incentives for sustained ICT use, and also, in keeping with the methodological framework, to draw out respondents' perceptions of the benefits of ICT use in their own terms. Finally, there were some questions designed to find out how many respondents had

home Internet access, and to gauge respondents' attitudes to home, as opposed to public, access.

4.5 e) Section 4: Experience of ICT – non-users

These questions were primarily designed to explore any physical, mental or motivational barriers to ICT use, or reasons for non-use, experienced by non-users of ICT.

Respondents were initially asked whether they had ever used computers or the Internet. This question was stimulated by evidence suggesting that a section of the population have used ICT at one time and ceased to do so (OxIS 2003, Katz, Rice & Aspenden 2001). If the response to this question was positive, respondents were asked about when and where they had used it, and why they had stopped. They were then asked a number of key questions surrounding barriers to use and attitudes towards using, including whether they would like to use ICT. If they expressed a desire to use ICT, they were asked why they did not do so. If they had no wish to use ICT, they were asked why not. It was hoped that these questions would uncover both physical and mental or motivational reasons for non-use, such as lack of interest, for which there is a great deal of evidence (DfES 2002, ONS 2002).

There then followed a series of questions about awareness of the Internet, and of places where it was possible to use or learn to use computers. These questions were included because some have argued that where reasons for non-use such as lack of interest are cited in surveys, lack of awareness of the possible uses or benefits is the underlying issue (Hacker & Mason 2003). There is also evidence to suggest that while many people are aware of the existence of PIAPs, far fewer people actually make use of them (Scottish Enterprise 2002).

Respondents were also asked about the prevalence of ICT use among their social network, and whether they had ever asked an associate to do something for them on the Internet. The latter question stems from evidence which suggests that quite a number of people engage in proxy use of the Internet (OxIS 2003).

Finally, respondents were asked whether they thought they might use ICT in the future, and if there was anything which might encourage them to use ICT. Again, these questions were designed to explore barriers and potential incentives to ICT use, and to find out if there was any evidence of active resistance to the idea of using ICT.

4.5 f) ICT experience – both groups

A number of further questions about ICT were asked of both groups. An attempt was made to gain some sense of respondents' awareness of, and perspective on, the issue of digital exclusion by asking whether non-use of ICT by particular groups in society was a problem. ICT users were also asked if they thought anything might encourage more people to use computers. Both groups were asked about their use of other technology, in an attempt to investigate whether 'technophobia' was an issue, and whether levels of comfort with a range of technologies had any bearing on propensity to use ICT. A small subset of questions relating to mobile phones was later added to the non-user schedule, to investigate whether these were being used for other functions such as accessing the Internet, thereby displacing the need to use computers. The hope was also to explore the seeming paradox of the general willingness to embrace technology in this format, while apparently rejecting it in the form of computer hardware.

In the course of conducting the interviews it transpired that many respondents who defined themselves as non-users at the filtering stage did in fact use ICT, albeit often to a very limited extent. This required some blending of both interview schedules in order to ask the questions most appropriate to the respondents' level of ICT use. The ability to respond flexibly to the unexpected in this way is one of the advantages of semi-structured interviews, and confirmed the appropriateness of this choice of method. With hindsight, it would have been more appropriate had there been an entirely discrete category of intermediate user respondent, having a tailored interview schedule and existing as a separate target group in the sampling framework. However, it would not have been possible to effect such a radical change to the research design at this stage, and it is in the

nature of such research that emergent and unpredictable phenomena such as this may present themselves. As a result, a further category of 'intermediate' was developed to include those who defined themselves as non-users, although they did use ICT for limited purposes or had used ICT until fairly recently. For the purposes of the sampling framework, those in the intermediate category were counted as non-users. The implications of this emergent phenomenon for the research as a whole are discussed further in Chapter 7.

4.6 Access and Recruitment

4.6 a) Gatekeepers

Initial access to respondents was facilitated by the staff of Scottish Enterprise's Digital Inclusion Team, who provided contact details for a number of digital inclusion initiatives throughout the city. Margaret Houston, Digital Network Manager of the Greater Pollok Digital Inclusion Initiative, provided contacts in the Greater Pollok area. These included John Hannay, co-ordinator of a drop-in PIAP based in Priesthill Youth and Community Association, and Christine McAnn, manager of Pollok Community Centre. Steven Latta, North Glasgow Digital Inclusion Champion, supplied contact details for the Bambury Regeneration Centre in the East End, as well as a number of other centres which did not yield any respondents. Other contacts employed in the later stages of interviewing included associates of the project supervisor - Craig Green, Network Manager of Greater Easterhouse Learning Network, who facilitated recruitment of students at John Wheatley College, and Tam Munro, a Yoker-based community worker. Further, some personal associates (Jennifer Cowie, manager of the Annexe Healthy Living Centre in Partick, and Ewan Clydesdale, Project Manager of The Sheiling, a city centre drop-in resource centre for homeless men run by Glasgow City Mission) assisted with recruitment of respondents. Other contacts included the Director of Yoker Resource Centre, Sandy Burns (a contact of Tam Munro), and Liz Johnson, an Arts Worker with Impact Arts, who was introduced by John Hannay. Both of these facilitated recruitment within their organisations.

In most cases, the gatekeeper at a given venue approached potential respondents on behalf of the interviewer to explain what taking part in the research entailed before introducing the researcher to those were interested in participating. In effect, this meant that the gatekeeper undertook the filtering stage of the process, asking whether respondents were ICT users and establishing their age and employment status. Latterly, it became more difficult to locate potential non-ICT using respondents, and at this point an attempt was made to recruit some by means of placing a poster in the Annexe Healthy Living Centre advertising for participants. This was not particularly successful however, yielding only one respondent. In all cases, respondents were offered an incentive comprising Boot's gift vouchers to the value of £15, both to increase response rates and to recompense respondents for their time.

4.6 b) Challenges

At all times the sampling criteria were explained as clearly as possible to gatekeepers in order to avoid confusion surrounding potential participants. However, it is not to be expected that the staff of busy community facilities will fully understand the importance of such criteria or have time to ensure that respondents do fit all of these. In some cases, this resulted in somewhat embarrassing situations in which the researcher was presented with respondents who proved to be outwith the age-range, or employed, or unsuitable in some other way.[7]

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[7] Indeed, on one occasion a 38-year-old man was presented to the researcher as a potential respondent. Since he had been waiting for some time, it was felt it would be polite to conduct the interview. Ultimately there was a slight over-representation of females in the sample. Since this respondent was male, was only slightly outside the target age-range, and his interview had generated much useful data, the decision was taken to include it in the analysis. Thus there is one respondent who is outwith the designated age range included in the sample.

As mentioned above, within a fairly short time it became clear that many respondents who answered 'no' to the question 'Do you use computers?' in fact revealed during the course of the interview that they either did use or had used ICT to some degree. Quite early in the interview phase, the sample quotas for women, older men and ICT users were fulfilled, narrowing the target group down to non-ICT using males, preferably at the younger end of the age scale. Non-ICT users of any age or gender who met the other sampling criteria proved increasingly difficult to locate, but young males, who are notoriously difficult to locate in any research context, ultimately proved almost impossible. Even 2 visits to The Sheiling, a project run by Glasgow City Mission to serve homeless men, on nights when the soup kitchen was open and substantial numbers of arguably the most excluded people in society were present, unearthed only 3 young men who described themselves as non-ICT users, 2 of whom subsequently proved to be intermediate users. At this point, it was decided that although only 29 interviews had been conducted, given the time available sufficient efforts had been made to locate young male non-ICT users and the sample should be regarded as complete. However, one consequence of this was that ultimately there were very few complete non-users in the sample - of the 12 respondents classed as non-users for sampling purposes, 9 were intermediate users and only 3 genuinely did not use computers at all. Conversely, in the latter stages of data-collection, the researcher frequently declined offers of interviews with ICT users – a great many more such interviews could have been conducted were this required. This emergent phenomenon represented an important research finding in itself, the implications of which are discussed in the following chapters.

4.7 Venues and respondents

4.7 a) Priesthill Youth and Community Association (PYCA)

Situated in Glasgow's Southside, Greater Pollok is an area of high deprivation and was awarded SIP status in 1998 because of its higher than average levels of poverty, unemployment and ill health. PYCA was a small local community centre based in a

defunct 1960s secondary school within the Greater Pollok area. A number of visits to the centre were made, in June and July of 2004. Good relationships were developed with both gatekeepers and respondents. Although the centre was locally managed, it was funded by Glasgow City Council. However, this funding had been cut in recent years and resources were tight. This was reflected in the somewhat rundown nature of the building, which clearly had not been refurbished for sometime. Nonetheless, a great many useful services were offered by the centre, and it appeared to be well used.

One such service was a small drop in PIAP, Stan's Den, which was run by the original centre contact John Hannay. Through Stan's Den, one male respondent was recruited, who was an ICT user currently prevented from working by a hip injury. He was also actively involved in the management of the centre.

John Hannay was kind enough to request assistance on my behalf from another project based at the centre. Fabpad, run by Impact Arts (a Scottish community arts organisation), was a peripatetic service aimed at vulnerable young women who were in the process of being rehoused and were referred to the project by Social Work or other agencies. By assisting them to develop design ideas and make soft furnishings and small pieces of furniture, the project aimed to help participants make their new house into a stable home. The Pollok branch of Fabpad, which ran for one day a week, was primarily aimed at former drug users. It was a lively, warm group which clearly provided its members with much support. Liz Johnson, the Arts Worker, assisted with recruiting respondents from the group, many of whom were keen to participate. In all, 6 female respondents were recruited here, 5 of whom were methadone dependent former heroin users. One was suffering from mental and physical health problems. 2 of the respondents were ICT users, 2 were intermediate users, and 2 were non-users.

4.7 b) Pollok Community Centre

Also situated in Pollok and based in a Victorian former school building, Pollok Community Centre is managed directly by Glasgow City Council. Only one brief visit was

made to the centre, in June of 2004, but the impression formed was that the facility was in an adequate condition and was fairly well used. Among a range of services offered by the centre was a small drop-in PIAP. Christine McAnn, the centre manager, assisted with recruiting respondents from among the centre users. However, the majority of the users available at the time of the visit did not fit the sample criteria. Two female respondents were interviewed at the centre. One, a young single parent of two children, was an intermediate user. The other, who used ICT, was a volunteer worker at the centre. These interviews were conducted in June of 2004.

4.7 c) Bambury Regeneration Centre

The Bambury is a purpose-built community education and resource centre, based in Dalmarnock, an area of high deprivation in the East End of Glasgow. It opened in 2001 with the explicit aim of helping to regenerate the area by reskilling local people and helping them to re-enter the labour market. It houses a well equipped IT learning suite, from which a wide variety of courses are offered. The modern building is fresh and new, with a pleasant cafeteria and a welcoming atmosphere. Through Anne Campbell, Training Manager of an EC funded ICT course available at the centre, 2 female respondents were recruited, both ICT users. One of these was wheelchair dependent and the other was a young single parent of 3 children, two of whom lived with her mother. The interviews were conducted in June of 2004.

4.7 d) Glenoaks Housing Association (Fabpad)

The Fabpad project described above is also based in the headquarters of Glenoaks Housing Association in Arden for one day per week. Arden also falls within the boundary of Greater Pollok and is a similarly deprived area. Visually, the area appears more rundown than Pollok, with derelict and substandard housing and few obvious shops or other amenities. However, the building in which the project is based is new and freshly decorated. Following the interviews at the PYCA, Liz Johnson, Impact Arts' Arts Worker,

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was kind enough to offer to facilitate interviews with the project users, who in this case were young women with mental health issues. 3 female respondents were recruited here, 2 ICT users and one intermediate user. They were interviewed in August of 2004

4.7 e) The Annexe Healthy Living Centre

Based in Partick in the West End of Glasgow, the Annexe is a Lottery funded community run Healthy Living Centre. Its remit is to deliver services to people with mental health issues, but it is also available to the wider community for a wide variety of arts, drama, music and other events and services. A small vegetarian café is also based there. Although Partick is close to the wealthy West End, it has higher than average levels of deprivation, which are often masked in area-based measurements by this proximity. Hence, it now has the intermediate status of a 'Pathfinder' area, designed to direct funding at areas not sufficiently deprived to qualify for SIP status. It is based in a Victorian primary school building, decorated in an appealing manner, and has a pleasant atmosphere.

Jennifer Cowie, then centre manager, was approached directly for assistance, and facilitated several visits to the centre. These resulted in the recruitment of 5 respondents, 3 female ICT users and 2 male intermediate users. 3 of these were very active volunteers at the centre, whilst 2 were frequent users and also at times helped out there. The interviews were conducted in September of 2004.

4.7 f) Glasgow City Mission (The Sheiling)

The City Mission runs a number of social projects, and is funded by the Church of Scotland. Amongst these projects is The Sheiling, a drop-in resource centre for homeless men which serves hot food several evenings a week as well as providing medical services, distributing clothing and offering centre users help with any other area of their lives as and when it is requested. It is based in the run down Anderston area of the city centre, which is

known to attract drug users, prostitutes and homeless people. It is a clean, modern, purpose-built building which can comfortably host over 100 men.

The Project Manager, Ewan Clydesdale, kindly facilitated 2 visits to the centre and assisted in recruiting the respondents. By this stage in the research, the target sample had narrowed to young men who did not use ICT, and Mr Clydesdale was confident that there would be no shortage of these among the centre users. However, as it transpired, even amongst this group non-ICT users were very hard to find. These 2 visits generated 3 male respondents, 2 intermediate and one non-user. 2 of the respondents were currently resident in hostels whilst one had just been rehoused following a period of homelessness. These interviews were conducted in October of 2004.

4.7 g) John Wheatley College (Community Connections) Easterhouse

Community Connections is a broad-based course, which includes ICT training, offered to long-term unemployed men at John Wheatley College. John Wheatley is a community college based in the Easterhouse area of Glasgow, which is a 1960s built housing scheme long infamous for its very high levels of poverty, unemployment and drug use. The college building is a modern, purpose-built facility which is bright, airy and welcoming.

The gatekeeper, Craig Green, facilitated recruitment of respondents from the course following a request for assistance via email. On one visit to the college, 4 respondents were interviewed, all of whom were male ICT users. In addition to their long-term exclusion from the labour market, they faced a number of other issues – 2 were single parents, 2 former heroin users, and some had spent time in prison. They were interviewed in October 2004.

4.7 h) Yoker Resource Centre

Yoker is an area adjacent to the West End of Glasgow which traditionally depended on shipbuilding, and suffered severe decline following deindustrialisation. The Resource Centre is a community run project which aims to help local people overcome some of the problems caused by this legacy. It is virtually self-funded through revenues raised by social enterprise, and values its independence from mainstream funding sources. Sited in a Victorian School Building close to a busy main road, it is welcoming and heavily used by many local groups.

Sandy Burns, the Centre Manager, assisted in the recruitment of 3 respondents at the centre, 2 male (one intermediate and one ICT user) and one female (intermediate user). 2 of these were long-term and very active voluntary workers at the centre. The interviews were carried out in September 2004.

4.8 Sample characteristics

Questions relating to a wide range of social and demographic characteristics were included in the interviews, both to investigate how these factors interacted with ICT use, and to establish how excluded the respondents were on the various dimensions of Burchardt *et al's* framework of social exclusion. Thus, data relating both to socio-demographic factors known to influence propensity to use ICT and to social exclusion 'outcome' factors are presented in this section. Gender, age, education and health (socio-demographic factors), and income, labour market participation and social and civic engagement (outcome factors) are included in the discussion. These are used to assign respondents to an exclusion category estimating the level of exclusion experienced by each within the terms of Burchardt *et al's* operational framework, and then within the terms of criteria developed for use in this context. Discussion of the relationship between social exclusion and propensity to use ICT within the sample can be found in Chapter 7. A brief overview of the sample characteristics is presented below. The respondents' demographic characteristics are presented in full in appendix 6.

	User	Non-user	Intermediate	Total
Male	7	1	4	12
Female	10	2	5	17
Total	17	3	9	29

Table 4.2: Achieved sample attributes – ICT use and gender

How far the achieved sample met the original sample frame, and the broad characteristics of the sample, can be seen in Table 4.2 above, which shows that 17 members of the sample were ICT users, 12 were intermediate users and 3 were non-users. As is often the case with research of this nature, exact parity between females (17) and males (12) was not achieved. Therefore women are slightly over-represented in the sample.

4.8 a) Exclusion in the sample; Burchardt *et al*

It was not the intention in the qualitative research to follow Burchardt *et al's* model precisely, since their framework is designed for use in quantitative analysis. In particular, the use of 'thresholds' to classify people is somewhat problematic in a qualitative context. Nonetheless, using this framework to categorise the respondents illustrates how excluded the respondents would be when assigned to categories based on these quantitative measures of exclusion, which assists in forming a picture of the extent of exclusion in the sample. It also captures the multi-dimensional aspect of the concept, in that it demonstrates how people excluded in the dimension of consumption/income (i.e.: poverty) are not necessarily excluded in other ways. When assigning respondents to exclusion categories using this model, those engaged in voluntary work, primary care of children, and in education/training were defined as included in the production dimension. Those who voted and/or belonged to a political organisation were defined as included on the political engagement dimension, and those who saw family/friends regularly and both gave and received practical/emotional support were defined as included on the social engagement dimension.

Dimension/ Respondent	Con	Prod	PE	SE	Total dimensions
Aileen	X	I	I	I	1
Brian	X	I	I	I	1
Ewan	X	I	I	I	1
Lisa	X	I	I	I	1
Tim	X	I	I	I	1
Annette	X	I	X	I	2
Cam	X	I	X	I	2
Cassandra	X	I	X	I	2
Carly	X	I	X	I	2
Geraldine	X	I	X	I	2
Hal	X	I	X	I	2
Janie	X	X	I	I	2
John	X	X	I	I	2
Jennifer	X	I	X	I	2
Janette	X	I	X	I	2
Jean	X	I	X	I	2
Lanie	X	I	X	I	2
Lindsay O'Hara	X	I	X	I	2
Lorna	X	I	X	I	2
Peter	X	X	I	I	2
Sean	X	X	I	I	2
Sarah	X	I	X	I	2
Ted	X	I	X	I	2
Wilma	X	I	X	I	2
Annie	X	X	X	I	3
Fred	X	X	X	I	3
Nadine	X	I	X	X	3
Sam Calleta	X	X	X	I	3
Terence	X	X	X	X	4
Total Excluded	29	8	19	2	

Table 4.3: Exclusion in the sample according to Burchardt *et al's* criteria. X=excluded, I=included

As table 4.3 shows, using Burchardt *et al's* criteria, very few respondents were excluded on more than 2 dimensions; only one was excluded on all 4 dimensions and four were excluded on 3. This is similar to the findings of their cross-sectional analysis of the BHPS (2002b), which showed that at any point in time only 0.1% of the population was excluded on all 4 dimensions. By virtue of the sample framework, the entire sample was excluded on the income/consumption dimension. The majority of the sample (19) was excluded on 2 dimensions, and in most cases the dimension additional to the income dimension was that of political engagement. This is using a 'thin' quantitative measure however; as discussed below, many of the respondents were quite politically engaged in the sense that they took a keen interest in politics. Using Burchardt *et al's* threshold, only 8 respondents were excluded in the sphere of production. Only 2 respondents were excluded in the sphere of social engagement. This demonstrates quite effectively the utility of the concept of social exclusion, as it can clearly be seen that income poverty does not necessarily translate into exclusion in other spheres. However, attempting to apply this framework to the sample was challenging, since very few of the respondents in reality fit very neatly into these categories.

Certain aspects of this framework proved to be problematic in this context. Therefore, for the purposes of this research a modified measure of exclusion was developed which differs from Burchardt *et al's* in several ways. Firstly, their definition of inclusion in the sphere of production is somewhat broader than many might accept. As discussed in Chapter 2, voluntary work, being in education/training and caring for family are defined as included according to this model, but such a definition is arguably not reflected in social inclusion policy. Hence, when assessing respondents' level of social exclusion, these were not deemed to represent inclusion - rather being in receipt of a subsistence benefit was taken to represent exclusion from the sphere of production. Secondly, Burchardt *et al's* definition of political engagement includes voting and belonging to one of a selection of overtly political organisations. However, the questions in the SHS used to derive a measure of engagement in this sphere covered a much broader range of organisations and activities which could more properly be termed 'civic' than political. Hence in this context, it was

decided that civic engagement should be the focus, and should include voting, belonging to a political organisation or being engaged in voluntary work. Thus voluntary work here relates to civic engagement rather than engagement in production. Further, a number of other factors contributing to an individual's level of exclusion, such as a history of drug addiction, or a criminal record, are not captured by Burchardt *et al's* framework. Thus a means of categorising respondents which accounted for these issues was developed. The results of so categorising the respondents are presented at the end of this section, following discussion of each of the factors individually.

4.8 b) Demographic characteristics

Data on socio-demographic characteristics known to have a relationship with ICT use are presented below. Belonging to minority ethnic groups is also known to relate to ICT use, but this was not included in the statistical analysis because the proportion of the sample was too small to derive robust statistics. Although no specific ethnic group was targeted, it transpired that all respondents were white Scottish. This section describes the overall characteristics of the sample.

Gender

As noted above, 17 respondents were female and 12 were male. Thus the sample is somewhat skewed towards women. This is often the case in both quantitative and qualitative research due to the greater availability of women during working hours and their generally higher propensity both to make use of the types of venues where recruitment took place, and to take part in such research.

Age

Age	Total
Under 20	1
20-24	8
25-29	7
Over 30	13
Total	29

Table 4.4: Banded age of sample

As table 4.3 shows, the sample was weighted in favour of the upper age range. Again, younger people are known to be more difficult to recruit for social research, and less likely to make use of facilities such as community centres.

Health/Disability

19 respondents described themselves as having health problems during the interview. However, this did not necessarily mean that they were deemed unwell enough to qualify for a benefit for which eligibility is based on ill-health (i.e.: Disability Living Allowance, Incapacity Benefit etc.). Only 11 respondents were in fact in receipt of such benefits. The majority of the respondents (14) were on Income Support (IS) and most of these were single parents. However, not all recipients of IS were single parents. Since IS is awarded to claimants who are not required to be available for work, and a number of the non-single parents in receipt of IS reported health problems, it is possible that they were awarded IS on this basis. 4 non-single parents were in receipt of IS.[8] The nature of the ill-health suffered by the respondents is not known in every case, because this potentially intrusive question was always prefaced by a statement to the effect that only a yes or no answer was

[8] It is also very possible that respondents were vague about the type of benefit they claimed, since it can be seen as quite personal information. For this reason, it was not probed during the interviews. Further, at times terms such as 'Income Support' are used in an almost generic fashion in everyday discourse.

required. A number of respondents were quite open about their health problems. Mobility problems, back problems, mental health issues and other chronic conditions predominated amongst them.

In any case, a surprisingly high number of the total sample of 29 described themselves as unwell, and many were in receipt of health-based benefits, despite the fact that this was explicitly not included in the sampling criteria. Indeed, only 4 respondents were in receipt of Job Seeker's Allowance, which requires claimants to be available for and actively seeking work. This is perhaps not so surprising when viewed in the Glaswegian context however – the city has some of the highest rates of sickness and disability in the UK, with Incapacity Benefit claimant rates of 15.7%. This is nearly twice the Scottish average of 8.9%, and 4 times the number of JSA claimants in the city (4.1%) (Scottish Neighbourhood Statistics 2004).

Education

A high proportion of the sample left school at a very young age, often with no qualifications. Out of 29 respondents, 15 respondents gave their school leaving age as sixteen. Some left school prior to the legal age, in some cases many years before; 5 left at fifteen, 2 at fourteen, 1 at thirteen and 2 at twelve. Only 4 respondents stayed in post-compulsory education. 14 respondents left school with no qualifications, 13 with 'O' Grades or Standard Grades[9], and only 2 gained Highers. Further, many were quite negative about their experience of school, which could be described as 'bad' for 16 respondents, 'okay' for 5 and 'good' for only 6.

However, the respondents' experience of post-compulsory education told a different and perhaps surprising story; almost all had engaged in further education of some kind, many were currently studying, and many planned to begin a course in the near future. The majority (23) had engaged in some form of vocational education after leaving school. This

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[9] Both equivalent to English 'O' Levels or GCSEs – Standard Grades replaced 'O' Grades in 1990.

ranged from long courses in specialised fields such as counselling, nursing, plastering, engineering, and cooking to short modules or City and Guilds in areas such as First Aid, Food Hygiene, and computing. Some respondents had many qualifications under their belt, and a number of these were not strictly vocational – other subjects included drama, creative writing, reflexology, social sciences and more. Only 4 respondents had not engaged in education since leaving school, and these were some of the most excluded respondents in the sample. 11 respondents were currently engaged in education, some of these doing ICT courses, and others creative writing and Health and Safety among others. Further, almost all of the respondents asked had plans to engage in some form of education – 20 of these were quite or very definite, 4 were rather vague, and only one did not have any such plans. Again these covered a very broad range, from short ICT courses to long-term vocational courses such as midwifery. The 3 homeless young men were unfortunately not asked this question because it did not seem appropriate in the context of their interviews.

Again within Burchardt *et al's* framework, being in education or training is defined as included. However, since the majority of the respondents were engaged in short or part-time courses, and all were still in receipt of subsistence benefits, they were not defined as included for the purposes of the research.

4.8 c) Social exclusion in the sample

Consumption/Income

As detailed in section 4.3, respondents were pre-selected on the basis that they were in receipt of subsistence benefits such as Income Support. Thus, no further questions were asked about income other than which benefit the respondent was in receipt of, and within both Burchardt *et al's* framework, and the modified version used here, all respondents were unambiguously excluded on the 'consumption' outcome dimension.

Production

Clearly by virtue of the sample design, none of the 29 participants were currently engaged in the labour market. Within Burchardt *et al's* framework, those who were engaged in voluntary work, looking after family, or in education/training would be deemed to be engaged in a socially useful activity and therefore not excluded on the production dimension. By these criteria, many respondents would not be defined as excluded, 11 being single parents and 11 being engaged in voluntary work, 5 of these at a level almost equivalent to working full time. Many were also in training or education – indeed quite a number were involved in two or even three of these simultaneously. However, as discussed above and in Chapter 2, the thrust of government policy aimed at tackling exclusion is very much toward labour market inclusion, and as such benefit claimants, whether they are single parents, voluntary workers or people doing short courses, are considered to be economically inactive/excluded by such criteria. They are therefore also defined as excluded for the purpose of this research.

Although the respondents were not currently active in the labour market, a number of questions were designed to investigate the following aspects of labour market experience: length of time out of work; primary occupation when in work; reason for not being in the labour market; and the nature of any plans to return to the labour market. Information on the subject of the labour market was not generated in a particularly systematic fashion, as there was some concern that respondents might suspect Job Centre involvement in the research, and also that overly intensive questioning on the subject might be experienced as intrusive or judgemental. As such, the following categorisations are approximations only and, as is the nature of qualitative research, the respondents rarely fit neatly into any of these categories.

15 respondents' periods of labour market inactivity could be described as long-term, 10 as intermittent and 4 as short-term. Respondents' primary occupations when in work were as follows: 9 skilled manual, 9 skilled non-manual, 7 unskilled manual, and 4 had never been in formal employment, although 2 of these had extensive voluntary experience.

As outlined above, the majority of the respondents were not currently required to be available for work, either because they were single parents or due to ill-health. Only 4 respondents were in receipt of JSA, which required them to be available for, and actively seeking, work. Although most respondents wished to return to the labour market in the future, for many, seeking work was not currently a priority. This was for very complex and highly individuated reasons. In some cases a respondent's disability was so severe that returning to the labour market presented a major challenge. A number of single parents had been in work but had simply found managing the multiple demands this presented too stressful, and for them it could be said that not working was a quality of life issue. Some parents of very young children, both single and partnered, did not wish to place their children in nursery while they went out to work. Others were aware that their lack of qualifications presented an obstacle to gaining rewarding employment, and were thus engaged in long term strategies to improve their employment prospects through education. Several fathers of large young families wished to assist with childcare until their children started school. A very few were facing such difficult issues that accessing the labour market was a distant prospect. In some cases, the respondent feared that they would be financially worse off in work.

Civic engagement

Respondents were asked a number of questions designed to assess their level of civic engagement. These included: whether the respondent voted; was engaged in voluntary work; was or had ever been involved with any type of political organisation or campaign; and whether he or she described him or herself as interested in politics.

Although more than half (15) of the respondents did not vote, the majority (23) described themselves as interested in politics, saying that they followed the news regularly and in some case avidly. Some said they did not currently vote because they were not on the electoral roll, but intended to do so in the future. Many respondents, both voters and non-voters, made comments to the effect that they did not trust any politicians, or that they felt

that voting made no difference. Some discussed current issues such as the then recent invasion of Iraq with some feeling. In many cases they did not vote because they were antipathetic rather than apathetic. Very few were or had been actively involved in political organisations or campaigns, although some were very actively involved. One respondent was active in the TUC, whilst another had acted as her husband's election agent when he stood for the local council. Several others were involved with single-issue advocacy groups such as father's rights and disability organisations. The level of voluntary work engaged in by many of the respondents was notable: 5 were working at a level close to full-time, 6 regularly worked for up to 2 days a week, 3 did some voluntary work occasionally, and a further 3 had done voluntary work in the past. Thus 18 respondents in total were or had been engaged in voluntary work, whilst only 11 had never done any.

Social engagement

In order to assess the respondents' level of social integration, a number of questions concerning their relationships with family and friends were included in the interviews. As noted above, it was soon realised that these were overly detailed and potentially intrusive. Since this information often emerged in response to other areas of the interview, many of them were consequently dropped. However, data were generated in relation to the following areas: did the respondent help relatives or friends with tasks such as babysitting, decorating, shopping etc.; was the respondent in contact with friends or relatives who lived far away[10]; did the respondent belong to any clubs or groups connected with their pastimes or interests; and was there anyone to give the respondent support if it was needed.

12 respondents could be described as highly engaged, in the sense that they had regular and frequent contact with both friends and relatives, engaged in other activities such as playing a sport, or attending a community centre regularly, and both gave and received practical and emotional support when required. A further 15 respondents could be described as quite

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[10] This was asked to establish whether respondents could or did use any form of electronic communication, but had the effect of generating information on social networks.

engaged – these generally saw friends and family regularly, and had support there if they needed it, but were not so involved in activities outside their immediate social network. Only 2 could be described as not engaged, having a limited social network, limited contact with or support from its members and no involvement with activities outside the network.

Other elements of exclusion

In addition to the above factors, there were a number of others present in the sample which were not included in the statistical analysis and could not be captured using Burchardt *et al's* framework. Some of these, such as household type, have also featured in earlier statistical analyses of ICT use (Scottish Enterprise 2002). Lone parent households are known to be both at higher risk of exclusion and less likely to use ICT. In this sample, 11 respondents were single parents. There were other factors contributing to the exclusion of some respondents. 7 were recovered heroin addicts, a number of whom had spent time in prison. Some had extremely violent and abusive family backgrounds, and in a few cases, this violence continued to be a feature of their lives. 3 respondents were homeless. A number had mental health issues, one revealed a history of sexual abuse, and several had grown up in care. Alcoholism in the family was an issue for some. A very few respondents clearly had quite chaotic lifestyles. In some cases the same respondent was experiencing a number of these issues simultaneously. These issues were taken into account when developing a schema for assigning respondents to a 'level' of exclusion.

4.8 d) Exclusion in the sample; research assessment

By definition, all of the respondents were excluded in both the production and consumption dimensions. By assessing each respondent's level of exclusion from the spheres of civic and social engagement, and taking into account the other factors outlined above, a classification was developed which categorised respondents' level of exclusion as low, moderate or severe. This was not always a straightforward task however; when dealing with the heterogeneity of individuals' circumstances in a qualitative setting, it can

be very difficult to impose categories upon them. When comparing a wheelchair bound respondent with a progressive disease who is nonetheless highly active and engaged with a healthy 20 year old who is homeless and has few interests, it is difficult to say who is the most 'excluded'. However, a means of gauging respondents' level of exclusion was developed, which both accounted for the factors outlined above and reflected the greater depth of information which can be gained in a qualitative setting, Where an individual was excluded only in the sense that they were not currently engaged in the labour market, and as such were below the income threshold, but were otherwise highly engaged with voluntary work, family, or education and were not experiencing exclusion in other respects, they have been categorised as 'slightly' excluded. If there had been serious issues such as drug addiction or crime in the past, but the respondent was now relatively settled, or if there were health problems which seemed to significantly hinder the respondent's activities, they have been classified as 'moderately' excluded. Where there were continuing issues such as homelessness or a very chaotic lifestyle, the respondent has been classified as severely excluded. The result of applying this schema to the respondents is presented in table 4.5 below, with the result of the same process using Burchardt *et al's* framework presented alongside to facilitate comparison.

Respondent	Burchardt *et al*	Research assessment
Aileen	1	low
Ewan	1	low
Lisa	1	low
Tim	1	low
Annette	2	low
Geraldine	2	low
Hal	2	low
Janie	2	low
Janette	2	low
Jean	2	low
Peter	2	low
Ted	2	low
Brian	1	moderate
Cam	2	moderate
Cassandra	2	moderate
Carly	2	moderate
John	2	moderate
Jennifer	2	moderate
Lanie	2	moderate
Lindsay O'Hara	2	moderate
Lorna	2	moderate
Wilma	2	moderate
Annie	3	moderate
Sam Calleta	3	moderate
Sean	2	severe
Sarah	2	severe
Fred	3	severe
Nadine	3	severe
Terence	4	severe

Table 4.5: Comparative level of exclusion derived using both frameworks

As table 4.5 above shows, when the sample members were assigned to a level of exclusion using these criteria, 12 could be classed as slightly excluded, 12 as moderately excluded and 5 as severely excluded. There are some striking differences between the categories arrived at using Burchardt *et al's* criteria and these criteria. For instance, Sean is only excluded on 2 dimensions according to Burchardt *et al*, but here, because other factors are accounted for, he is defined as highly excluded. Using Burchardt *et al's* criteria, only one sample member appears to be severely excluded (i.e.: on 4 dimensions). Here however, 5 respondents are defined as severely excluded. This illustrates the difficulties of arriving at any objective definition of 'exclusion'. Overall, however, it is apparent that levels of exclusion within the sample were high.

4.9 Interviewing

4.9 a) Doing the interviews

One to one semi-structured interviews can be defined as interviews in which the researcher uses a schedule or guide to direct the interview, but is flexible regarding the order in which topics are addressed, and attempts not to impose assumptions or preconceptions onto the respondent (Bryman 2004). In the context of investigating individual user and non-user respondents' perceptions and experiences of ICT, this was the most appropriate method of generating data. Structured interviews would have had the same disadvantages as quantitative methods, in being too rigid to draw out respondents' perceptions, whilst unstructured interviews would hamper the development of the coding framework to be used during the analysis phase (May 1997). Since the aim was to elicit the perceptions and motivations of individuals in some depth, neither would focus groups have been an appropriate method of generating data. Although the interview schedules were fairly detailed in terms of the questions asked, the format laid down was not rigidly adhered to; if a particular topic was raised by the respondent at another point in the interview, it was pursued at that time. Similarly, efforts were made to remain sensitive to occasions when topics not included in the schedule were raised by the respondent, and to encourage

expansion of such themes. Probes were frequently used to encourage respondents to expand on certain topics or to explore emergent themes. The interviews were initially tape-recorded using standard analogue dictation equipment, and latterly recorded using a digital voice recorder designed for the purpose.

The interviews were conducted between June and October of 2004. All were conducted in the venues from which the respondents were recruited, usually in a small side room or unused office provided by the gatekeeper for the purpose. In the interests of gaining fully informed consent, interviewees were provided with an information sheet which explained the nature and purpose of the research, and asked to sign a consent form, which can be viewed in appendices 3 and 4 respectively. As discussed in section 4.4, these explicitly mentioned the issue of child pornography and other illegal activities which can be carried out on the Internet, explaining that if any such activities were revealed during the interview, there was a legal requirement that the police be informed. Prior to the interview commencing, there was a short conversation about the content of the interview to ensure that the respondent fully understood the nature of the research and was happy to go ahead with the interview. Respondents were also verbally assured of anonymity and reminded that they need not answer any questions with which they felt uncomfortable. On signing the consent form, interviewees were given the incentive of £15 worth of Boot's gift vouchers. Incentives were given as vouchers rather than cash to avoid any possibility of respondents' benefits being affected. In most cases the incentives acted as was hoped, i.e.: they did indeed incentivise people to take part in the research. However, in some cases respondents seemed almost insulted by the incentive, saying that they would have been happy to take part in the research in any case. A few expressed their intention to donate the vouchers to the centre in which the interview took place, or to another suitable charity.

The interviews varied in length from 20 to 90 minutes. In general, the earlier interviews were much longer than the later ones, for reasons which are described below. Open-ended questions, probes and prompts were used to encourage respondents to expand on certain points. Frequently in response to a statement given by the interviewee, questioning statements such as 'really?' and 'yeah?' were proffered with this intention. This generally

proved a fairly successful strategy; nonetheless, as is often the case, the transcripts revealed frequent instances where opportunities to elicit more information were missed.

4.9 b) Transcribing

The majority of the interviews were transcribed by a professional transcription service, although several interviews were also transcribed by the researcher to ensure that a 'feel' for the data was acquired. All of the transcripts were checked against the recordings for accuracy.

4.9 c) Situating the self – reflexivity

Although the practice of writing in the third person has been employed elsewhere, within this section the first person is used, both for ease of expression, and because it is more appropriate where issues of subjectivity are concerned. I would follow Gouldner (1971) in arguing that it is necessary to recognise the role of the researcher as an agent within the research setting, whose presence there has an impact upon that setting. It is for this reason that the term 'generate' rather than 'collect' is employed with reference to the gathering of data; the data are the result of a dynamic interaction between researcher and respondent, not the result of a process of collecting inert 'information' which existed prior to the intercession of the researcher (ibid.). Similarly, the researcher is an individual whose subjective perspective on the object of study will to some degree colour his or her account of that object. I do not however follow the post-modern argument (Feyarabend 1975) that such recognition of the role of the researcher's subjectivity necessitates the abandonment of all attempts at objectivity; rather I would argue that reflexive consideration of the role of the researcher's self within the research process assists in the pursuit of a greater degree of objectivity, both for the researcher and for the audience. As such, this section describes some personal characteristics of the researcher which may have had a bearing on the conduct and outcome of the research.

I am a white female with a university education. When the interviews were conducted I was 32 years old. I am from a middle class background and thus although I was born and grew up in Glasgow, I have the type of accent which often leads other Glaswegians to identify me as either English or from Edinburgh. This often provokes preconceptions to the effect that I am a 'snob', or am likely to look down on people who are not of a similar social background, a reaction which I particularly hoped to avoid in the research context. This general social consideration interacted with another which was specific to the research context. I was very aware of the potential for the research setting to involve an unequal power relationship which could dehumanise or homogenise the participants; I did not want them to feel like 'subjects' in my research, with myself situated as the 'scientist' complete with white coat and microscope. Given the backgrounds of many of the respondents, I feared that this might be more likely than in other research settings. Thus, I was doubly concerned with ensuring that the respondents saw me neither as a 'snob', nor experienced participating in the research as disempowering in any way. My decision to offer a relatively generous incentive was partly based on such considerations; I felt that it was necessary to demonstrate that I considered the respondents' time to be valuable.

In addition to offering an incentive, I adopted some other strategies designed to lessen the effect of unequal power relationships in the research setting. Chief amongst these was the use of reciprocal self-disclosure, developed by feminist researchers such as Oakley (1981), with the intention of equalising the researcher/respondent power relationship. In this method, the interview adopts more of the tone of a normal conversation, with the interviewer offering information about herself in exchange for that given by the respondent. This was also intended to address the other issue of generating a negative response from respondents because of my apparently middle class social status. I have had many life experiences which are perhaps not commonly associated with this social status, and which possibly gave me more in common with my respondents than they might have expected. Hence, I shared some of these during some interviews, particularly with the women from Fabpad who were former heroin addicts and were some of my earliest respondents. These women were particularly generous in sharing many aspects of their lives with me, and their interviews generated much in the way of useful data. It is possible

however that, partially due to my relative inexperience at this stage, I engaged in a somewhat inappropriate degree of self-disclosure. As the interviews progressed and I became more confident about doing them, I found that I was able to relate to the respondents in a friendly but professional manner without feeling the need to engage in excessive self-disclosure. This resulted in more focussed interview transcripts and saved much time. None of the above is intended to imply any criticism of this methodology, nor of the impulse underlying it. There were indeed occasions when a certain degree of self-disclosure seemed appropriate, and I believe, had the effect of putting respondents at their ease by implicitly balancing the power relationship.

Related to the issues described above, I was also concerned that my questioning might be experienced as intrusive or judgemental, particularly in areas around labour market activity and social networks. As a result, and also because I did not wish respondents to think that I was in any way connected with agencies such as the Job Centre, I was often quite hesitant in asking the labour market questions. On a few occasions, respondents asked if the information would be passed to any such agency, although they had received assurances to the contrary prior to the interview. In several cases, I did sense a degree of defensiveness from respondents during the labour market section of the interview, which I generally (though not always successfully) tried to defuse by making a comment regarding the difficulty of working given the respondent's current circumstances. With regard to the social network questions, as detailed in section 4.5, a number of these were dropped quite early on, or were only asked if the answers had not become apparent elsewhere in the interview. If it seemed that the respondent's family situation was particularly difficult, these questions were sometimes not asked at all.

There was also the concern that respondents might think I had some particular interest in encouraging them to use ICT, or that the interviews formed part of an initiative aimed at this purpose. In turn, this may have stimulated them to 'talk up' their ICT use, or to be more positive about computer use than they were in reality. As mentioned previously, the clear intention was the opposite – I wished to ensure that respondents did not feel that non-use of ICT was seen as a problem, and that they described their experiences of ICT in their

own terms. To this end, the questions were designed not to be leading, and if I sensed that respondents were doing this, I stressed my disinterestedness and simple interest in *their* views and experiences. I cannot say categorically that this never occurred, but I think these strategies were reasonably successful.

4.10 Analysing the data

4.10 a) Coding

The CAQDAS[11] package NVivo was used to code the data. There are some in the social sciences who object to the use of software for QDA, fearing that it is grounded in a quantitative epistemology and as such will result in a loss of 'closeness' to the data, thus compromising the interpretive thrust of qualitative research (Roberts & Wilson 2002, Morison & Moir 1998). As discussed in Chapter 1, the decision to use mixed methods in this project was partially grounded in a belief that the traditional polarisation of qualitative and quantitative epistemologies is neither helpful nor valid. As such, these objections to the use of CAQDAS did not present any obstacle to its use in this setting. In addition, the counter arguments of those who point out that CAQDAS only facilitates traditional cut and paste methods of QDA and does not in fact 'do' the analysis satisfactorily refute such objections (Weitzman 2000). NVivo specifically was chosen for both pragmatic and methodological reasons; it is one of the most popular and widely available packages, hence it is the package available to researchers at Glasgow University. However a review of the literature indicated that it was suitable for analysing the data generated by the project, since it is a 'code-based theory builder', that is, it allows data to be coded in such a way that connections between different themes and codes can be represented in different ways (Weitzman 2000). It also has sophisticated search functions which permit the user to combine categories and search the data by any combination of words, codes and

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[11] Computer Aided Qualitative Data Analysis Software.

respondent attributes as well as permitting sophisticated memoing and record keeping across the whole project.

The development of the initial coding framework was informed by the interview questions. Each question was considered to establish what information was sought by its inclusion in the schedule, and a code (known as nodes in NVivo) corresponding to this theme was created. Thus for example, answers to the question 'What attracted you to using ICT?' generated the node 'user incentives' which then included coded passages relating to any incentive for use mentioned by users at any point in the interview. However, since coding and analysis is an iterative process, and the intention was to be sensitive to themes which emerged from the respondents' own experiences, new nodes corresponding to such emergent themes were generated throughout the process of coding. This required a second pass at coding all of the transcripts, to ensure that each new node had been accounted for in all of them. Thus a combination of inductive and deductive techniques was employed to interrogate the data. At this stage, 117 nodes had been created, each corresponding to a different question or theme in the data. An example of some coded text can be seen in figure 4.1 below. The coding framework can be viewed in full in appendix 7.

Figure4.1: example of coded text in NVivo
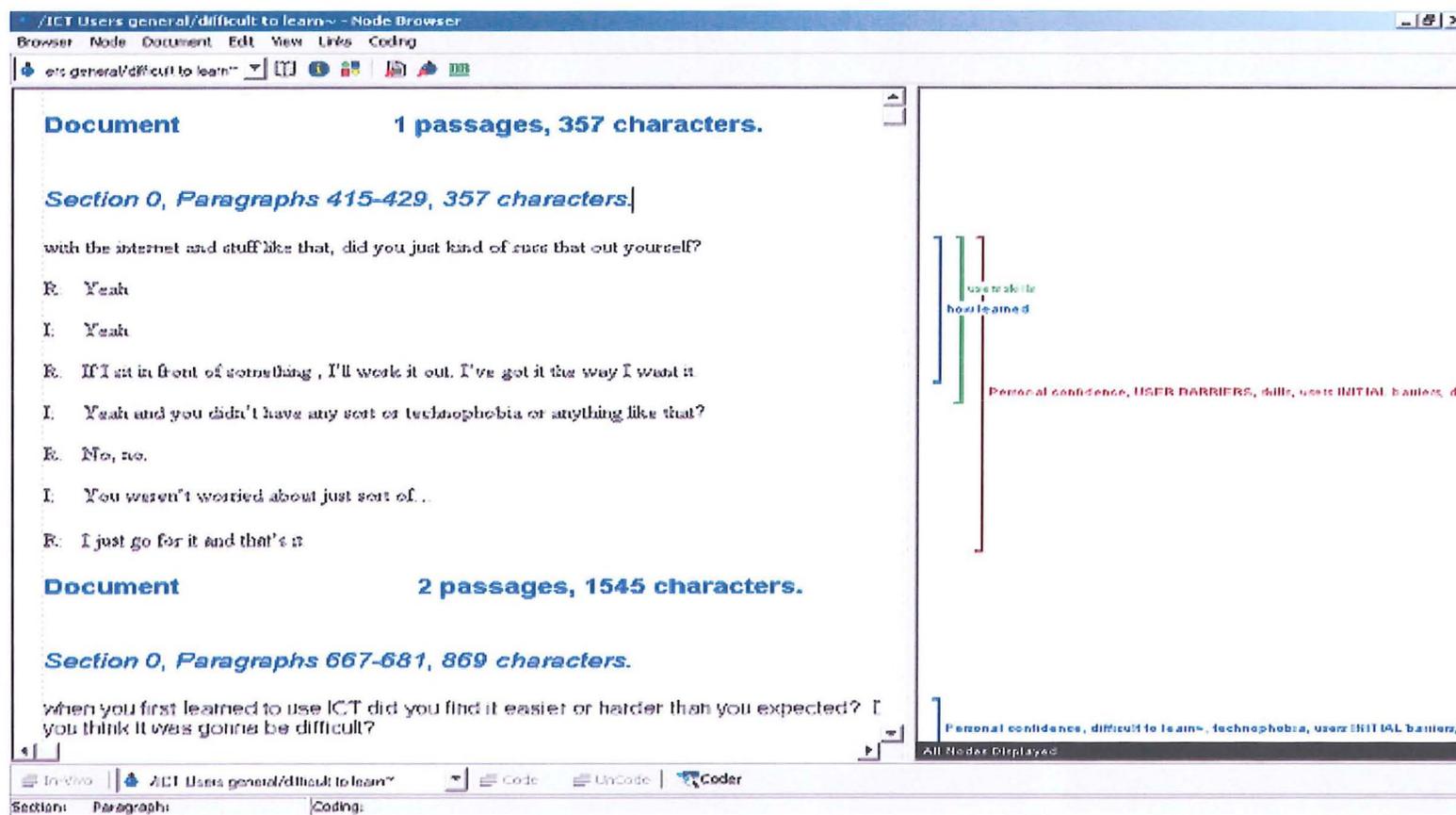
4.10 b) Analysis

There is no clearly defined division between coding and analysis, since the act of analysing the data clearly begins with the first run of coding. However, there was a point at which initial coding of all transcripts was completed and the task of making sense of the data could begin. This stage of the process was particularly challenging – faced with 117 nodes covering a vast number of sub-themes, it was very difficult to make sense of the mass of information. Attempts to find guidance in the relevant literature proved somewhat fruitless. Much of the literature described a very specific and specialised approach to QDA, such as content analysis (Silverman 2002), matrix analysis (Ritchie and Lewis 2003) or grounded theory (Glasser & Strauss 1967). Often this was without reference to the existence of other approaches, as though the author's favoured method was the only one possible. None of these approaches seemed suitable for the project at hand. Both content and matrix analysis were overly quantitative in their approach. In addition, content analysis seemed to focus on the form rather than the content of the data. Grounded theory, being wedded to the notion that there should be no *a priori* theory guiding the analysis, which should be conducted entirely inductively, was clearly inappropriate. Nonetheless, in that the intention was to allow the data to 'speak' by remaining sensitive to themes emerging from the respondents' own preoccupations, certain principles of grounded theory were adhered to. Seale's (2004) approach to qualitative data analysis ultimately proved to be the most useful. Qualitative content analysis, described as 'using … everyday intelligence to look for interesting things in qualitative data' (p.299) involves seeking themes and topics of interest as defined by the research questions at hand.

The next stage of analysing the data consisted of collapsing the many nodes into thematic parent nodes corresponding to the broader research questions. Thus, for example, where there had previously been multiple nodes relating to 'barriers to ICT use', these were now recoded and grouped together in one overarching 'barriers' node. This could then be extracted and printed to allow comparison within and between different sub-sections of the sample, and to identify how strongly specific

issues came through. This process is often described as 'analytic coding'. The process of writing up occurred in tandem with that of analysing these thematic nodes.

New questions emerged throughout this process – for instance, the issue of whether respondents started using ICT of their own volition had not been considered when the interview schedules were designed. It now became apparent, however, that this raised the question of when an individual ought to be defined as an ICT user – should this be when they chose to start using ICT for personal purposes, or when they used ICT because they were required to do so? Hence the question of respondents' ICT using 'careers' was raised, requiring a whole new approach to analysing the data. At this stage it became increasingly apparent that often when dealing with qualitative data, there is no yes/no answer to such questions. However, gradually through a process of iteratively alternating between analysis and writing, themes emerged from the data which served to illustrate the questions at hand.

4.11 Summary

At the end of the qualitative phase of the research, the research aims had been met. A sampling framework had been developed which met the requirements of the research aims and operationalised the key concepts in a manner suitable for qualitative research. Interview schedules had been developed which assisted in answering the research questions, reflecting the findings of the literature review and the preceding statistical analysis. The target sample had been attained within the strictures imposed by the availability of suitable respondents. Suitable venues had been located, and good relationships established with the relevant gatekeepers. Respondents who met the target demographic criteria had been recruited, and the choice of methodologies had proved suitable. The interviews had been conducted, generating much in the way of useful data, partially as a result of the good rapport established with the respondents. Mastering the CAQDAS package Nvivo had facilitated analysis of the interview data, and the analysis had generated new insights into the issues at hand.

The process of recruiting and interviewing the respondents had raised a number of new questions, including that of how people self-define as ICT non/users. The findings of this analysis are recounted in the following chapters.

Chapter 5 Barrier and Incentives to ICT use: ICT users

5.1 Introduction

In this chapter, the question of what barriers and incentives to ICT use exist for socially excluded people is addressed through analysis of the data generated by the interviews with ICT users. Since this section of the sample is comprised of ICT users, there is a greater focus on the nature of the incentives to use. Broader, meta-level questions relating to the manner in which people self-define as ICT users or non-users and the relationship between digital and social exclusion are addressed in Chapter 7. The data are presented thematically, with the analysis arranged around the following themes: initial and current incentives for ICT use; factors which may have acted as barriers to initial use; factors which may continue to act as barriers to greater or particular uses of ICT, and a discussion of reasons for non-use of ICT in particular situations. Prior to exploring these themes, some general characteristics of the ICT user sample, including the prevalence of home access, are briefly considered.

5.1 a) General characteristics of the group

Of the total sample of 29, 17 respondents responded 'yes' to the filtering question 'Do you use computers?' and were thus included in the sub-sample of ICT users. The diversity of individuals' circumstances is such that the data generated by qualitative research often defy the imposition of neat categories or generalisations. In this case, the respondents tended to have very variable situations and routes into ICT use, such that discerning patterns or themes in the data was a complex process. It was notable that many of the respondents were highly competent ICT users, and in some cases had been very early adopters. Only one member of the sample did not know how to use the Internet. It was also striking that the vast majority were highly positive about their experience of ICT, with only two exceptions.

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Name	Gender	Age	Skill level
Annette	F	32	high
Aileen	F	35	high
Carly	F	19	high
Hal	M	33	high
Janie	F	35	high
Tim	M	38	high
Brian	M	28	moderate
Cam	M	33	moderate
John	M	33	moderate
Janette	F	23	moderate
Jean	F	32	moderate
Lanie	F	25	moderate
Lisa	F	34	moderate
Lorna	F	23	moderate
Sam	M	26	moderate
Cassandra	F	27	low
Peter	M	29	low

Table 5.1: ICT users: demographic characteristics and ICT skills

As table 5.1 above shows, in general the respondents were quite skilled. Respondents were defined as highly skilled if they used ICT for a broad range of functions such as email, instant messaging, word processing, spreadsheet packages, digital photography, website design and surfing the Internet. Where their usage was limited to only 2 or 3 of these, such as email and more limited Internet use, they were defined as moderately skilled. In the cases which were defined as having low skills, only one or 2 functions were used in quite a limited way – for instance, word-processing or using the Job Centre website - and the respondents did not know how to use email or any other ICT functions. On this basis, 9 respondents could be described as moderately skilled and a further 6 as highly skilled. The sample was slightly dominated by women, with 10 females and 7 males interviewed. Surprisingly perhaps, it was also dominated by older people – 9 respondents were 30 or over and 5 were aged between 25 and 29,

whilst only 3 were under 25. The relationship between such factors and ICT use in the sample is discussed further in Chapter 7.

5.2 ICT access in the sample

5.2 a) Home access to ICT

The prevalence of home access among the sample was somewhat surprising in light of the respondents' economic circumstances – as table 5.2 below shows, 8 of the 17 ICT users had home Internet access and a further 3 had a PC but no Internet access. Further to this, 2 users who had only a home PC, and 4 users who had no home facilities, had 'social' access to the Internet, that is a member of their social network whose computer they were free to use. Only 2 users lacked any form of home or social access. In other words, 15 of the sample of 17 ICT users had relatively unrestricted access to PCs and the Internet either in their own home or in that of a friend or relative. 2 respondents who had only a PC at home planned to get Internet access, as did 3 of those who had no home facilities. These respondents had definite, short-term plans. The remainder expressed a desire to get home Internet access at some point in the future. For some of these, cost was seen as a barrier to home access.

Name	Home Net	Home PC	Social Net	Education	PIAP	Net café	total	Home plans
Tim		yes	yes	yes	yes		4	
Cam			yes	yes		yes	3	yes
Janie	yes		yes		yes		3	-
Aileen	yes			yes			2	-
Brian	yes			yes	yes		2	-
Cassandra	yes				yes		2	-
Carly			yes		yes		2	-
Hal		yes	yes				2	yes
John		yes		yes			2	yes
Jean			yes		yes		2	
Lanie				yes	yes		2	
Lisa	yes				yes		2	-
Peter			yes		yes		2	yes
Sam				yes	yes		2	yes
Annette	yes						1	-
Janette	yes						1	-
Lorna	yes						1	-
total	8	3	7	7	10	1	/	5

Table 5.2: Location of ICT use in the sample (n=17)

Given the difficult economic circumstances of the sample members, one might expect that home access to the Internet would be relatively unusual. Thus it was surprising to find that home access was in fact relatively common in the sample. It was also noteworthy that even where an individual did not have access in their own home, they were quite frequently able to access ICT in the home of a friend or relative. This accords with the findings of Selwyn's (2003b) study of usage of public access sites which strongly suggested that people were much more likely to use ICT in their own home or that of a friend or relative than to visit such sites. It would also appear to run counter to the commonly held assumption that cost and lack of access to ICT are among the greatest barriers to use for economically excluded people (Scottish

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Executive 2001, UK online 2002). These issues are discussed in greater detail in section 5.8 below.

5.2 b) Place of access

As table 5.2 above shows, the respondents used ICT at a wide range of venues, including in their own home or that of a friend or relative, in colleges, community centres, libraries and Internet cafés. Some users had initially started using in the workplace or at school, but no respondents currently used ICT at either of these venues since all had left school and were currently out of work. Many had initially started using ICT in more than one venue, and many now used in more than one venue – in one case 4 separate venues for ICT use were mentioned. It is interesting that quite a number of people with home access continued nonetheless to use ICT in other venues – in fact only 3 of those with home access used ICT exclusively at home. It is also noteworthy that none of the users started using in an Internet café, learning centre, or library, suggesting that people may only make the step of using such venues after they have gained some skills/confidence with ICT. This would appear to support Selwyn's contention that people with some previous experience of ICT were more likely to access it through PIAPs than those with little or no experience (2003b). Since PIAPs are generally aimed at engaging those who have not previously used ICT (Scottish Executive 2001), this potentially has implications for digital inclusion policy, which are discussed further in section 5.8. Even after they had some experience of ICT, most respondents were more likely to access it in either their own home or that of a friend or relative than to utilise PIAPs such as learning centres or libraries. This is in line with the findings of the *Digital Glasgow* report (Scottish Enterprise 2002), which indicated that less than 10% of Glasgow's population then accessed the Internet through PIAPs.

5.3 Initial Use

Selwyn (2004) has suggested that people may have 'careers' of technology use, moving in and out of using different forms of technology in response to changing life

circumstances and needs. This would appear to be supported by the findings of the data analysis. The trajectory of each individual's ICT using 'career' was exceedingly complex – many started to use in more than one context, in some cases because it was required of them, and in some cases through personal motivation. 'Personal' use, defined here as use which the individual undertakes of his or her own volition in pursuit of self-defined aims, as opposed to use which is required of the individual in an employment or educational setting, is clearly of greater interest in the context of this research. However, the transition from required to personal use was not always easy to pinpoint, and for many people there were periods in their lives when they had moved from use to non-use and back again as required. A number of people had used it in a labour market or educational context some time ago, ceased use when it was no longer required, and recommenced use for personal purposes at a later date. Thus, it was often difficult to say with certainty at what point a person should be defined as an 'ICT user'.

Closer scrutiny of one individual's history of ICT use serves to illustrate this complexity; (Annette) was 32, a single parent of two young children, and was in receipt of Incapacity benefit. She had completed an SVQ12 in Computing shortly after leaving school, and then used ICT intermittently in various clerical jobs including the civil service and the health service. Although she described her usage in the labour market as 'basic', she had purchased an IBM some 13 years previously, which she had used for word processing and also taught herself to programme. There then followed a long gap in her personal use of ICT, which ended thus:

> [I have been] using them on a regular basis for about three years . . . In the Health board, it was really, likes of playing about with the internet and what have you and my pal got a computer and I set it up for her and I just basically started mucking about and finding things. (Annette)

Following this she used her friend's PC regularly before obtaining her own 9 months prior to the interview. So over a number of years, Annette had used ICT briefly within

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[12] Scottish Vocational Qualification – offered in Scottish F.E. colleges

education, sporadically in the labour market, started and stopped using it at quite an advanced level for personal purposes many years ago, and more recently begun to use it personally again. At the time of the interview, she was a fairly advanced and confident user, listing digital photography, music downloading, and instant messaging among her uses of ICT. Annette's case is a good example of the complex and often shifting pattern of ICT use exhibited by many respondents. This pattern of intermittent, sporadic use in multiple contexts at different times was found in many of the ICT users.

Of the sample of 17 users, over half had initially used ICT in a situation in which they were required to do so. Of these, some commenced use in a labour market setting, a few in an educational setting, and one in the centre at which he was a voluntary worker. The remainder of the sample had actively sought access to ICT: some had chosen to start an ICT course; a few had started to use at a local community centre; one had started to use his father's computer; one had been referred to a course which included ICT but said he had wanted to start using in any case, and one had simultaneously bought her own PC and started a course. Clearly at some point, those whose initial use was required of them had made a transition from required to personal use. Unfortunately, no question in the interview schedule was specifically designed to explore this transition, so it is more difficult to be clear about precisely what the initial incentive for personal use was for some of these individuals. However, in a number of these cases the interview included some discussion of the respondent's decision to recommence ICT use subsequent to a period of non-use. All respondents were asked what they liked about using ICT, and from the responses to this question, it is possible to gain a clear picture of the incentives for continued ICT use. Incentives for ICT use, both initial and current, are explored in sections 5.4 and 5.5 below.

5.4 Initial incentives

The issue of how benefits of, and incentives to, ICT use for excluded people are presented in the relevant literature is discussed at length in Chapters 1 and 2. However

it is useful here to review some of the main points in order to contextualise the following discussion. The word 'benefits' in this context can be seen to denote the advantages policy-makers believe excluded people would derive from ICT use, whilst 'incentives' can be seen to denote the advantages from the user's perspective. It should be noted that although much digital inclusion policy literature includes lists of the assumed benefits of, and incentives to, ICT use for excluded people, Foley *et al's* review of such literature concluded that there was little systematic evidence to substantiate such assumptions (Foley *et al* 2002). Underlying these putative incentives is the supposition that all excluded people can and would benefit from using ICT (Selwyn 2003c). Uses which are thought likely to be particularly attractive to excluded people include job searching, acquisition of ICT skills, general education and accessing public services (Foley *et al* 2002).

There is relatively little evidence on the incentives to ICT use from the perspective of excluded people. Reviewing the relevant literature showed that, for some groups, labour market advantage, the encouragement of other users in one's social network and the desire to help children with their education acted as incentives to ICT use (Stanley 2003). Merkell's (2003) research on female low-income ICT users suggested that incentives were highly individuated and patterned by each woman's unique circumstances. Foley *et al* (2003) found that email, information about jobs and health, and personally relevant information were the most popular uses of the Internet among a sample of excluded Londoners. The US HomeNetToo project found that personally relevant information, saving on the cost of phone calls, helping with children's' education, a sense that the Internet represented the 'future', and a feeling of escape or connection to a wider world were the most well-liked aspects of the Internet among low-income families provided with free home access.

As far as possible, this section details the respondents' reasons for beginning to use ICT for personal purposes, as defined in section 5.3. A surprisingly wide variety of reasons for initial uptake of ICT was cited, in response to the question 'What first attracted you to using ICT?' Few respondents referred to only one incentive, with most emphasising different factors at different times in the interview or in response to

different questions. Some of the incentives cited accorded with those suggested in the digital inclusion policy literature, but a much wider range of reasons for ICT uptake was cited and many of these were more concerned with purely personal aims than might have been expected. Continuing incentives for ICT use are explored in section 5.5. Table 5.3 at the end of section 5.5 provides both a summary and comparison of factors cited as initial and continuing incentives. Those features of ICT considered in the policy literature to offer the greatest benefits, and likely to act as the strongest incentives, to excluded people are considered first.

5.4 a) Labour market uses

Although quite a number of respondents spontaneously mentioned the labour market advantages of ICT skills in response to a question about the usefulness of ICT skills, very few cited labour market advantage or work-related uses of ICT as an initial incentive for use. Where they did, gaining ICT skills was not seen as a providing a straightforward transition to work in a job which involved such skills. Rather, one respondent started using ICT in order to help her husband with his business. Another had started an ICT course (despite her dislike of ICT) because she hoped to run her own business in the future:

> I don't particularly like computers. I know that's the way things are going but I did do a basic thing at [local FE college] ... It was because, even back then, I had this idea of having my own business. (Jean)

One man had begun to use ICT in the centre at which he was a voluntary worker, primarily to assist with this voluntary work through record-keeping, publishing a newsletter and suchlike. Only one respondent cited actually seeking work as his initial incentive for commencing ICT use:

> it was actually my father had said to me about, eh, like S1 Jobs. Instead of me going out ... likesy going to the Job Centre every day. (Peter)

This is somewhat surprising given the labour market situations of the sample members, and the frequency with which such activities are cited as benefits/incentives of ICT use likely to be of particular appeal to excluded people in the policy literature. However, it should be noted that the 15 of the 17 ICT users in the sample were not in fact actively seeking work, for a broad range of reasons which were discussed further in Chapter 4. Since the relevance of ICT skills to those looking for work was not one of the principal areas of interest in this study, issues around it were not pursued in depth. In order to investigate such issues, a purposive sample of people actively seeking work would be required.

5.4 b) Educational uses

Slightly more people cited using ICT in education as an incentive for commencing use. For a few, acquiring ICT skills was the explicit aim of returning to education, as with this respondent who saw acquiring ICT skills as essential in helping her to overcome earlier educational underachievement:

> Because I wanted to, em, have an education because I left school and I never really had any qualifications or anything … so I thought if I came in and started doing this [ICT course] that I'd get somewhere. So I have really because I've got a few qualifications out it. I'm hoping to start a course. (Lanie)

In other cases, learning to use ICT was seen as helpful in pursuing other courses, but was not in itself the primary aim, as with this man who elected to do an ECDL course:

> when I left work, I was thinking about what could I do? I need to do something. What? I like Health & Safety so I thought I'll go for a Health & Safety course and what I did notice is that computing was in it and I was like that … well, I know how to do certain things but I don't know how to do it all. (Tim)

For some, attending such courses appeared to be part of a long-term strategy aimed at improving labour market prospects, but for others self-development, or simply

occupying him or herself during an enforced spell of unemployment, seemed to be the primary purpose.

5.4 c) 'Missing out'

Several respondents cited a general fear of 'missing out' or being 'left behind' in the 'computer age' as a major incentive for using ICT. In most cases, this was stimulated by the prevalence of use in the respondent's social network:

> My brother's 12 years younger than me and he's doing a Masters in Computing at the moment so I became very aware of the fact that I had missed the computer age. (Lisa)

> I was aware of that, yeah. I knew a lot of other people doing it and I was ... I felt I was getting left behind. (Cam)

and in others by the ubiquity of references to the Internet in other media output:

> Em ... well, I felt as though I was missing out an awful lot on things and it would be really annoying, em ... there would be a good programme on and they would ... oh and if you want to know more, log on to ... and I'm like ... I haven't got a computer, so how can I log on? (Aileen)

Although respondents would be unlikely to describe it in these terms, it seems that commencing ICT use in these cases was in part stimulated by a fear of being 'digitally excluded'. Interestingly, all of these respondents were in the upper age-range of the sample – aged 30 and above – and none of them had any prior experience of using ICT.

5.4 d) Social network

Either prevalence in the respondent's social network, or the encouragement of a member of their social network, was instrumental in a number of respondents' decision to use ICT. Often this tied in with the respondent's fear of being left behind, as in the quote from Cam above. In other cases a family member had encouraged the respondent to start using, or simply the ubiquity of ICT in the respondent's social network had stimulated his or her interest:

> Everybody's ... mostly a lot of people ... nine times out of ten, you walk into somebody's house and there's one sitting there. (Sam)

Again, this could suggest an awareness or fear of becoming digitally excluded on the part of the respondent.

5.4 e) Children

Helping children was a major incentive for ICT use for a few respondents. In one woman's case, her daughter's special needs rendered it particularly important that she have a PC and Internet access in the home:

> Well, my daughter started school and I wanted her to get used to a computer because her hands ... you know, she's going to have to ... the school's told me she's going to get a computer, em, so I wanted one in the house before she got her school computer to get her used to it. (Lorna)

And one man saw it as imperative that he was able to help his children keep up at school:

> I had to learn how to use a computer because the way I looked at it, I had to know because kids nowadays are even getting better and if you're ... you're sort of computer literate, what you know you can pass on to them. (Tim)

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This supports the supposition of digital inclusion practitioners regarding the role of children as an incentive to ICT use.

5.4 f) Information

The enhanced access to a wide range of information afforded by the Internet was instrumental in the decision of several respondents to use ICT:

> Because I could find information dead quick if I needed to find out about something, eh, and if I was interested in it I could just press a few buttons and that would be it. (Cam)

The type of information sought tended to be of specific relevance to the individual concerned.

5.4 g) 'Everything'

The wide range of activities available through the Internet was a motivating factor for several respondents:

> It's always something that I wanted to do, you know, surf the Net and that. It's one of the most amazing things that's actually been invented. (John)

> I mean, at the start and all, I kind of thought I wanted to do it because computers are everything now. Everything you do maybe you can do it on the computer. (Lanie)

Both of the above incentives for initial use suggest a developed awareness of the range of uses of ICT prior to commencing use on the part of the respondents in question.

5.4 h) 'Necessary evil'

Interestingly, two of the respondents were quite negative about ICT, seeming to view it as a necessary evil. One of these had personally chosen to start an ICT course to help with starting her own business, although she did not enjoy using computers:

> because I don't particularly like computers. I know that's the way things are going ... (Jean)

whilst the other had been required to use them in her last job, and though she continued to use the Internet for personal research and job searching, she maintained that libraries were better. This suggests that even where active antipathy to ICT exists, some individuals will choose to engage with computers because they recognise the utility of doing so.

In a number of cases it was not possible to be certain about what had motivated the respondent to make the transition from required to personal use. However, in these cases it seems likely that there was not necessarily a clear-cut transition, but rather a gradual process of habituation to their use, such that commencing personal use was not seen as remarkable, neither did it require making an active decision to do so.

5.5 Continuing incentives

There is evidence to suggest that some people start using the Internet and, after a period of time cease to do so, citing reasons such as loss of access, cost and loss of interest. It would seem that for such Net 'dropouts', who in US studies have tended to be younger, poorer and less educated (Katz, Rice & Aspenden 2001), there was insufficient incentive (or possibly actual disincentives) for continued ICT use. Thus it is useful to consider the issue of incentives for continuing as opposed to initial use of

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ICT, and in cases where ICT use has not ceased, to pose the question, 'What do these individuals continue to gain from using ICT?' There is however a conceptual overlap between 'incentives' and uses of ICT, in that while a person may describe 'maintaining contact with friends' as an incentive for using ICT, using email or messenger services also constitutes a use of ICT. It is important to maintain a distinction between these two concepts. Thus the fact that a respondent uses ICT for a particular purpose does not make that purpose by definition an 'incentive'.

Where the respondent explicitly mentioned a use or a feature of ICT use which they found particularly appealing or rewarding it was defined as a continuing incentive. This was gauged by responses to the question 'What do you like about using ICT?', which was designed to elicit motivations for ICT use within the respondents' own terms. If the respondent spontaneously volunteered a comment regarding the value of a specific aspect of ICT use during the interview, this was also included. As such, the following section does not constitute an exhaustive account of the uses to which the respondents put ICT. Rather, it attempts to explore those aspects of ICT, whether specific functions or general views, which appeared to motivate the respondents to continue using. It should be borne in mind, however, that there may well have been other factors acting as continuing incentives which did not emerge during the interviews. The incentives are presented in order of the most commonly cited.

5.5 a) Children

Although only a few respondents referred to either helping or keeping up with children as an incentive for initial use, virtually all of the eleven respondents who had children (both resident and non-resident parents) cited this as an important continuing incentive. Sometimes it was clear that this was a realisation which developed after the respondent had been using ICT for some time, as with this respondent who had originally started using the Internet for job searching:

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and then I started realising about my son as well for like the Cbeebies[13] for him
as well . . . The educational activities. (Peter)

In many cases helping children with education was also an incentive for getting, or
planning to get, home access. The views of one woman reflected those of the
majority:

for the kids as well, that's how I got one in the house. Because if the kids have
got a project or something for school its easy for them to look up what they need.
(Annette)

The only respondent who did not cite helping her child as an incentive to ICT use was
one of those who expressed a dislike for using computers. However, one of the few
occasions when she did choose to use computers was during visits to her sister's when
her son was 'having a shot' on the computer there.

It is clear that for many respondents, an awareness that non-use of ICT could
potentially cause their children future disadvantage acted as a powerful continuing
incentive to ICT use. This is again in accordance with the views of digital inclusion
practitioners on this topic.

5.5 b) Convenience/speed

For many respondents the convenience or speed of ICT was a continuing incentive for
use. Interestingly, this was cited by none of the respondents as an incentive for initial
use, suggesting low prior awareness of this advantage of using the Internet for finding
information or everyday chores. The comments below reflect those offered by most of
the respondents.

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[13] The BBC's Internet service for pre-school children.

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the convenience factor. I like the fact that everything you need is there. Yeah. And you don't have to spend hours and hours . . . and if it's downloadable, all the better rather than have to, em ... sort of stand in queues just to get a leaflet ... a 2 page leaflet, you can just download whatever you need' (Aileen)

I just like the quickness, the access of the wide range of stuff you can find out about and things like that, know what I mean. (Cam)

They are quick as well and there's a lot of information and it saves you spending time on books and that to find out and you can just go straight onto the computer. You can do your shopping and that, basically it's a quicker time of doing everything. (Carly)

Often it was simply the speed of finding information online which appealed to the respondents, but in some cases it was functions such as paying bills, job searching or word-processing that they found quicker or more convenient.

5.5 c) Information

Many more respondents proffered the availability of information as a continuing incentive for ICT use than had cited it as an initial incentive:

It's benefited me since I've been using computers because I've found out a lot of information about different things. Eh, probably get more in-depth about a few things I thought I knew about and just probably extra stuff there. (Cam)

Once I'm on it but it's hard to get me back off it because once you get onto that Internet, you can find anything on it. (Lanie)

In most cases the nature of the information sought was highly personalised – one respondent was interested in the Knights Templar, another found information about the FBI and CIA, and most respondents had some area of special interest to them which they pursued online. Access to information acted as a continuing incentive even for the respondents who expressed negative views about using ICT, one of whom conceded that she did enjoy finding information on the Internet, and the other that she found it useful for researching the historical novel on which she was working, despite being quite sceptical about the information she found thus.

5.5 d) Education

More respondents viewed using ICT as helpful to them educationally, either in pursuing a current course or for any course they might wish to do in the future:

> From the point of view if you're writing up something, if you can type, then it helps so I have to admit, I find the computer faster from the point of view of doing ... eh, doing work . . . it came into its own when I was doing the counselling course at college. (Lisa)

> I use it quite a lot. I wouldn't know how to get through my course if I didn't have it. (Tim)

Yet this respondent, who was highly skilled, did not feel that ICT skills would be useful in the labour market because he expected to return to a manual occupation when he had recuperated from the injury which then prevented him from working. It often seemed to be the case that having ICT skills, or pursuing courses of any nature was not explicitly seen in terms of labour market advantage. A few respondents, mostly single parents of young children, were pursuing ICT courses but viewed gaining these skills as a preliminary to undertaking more focussed courses (e.g. midwifery) at some point in the future, with the long-term aim of returning to the labour market in their chosen field, as this quote illustrates:

That's why I want to try and get as much qualifications before she goes to school so that I've got mixture of stuff ... Just a bit of everything so that if ... I'm going to wait until my wee girl goes to school and if I've got the computing and a part of everything then I can decide. If I've got qualifications then I can go on and do other courses once she goes to school. (Carly)

One respondent continued to build on her ICT skills, learning HTML and other advanced functions, purely because she enjoyed it, and did not appear to view these skills in terms of labour market advantage. Only for the respondent discussed in section 5.4 a) above was the acquisition of ICT skills explicitly directed towards employment. In most cases, learning ICT skills was an adjunct to pursuing studies in another unrelated area.

5.5 e) Labour market uses

Activities related to work or labour market advantage did not emerge as common incentives for people to continue using ICT. Only one respondent, having first encountered ICT as a component of the course to which he had been referred because his criminal record was an obstacle to gaining employment, now wished to study ICT further with a view to working in the field. One respondent found ICT useful for the quite senior voluntary work he did at a local community resource centre. This had also been his initial incentive for using ICT:

It helps me for my work that I do with the youth because it means then if I'm out working at night time, then I get back home, I can do reports on the computer and I do all my charts and things like that. (Hal)

Another respondent hoped that learning to use ICT would assist him in fulfilling his ambition to start a business:

It will, you know, for the future, you know, after the course and if I do get enough money and that to get my own garage and that running, it will benefit me, you know, so it will. (Sam)

Although a number of respondents mentioned that they had used ICT for writing CVs or looking for work, this did not appear to act as a major driver for most. Only a few respondents explicitly referred to job searching as an important reason to use ICT. One, for whom job searching was also the initial incentive, continued to use ICT primarily for this purpose, and felt that it was very much more convenient than travelling to the Job Centre regularly. Another, who was otherwise fairly negative about ICT, clearly also found it useful in this regard:

If you know what you're looking for, the Internet's very good. I think the best thing the Internet's for is when, having moved if you're looking for a job, it really is valuable. Sending CVs to agencies, communicating with agencies, it really is. (Janette)

As with initial incentives for ICT use, the infrequency with which this incentive for using ICT was mentioned is not in keeping with the putative benefits and/or incentives to ICT use for excluded people suggested in the literature. A number of respondents were aware that at some time they may find themselves in a labour market situation which required specific ICT skills, but were quite confident about their ability to acquire the requisite skills in situ. Some others, having worked in largely manual occupations, did not expect to work in situations which required ICT use. One highly skilled respondent, who had completed the ECDL, created his own webpage, could fix problems in his PC's operating system, used his PC for up to 8 hours per day when studying, and proudly displayed the flash disk he wore around his neck at all times, responded to a question on ICT skills in the labour market thus:

improve my chances? I don't know. I'm multi-talented. As I said, I left with a screwdriver and a hammer and I'm talented that way. (Tim)

5.5 f) Art projects

Making cards, posters and suchlike on the computer was clearly considered a valuable activity by a few respondents.

> You can make posters up and things like that and that's really cool. I love ... I like doing that. (Cassandra)

Again, this was not mentioned as an initial incentive by any respondents, suggesting that it was a function of which people were unaware in advance.

5.5 g) Social contact

Communicating with friends using packages such as MSN Messenger was a continuing incentive for ICT use for several respondents, all of whom had some factor (single parenthood, severe mobility restrictions) which arguably prevented them from socialising as freely as they might have liked:

> I find it amazing that you can sit and speak to someone, like in America, you know, if you get the wee mike, you can actually speak to each other and if you've got your broadband internet it's not costing you. It's costing you the payment a month but when you are on the phone it is costing you. (Janie)

It is notable that this was mentioned by none of the respondents as an initial incentive to ICT use, suggesting it may be a service of which people are not generally aware prior to becoming ICT users. It is also interesting that the quote above was not the only occasion on which the favourable cost comparison with fixed line telephones as an additional incentive for Internet use was referred to. Thus in this case, saving money acted as an incentive to ICT use, contrary to the normal perception of cost acting as a barrier to use. This issue is discussed further in section 5.8 below. Many respondents also used email, but this did not emerge as a major incentive for use.

5.5 h) Freedom

For two respondents, using the Internet seemed to be experienced as highly liberating:

> It takes you to a totally different place . . . It does. It takes you out your living room, you know, when you're sitting in the house . . . It's just so engrossing. When I'm down there on the Internet, it's just like ... there's nothing else about, just the screen. You're there, aye. Man, it's amazing. You can go anywhere, see anything. (John)

> The freedom's amazing. You can just go in and you can go anywhere you want and if you need to know something, it's there. You don't have to go and look somewhere else or go to the library and get it. It's there . . . I will find it and I love that freedom. That freedom of information. (Tim)

Clearly in these cases ICT use was experienced as extremely positive and empowering.

5.5 i) Summary

As table 5.3 below shows, there were noticeable differences in the factors cited as continuing rather than initial incentives to use. Some factors not cited as initial incentives were cited as continuing ones, and some factors which were cited as initial incentives were cited more frequently as continuing incentives. This would appear to suggest an increase in awareness of the range of ICT functions, and perhaps of confidence about exploring these, after a period of use.

Incentive	Initial	Continuing
Social network	5	0
Information	4	9
Education	4	7

Labour market	4	5
Missing out	4	0
'Everything'	4	0
None/not known	4	0
Children	3	10
'Necessary evil'	2	2
Convenience	0	9
Social uses	0	3
Art projects	0	3
Freedom	0	2

Table 5.3: No. of respondents citing each factor as initial and/or continuing incentive for ICT use (categories not mutually exclusive)

As the table shows, either encouragement from, or a fear of being left behind by, one's social network was one of the most commonly cited incentives for initial use, although 5 respondents out of 17 is not a large proportion of the sample. Personal development factors such as social uses, art projects and 'freedom' were not cited as an initial incentive by any of the respondents. Helping/keeping up with children, convenience and access to information stand out as the strongest continuing incentives, with the biggest changes relative to initial incentives.

5.6 Barriers

Although it is clear that those who are current ICT users have already overcome any barriers to use that may have existed previously, the issue of what barriers they may have faced prior to use, and how these were overcome, remains of interest. In addition, a number of factors also emerged during the interviews which, for some respondents, acted as constraints on greater or particular uses of ICT. The issue of initial barriers was not always discussed in detail, because the focus at the time was on the respondent's current use of ICT. However, such information as can be gleaned from the data or extrapolated from responses to other questions is discussed in this section.

The issue of barriers to ICT use for excluded people is discussed extensively in Chapters 1 and 2. Barriers to ICT use for excluded groups commonly suggested in the digital inclusion policy literature include: the prohibitive cost of equipment, lack of access, lack of skills, lack of interest and/or lack of awareness of the benefits of ICT use (PAT 15 2000, UK online 2002). In addition to these factors, Digital Scotland (Scottish Executive 2001) referred to 'cultural issues' such as paucity of users in one's social network, and 'personal factors' including lack of confidence, fear of technology, physical disability and lack of interest as possible barriers to use. Much survey evidence suggests that for many, lack of interest in the Internet is the primary reason for non-use of ICT, outweighing any physical barriers such as lack of access. For instance, repeated quarterly ONS surveys of reasons for non-use have found that lack of interest is the most common reason cited. In the July 2005 ONS data release on non-Internet using adults 49% cited 'Do not want/need to/or have an interest' when asked why they did not use the Internet, whilst only 10% cited cost as a barrier (although 37% also cited lacking an Internet connection and 39% cited lack of knowledge or confidence). As we have seen lack of interest is frequently equated to lack of awareness of the benefits both in digital inclusion policy literature and by some academic commentators (e.g. UK online 2002, Hacker & Mason 2003) although this is contested by others (Selwyn *et al* 2003). In the DfES Trends report (2002), where data on reasons for non-use broken down by age and social class were presented, 36% of the total sample said that they did not use the Internet and were not interested in doing so. However, among 16-34 year olds, this figure dropped to 18%, suggesting it is not such an important barrier for the age range represented in the current sample. Other potential barriers which emerged in the course of reviewing the literature included attitudes such as anxiety about computers, poor self-efficacy (Selwyn *et al* 2003), and having a self-concept which did not encompass 'computer user' (Stanley 2003). The possible role of these or any other factors as barriers to initial use was investigated during the interviews.

5.6 a) Anxiety

The issue of anxiety or 'technophobia' was also included in the interview schedules and investigated during the analysis. 'Technophobia' can be taken to include the overlapping issues of fear of breaking the computer, perception of difficulty, and lack of confidence in one's ability to use a computer. Although technophobia is dealt with in depth in the literature on human-computer interaction (see Bergin *et al*, in press, for an overview), the influence of social or economic factors on its prevalence tends not to be considered. Bozionelos (2004) found that socio-economic factors had a negative relationship with anxiety about computers, leading to lower levels of use. Stanley (2003) found that low-income ICT users retrospectively admitted to anxiety about ICT after they had commenced use, and concluded that it acted as a greater barrier to use than cost, access or skills. It is often referred to as a potential barrier to ICT use in the digital inclusion policy literature (e.g. Booz Allen & Hamilton 2001, Scottish Executive 2001). There is a possibility that for excluded people such as those included in the sample, technophobia may be linked to a more general lack of confidence engendered by their circumstances, and that it may therefore be more prevalent in such groups.

Of the barriers which were mentioned by ICT users, anxiety was by far the most common – the majority said it had been something of an issue for them, while just under half of the sample referred to it as a significant barrier. In most cases, this was no more than a mild feeling of apprehension prior to commencing use. Largely these respondents were pleasantly surprised to find it was much easier than they had expected, as illustrated by the following quote:

> A bit apprehensive at first but no, not once it was switched on and I found out how easy it was to actually … oh it can do this, great. Right, how do I do the next bit? (Lisa)

This slight anxiety clearly did not act as a real obstacle to commencing ICT for these individuals. However, for those who said it was a significant barrier, such technophobia was clearly harder to overcome. Some of the respondents for whom fear appeared to be a significant issue expressed a strong fear of breaking the machine:

Because I was really scared of the computer at first, you know, in case I was going to break it. (John)

In one case this was clearly linked to the cost of the equipment:

that was another thing I was always scared of, if something did go wrong, what would I do? Em, how would I handle it? How would I cope with it? ... I think that was the main fear ... oh my God, I get that, I break it, then I'm in trouble because I can't afford to buy a new one. (Aileen)

Both of these respondents were nonetheless highly motivated to use ICT, and quickly overcame their fear. In the latter case this involved saving a substantial amount of money to purchase a home PC, in spite of the obvious financial challenge this entailed.

Another respondent admitted that she had a long-standing fear of computers, which had prevented her from absorbing any ICT teaching at school, and had continued until recently:

Computers weren't really my thing at school. Kind of scared of them actually ... When I first started coming to the centre, ken I was like, oh computers. I've got a thing about them. I was kind of scared but now ... I told my tutor and he sat down and told me. (Lanie)

However, this respondent also had a history of educational under-attainment, and had become a single parent at a very young age. In this light, it seems possible that her fear of computers reflected a general lack of confidence in her own ability. Even when she started a course at a local community centre, it took her some time to pluck up the courage to become involved in the class. Nonetheless, her desire to gain qualifications, coupled with effective support from the tutor, clearly enabled her to surmount her fears.

For a further respondent, returning to ICT use after a long break since last using in the labour market, buying a home computer was somewhat daunting, but her fears were soon overcome:

> I decided I wanted one, bought it. I thought ... oh my God, I don't even know how to work it because it's ... obviously it's really modern compared to the ones I had at work and I've never had a computer before but ... I never forgot. (Lorna)

However, her determination that her daughter, who had special needs, should have the opportunity to use computers before she started school led her to make the decision to save up a substantial sum of money in order to purchase a home PC, in spite of the considerable financial commitment involved.

In all of the above cases, initial apprehension was quickly replaced by relief at finding ICT use much easier than expected:

> Yes. A lot easier [than I expected]. I was scared at first but once I got into it, I got there. (Lanie)

> I actually ... I actually thought it would have been a lot more complicated trying to get into the Internet and that but once it's there in front of you, it's easy enough to pick it up. (Peter)

However, in a few cases, technophobia appeared to be a continuing issue. One respondent, who had continued to use computers for word-processing and personal art projects since she learned at school, wished to use the Internet, but was prevented from doing so by her fear of technology:

> I don't go into the Internet because I don't know how to although it's all there in black and white, still I'm ... I'm unsure. It's like technology, I'm quite scared of it, I don't know why. (Cassandra)

Cassandra was also a recovering heroin addict and freely admitted that her confidence generally was very low; she herself acknowledged that when her confidence in other areas increased, she would find tackling the Internet easier.

Another respondent had been using ICT for a fairly wide range of purposes over a 10-year period, yet professed that she did not like computers. However, again it seemed that perhaps there was an underlying confidence issue at the heart of her antipathy to ICT.

> Well, I'm saying I don't like using them. Once I get to grips with it, I'm OK. But I've just not got a lot of patience for myself to learn things so it's maybe not so much computers.

In spite of this, she continued to use ICT fairly regularly, although she found gaining new skills quite challenging.

By contrast, several respondents do not seem to have experienced any fear of technology, as reflected in their confident approach to teaching themselves to use computers:

> If I sit in front of something, I'll work it out. I've got it the way I want it. I just go for it and that's it. (Annette)

There did not appear to be any link between age or prior experience and fear of ICT within the sample, although it is intriguing that while the sample was slightly skewed toward women, many more women than men admitted to quite strong fear, whilst the converse was true of mild apprehension. It is difficult to say of such a small sample that this is indicative of any gendered aspect to computer anxiety, although this has been suggested by some earlier research on the topic (Chua, Chen & Wong, 1999). Some survey evidence has indicated that women are less likely to use ICT than men, although there is much evidence to suggest that such gaps in usage are now closing (e.g. Oswald & Gardner 2001). However the analysis of the SHS, presented in Chapter 3, indicated that women in Scotland used ICT less than men. Other research

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on gendered attitudes to technology seems to suggest that during the initial stages of diffusion of ICT within a society, women are more likely than men to experience technophobia. However, this effect seems to diminish quite quickly as a result of exposure to ICT in the workplace or educational institution (Jennings & Onwuegbuzie 2001, Ono & Zavodny 2003). In relation to this sample however, the amount of previous exposure to ICT does not appear to have influenced the incidence of technophobia, as some of the respondents who exhibited it did have quite considerable prior ICT experience. This would appear to contradict such research findings.

5.6 b) Cost

As noted above, financial constraints are often considered to be one of the greatest barriers to ICT use for excluded people (PAT 15 2000, Scottish Executive 2001). However, the interview data did not appear to bear this out in the case of the ICT users sampled, either as a barrier to initial use or as a serious constraint on current use. As has been discussed, the majority of the sample had access either to the Internet or to a PC at home. Two of those with home PCs said that cost was a barrier to home Internet access, and several of those with no ICT equipment at home said they wanted to have home access but could not afford it. One respondent's equipment was so old that it malfunctioned frequently, but she could not afford to upgrade. However, all of these had access in some form, so that cost did not act as an insurmountable barrier to ICT access or use for anybody in the sample.

Those who did have home access were asked whether they found it difficult to manage the costs incurred for equipment or an Internet connection. Some felt Internet access was cost-effective as it saved money on the cost of phone calls, both to various service providers and to social contacts:

> It passes the time, especially when the kids are in bed asleep and then if my pal comes on we can have a chat on that and it saves the phone bill. (Annette)

A few had saved quite substantial sums in order to buy equipment, in spite of their difficult financial circumstances, but clearly felt home access was sufficiently important to warrant this course of action – in one case to assist with coursework:

> It was quite hard. It was £600, eh, 2 years ago but I couldn't have done my course without it. (Tim)

in another case to avoid the risk of breaking public access equipment, and in another because the respondent's special needs daughter needed to become familiar with computers before she started school. Two of the respondents had benefited from the local Housing Association's decision to distribute its old IT stock to local residents when it upgraded.

Some of the respondents did not see the fees for Internet access as expensive, making comments such as 'It's only £16 a month.' Others prioritised it for the sake of their children:

> Yeah, it's for the kids. My brother only stays round the corner but he works a lot, so it means if the kids want to email him because they can't get him on the phone or that they can. (Annette)

> I would prioritise it now, especially, I have to say, for the kids ... because if they don't have computer access in the house, I think that's a disadvantage now. (Lisa)

One clearly did not see the cost of the computer he was about to buy as prohibitive, saying that although it was £499 it had a wide range of features, including a DVD writer. Although he did not say so explicitly, one would presume that this too would be seen as saving (illegally) on the cost of new DVDs. He also felt he would be able to learn a great deal more with access in the home than in the relatively restricted college environment in which he had been using. One respondent also felt that printing digital photographs from a PC was far less costly than traditional means of developing prints.

So, for a surprisingly large proportion of the sample, cost does not appear to have acted as a barrier either to access in the first instance, or subsequently to home access. It would seem that despite living on very low incomes, many in the sample simply considered home access sufficiently important that they chose to prioritise the cost. In some cases they found ways to make it cost-effective by saving on the cost of phone calls or other goods and services. Cost is clearly a barrier to home access for some, but not to access per se. There remains an issue around quality of access; as Norris (2001) observes, unfettered 24/7 access in the home is entirely different from intermittent restricted access in a public access venue; therefore, simply having access does not necessarily equate to digital equality. Nonetheless, the ICT users who lacked home access generally appeared to be making effective use of ICT notwithstanding such constraints.

5.6 c) Access

Few of the ICT users appeared to have experienced any problems with accessing computers, either when they first began to use them or on an ongoing basis. Only one respondent said that he had found it hard to access ICT when he first began to use, and one somewhat technophobic respondent had waited until she had saved enough money to purchase a computer rather than going to a PIAP because her fear of breaking a public access PC was so strong:

> because at the time, em, I ... my thinking was ... well, if I've got my own computer ... if I break that, fine but if I go to a library or some other sort of public access place, and if I break it ... I'm like ... help? (Aileen)

One woman had not wanted to use the learning centre close to her house because the glass frontage allowed passers-by to see the centre users and this made her self-conscious:

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the windows were pure massive and it was only little blinds so you could see through so when people were walking past they could sort of see in. (Lanie)

However she soon found another centre close by which did not have this problem. Since many had begun to use within education or the workplace, and many now had either home or social access, it is perhaps not surprising that access was not a major issue.

Although lack of access does not seem to have been a barrier to initial use, as we have seen, for some respondents cost was a barrier to home access, either to hardware or to Internet access. Further, for some respondents not having home access was seen as a barrier to improving their skills. This highlights the inefficacy of dichotomous definitions of the digital divide, discussed in Chapter 2; simply having physical or 'formal' (Selwyn 2002b) access to ICT does not necessarily equate to 'digital inclusion', since disparities in quality of access can hinder individuals from making fully effective use of ICT. In this sample, this was reflected in the fact that almost all of the sample members believed that home access was preferable to public access and all of those who did not have home access planned to get it in the short or long term, depending on their financial circumstances. This runs contrary to the thrust of much digital inclusion policy, which is focussed on encouraging ICT uptake in PIAPs, in part because home access is not seen as a financially viable option for those on low incomes, and in part because PIAPs are seen to be more appropriate for deprived communities because they can help to develop a sense of 'community spirit' (PAT 15 2000). In fact, a number of the respondents expressed definitely negative views about PIAPs, citing issues such as time limits, noise distractions, lack of privacy and having to book a slot as downsides of public access sites. Notwithstanding such issues, in all cases access at some level was available to the ICT users, such that even lacking home access does not appear to have been a significant obstacle to use for most. Further, some respondents were quite positive about PIAPs and seemed quite content to use them:

You can go into the library and you can book to get on the computer and it's not as if they're always full because any time I've gone in, there's always been one that I can go on to. (Lanie)

5.6 d) Skills

The respondents tended to have acquired ICT skills from a variety of sources – sometimes they had elected to seek out a course, sometimes they were partially self-taught and partially helped by friends or family, and sometimes they had learned at school or in employment. The role of friends and family in passing on ICT skills was very important for many. In a number of cases, respondents recounted negative experiences of formal ICT training, such as one woman who found the European Computer Driving Licence Course so boring that she went from a frequent use to marginal use, and almost ceased entirely to use ICT. Often there was a combination of all of these with different skill sets being acquired in different contexts over an extended period. In most cases it seemed that if a respondent had a need or desire to use or learn to use ICT, they were very competent at attaining the necessary skills. In only a few cases did lack of skills seem to act as a barrier – one respondent who did not know how to use the Internet was evidently thus prevented from making full use of ICT. Another, whose professed dislike of computers seemed to mask a confidence issue, was loath to gain new skills, and an additional respondent who was fairly competent otherwise did not know how to use e-mail. Each of these respondents coped with their lack of skills by engaging in proxy use, whereby if they wanted to send an e-mail, look something up on the Internet, or download music, friends or family members performed these functions on their behalf. When asked about specific uses of ICT, such as shopping, digital photography or downloading music, many respondents replied to the effect that although they did not know how to do the activity in question yet, they intended to acquire the necessary skills, usually in the near future.

On the whole, it does not seem that lacking ICT skills prevented the respondents from starting to use ICT although in a few cases, lacking specific skills acted as a limitation

to using ICT for specific functions. Further, it was not the case that people gained one skill-set in one context and thus made the transition from 'unskilled' to 'skilled' smoothly and simply. Rather there was a gradual, discontinuous process which occurred over a long period of time, such that dichotomous models of ICT skills acquisition, wherein people are defined as either skilled or unskilled, do not reflect the manner in which skills are actually acquired.

5.6 e) Lack of interest/awareness

Although it may appear self-evident that lack of interest or awareness would not have acted as a barrier to initial use in a sample of respondents who had elected to use ICT, there was one respondent for whom it seems that had been an issue. Although this man was now a keen user of ICT, with plans to gain vocational qualifications and potentially develop a career in the field, he had started using as a result of being referred, on leaving prison, to a course aimed at long-term unemployed males. He maintained that prior to starting this course, using ICT was something in which he had had no interest and would not have considered doing of his own volition. It would seem that prior to being required to use ICT, this respondent was unaware of the potential benefits of ICT use. Having become aware of them, he was extremely enthusiastic about the advantages of using ICT. This suggests that in some cases lack of awareness does underlie lack of interest, and 'involuntary' exposure to ICT can be of benefit to the individual concerned. It is clear that the majority of the respondents were very aware of ways in which they might benefit from ICT use, even overcoming active antipathy to ICT in order to realise these benefits. However, it is possible that the difference between initial and continuing incentives is a result of awareness of the benefits of use accruing over a period of time.

In sum, none of the barriers to ICT use suggested in the digital divide literature seem to have prevented the ICT users in this sample from making use of ICT if they were sufficiently motivated to do so. Even where barriers existed, it seems that if the respondents had a pressing need or desire to use ICT for any purpose they were very capable of finding ways to overcome these barriers.

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5.7 Factors impacting on current use

During the interview, the respondents were asked which of a list of possible activities they used ICT for. In many cases they gave a simple yes/no answer to these questions, but in some cases they provided a fuller explanation of their reasons for not using ICT for a particular function. As discussed above, in some cases not having home access was seen as a barrier to greater ICT use, whilst in others lacking skills in a given area prevented the respondent from using ICT for particular purposes. Sometimes the respondent would have liked to use ICT for a particular purpose but was prevented from doing so by some factor outwith their control, such as not having a debit or credit card. However, in other cases the respondent actively chose not to use ICT for a specific purpose, because they found the traditional means preferable. In this section these factors are explored further.

5.7 a) External barriers

The most common barrier to a particular use of ICT was lacking, or having been refused, a credit or debit card. This clearly prevented the respondents in question from doing any kind of shopping over the Internet. However, only a very few of the respondents were in this position. A few respondents mentioned that they could not in any case afford products such as holidays, which clearly prevented them from realising this benefit of ICT. In one case, a respondent who did not have a credit card had nonetheless managed to book a holiday online using a friend's credit card.

Some respondents felt that they would be more likely to book tickets and suchlike online if they had home Internet access. One respondent felt unable to use the ICT facilities in her local PIAPs because no childcare was available there and it was not possible to bring pre-school children into the ICT area:

Childcare is the ... you know, like the Bytes, down at the library, here, Bytes at the Pollok Centre ... there's no crèche facilities at any of them. So as long as the boys are in nursery, then I can consider doing something. But other than that, I'd have to arrange to go at a time I get childcare. That's not always so easy to access. (Lisa)

Other factors, such as not knowing anyone else who used email, or finding that the location of the computer within the house made it difficult to use it freely, were mentioned very occasionally.

5.7 b) Situational relevance

In a number of cases, respondents found that they preferred using traditional methods for some of the functions or activities which can be conducted online. Surprisingly perhaps, grocery shopping in particular emerged as something which quite a number of people preferred to do themselves. In one case this was because current providers of Internet grocery shopping did not appeal to the respondent, but most respondents simply preferred to view the goods before purchasing them, or saw a trip to the shops as an enjoyable activity in itself. Given that the respondents were not in work, the need to save time was arguably not as great an incentive as it might be for some. Indeed, this was mentioned by one respondent as a reason for not doing grocery shopping online. Nonetheless, even in cases where the respondent had mobility issues or young children, grocery shopping in person was seen as preferable. However, a number of these same respondents shopped for other items, such as books or CDs, on the Internet. One respondent, who had shopped online in the past, had ceased to do so because of fears about credit card security. Another had bought clothing online in the past, but had found it unsatisfactory and had also since stopped. Since e-commerce is often seen to be one of the major potential incentives to Internet use by digital inclusion policy-makers (PAT 15 2000, Scottish Executive 2001), this lack of enthusiasm for online shopping may have implications for the manner in which ICT use is promoted.

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One respondent had ceased using email because she preferred communicating over the phone, presumably because she found it more immediate and intimate. A small number expressed a dislike of chat rooms, saying that they did not see the point of communicating with strangers. It was pointed out by one respondent that it was frequently more expensive to book tickets online because a booking fee was charged. For this reason, he preferred to buy tickets on arrival at the venue. This runs contrary to the assertions of many policy documents which suggest that online access to cheaper tickets for leisure activities would benefit excluded people (PAT 15 2000).

In these cases, the respondents did not lack the skills or the access required to perform such functions. Rather they actively chose not to use ICT in these ways because it did not suit them to do so, not withstanding the expectations of policy makers that such functions will be particularly attractive to excluded people. Again it seems that Selwyn *et al's* (2003) contention that 'situational relevance' patterns individuals' use of ICT may have some validity here.

5.8 Conclusions

Many members of this sample of socially excluded young Glaswegians were competent, frequent users, and used ICT for a wide range of activities. Indeed some were very highly skilled, and in some cases these individuals were self-taught, and had been using ICT for many years. In this sense they tended not to fit the 'traditional' (or policy-makers') image of 'excluded people' as poorly skilled and lacking in ability to avail themselves of ICT skills when they wished to do so. The members of this sample seemed quite able to discern the benefits of ICT use and to act on this awareness by finding ways to access and learn to use ICT. In all, the picture of the respondents which emerged was one of active agents responding dynamically to their circumstances. No difficulty was experienced in recruiting socially excluded ICT using respondents – indeed many more such respondents could have been interviewed had this been appropriate.

There was a wide range of incentives for using ICT among the sample, and in some cases these were not what might have been expected within the framework of digital inclusion policy discourse. In particular, labour market oriented uses did not appear to be as strong an incentive as one might have supposed, contrary to expectations that this would be a major driver for excluded people (Foley *et al* 2002). Neither did accessing public services appear to figure as a common use of ICT. A sense of being left behind, which could be likened to a fear of digital exclusion, figured as one of the strongest initial incentives, as did awareness of use among, or encouragement from, members of the respondents' social network. There were marked differences between factors cited as initial and continuing incentives, suggesting that awareness of the uses/benefits of ICT increases over time. This may point towards the necessity of highlighting such aspects of ICT use when promoting digital inclusion. In particular, helping children to keep up stood out as a very strong continuing driver of ICT use. Convenience and access to information were also major drivers. The respondents made use of ICT in ways that were highly individuated, appropriating the technology and integrating it into their lives in ways that fulfilled their specific needs, as in Merkell's (2003) study of low-income ICT users. These tended to centre around uses related to personal development rather than the functional uses anticipated in digital inclusion policy.

Many of the barriers to use suggested in digital inclusion literature do not appear to have acted as obstacles for the members of this sample. In particular it is surprising that the issues of cost and access, although at times presenting the users with challenges, do not seem to have significantly hindered them in using ICT. Lack of childcare in PIAPs emerged as a previously unanticipated obstacle for a group which such initiatives are particularly keen to target, that is single parents of young children. Fear of technology does appear to have been an issue for a number of respondents, but this does not seem to have actively prevented the majority from starting to use ICT. Even where the ICT users experienced barriers or constraints to use, if they were sufficiently strongly motivated they found ways of overcoming these. In some cases, respondents underwent significant financial hardship or overcame active antipathy to ICT, because they felt that the benefits of use or home access were sufficiently great.

Home access was surprisingly common, and there was a high degree of preference for it. For some respondents, not having home access was seen as a barrier to greater use or to extending their skills. This is in line with arguments regarding disparities in quality of access as a barrier to digital equality (Norris 2001). Nonetheless, those who lacked home access seemed to benefit from using ICT for a wide range of purposes. The respondents with home access had often developed strategies for making this cost effective, notably in relation to cheaper communication. This may suggest, as Selwyn has argued elsewhere (2003b), that the current focus on public access as the solution to digital exclusion needs to be rethought, and also that home Internet access is potentially more viable for those on low incomes than is generally supposed. Lacking home access may act as a barrier to full digital inclusion as it prevents the development of more advanced skills that can be gained through unfettered exploration of the medium. However, changes in both the market and in technology since this research was conducted may mean that home access is now more affordable, and potentially could help to realise greater cost-savings in relation to communication.

Even where respondents were competent and frequent users of ICT, they often chose not use it for a number of functions which are commonly assumed to be strong incentives particularly for excluded people. Indeed there were actual disincentives to use for some purposes. E-commerce and public services in particular stand out in this regard. This may suggest that ICT is not always the most appropriate solution to a given problem, or the most appropriate means of conducting everyday activities. In addition, some advantages of ICT use, such as cheaper flights, are not really relevant to those on very low incomes. Others, such as saving on the cost of phone calls, appear to be overlooked when promoting ICT use – perhaps because these are more dependent on home access, which as noted is considered not to be viable for those on low incomes.

The processes of acquiring ICT skills and becoming an 'ICT user' were complex, discontinuous and non-linear. The respondents appeared to have ICT using 'careers'

(Selwyn 2004), wherein they started and stopped using ICT in a number of contexts at different periods in their lives. Thus they acquired different skill sets in response to their needs at a given time, and added to these as and when they needed or wished to. Very few of the sample, being toward the upper end of the 18-35 age range, had acquired ICT skills at school.

The question of what this sample reveals about how digital and social exclusion are connected is complex. In terms of a demographic overlap between socially excluded people and ICT non-users, this clearly does not hold in relation to this sample. Evidently by definition, the sample members were socially excluded, some having dealt with radical forms of exclusion such as heroin addiction, prison sentences, growing up in care and very young single parenthood. Nonetheless, they used ICT, and were often highly enthusiastic about doing so. In terms of digital inclusion as a route to social inclusion, it is difficult to say with certainty using data of this nature what the relationship might be. These excluded young people were using ICT for many and varied purposes which were certainly of benefit to them, but whether this use was assisting them in overcoming exclusion is debatable. Data from this cross-sectional sample cannot tell us whether the respondents' ICT use is likely to assist them in overcoming exclusion, although in a number of cases use appeared to be one element of a strategy designed to improve the individual's circumstances in the long-term. However, there is a longitudinal element to the data in that a sense of the respondents' life histories was gained in the course of the interviews. At least 3 respondents were highly skilled very early adopters and remained excluded nonetheless. Of the remainder of the sample, the majority were moderately skilled medium to long-term users, and again remained excluded. The implications of findings are discussed in greater depth in Chapter 7.

The findings generated from this small sample of socially excluded ICT users point toward some possible implications for digital inclusion policy. Perhaps most importantly, it seems that the focus on public access as a solution to digital exclusion may be misdirected. Many respondents managed to get home access and the majority of the sample expressed a clear preference for it. Indeed lacking home access was

seen as one of the biggest barriers to attaining full competence. Further, by using the Internet at home for particular functions, a number of respondents in fact saved money. Similarly, the data suggests that assumptions regarding the most appropriate or attractive uses of ICT by excluded people should be exercised cautiously. Many of the anticipated incentives appeared to be unpopular, while the drivers for use tended to be very personal in nature. Features such as cheaper phone calls seem likely to appeal to those on low incomes, but are rarely promoted in a policy context which stresses public access.

Analysis of the intermediate and non-user data yielded further useful insights into the research questions. These form the subject matter of the proceeding chapter.

CHAPTER 6 When is an ICT user not an ICT user? Non and intermediate users

6.1 Introduction

In order to investigate the question of what barriers and incentives to ICT use exist for socially excluded people, it was necessary to interview ICT non-users. 12 respondents who defined themselves as such were successfully recruited. The aim in the original sampling frame had been to interview 16 non-users of ICT. However, in practice, it proved extremely difficult to find socially excluded young people who did not use ICT, even when they were sought amongst some of the most excluded groups in society, such as homeless young men. Further, as noted in Chapter 4, it became apparent during the interviews that a number of respondents who described themselves as non-ICT users in fact did use ICT to varying degrees. Indeed, it transpired that 9 of the 12 respondents who had self-defined negatively in fact used ICT. Due to their negative self-definition, these respondents were counted as non-users for the purposes of the sample target. However, for the purposes of the analysis, they were redefined as 'intermediate' users. Hence, ultimately there were 9 intermediate users and 3 actual non-users in the sample. This phenomenon raised the new and interesting issue of how it is that people arrive at a self-definition, of either ICT user or ICT non-user, which is discussed in some depth in Chapter 7.

Respondents' self-definitions were elicited at the filtering stage of the process, prior to the interview proper commencing, in response to the question 'Do you use computers?'. This was asked on some occasions by the interviewer but more frequently by the gatekeeper. At the time this was not invested with any particular significance, therefore no records were made of the respondent's precise answer, and no attempt was made to probe beyond a yes/no response at the filtering stage. Thus it was only during the interviews that the extent to which many self-defined non-users in fact used ICT emerged. The variation in levels of use among the sample also cast doubt on the validity of such binary definitions of ICT user and non-user; as the

proceeding analysis shows, it was often extremely difficult to define respondents, even when more nuanced, multi-layered categories were developed.

This chapter addresses the question of barriers and incentives to ICT use experienced by both intermediate and non-ICT users. Since the phenomenon of intermediate use illuminates both the complexity of individuals' relationships with ICT and the issue of self-definition, it is worth considering the particularities of each intermediate user in some depth. For this reason, the interview data generated on the intermediate group are presented as a series of fairly detailed case studies of each respondent. This strategy has also been employed with the non-user group, in order to elucidate as fully as possible the phenomenon of non-use. The interviews covered many topics, not all of which it is possible to present here. Thus each case history includes brief biographical details, an indication of the respondent's level of social exclusion, their history of ICT use and their current ICT using 'status'. In addition, the intermediate case histories investigate the respondent's primary incentive for commencing use; any current or previous barriers to use; their range of uses and skill level; and some exploration of what leads the respondent to self-define as they do. The role of social exclusion in self-definition, and the links between social exclusion and ICT use in the sample, are explored in greater depth in Chapter 7. The non-user case histories consider what experience of ICT the respondent has, whether they wish to use ICT, and what factors may militate against their using ICT in the future. The interviews varied widely in length and in the quantity of background information the respondents volunteered, and this is reflected in the case histories.

6.1 a) General characteristics of the group

Respondent	Age	Gender	User status	Skills level	Social exclusion
Ted	35	M	current	competent	low
Ewan	31	M	erstwhile	competent	low
Jennifer	23	F	erstwhile	competent	moderate
Geraldine	22	F	current	low	low
Lindsay	28	F	current	low	moderate
Nadine	26	F	current	low	severe
Wilma	21	F	current	low	moderate
Fred	24	M	current	low	severe
Sean	23	M	current	low	severe
Annie	31	F	non	n/a	moderate
Sarah	26	F	non	n/a	severe
Terence	21	M	non	n/a	severe

Table 6.1: Intermediate and non-users; demographic characteristics and ICT use

As the above table shows, there was a good spread of both age and gender among the intermediate and non-user group taken as a whole. A surprising proportion of the group was relatively young - aged 25 and under - while the spread of men and women was more or less even. The possible role of these and other demographic factors in shaping experience of ICT is discussed in more detail in the following chapter. The ICT use categories are explained fully below.

6.2 Intermediate users

There were wide variations in level of use and skills among the intermediate group, ranging from those who had occasionally used the Internet in the past, or currently used computers for only one limited function such as playing games, to those who used or had used ICT frequently for a broad range of purposes. This variation was so

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marked that in some cases classification proved very difficult. Thus the categories used here function as heuristic devices rather than absolute or fixed definitions of ICT using status. Within the intermediate group, it is possible to assign individuals to sub categories of use as follows: erstwhile competent (2), current competent (1), current low level (6). In some cases it was not difficult to see why individuals had defined themselves as a non-user, because their use was so limited or infrequent. However, as we shall see, in some cases it was much more difficult to fathom – some individuals were or had been quite frequent and competent ICT users, yet they still did not define themselves as such. The reasons why this may have been the case are explored in greater depth in the conclusions below. The case histories are ordered in terms of level of use, from highest to lowest. This provides the reader with a sense of the ambiguities and complexities inherent in the manner in which people interact with ICT.

6.2 a) Ted – current competent user

Ted was 35 and had one school-age daughter who lived with her mother. He had done a variety of semi-skilled jobs, including catering and labouring, before becoming excluded from the labour market by disability. He left school at 13 with no qualifications, but had gained a number of vocational qualifications since leaving school. He also intended to undertake a number of other courses in the near future. At the time of the interview he was working voluntarily as a chef in the local community centre at which the interview was conducted. He did not have immediate plans to return to the labour market, and was excluded in this sense, but otherwise he appeared to be less excluded than many of the respondents.

In terms of self-definition, Ted was one of the more puzzling intermediate users. Although he had attended two ICT courses, used ICT in his local library, and had taught his daughter to use her home computer, he self-defined as a non-user. The courses he attended had covered Word, Excel and using both the Internet and email, but he felt that because he did not have a home computer he was unable to consolidate what he learned, and consequently lacked confidence in his ability. When the course

tutor suggested he progress to the ECDL, he declined because he felt it 'looked awful hard.' His primary reason for starting to use computers was his desire to help his daughter:

> What made me? I done it for my daughter's sake because she wasn't at school or anything, she was only a tiny tot but I wanted to get a computer because she would learn at school. So I wanted to be able to try and show her the basics.

However, he also enjoyed using the Internet for his own purposes:

> It's the Internet bit, that's what I was really interested in. To log on, you know. Yeah, I love star maps and stars, anything to do with space at all.

Ted had had some difficulty with using the Internet at the library as he did not know how to log onto the system and sometimes there were no staff available to show him. He was very keen to get his own computer, yet he mentioned several times that computers were not for him because they were 'for a younger generation'. Although he said email was not useful to him because he didn't know anybody else who used it, he seemed to have a number of friends who had computers in the house. Through one of these he engaged in proxy use, having music downloaded on his behalf. He had enjoyed the ICT courses he did, but found learning to use spreadsheets very difficult. Since he had no immediate need to use these, and presumably could not see any application for them in his own life, it is possible that the course he attended was not really appropriate to his needs. This illustrates how formal ICT education can at times hamper use, particularly where it is geared towards applications of limited relevance outwith the labour market. It also appears in this case to have hindered the formation of an 'ICT user' self-concept. However, as Ted observed, quite seriously:

> I was going for the European Driving Licence because apparently that's what you need nowadays to get a job. If you want a labouring job you need to know computing skills.

He also mentioned that he would never use a computer for banking or paying bills, as he was too concerned about security. Overall, he seemed to be rather wary of ICT, and somewhat lacking in confidence about using it, despite the courses he had attended. It seems that his negative self-definition inhered in his lack of confidence, general fear about computers, and perception that he was too old for computers. This presented an obstacle to furthering his use of ICT, but not to use in the first instance. Lacking home access was also a barrier to extending his skills. Thus for Ted, self-efficacy and self-concept were barriers to defining himself as an ICT user, but not it seems to actually using ICT. Nonetheless, he planned to continue using ICT and to get home access as soon as possible.

6.2 b) Ewan – erstwhile competent user

Ewan was 31, and lived with his partner, their three young children, and his partner's teenage son. He had previously trained and worked as a chef before giving up work to help look after the children. He left school at 16 with a number of Standard Grades, and had acquired a number of catering qualifications and a History NVQ since then. At the time of the interview, he was a voluntary chef in the café of a community centre in the West End of the city, where he worked for quite a number of hours every week. The interview was conducted at this centre. Although he was in receipt of benefit and resident in a SIP area, Ewan planned to return to the labour market when the children were slightly older, and given the skills he possessed, it seemed unlikely that this would be problematic for him. Thus, Ewan did not appear to be as severely excluded as many of the other sample members.

Although he self-defined as a non-ICT user, Ewan's experience of ICT was quite extensive. He had initially begun to use it at a city centre Internet café as an alternative to going to the pub after work. As he put it;

> I just wanted a change and because an Internet café opened up beside my work I thought, I'll go in there and give it a bash. The guy sat me down and showed me how to do it, know what I mean.

He had also used the Internet in the past when studying History at college. Although he had a home PC, and until recently also home Internet access, he did not use either of these, and said he had not used ICT for some time. The decision to end their Internet access subscription appeared to have been based upon a somewhat complex mixture of considerations – initially, Ewan said it was due to the expense, and it appeared that given the choice between Internet access and cable TV, Ewan and his partner had chosen TV. However, Ewan went on to elaborate on the reasons for ending the subscription thus:

> You know what kids are like, know what I mean, because he [Ewan's partner's son] turned sixteen, so I thought to myself, 'well you're sixteen now, so if you want to have the Internet and all that you will need to start providing towards the housekeeping' and all that. But he never bothered so it was more of a punishment that I stopped it because I didn't see him doing anything with his life, so I thought, 'well if you can't sit and watch all the sky on the telly and you can't sit and play on the Internet' maybe it would encourage him to get a job, but it didn't.

So it seems that a combination of financial considerations and complex family dynamics, possibly relating to tension in the relationship between Ewan and his partner's son, contributed to the decision to end the household's Internet subscription. This case illustrates very clearly the complex and socially rooted nature of decisions around use of, and access to, ICT.

Use at the Internet café had ceased after the birth of his children because the Internet café was not convenient and he no longer had time to use it. He said he did not use ICT at the time of the interview because he had no need to use it. However, possibly because he planned to return to the labour market, he intended to do an ICT course in the future, and was well aware of available courses. Yet, beyond shopping and games, there seemed to be little about the Internet that he saw as relevant to him:

> I know the internet is a great world of information but there is not really anything that I'm too worried about with that … There is nothing at this particular time.

However, he then went on to say that his last use of the internet had been to research the MMR vaccination, and that he now wished to research the new MM5 vaccination online before allowing his youngest child to have it.

Ewan's self-definition as a non-user seemed to rest in the fact that he did not currently use ICT. Yet, as we have seen, he had wide-ranging and fairly long term ICT experience, was at least moderately skilled, and had every intention of using ICT in the future. Thus his self-definition appears to have had a temporal basis. As far as barriers to initial use were concerned, Ewan appears to have experienced none. When he wished to commence use, he simply went to an Internet café; if he wished to use it for a specific purpose, such as medical research, he had ready access in his own home. When the interview was conducted, he did not use ICT because he lacked time and did not feel any need to use it, but he saw no barriers to future use or extending his skills as and when he so desired. He was well aware of the uses of the Internet and did not lack access or skills. Ewan's case illustrates that even where an individual has ICT skills and home access they may both choose not to use ICT at a particular time, and self-define negatively. It would seem that Selwyn's concept of 'situational relevance' has some bearing in Ewan's case.

6.2 c) Jennifer – erstwhile competent user

Aged 23 with one baby son, Jennifer was a user of an interior decoration project for women with mental health problems based in the Southside of the city. Despite the nature of the project, she responded in the negative when asked if she had any health problems. Quite possibly she did not wish to discuss such personal matters with someone unknown to her.[14] Jennifer lived with her partner and their young son. Having ceased attending school at 14, Jennifer had since attended several courses run

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[14] It was always made clear at the start of the interview that the respondent did not have to answer any questions about which they felt uncomfortable.

by the Benefits Agency. She had also started a computing course but left when she became pregnant. Her labour market experience involved a number of semi-skilled occupations. At the time of the interview she chose not to work because she wished to spend time with her son. Notwithstanding her possible mental health issues, Jennifer did not appear to be excluded in any other way.

Prior to her early departure from school, Jennifer had used ICT in the classroom, and had, as mentioned, started an ICT course relatively recently. There was Internet access in her home which was used by her partner for a wide variety of functions. After her son was born, Jennifer had also used it frequently, accessing information about parenting, joining several Internet groups for new mothers, and developing email based relationships with other club members. On another occasion when her mother developed lung cancer, she had used the Internet to access medical information. Although she had enjoyed joining the parenting groups, and found the Internet 'brilliant' during her mother's illness, she subsequently stopped using it because:

> I lost interest. Too much to do with my time than sit on a computer all night ...
> Sometimes I take an interest in it and then I fall away from it but I might go back
> to it again.

Jennifer had home Internet access, had used it quite heavily in the past, and her partner was a competent and frequent ICT user. If she needed to be shown how to do anything on the computer, Jennifer said her partner would be happy to oblige. Nonetheless, she chose not to use ICT. As she said, she did not at that time have any particular need to use ICT. At the same time, she expressed a desire to use computers in the future, specifically because she saw ICT skills as the thing that would be most helpful to her when she returned to the labour market. Indeed, she was planning to start another ICT course in the near future. However, she did say that she thought learning to use computers was difficult and that she was somewhat scared of making a serious mistake when using ICT. Nonetheless she maintained:

> if there was something that I was interested in, I would learn how to do it.

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and that she would use computers again in the future if she had a need to do so.

It seemed that there was very little which prevented Jennifer from using ICT. Access was not an issue, and nor were skills. There was perhaps a slight problem with confidence, but this did not appear to have prevented her from using computers in the past. It seems that Jennifer did not use ICT at the time of the interview simply because she had no need to. She was very well aware of the potential advantages of ICT use, and was well placed to realise these in the future.

It seems clear that despite her relatively extensive past ICT use, and intention to use again in the future, Jennifer's self-definition as a non-user had a temporal basis, resulting from the fairly lengthy interlude since she had last used ICT. Nonetheless, given the extent of her past use, it was somewhat surprising that Jennifer self-defined negatively. As with Ewan's case, Jennifer's experience demonstrates that even individuals with home access and quite substantial ICT skills and experience may choose not to use ICT if they feel it is not currently relevant to them, and may thus self-define as a non-user.

6.2 d) Lindsay – current low-level user

Lindsay was a 29 year old mother of two young children who lived with her partner. She attended a women's group which provided assistance with interior decoration and furnishing for women who had recently been re-housed. This particular group was primarily aimed at former heroin addicts. Lindsay was no longer a heroin user, but had been using prescription methadone for 9 years at the time of the interview. Both she and her husband had a variety of health problems associated with their former heroin use which, in combination with the effects of methadone, decreased the likelihood of their accessing employment. As a result, both were in receipt of sickness benefit. She did, however, hope to return to the labour market in the future. Her family background had been extremely chaotic, involving parental alcoholism, murder, bereavement and imprisonment. Nonetheless, her own family life was clearly

quite stable and she had overcome many of the issues associated with heroin addiction. In the sense that she clearly faced greater barriers to entering the labour market than many it could be said that she was one of the more excluded members of the sample. However, her stable family life provided a level of inclusion that some sample members lacked. The interview was conducted at a community centre in an area in the south of city known for its history of multiple deprivation.

Lindsay had started attending an ICT course at a local YMCA centre some months prior to the interview, but it had quickly been shelved due to insufficient attendance. However, she had started to learn Word and Excel at that time, and intended to do another short course not long after the interview. Going on to do a more advanced course was also something she was considering, but she feared that childcare would be an issue. She was clearly very keen to gain computer skills for a number of reasons, which she mentioned at different points in the interview:

> I mean, computing is today, isn't it, I mean that's what everybody uses now is computers. I mean, if my daughters are going to be growing up and using them and I've not got a clue, what hope have I got really, none! ... Keep up with my daughter, then also if I get a job or even voluntary work, you know. I'm going to know generally how to use a computer ... because, everybody's ... everybody's using them now. I mean, em and using them in just about every work, ... they're used everywhere now so if you were to go get a job, you know ken with the computers, it helps I would say as well, you know, and just for fun with your kids.

And later:

> Like go on the Internet and things like that, see if there was any cheaper holidays going, you know, things like that. The website, you know, things like that. I don't know the website, these kind of things ... but, em, aye, I would like to get to know ...Booking holidays and eh ... other things. I mean, maybe shopping...things for sale, you know, things like that. But just in general things as well, you know, not just for holidays, although that would be an advantage, you know, booking holidays, bargains, things like that.

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She stated several times during the interview that she was not using computers at the present time, despite in fact having a PC in her own home for her daughter's use. Then, in response to a direct question regarding her use of her daughter's PC, she made the statement:

> No, I don't. All I do is play solitaire on it all the time.

Her own father, who had home Internet access, had provided her daughter's PC. In addition to starting an ICT course in the near future, Lindsay planned to get Internet access when the family moved to their new accommodation. There were a number of local PIAPs of which she was aware, and said she would be happy to use. She was clearly aware that learning to use computers and the Internet would be of benefit to her and was acting on this feeling by seeking out courses and ensuring that her daughter was able to access ICT. At the time of the interview, her ICT use was clearly limited by her lack of skills, but access was not a barrier for her, and she was taking steps to redress the skills gap. Thus she did not appear to be experiencing any significant barriers to ICT use.

The difficulties of definitively categorising people in terms of a binary model of ICT user or non-user were particularly well illustrated by this case. Lindsay self-defined as a non-user; she had started learning basic skills in the recent past, and intended to continue learning in the near future. She had home ICT access, which she used herself for playing computer games, but she evidently did not believe that this constituted a legitimate 'use' of the computer. At the time of the interview, her use of computers only for games placed her at the lower limit of intermediate use. But her very recent past and future use placed her nearer to the higher threshold, verging indeed on full-blown 'user'. It would seem then that her self-definition was both temporal and functional.

6.2 e) Geraldine – current low-level user

Geraldine was a 22 year old voluntary childcare worker at a thriving community centre in the north of the city, where the interview was conducted. She lived with her mother and siblings, and had been unemployed for some time. However, she did not appear to be experiencing any other forms of exclusion. Although an undiagnosed learning difficulty and bullying marred her experience of school, she left at 16 with 7 Standard Grades. She had also acquired a number of certificates in Food Hygiene and First Aid which were useful in her capacity as a voluntary worker. Her primary work experience was in cleaning and personal care.

She had been using ICT for approximately a year, having started initially because a number of her friends were ICT users and she wished to participate in the same activities as them. Thus the majority of her tuition had been via her social network. There was a computer with Internet access in her home, which was primarily used by her younger stepbrother. She used ICT for playing games, job searching and looking at horoscopes. However, she was not very confident about using computers, and her skills were clearly quite limited – for instance she reported trying to use the Internet for job searches but found:

> with the jobs, I can't get that at all . . . it just doesn't work. There's always something missing or something I'm not typing in right and it doesn't come up with the match for the jobs I'm looking for.

It is notable in this case that the respondent located the fault with her own skills, possibly as a result of her lack of confidence in her ability. However, it is possible that the fault lay with the service rather than the user. Geraldine also engaged in occasional proxy use - if she needed to send an email, she asked a friend to do it for her. She described her principal reason for using computers as helping to pass the time, but also expressed an interest in taking some courses to further her skills, if she found that ICT was relevant to her work or education in the future. She also indicated that at such time as she became a householder, home access would be desirable. Although she did not appear to have faced any significant barriers when commencing use, it could be argued that her fairly limited skills represented a barrier to further use,

and thus to realising all the potential benefits of ICT. Nonetheless, she was amenable to the idea of extending her skills if this proved relevant in the future.

The manner in which she arrived at a self-definition of non-ICT user was the most striking and clearly elaborated of the entire intermediate group. Despite the fact that she used regularly and frequently for all of the functions described above, when asked if she used computers, she replied in the negative, stating:

> I wouldn't say I was a computer user. I don't use it for work or anything. I would say more just for fun.

Thus it seems that in Geraldine's case, her self-definition as a non-user rested in what she saw as the leisure-based nature of her usage; because she did not use it in a labour market context, she did not consider herself to be a 'real' computer user. Her negative self-definition would seem to be contextually derived, and also to some extent grounded in her lack of confidence. Thus it could be said to rest in both her level of self-efficacy and her self-concept. It should be noted that these were not barriers to actual use however; rather, they prevented her from self-defining as a user. Geraldine's case provides a good illustration of the manner in which context of use or lack of confidence may lead a person who uses ICT fairly frequently and for a variety of purposes to self-define as a non-user.

6.2 f) Sean – current low-level user

The homeless men's drop-in centre was also the venue for Sean's interview. He was 23, suffering from an unspecified health problem, and had recently been housed in the East End of the city. He had not enjoyed school, and left at 15 with no qualifications. Subsequently he completed a gardening course, but did not find this enjoyable either, and chose not to pursue it as a career. He had worked as a delivery driver and in a microchip factory, but was currently unable to work because of his health condition. His previous housing situation was not discussed during the interview, but his presence at the centre would lead one to surmise that he had until recently been

homeless. This, combined with his inability to work, made Sean one of the more excluded sample members.

Sean had used ICT for projects while at school, although he did not take it as a separate subject. While working as a delivery driver he had also used ICT for basic stocktaking functions. Although he had self-defined negatively when asked about ICT use by the gatekeeper, during the interview it transpired that he had once booked flights on the Internet in order to travel to Ireland for a new job. On this occasion he had used a private Internet café, simply entering from the street and working out how to use it by himself. He said he would like to use the Internet to pursue personal interests, but cited lacking a home computer and the cost of using private Internet cafés as barriers to use:

> Well the fact I've not got a computer and I've no got much money at the moment
> or I might go into the Internet café because sometimes I like looking up sites just
> for my own enjoyment. I would if I'd more money.

Sean already had some basic ICT skills and did not think of learning to use ICT as difficult. He was also keen to make more use of the Internet for shopping and booking flights. In fact at the time of the interview his support worker had suggested that Sean should use the Internet for grocery shopping, and Sean was actively pursuing this possibility.

Near the end of the interview, while discussing the use of other types of technology, it emerged that Sean also used his mobile phone to access the Internet. Sean was one of very few respondents who had ever accessed the Internet via his mobile phone, and the only one to do so on a regular basis. Downloading ring tones and visiting chat sites were his favoured uses of the Internet via this medium. It seemed that despite his relatively high degree of exclusion and his negative self-definition, Sean was actually quite familiar with ICT and keen to use it for a variety of purposes. The greatest obstacle to use for him was that in common with the other homeless respondents, he was unaware of free Internet access through PIAPs. He was informed of this following the interview.

Sean's negative self-definition was perhaps somewhat puzzling given that he had some experience of ICT and continued to use the Internet, albeit usually via his mobile phone. It seemed that his self-definition as a non-user rested in the infrequency with which he used computers although given that the filtering question employed before the interview concerned use of computers, it is perhaps not surprising that Sean did not connect accessing the Internet via his mobile phone with the subject of the interview.

6.2 g) Wilma – current low-level user

Aged 21, Wilma was the single parent of two pre-school age children. Although she enjoyed school, she was expelled at 16, and became pregnant with her first child soon after. She gained some Standard Grades before leaving school and had subsequently started training as both a joiner and a hairdresser, but in each case her training was disrupted by impending motherhood. She planned to train as a make-up artist when the children were older. Her aunt was a voluntary helper at the community centre in which the interview was conducted, and this was the reason for her presence there. The very young age at which she had her children, and her consequent exclusion from the labour market were factors which increased her level of social exclusion. Wilma was not one of the more articulate respondents, and as a result there were aspects of the interview which were not entirely clear or indeed appeared contradictory.

Although she was toward the younger end of the age band sampled, Wilma had not used ICT at school at all. Given her age, this is somewhat surprising. However, it seemed that ICT was only available at her school if it was taken as a stand-alone subject, which she had not done. She had not had occasion to use it in any other context since leaving school. While she defined herself as a non-user, she did in fact use MSN on her brother's computer when she visited him. However, her brother had to start the computer and sign her in to MSN, as she did not know how to do this herself. She cited not having a home computer as her primary reason for not using computers, and said that she didn't know of anywhere else she could use computers.

Yet there was a small PIAP in the community centre at which her aunt volunteered, and she was a frequent visitor to this centre. However, she felt that it was not possible to use these computers as she always had her young children with her when she visited the centre. Although she could not think of anything that might be easier for her to do via ICT, and did not appear to have any great interest in using ICT more, she expressed a desire to have a home computer if she could afford it. She also expressed the opinion that it might be easier for her to get a job in the future if she had ICT skills. Despite her lack of engagement with computers, she was highly competent at using other forms of ICT, such as mobile phones. In fact she was capable of 'speed-texting' without looking at her phone whilst simultaneously holding a separate conversation.

Although she identified not having a home computer as the greatest barrier to ICT use, Wilma did not appear to view using ICT as something that would be very useful to her, or to feel a pressing need to use computers beyond her current limited usage. It seems likely that if she wished to make greater use of ICT, she could have used her brother's equipment and know-how to get started, but she was not sufficiently motivated to do so. It seems possible that lack of awareness of the uses or benefits played a role in Wilma's non-use of ICT. Nonetheless, she saw having a home computer as a probable future occurrence. Using MSN to chat with friends placed Wilma in the intermediate group, but given the very limited nature of her ICT use this negative self-definition, based on range of functions used, is not perhaps surprising.

6.2 h) Nadine – current low-level user

A former heroin user who was also a member of the women's interior decoration group, Nadine was 26 and had two pre-school aged sons. Her family background was problematic; her mother and several of her siblings were alcoholics and there was a history of extreme violence in the family. Although she enjoyed school, she left at 15 with few qualifications. At some point she hoped to return to education. Her labour market experience was very limited, involving some short term catering jobs. She said she was no longer using heroin but it became clear during the interview that her

lifestyle was still very chaotic. She was clearly under the influence of methadone during the interview, and as a result much of the interview was inaudible. It transpired during the interview that she was also undergoing a number of personal crises. Had these factors been apparent before the interview began, it is likely that a decision would have been made not to continue with it. However, it was only when the interview was underway that the extent of her problems became evident.

Nadine's partner had been arrested on the previous day and remanded in a local prison, charged with housebreaking. Because he was the named recipient of a substantial amount of the benefit to which they were jointly entitled, she could not access that week's money. Her two sons clearly had significant behavioural problems which she was having difficulty managing. However, on the day of the interview her social worker had told her that the Social Work Department wished to take her sons into care on a temporary 'respite' basis. Nadine feared that this would prove to be a permanent arrangement and was thus engaged in trying to avoid her social worker at the time of the interview, as well as trying to get to the (fairly distant) prison during visiting hours. This was in addition to managing the lack of funds caused by her partner's arrest. This was one reason why the interview continued despite the adversity of Nadine's circumstances – at least the incentive (Boot's gift vouchers to the value of £15) would allow her to purchase nappies and infant formula.

Clearly, Nadine was only just managing to cope with the demands of everyday life and bringing up her two sons. She was a long way from being able to look beyond dealing with routine tasks. Her circumstances placed her among the most excluded members of the sample. Nonetheless, she did have experience of ICT and in fact made some extremely cogent observations on the topic. A friend had showed her how to use the Internet at some point in the past, and Nadine had looked things up whenever she visited this friend. Although she said that she had enjoyed doing this, she forgot how to use it between visits and had to re-learn the basics every time. On occasion, she also used the computers in her local library, where the staff showed her how to get started. On these occasions, she said she used the computers for writing letters and also to find health information. In particular she referred to finding information about

the health impact of methadone. At times, she had also engaged in proxy use, asking a friend to print photographs for her.

She very much wanted to use ICT more in the future, and expressed an intention to do so when her current difficulties were resolved. When asked why she would like to use ICT more, she responded thus:

> Em because ... because it makes sense, you know what I mean. Know what I mean. If you don't find out about computers any time next year or the year before or whatever you're going to be lost, you'll not know nothing about it, eh, it's good to learn about, eh ... when you need to find things. A computer's there to get through ... hunting through books and, get a decent job using computers.

Nadine was clearly aware of some of the ways in which ICT use could benefit her, including its potential to improve her job prospects. There was also a strong perception that computers were in some sense 'the future', and that ability to use them would be an essential tool in years to come. However, the exigencies of her circumstances were such that it seemed likely to be some time before Nadine would be in a position to avail herself of this tool.

In as much as her circumstances represented a barrier to meaningful participation in many areas of life, they also clearly acted as a barrier to greater use of ICT. Nonetheless, Nadine had sought and used ICT on occasion to find information of particular relevance to her, and was very aware of both its potential benefits and of places where she could access it if she wished. It could be said that her digital exclusion was just one facet of her multiple exclusion. However, she personally identified lack of childcare in PIAPs as a barrier to her greater use of ICT. Nadine was very much at the borderline of the distinction between non-user and intermediate, and although she was placed in the intermediate category because of her continued occasional use of the Internet, it is not difficult to see why she in fact self-defined as a non-user. This self-definition would appear to be based on both (in)frequency of use and level of skills. Nonetheless, it is instructive that concern about a health issue of great personal importance had led Nadine to seek out and use the Internet.

6.2 i) Fred – current low-level user

Fred was interviewed at a drop-in centre for homeless men in Glasgow city centre. The centre opened on weekday evenings to provide hot food for the men, and it was on one of these evenings that the interview was conducted. Fred was 24 and had been homeless for about 6 months at the time of the interview. He had become homeless after falling out with his girlfriend and having to leave their shared accommodation. Until this time he had worked as a plasterer, but seemed to have lost his job shortly after losing his home. He was staying in a bed and breakfast at the time of the interview, and although he was in receipt of JSA, he was awaiting the result of a claim for sickness benefit. In his teens he had attended a residential approved school, presumably as a result of committing an offence of some kind. Although he did not leave until he was 17, the emphasis at the school appeared to have been very much on manual skills rather than academic qualifications, and as a result he had very few of the latter. Clearly Fred was facing more extreme difficulties than many in the sample, and as such could be said to have been quite radically excluded. However, he was awaiting the result of an application for social housing, and seemed confident that he would be able to secure employment in his trade when his housing situation was resolved.

Although Fred said initially that he did not use computers and never had, it transpired during the interview that in fact he had used them while at school, but 'only' for playing games. Further, he had used a digital inclusion initiative aimed at homeless people whereby a local support organisation employed peripatetic staff to bring laptops to a number of local homelessness projects on a weekly basis. Through this initiative, he had coincidentally used the Internet for the first time ever on the day of the interview. It was clear that he had not had any particular interest in using ICT prior to this, and was simply using the computers because they happened to be there. However, he had a number of interests which he was in the habit of investigating at Glasgow's large reference library. These included local history, crime cases and

football. On using the Internet for the first time he had been frankly amazed at the volume of information on his subjects of interest:

> 'No I never knew there was a lot. Well, when I clicked on that thingmy there was one thousand – hundred and seventy four different things about crime, you know what I mean. I never knew there was so much information about one thing, do you know what I'm talking about? … I imagine if that's that, there's obviously going to be a lot of things about a lot of different subjects … I was quite naïve, you know, when I went on it, do you know what I mean?'

Notwithstanding this experience, he professed to have little interest in ICT. Although he did not think that it would be difficult to learn, he said he did not think he had any real need to use ICT, and:

> To be honest, I'm not really interested in them, you know what I mean. Don't get me wrong, if I knew how to do them I would be but I think it's too much to get into …I don't have the patience to sit and try and learn.

Whilst he acknowledged that ICT skills could be useful in the jobs market, he clearly saw himself remaining in his manual trade, and did not see ICT skills as relevant to this. Fred thought it was unlikely that he would continue to use ICT when he ceased to be homeless, as he had largely used it at the centre because it enabled him to avoid some of the more unfortunate centre users. Although he had seen privately run Internet cafés, he was unaware of free PIAPs in libraries etc. so thought he would be unable to afford Internet access outwith the centre. Interestingly, although ICT use in his social circle was rare, he had one cousin who was evidently generating a substantial income by mass-producing illegal copies of CDs and DVDs, an activity which presumably requires a fairly high degree of technical competence.

Since Fred had just that day had the opportunity to use the Internet through a digital inclusion initiative, and his experience had been fairly positive, this could be described as successful policy intervention. Prior to this experience, it seems that lack of awareness of the uses of the Internet had been at the root of Fred's lack of interest

and as such had presented one of the greatest barriers to ICT use for Fred. However, just a short taster had remedied that issue. Notwithstanding his professed continuing lack of enthusiasm, it was hard not to form the impression that his experience that day had in fact piqued his interest, and that he would be quite likely to develop his Internet use further. Not knowing of the existence of free PIAPs had clearly presented another barrier to use. Following the interview he was informed of this, and seemed keen to make use of them.

Given the very limited and recent nature of his ICT use, Fred was at the threshold between non-user and intermediate, and it was not difficult to see why he self-defined as a non-user.

6.3 Intermediate barriers and incentives

For the 9 intermediate users in the sample, there were a wide variety of incentives for using or starting to use ICT, and for wishing to use it more in the future. An awareness that ICT skills may be useful in the labour market was shared by quite a number of the respondents. In general these were in the process of acquiring ICT skills, or felt happy about the prospect of doing so if required to in the future. However, one respondent was quite adamant that ICT skills would not be relevant for him in the labour market. In some cases, respondents seemed almost to have stumbled over ICT: for Ewan, it was a 'change', stimulated by the proximity of a new Internet café. For Fred it was a case of being in the right place at the right time. Assisting children with learning ICT, and a strong sense that ICT was the 'future' stood out as strong drivers for some respondents. In this sense, it seemed that some respondents had an awareness of the possibility of being excluded or left behind in the Information Age by non-use of ICT. Seeking information about very specific health issues was also an important motivation for some. Awareness that many people in one's social network used ICT, looking for work, communicating via MSN Messenger, making contact with others in a similar situation to oneself, and booking plane tickets were each mentioned by one respondent as a reason for using or starting to use the Internet.

Several expressed an interest in using ecommerce in the future, and for a number very specific personal interests such as star maps, baby information and horoscopes stimulated their use of the Internet.

Some of these excluded young intermediate respondents possessed the wherewithal to use ICT without restraint, yet chose not to at that time. In the absence of any barriers of cost, access, skills or awareness of ICT, these respondents simply felt no need to use ICT at the time of the interview, and thus self-defined as non-users. However, each of these respondents was aware that they may need to use ICT in the future, and were quite content with that prospect. Neither respondent appeared to suffer any disadvantage arising from their current non-use of ICT.

Barriers to ICT use for excluded people identified in the digital inclusion policy literature (discussed in Chapter 1) included cost, access, skills, technophobia/confidence, irrelevant content and poor experiences of education (PAT 15 2000, Scottish Executive 2001). In addition, lack of interest, often assumed to result from lack of awareness, was identified as a major barrier to use (UK online 2002). Few of these appeared to have acted as barriers to use for this sample.

Many of the intermediate users appear to have experienced very few barriers to initial ICT use. Quite frequently they had simply decided they wanted to use ICT and quickly sought and found a suitable venue for use. In other cases, they had found themselves in a situation in which ICT was easily available to them and, and then chose to start using. However, there were some factors which presented barriers to current or greater use. The most common of these was skills – Geraldine, Lindsay, Nadine and Wilma were all limited in the extent to which they could make use of ICT by their relatively poor skills, although in most of these cases a willingness to acquire more skills if necessary was expressed. However, as noted several of the intermediate users were in fact quite highly skilled. Access represented an obstacle to use for some – in the case of the two homeless intermediate users, being unaware of free PIAPs was an issue, and a number of women with young children were very aware of PIAPs, but felt that they could not make use of these because there were no childcare

facilities. Again, however, access was not an issue for quite a number of respondents – indeed, three respondents had home Internet access, and one had a home PC, while a further two had social access. For one respondent, it seemed that confidence or self-efficacy was an issue, leading him to undervalue the relatively extensive skills he possessed, and also preventing him from self-defining as an ICT user. It is possible that lack of awareness of the uses of ICT was at the root of the lack of interest shared by Fred and Wilma. In general, notwithstanding the aforementioned barriers, those who were strongly motivated to use ICT appeared to be quite adept at identifying strategies to circumvent them. Cost, access, skills, anxiety and lack of either interest or awareness did not appear to act as barriers to use for this sample of excluded respondents. Nor, given the role of personal interests in stimulating use, did lack of relevant content appear to act as a barrier. Notwithstanding their almost uniformly negative experiences of compulsory education, most of these respondents had engaged with or planned to engage with ICT.

6.4 Non-users

Among the non-user group, all of the respondents had some experience of ICT, however limited. They were defined as non-users for the purposes of the sample on the basis of their very limited past use, and their very low levels of both skills and exposure to ICT. Of the three respondents, two were very aware of the uses and potential benefits of ICT, and had quite definite plans to start using computers in the near future. Only one seemed relatively uninterested in ICT and quite vague about the possibility of using it in the future.

6.3 a) Annie

Annie was 34, and was a user of the women's interior decoration project for former drug users. She lived with her partner and their three children. Due to her past drug use she was suffering from some unspecified health problems, and was thus in receipt of sickness benefit. She left school at 16 with several 'O'grades, and had done a

variety of semi- and unskilled jobs since then. Although she had not engaged in education since she left school, she hoped to do so when her children were older. She was also very keen to return to the labour market, but cited childcare as an obstacle to her doing so at that time. Notwithstanding her problems with drugs in the past, her current circumstances appeared to be quite stable. Excepting her present inability to work and its consequent economic exclusion, she did not appear to be excluded in other ways.

Annie's previous computer experience was limited to a brief course she had attended some time in the past. As she described it, it seemed that the teaching may not have been geared to those with no ICT skills, and as a result she did not appear to have benefited greatly from the course, as evidenced by her experience when she attempted to use a local PIAP:

> See, I was going to join, eh … the [local PIAP] in the centre and start going down there but … I mean, I walked in there and I wouldn't have knew … what to do, do you know what I mean?

Nonetheless she was very keen to improve her ICT skills, and was in fact starting another course in the week following the interview. Prompted by an interview question on the subject, she cited ICT skills as something that could help her to get a job in the future. Her daughter was learning to use computers at school, and was also a member of the local PIAP, and Annie cited this as a reason that she would like to use ICT and also to have access at home:

> Because like everybody's using them. I mean, my daughter knows how to use a computer and all that. It's just we don't have one in the house and I'd love to have one in the house, you know, for her … especially for her because she does it at school.

She also cited services such as shopping as being of interest to her. At the time of the interview however, home access was financially out of reach.

It was not difficult to see why Annie self-defined as a non-user, as her ICT use had been very limited. She herself cited her lack of skills as the greatest barrier to use. However, it was clear that she was very aware of the uses of ICT, of places where she could go to use ICT if she wished, and that she intended to remedy her skills gap in the near future.

6.3 b) Sarah

Sarah was 25 and had two pre-school age children. She was also a user of the women's interior decoration project for former drug users, and was in receipt of sickness benefit. Her partner was in prison at the time of the interview, and had been in and out of custody regularly for many years. Having stopped attending school at 13, Sarah had held a wide variety of jobs, including retail and quite senior catering positions, before becoming involved with drugs and dropping out of the labour market. She wished to return to education in the near future, and expressed an interest in studying art or interior design, but having left school so early she lacked basic skills. In many ways, Sarah was evidently quite radically excluded. Yet in other ways she was very engaged, listing writing, drawing and doing charity runs among her hobbies. As she put it, she wanted to get a 'decent' job, and since she was clearly very intelligent, articulate and determined it seemed likely that she would one day achieve this aim.

Although she had used computers briefly while still at school, and utilised computerised tills when she worked in catering, Sarah's ICT experience was extremely limited. On just one occasion, when staying at her brother-in-law's, she had used his computer to write a letter. Nonetheless, she expressed a strong desire to use ICT and to have home Internet access. She did not think it would be at all difficult to learn ICT skills, and saw lacking a home computer as her only obstacle to use. The local PIAPs were known to her, and she said that she intended to register with one of these in the next few days, although she mentioned that using this would be rather difficult with her two young children. There were people in her social circle who were evidently frequent and competent ICT users, some of whom performed proxy tasks

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such as printing photographs for her. She was quite aware of many of the ways in which ICT could be useful to her and to others, saying:

> I'd like to get a computer and go on the Internet ... Definitely ... Computers is the future ... So I believe that, em ... the biggest majority of young people should be using computers and having computers to use but it's difficult with the prices.

Lack of ICT skills and difficulties with using PIAPs presented Sarah with barriers to easily making use of ICT at the time of the interview. However, she was very conscious of the potential benefits of use, and she did not think learning to use ICT would present her with any difficulties. It seemed likely that she would start using ICT in the near future.

6.3 c) Terence

Terence was 21 and single. He was resident in a homeless person's hostel in the city centre and was interviewed at the men's drop-in centre. He had left school at 16 with some Standard Grades, and started but did not complete a photography course. Since leaving school, he had not worked at all, and had spent some time in prison. These factors, in combination with his homelessness, made him one of the more excluded sample members. Terence was one of the less articulate respondents, which was reflected in the level of detail which emerged during the interview.

Terence had used computers in the past, both at school and during a spell in prison. At school, it seems that after 2nd year they were only used if IT was taken as a separate subject, which Terence did not do. In prison, he had used the computers for drawing and playing games, but said he had not used ICT at all since that time (several years prior to the interview). However he later mentioned that he had played games on his father's computer. Although he said he would like to use ICT, he was not very clear as to what he would like to use it for. However, he did not appear to think of learning to use computers as difficult, and seemed to be quite aware of possible uses of the Internet, such as finding information and sending emails. He cited lacking a home

computer as the principal reason why he did not currently use ICT, but both his (separated) parents had Internet access at home, which Terence said he could use if he so wished. He was also aware of commercial Internet cafés, but in common with the other homeless respondents he was unaware of free PIAP provision. He thought he probably would use ICT in the future, especially if he got a job which required him to do so. Although he expressed an interest in using computers, he did not appear to use those to which he appeared to have reasonably easy access (although there may well have been family issues which made this problematic). However, he appeared to be quite unengaged with most aspects of life, and this may simply have reflected his general lack of engagement.

Although Terence cited access as a barrier to ICT use, it seemed likely that the greater barrier was his lack of interest in ICT, which reflected his more general lack of engagement with life. Notwithstanding his awareness of the uses of ICT, he remained uninterested. Since he was so unengaged, he was unlikely to see anything as worth pursuing by any medium, thus the potential applications of ICT were of limited relevance to him. As such, his digital exclusion was a manifestation of his quite extreme social exclusion.

6.4 Non-user barriers and incentives

As we have seen, two of the three non-users interviewed were very conscious of the ways in which ICT use might benefit them. The primary obstacle to use experienced in each case was lack of skills. However, each of these respondents was aware both of PIAPs and of courses which would allow them to acquire the necessary skills. Indeed, they had firm plans to start attending such courses in the near future. Sarah cited lacking home access and childcare issues in accessing PIAPs, but it seemed likely that she would succeed in gaining access to ICT nonetheless. As such, it did not seem that either respondent was experiencing any significant barriers to ICT use. The third case was more difficult to fathom – although Terence expressed a desire to use computers he had no clear ideas as to why or what for. As noted above, lack of interest appeared

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to be the greatest barrier to ICT use for Terence, but this did not appear to result from any lack of awareness of ICT.

A sense of the increasing ubiquity of ICT, or of its status as 'the future' fuelled the two female respondents' desire to use computers, as did helping or keeping up with children. It is notable that these incentives also figured strongly as initial incentives for many of the ICT users. Labour market considerations were additional incentives for these two women. For Terence, there was little incentive to use ICT because he had few interests of any kind and therefore nothing which would be more enjoyable or easier for him if pursued via ICT. Arguably, until some of the more serious and pressing issues which led him to be thus disengaged were addressed, engaging with ICT was neither a realistic prospect nor a terribly high priority for Terence. Similarly, it seems unlikely that engaging with ICT would help to address his severe exclusion.

6.5 Conclusions

Barriers to ICT use, such as they are, do not appear to accord with those envisaged by digital inclusion policy makers or practitioners. Cost, access, skills, confidence, interest/awareness and content all figure strongly in the digital inclusion literature, but these are not reflected in the experience of excluded individuals to the extent one might expect. Where a desire to use ICT existed, respondents seemed able to address issues of cost and access, and to acquire the necessary skills. Some practical barriers to public access, such as lack of childcare, existed for a few respondents. It is noteworthy that all three homeless respondents were unaware of PIAPs, suggesting that some radically excluded people may fail to be picked up by certain policy initiatives. Those whose skills currently limited their use of ICT did not view gaining more skills if necessary as problematic. Confidence was an issue for one respondent, but this prevented him from self-defining as a user, rather than from using ICT. In general, lack of interest was not an issue, and where it was this seemed more a function of the respondent's general lack of engagement. Indeed, interest in ICT *per se* was not a driver for use; rather it was the ability to use ICT to pursue wider

'interests' which triggered use. Almost all of the respondents, even the most excluded, expressed a desire to use ICT. This contradicts much survey evidence which suggests that lack of interest is one of the greatest barriers to ICT use. Similarly there was little evidence of lack of awareness, or of lack of awareness leading to lack of interest.

Incentives for using ICT, both for intermediate and non-users, were similar to those cited as initial incentives by ICT users. Assisting children, and a general perception that engaging with ICT was increasingly essential, were common motivations for using or wanting to use computers. In general respondents were very aware of the uses and potential benefits of ICT use, and many had a strong sense that ICT represented the 'future'. In this sense, they appeared to have internalised popular discourses regarding the Information Society. Finding health-related information had also been a strong motivating factor for intermittent use for a number of respondents. As with the user group, most of the incentives suggested in digital inclusion literature did not emerge as strong drivers. However, labour market skills appeared to figure more strongly for the (generally more excluded) intermediate and non-user respondents, as did the possibility of using ecommerce.

These data suggest that binary definitions of ICT use, skills or access, may be inappropriate for this age group. The respondents' situations vis-à-vis ICT were infinitely more subtle, complex and nuanced than any such model can accommodate. It seems it would be more appropriate to conceive of individuals' relationships with ICT in terms of a continuum between 'use' and total non-use, where people fall somewhere in between the two extremes, and move around on the continuum at different times and in response to varying life needs. The experience of the ICT using sample was similar in this regard. In this sense, it seems that Selwyn's concept of the technology using 'career' is helpful for understanding the nature of relationships with ICT.

In this sample of socially excluded young people, many of whom were severely excluded, levels of ICT access, use, skills and awareness appeared to be much higher than either statistical evidence or policy literature would suggest. There was a sense

that awareness of, and enthusiasm for, ICT were widespread. This supposition is also supported by the great difficulty experienced in accessing non-ICT users for the purposes of the research, and the far greater number of ICT users who could have been interviewed if necessary.

Home access was also surprisingly common even among those who considered themselves to be non-users. Social access and use among the respondents' social networks were also very common. In all, there was a sense of a diffusion of ICT into everyday life such that use in itself was not remarkable. Some people made transitions between using and non-using states frequently and with ease. In addition, a number of people reported proxy use for certain functions such as printing photographs or downloading music. This suggests that, due to the pervasiveness of ICT in respondents' social networks, even where they were unable to perform such functions themselves they were able to fulfil specific needs through the medium of ICT.

The intermediate user interview data suggest that many of these excluded young people are prone to underestimate their ICT skills and usage, leading to a propensity to self-define negatively. Thus it seems probable that existing survey data may underestimate levels of ICT use among either the general population or specifically among more excluded people. Clearly in a survey situation where questions are administered in a tick-box yes/no format, where respondents initially reply 'No' to the question 'Do you use computers.', the survey administrator will simply tick 'no' and move onto the following question. However, as we have seen here, individuals' situations are often more complex. In a qualitative research setting such ambiguities are more fully exposed and can be explored in far greater depth, generating results of the type presented here. The question remains however, would this tendency towards negative self-definition be replicated across the general population or is it peculiar to socially excluded people, perhaps due to a more general lack of self-confidence engendered by their circumstances? This question, and others connected to the issue of how the respondents arrived at a given self-definition, is explored in the proceeding chapter.

The evidence points towards a need to accept that not everybody requires to use ICT at all times. Even skilled computer owners will stop using if they have no immediate need to. However, it would seem that such individuals will then have a tendency to define themselves as non-users despite their ability to access and use ICT when required. Again echoing Selwyn's concept of the 'career', use was often discontinuous, occurring at different times in response to changing life needs. These changing needs can also be seen in terms of situational relevance; as the cases of Ewan and Jennifer demonstrated, use may cease altogether for long periods if it is not currently relevant to the individual. This points towards a conception of ICT using 'status' as a far more fluid and dynamic state than has generally been recognised in previous research.

As with the ICT user interviews, the picture of these respondents that emerges is one of dynamic agents flexibly and resourcefully responding to their circumstances. Examples such as that of Sean who, finding that he needed to get to Ireland for a new job, simply walked off the street into an Internet café and booked his flight, despite having scant prior experience of the Internet, show that even very excluded individuals are capable of identifying the uses and benefits of a new technology such as the Internet and using it to meet their needs.

Having analysed the user and non-user/intermediate data, some questions of interest remained to be addressed. The phenomenon of negative self-definition by individuals who were, to all intents and purposes, ICT users, warranted further consideration. The contribution of the findings to the overarching research aim of understanding the links between social and digital exclusion, also remained to be explored. These issues are considered in the concluding chapter.

Chapter 7 Conclusions and discussion

7.1 Introduction

In this chapter the manner in which both the quantitative and the qualitative findings contribute to answering the research questions is considered. First, some recent literature and evidence on the digital divide are considered. The implications of the research findings when taken as a whole are considered in the light of relevant recent literature, with a view to establishing some definitive responses to the questions regarding barriers and incentives to ICT use and links between social and digital exclusion. The chief conclusions of the research are then discussed. Finally, some policy implications of the findings are considered.

7.1 a) The value of mixed methods

As was observed in the discussion of the use of mixed methods in Chapter 1, what was initially envisaged as an exercise in facilitation, in reality became an exercise in triangulation. The initial intention was to use the results of the statistical analysis to facilitate the development of a sampling framework for the subsequent qualitative phase. However, ultimately the results of the qualitative research reflected back on the quantitative analysis in unforeseen ways. Guided by the structure of the survey dataset in use, the interview questions were structured around a binary model of ICT use, in which individuals were seen as either users or non-users. However, the qualitative findings demonstrated that this model was not an accurate reflection of the manner in which individuals use ICT. Thus although the statistical analysis was very valuable in that it provided a broad-brush picture of factors shaping ICT use, and raised questions as to the strength of social exclusion in this regard, the qualitative research demonstrated that such a model does not capture the inherent complexity of the ways in which ICT is used by individuals in every day life. Further, the qualitative investigation allowed issues of agency to come to the fore, again leading to some useful insights into the processes at work. The implications for the research

questions of these apparent disjunctures in the quantitative and qualitative findings are discussed further below.

As such, the use of mixed methods in this research demonstrated the value of such studies in providing alternative perspectives on the subject of interest, and confirmed both Selwyn (2003c) and Dutton and Shepherd's (2003) contentions regarding the particular utility of mixed method studies when studying issues related to Internet use.

7.1 b) Recent research on the digital divide

The Office for National Statistics' latest release (August 2006) shows that household Internet access in the UK has increased, from 46% in 2002, to 57% in 2006. However, Scotland, at 48%, still has the lowest level of household access of all the UK regions. Of the 43% of UK households without Internet access, 24% cite no need or interest, 24% cite lack of skills, and 25% cite cost of equipment or subscription as reasons for not being online. 60% of UK adults had accessed the Internet in the 3 months prior to interview. However, there remain differences between socio-demographic groups. 65% of men had accessed the Internet in the previous 3 months, but only 55% of women had done so. 83% of 16-24s had accessed the Internet, compared to only 15% of the over 65s. 43% of those with income below £10400 had accessed the Internet in the previous 3 months, but 93% of those with income above £36000 had done so. The style of questioning is slightly more nuanced than that typically used in earlier studies – here respondents are asked whether they have used the Internet in the last 3 months, 12 months, more than 12 months, or never. One would expect that this might pick up those whose use is more marginal or intermittent, such as the intermediate respondents in the sample presented here. If this is the case, it seems that even where such intermediate use is measured, patterns of stratification by income are still very marked. However, there may still be many cases where the respondent does not define their use of the Internet as such and therefore reports non-use. As in the user group, the ONS respondents tend to access the Internet in more than one location (hence the following figures sum to more than 100). The overwhelming majority of Internet users (85%)

access it from home. 46% access it from work, 29% from another person's home and 15% from a place of education. As in other surveys of this topic, very few used public access facilities: 10% used a public library, 8% an Internet café (presumably private), 4% a government agency and 2% a community or voluntary organisation.

The 2005 Oxford Internet Survey found that household Internet access in the UK had grown from 58% in 2003 to 61% in 2005, with 36% of the sample having a broadband connection. 60% of the sample described themselves as 'current users', and 8% said they had used the Internet in the past. Lapsed users were more likely than non-users to say that they planned to get Internet access, although 35% of them said they stopped using because they had no interest in the Internet. Similar divides of age, education and income were found, although the gender gap appeared to be shrinking. 29% of those on income below £12500 were Internet users, compared to 84% of those on an income of over £37500. Broadband connections had increased dramatically; in 2003, only 19% of connected households had broadband, but by 2005, this had risen to 59%. The divide by income in broadband connections was much less marked than that for any type of connection, with 54% of connected households in the lowest income bracket having broadband. The vast majority of people accessed the Internet at home (93%). A third of the sample accessed the Internet at work, and a quarter from someone else's home. Use of public libraries (10%) and Internet cafés (5%) was low, but had grown since the 2003 survey. Using email and finding information remained the most popular uses of the Internet, and these acted as the incentive for the majority of the sample to start using the Internet. Both non-and lapsed users were asked if people had trouble contacting them or if they had been disadvantaged in seeking work because of their non-use of the Internet. 93% of non-users and 79% of lapsed users said they had not. It would appear that a higher proportion of one-time users felt they had experienced some disadvantage, suggesting that their experience of using the Internet gave them a greater awareness of possible advantages. However, the majority of former users apparently did not feel disadvantaged by non-use.

Other research seems to indicate that there is increasing recognition of the complexities surrounding uptake and use of ICT, and of the role of social context in patterning ICT non/use

(Selwyn, Gorard & Furlong 2005, Dutton, Gillett, McKnight, and Peltu 2004). Calls for research on ICT non/use to be conducted from the perspective of non-users are increasingly common (Simon 2004, Selwyn *et al* 2005, Selwyn 2006, Cushman & Klecun 2005a, 2005b). Similarly, there is increasing awareness that becoming an ICT user is not a one-way street. As more surveys begin to ask about former use, so more research is focussing on the phenomena of users ceasing to use, and of more subtle gradations in types of use. Selwyn's continuing qualitative research on ICT non-use now distinguishes between broad frequent, narrow frequent, occasional and non-users (Selwyn *et al* 2005), or absolute, lapsed and minimal non-users (Selwyn 2006). His analyses of survey data collected in 2002 (n=1001) have suggested that the sub-categories of lapsed and minimal user are less closely associated with socio-economic status than the absolute categories of user and non-user in other surveys (2006). Anderson's (2005) longitudinal research on home Internet access found that while Internet access was predicted by the usual socio-economic factors, 'dropping out' was not. In fact, the most salient factor in dropping out was experience of the Internet, with the least experienced most likely to lose access. He suggests that a change in the 'utility function' of the Internet will be necessary to increase uptake, citing the extremely rapid adoption of mobile phones as an example of a technology with a very apparent and immediate utility function. Vehovar, Sicherl, Hüsing and Dolnicar (2006) arguing vehemently against the use of 'simplified indicators' (p.287) of ICT use such as bivariate tabulations, contend that the 'substantial questions of *why, how,* and *with what benefits and consequences*' (ibid.) individuals use ICT must be addressed in future research. Barzilai-Nahon (2006) has argued against the use of monotopical indicators to measure the digital divide, criticising policy makers who continue to do so.

However, there is still little work that recognises that categories such as user, non-user or former user are too fixed, or that explicitly aims to investigate experiences of ICT from the perspective of non-and marginal users. The project 'How People Encounter E-illiteracy' (acronym: 'Penceil') is one example of such research. Operating as a strand of the ESRC's diverse e-society programme on the social impact of digital technologies, Penceil's aim is to focus on the experience of excluded non-and low users of ICT. The project:

starts from the belief that people's IT needs have, for too long, been defined from above: by government; by IT suppliers; by training providers; by exam boards; and so on. (Penceil website, date unknown).

In an article summarising the project's findings, Cushman & Klecun (2005a) argue that it is necessary to move away from a dichotomous definition of the digital divide and to acknowledge the complexity of issues around use and non-use of ICT, commenting that:

> despite increasingly sophisticated accounts of digital exclusion in the academic papers and as recently reflected in the UK policy the academic understanding of who is making little or no use of ICT, and why, remains weak ... although the ability to use ICT is increasingly seen as a pre-requisite to participating (living and working) in the e-society, there is limited understanding of how non-use of ICT and eilliteracy effect people in their daily lives and what are people's aspirations for use of these technologies. (p.2)

Some recent policy literature also seems to reflect a more nuanced understanding of issues around ICT use and social exclusion. The Social Exclusion Unit's (SEU) final report on digital exclusion, *Inclusion through innovation* (2005), argues that issues around non-use of ICT are more complex than has generally been recognised in the past. Addressing the digital divide is not simply about 'getting more socially excluded people online' (p.10), and non-use of ICT is about much more than physical access to computers. The report broadens the definition of ICT to include both mobile and fixed-line phones, arguing that these are the most frequently used means of contacting public and private services, and that they are very popular among excluded people. It further argues that one of the primary ways in which socially excluded people benefit from ICT is through 'back-office' systems which support more efficient service delivery but are not necessarily actually used by such people. Similarly, excluded people can benefit from ambient technologies such as CCTV and smart cards without requiring any technical knowledge. There is an explicit recognition that most people prefer to interact with service providers either by telephone or face to face, necessitating the maintenance of multi-channel delivery. The report's vision of how ICT can help to tackle social exclusion is much more modest than that of earlier policy documents. The majority of ICT benefits identified focus on the use of ICT to improve

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systems. The benefits of direct use by excluded people suggested by the report are 'building personal capacity' to help them overcome exclusion, and 'building social networks and civic participation' (p.13). Based on focus group data, the report identifies some different barriers to ICT use than earlier policy literature. The need for excluded people to first address their preliminary needs (for housing, employment etc.) is chief amongst these. Perceived cost and lack of access are still seen to be major barriers, and lack of relevant content has now replaced lack of awareness as the explanation for lack of interest or perceived irrelevance.

However, this more nuanced approach does not necessarily appear to have influenced policy on the digital divide. *Connecting the UK: the Digital Strategy* (Cabinet Office 2005), produced by the Prime Minister's Strategy Unit, set out a new strategy for digital inclusion in the UK. Apparently informed by the SEU report, this document seems to contain many of the assumptions and over simplifications found in earlier such documents. The document outlines many successes of UK digital inclusion strategy since 1999, in particular that 95% of households are now within 5km of a PIAP. In discussing continuing digital inequalities, the role of lack of interest and motivation as a barrier to ICT use is stressed above all else, although knowledge/confidence, cost, overly complex PCs and lack of relevant content are also mentioned. The role of social exclusion in limiting ICT use and the role of ICT use in tackling social exclusion are once more described as the rationales for government intervention. Better access to public services, improved employment prospects, cost-savings (as evidence for these they cite Foley *et al's* analysis, discussed in Chapter 2 of this volume, of self-reporting by a small sample of socially excluded Londoners) and increased social contact are all cited as ways in which socially excluded people can benefit from ICT use. While the report argues that the market is delivering increased uptake through falling prices, and that home access should be promoted (although it is not clear how), digital inclusion strategy is to focus on providing public access sites and the delivery of formal ICT skills training through these:

> Because the barrier for many people getting online is to do with knowledge and confidence, government should focus its investment on *communal* Internet access points (p.48, emphasis in original)

Thus it seems that UK digital inclusion policy continues to be based on public access and formal ICT training. In Scotland, the Digital Champions' Team, whose remit was to deliver digital inclusion in Social Inclusion Partnership areas, ceased to exist when its period of funding ended in March 2005. Following consultation with digital inclusion practitioners and other interested parties, the Scottish Executive's digital inclusion policy is currently under review. A report produced for the Executive to reflect the consultation responses (Scottish Executive 2006) stressed the importance of ensuring that 'the people of Scotland can reap the benefits of this digital age', and referred to the role of overly complex ICT courses in putting beginners off ICT. Maintaining that the majority of those who have never used the Internet are socially excluded, the report concluded that 'the unconnected must be given compelling reasons to engage with the online world'.

In the context of increasing recognition of subtleties in individuals' relationships with ICT, the need to conduct research which is sensitive to the perspective of both non-users and excluded people, and of the inadequacy of dichotomous measures and bivariate calculations for measuring ICT use, the research findings presented here represent a timely contribution to the ongoing debate on these issues. In the following sections, the findings from each phase of the research are drawn together to consider how these assist in answering the research questions.

7.2 Barriers and incentives to ICT use

7.2 a) Barriers

The qualitative phase of this research had set out both to investigate barriers and incentives to ICT use among socially excluded people and to assess the nature of the connection between digital and social exclusion. Interviews with 29 young, socially excluded Glaswegians had shed much light on these issues, offering new insights into the questions at hand. The data generated by these interviews seemed to suggest that there were few barriers to ICT use for the participants. The barriers generally discussed in the policy literature were not cited frequently,

and often where they were cited, the respondent had developed, or was developing, a strategy for overcoming these barriers. Barriers suggested in the policy or academic literature are considered below in light of the data from the group as a whole and of insights from more recent research on the topic.

Lack of interest

One of the factors most often cited as a barrier in the policy literature was lack of interest or motivation, frequently equated with lack of awareness of the benefits of ICT use. However, among this group there was little evidence of either of these. The majority of the participants, users, non-users and intermediates alike, were very aware of, and very motivated to use, ICT. A number of marginal or non-users had definite plans to attend ICT courses. One ICT user and 2 intermediate users professed to lacking, or having lacked, interest in ICT, and it seemed probable in these cases that lack of awareness of the uses of ICT did indeed underlie this apparent lack of interest. One highly excluded non-user maintained that he had no interest in ICT, despite being aware of its potential uses. In his case, it seemed that lack of interest in ICT was a function of a more general disengagement from life. As such, this case would appear to support Selwyn *et al's* (2005) contention that those who are either already very fulfilled or severely lacking in many areas of life would appear to have little obvious need for the Internet. Further, as Selwyn *et al* argue, those who are severely lacking in this manner 'are likely to be lacking for a variety of deep-rooted social reasons – which will persist even if opportunities now exist via the internet' (ibid. p.23). It seems that this would describe the situation of this respondent accurately.

Arguments explaining lack of interest and perceived irrelevance in terms of lack of awareness were called into question by the experience of some of the intermediate respondents. The only respondents who maintained that ICT was irrelevant to them were the 2 competent intermediate users who, having skills, confidence and home access to ICT, self-defined as non-users and reported that they had no need to use ICT. At the same time however, they acknowledged that there may be situations in which ICT use was required of them, and that if so, they would

recommence use without difficulty. Evidently as a result of their not inconsiderable ICT use, they were aware of the potential benefits of ICT use, but still they chose not to use ICT. This lends support to the concept of 'situational relevance' advocated by Selwyn *et al* (2003), and questions notions of fixed or static definitions of ICT use such as 'dropout' or 'lapsed user'. It seems that while some people may exercise an informed choice not to use ICT at a given time, this does not mean that they will never do so again.

It is possible that a sample involving a different age group may have generated conflicting findings on the nature of lack of interest. When Huntley, McKerrel and Asghar (2004) conducted focus groups with a sample of socially excluded Scots from a variety of age groups, they found that lack of interest was more common among the elderly. Often in these cases active resistance to, and rejection of, the Internet in favour of face-to-face communication was at the heart of this lack of interest. Selwyn's extensive qualitative work with non-users of ICT (2003a, 2004a, 2005, 2006) has found that where lack of interest or need is cited in surveys of both young and elderly non users of ICT, follow up qualitative interviews with such respondents appeared to suggest that lack of relevance was indeed the reason for the cited lack of interest. Evidence does suggest however, that lack of interest is more commonly cited by the elderly, and thus the youth of these respondents may in part explain the rarity with which lack of interest emerged as a barrier.

Cost/access

Cost was a barrier to access *per se* for very few respondents. Many user and intermediate respondents had home access to PCs and the Internet. Those who had home Internet access did not in general view the cost as prohibitive, and had often identified ways in which they could in fact save money by using the Internet. For some, the initial purchase of equipment had represented a significant outlay, involving saving for some time. However, these respondents were so highly motivated to use ICT that they willingly made sacrifices in order to obtain equipment. Some respondents had home PC access only, and others lacked any home access but had relatively unfettered social access to the Internet. Those respondents who lacked home or

social access tended to be aware of, and use, public access points. Only the 3 homeless respondents (one non-user and 2 intermediate users) were unaware of PIAPs, and believed the cost of private Internet cafés was a barrier to Internet use. This contrasts with the findings of research conducted on behalf of the SEU involving focus groups of socially excluded people which found low levels of awareness of public access sites (Thompson & Crush 2005).

However, cost was a barrier to home access for a number of respondents, and lacking home access was seen to hinder effective use. Thus some respondents planned to get home Internet access in the short to medium term, although for some this was not financially viable. There was generally a high degree of preference for home access, and respondents cited issue such as lack of childcare, noise, time limits, and having to book a slot as downsides of public access. For a number of respondents with young children, particularly in the intermediate group, lack of childcare in PIAPs was a significant obstacle to use. Specific issues for 2 respondents involved fear of breaking publicly owned equipment and feeling exposed by the layout of the local PIAP. Other research has found that people are less likely to use PIAPs to find information about personal issues, and that there is little perceived difference between travelling to a PIAP to interface with public services or travelling to the relevant agency (Thompson & Crush 2005), particularly in rural areas where PIAPs are often as inaccessible as public agencies (Huntley *et al* 2004). These and other issues connected with public access are discussed in section 7.4 below.

Skills

The level of skills among the self-defined user group ranged from minimal to quite extensive, although the majority could be described as moderately or highly skilled. Some early adopters and enthusiasts had mastered HTML, programming, operating system maintenance and other advanced functions. Only 2 respondents were quite limited in the range of activities they could use ICT for, and for these respondents their relatively limited skills could be seen as a barrier to effective ICT use. In general though, the users did not seem to have had difficulty acquiring skills in the first instance and were confident about their ability to further their skills base if

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required in the future. Among the intermediate users, a number were also moderately skilled and several were quite highly skilled, having made extensive use of the Internet at different times in their lives. For those whose skills were more restricted, this represented a barrier to use or to greater use. However, many respondents were aware of this and were in the process of addressing the issue, or had specific short term plans to do so. A number of both intermediate and user respondents resorted to proxy use if they lacked skills in a particular area, such as downloading music or sending emails. In a number of cases, the manner in which the respondent self-defined seemed to be related to their perceived skill level, an issue which is discussed further in section 7.3 below. In general, skills did not appear to act as an insuperable barrier to use, and where they were a barrier, the respondents seemed quite able to identify suitable means of overcoming them. These findings run counter to those of the Penceil project (Cushman & Klecun 2005b), which suggested that lacking ICT skills was one of the major barriers to ICT use facing excluded people.

In some cases, interventions designed to help overcome the skills barrier seemed to have had the opposite effect, as several respondents recounted negative experiences of formal ICT training. In one case a respondent (who had previously used ICT quite extensively) had almost entirely ceased to do so because she found the course she was attending (the European Computer Driving Licence) so uninteresting. In some cases, it seemed that the content of formal courses was based on applications seen to be useful in the labour market (e.g. Excel), and as such had limited current relevance to the respondent. It appeared that this could lead the respondent to undervalue the skills they did have, an issue which is discussed further in section 7.3 below. Indeed, in many cases, skills had been acquired either through self-education or via the respondents' social network rather than through formal courses. Skills acquisition tended to be a process rather than a one-off event, with skill sets being acquired in different contexts in response to specific needs. As Selwyn (2005) has put it, reflecting on the findings of his qualitative study of ICT skills acquisition which very much accorded with the finding presented here, for most people learning to use ICT is 'an ongoing process of bricolage' (p.134), structured by context and need.

Attitudes

Linked issues such as anxiety, technophobia and lack of confidence have often been identified as barriers to ICT use in policy and some academic literature. A number of ICT using respondents admitted that they had experienced some anxiety prior to commencing use, and in some cases this had clearly been quite severe. However, most such respondents had clearly worked to overcome these feelings, and had commenced using ICT in spite of them. For one respondent, this involved purchasing her own PC rather than commencing use in a PIAP. In a few cases, continuing anxiety appeared to constrain greater ICT use. There appeared to be some connection between anxiety and gender among the ICT user respondents, with women apparently more likely to experience anxiety. This is in line with much literature on the topic (Chua, Chen & Wong, 1999). Again however, in most cases this anxiety did not prevent the respondent from commencing use. Nor did anxiety appear to act as a major constraint among the intermediate and non-user participants, most of whom stated that they did not think of learning to use computers as difficult. In two cases however, the linked issue of self-efficacy appeared to play a role both in limiting use and in the formation of a negative self-definition. Another attitudinal factor identified in the literature, self-concept (Stanley 2003), also did not appear to figure highly. Only one respondent commented to the effect that he was 'too old' to use computers, although in fact he did use them. Again, it seems this may have played a greater role in self-definition. These and related issues are discussed further in section 7.3 below.

Contrary to some recent work on the role of trust in mediating relationships with ICT (Dutton & Shepherd 2003, 2006), fears about online security, threatening content or other risks did not appear to figure strongly as a barrier to use. Indeed in some cases where the respondent had young children, being able to monitor their online activity acted as a motivating factor. In a few cases however, fears about using credit or debit cards for shopping online acted to constrain use, including one respondent who had ceased shopping online when stories about Internet fraud started to appear in the media. One respondent reported a negative experience involving pop-ups of a pornographic nature, but this had been resolved by installing filtering software. Nonetheless, few respondents used the Internet for shopping. This is discussed further in section 7.3 below.

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Content

Lack of content relevant to excluded people was often identified as a barrier to use in earlier policy literature. In the SEU's final report on ICT and social exclusion (2005) lack of relevant content is seen to underlie the so often cited lack of interest. However, the ICT users in this group of respondents did not seem to have difficulty finding content that reflected their very wide range of interests. Among the intermediate users, it was often specific interests or concerns that motivated occasional use. Looking at horoscopes, finding personally relevant health information and using instant messaging services were just some examples of relevant content that these excluded respondents found online.

Gender

Gender does not appear to have acted as a barrier to ICT use among these respondents. There was one example of a female respondent's use being constrained by the location of the PC within the home, in the manner highlighted by Selwyn *et al's* (2005) study, which found that domestic micro-politics effectively barred some women from use of the family computer. As noted above, the data did appear to suggest that female respondents were more prone to anxiety or technophobia, although this did not prevent them from using computers. Further research on usage patterns would be required to establish whether these were influenced by gender in the manner suggested by some earlier studies (Sørensen 2002, Liff *et al* 2004). Indeed, more recent analyses of U.S. data indicate that although the gender gap in absolute Internet use has narrowed and even possibly reversed, Internet usage patterns continue to be gendered, often being structured by continuing inequalities in domestic labour and resulting differences in demands on the time of men and women (Dholakia 2006).

Barriers - summary

Some of these barriers, such as lack of childcare in PIAPs, could be described as structural. In many cases however, agency was at the root of decisions concerning whether or how to use ICT. In general, the barriers to ICT use faced by the participants did not accord with those suggested in the policy literature. Often where barriers were encountered, respondents had gone to considerable lengths to overcome them, and had done so with some success. In these cases, the respondents were highly motivated to use ICT for personal reasons which did not always reflect the expectations of policy makers regarding the incentives or benefits of ICT use for excluded people. The incentives cited by each group of qualitative respondents, and how these coincide with policy literature on the topic, are considered below.

7.2 b) Benefits and incentives

Incentives for using ICT, both initial and continuing, and for current and intermediate users were very wide ranging. As with barriers to use, many incentives cited did not accord with those suggested in the policy literature. It seemed that reasons for using ICT were highly individuated, and mediated by a host of personal, social, and in some cases, structural factors.

Children

Helping and/or keeping up with children, and ensuring that children were able to use ICT was the most commonly cited motivator for continued ICT use among the user group and was also mentioned by several of the intermediate/non-user group. In some cases, a belief that the ability to use ICT was increasingly essential motivated respondents to purchase home PCs and get Internet access. Having sufficient knowledge to protect children from dangers on the Internet was also an issue for some of these respondents. This incentive for ICT use has also been mentioned by excluded respondents in several other recent qualitative studies (Cushman &

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Klecun 2005b, Thompson & Crush 2005). Huntley *et al's* (2004) study of excluded Scottish ICT users and non-users found that assisting/keeping up with children was a particularly salient factor for the older members of their sample. Similarly, the evaluation of the Digital Communities project (Scottish Executive 2004) found that helping children was one of the strongest motivators for becoming involved in the initiative (which provided free home PCs and Internet access to a large segment of the population of 2 Scottish communities). Thus it seems that helping children is a very important incentive to ICT use for excluded people. Selwyn's (2005) study of processes of learning to use computers suggested that this was also an important motivation for the general population. Interaction with digital inclusion practitioners suggested that this was well recognised on the ground, but it is rarely mentioned in policy literature on the topic.

Information

Finding information of all kinds, but often that which was related to the respondents' specific personal interests, was also a very strong incentive. Respondents did not seem to encounter any difficulty in finding information which was relevant to them. For a number of the intermediate users, finding specifically relevant information on health conditions and other things motivated their sporadic Internet use. This accords with the findings of the Homenettoo project (Jackson *et al* 2002), which found that finding personally relevant information was one of the participants' most favoured uses of the Internet. Similarly, Selwyn *et al's* (2005) work on ICT use has found that the Internet is often used to support and extend existing interests rather than to foster new ones. Merkell (2003) also found that low-income women used the Internet to support their existing domestic routines and to pursue current interests. Thus it seems that issues of particular individual importance are often the trigger for Internet use among excluded people.

Social networks/the future

For the self-defined ICT users, encouragement from their social network, or an awareness of the pervasiveness of ICT use in their network, were important drivers for use. This often tied in with a fear of missing out, or being left behind, for a number of ICT users. Several intermediate and non-user respondents reported a sense that ICT represented the 'future' as a reason for wanting to use ICT. In some cases this was linked to a belief that ICT skills were required in the labour market. In this sense, it seems that the respondents were generally very aware of the potential of ICT and of its growing importance in the contemporary context. In focus groups conducted on behalf of the SEU, a belief that ICT was the 'future' was also shared by a number of the respondents (Thompson & Crush 2005). This belief was also shared by many of the participants in the Penceil project (Cushman & Klecun 2005b). However, this did not necessarily motivate the respondents to use ICT, as a number of the Penceil non-ICT users who had no plans to start using computers also expressed this view. Simon's (2004) qualitative interviews with female library workers suggested that among non-ICT users there was a strong sense that the Internet was ubiquitous. This led many to refer to fears about being 'left behind', often articulated in terms of being excluded from society by non-use. It seems that a similar process was operating among the participants, who cited this fear as a reason for using, or wanting to use, ICT. In this sense, it seems that a number of people have internalised aspects of Information Society discourse.

Labour market

Labour market related uses of ICT did not appear to figure highly as an incentive for Internet use. Job searching was a function used by few respondents, although 2 ICT users said they found the Internet very useful for this purpose. One intermediate respondent had tried unsuccessfully to look for work on the Internet, and seemed to have difficulty using the service. Although she interpreted this as a failing on her part, it is possible that the problem lay with the service. Lindsay (2005) conducted a survey of 220 unemployed Glaswegians' use of the Internet for job seeking and found that few of them used the Internet for this purpose. Many cited the poor quality of jobs information available via the Internet, and said that they preferred to rely on

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social networks and traditional routes into employment. Similarly, few of the ICT users in the current sample appeared to view ICT skills as being directly relevant to them in a labour market context, although many were not actively seeking work at the time of the interview. The relevance of ICT skills in the labour market was mentioned more frequently by the intermediate and non-user respondents, but often this was in the manner of a general observation that ICT skills would be of use in the labour market rather than an incentive for them personally to start using ICT.

Warhurst, Lockyer and Dutton (2006) conducted an analysis of the ICT labour market in Glasgow on behalf of Scottish Enterprise. The purpose of the analysis was to investigate the potential for the long-term unemployed to gain employment in the ICT field. They found that increasing competition from ICT graduates had led to the formation of a dual labour market in which most entry-level jobs involving ICT were highly routinised, low skilled and low paid. These were in call centres and such like, and in general employers were more interested in potential employee's 'soft skills'. Even highly qualified individuals were competing for these due to over supply in the market. Thus it seems that the widely held belief amongst policy makers that acquiring ICT skills represents a route into the labour market for excluded people may be misplaced. Perhaps, as Selwyn's (2005) analysis of qualitative interviews with computer users led him to observe, 'More people appear to gain ICT skills through their employment than gain employment through having ICT skills' (p.134).

E-commerce

Very few of the ICT users used e-commerce regularly. Several had shopped online in the past and found it unsatisfactory, and quite a number also felt that they did not wish to use it because they enjoyed shopping or preferred to view goods personally prior to purchase. This may reflect the fact that many of the respondents though cash-poor were not time-poor, and as such going to the shops did not present them with great difficulty. However, some had mobility issues or young children, and many were combining single parenting with studying or voluntary work, and

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as such were unlikely to have a great deal of free time. Several had made one-off purchases of specialist items or flights by proxy, and expressed an interest in using e-commerce further in the future. Nonetheless, they did not generally seem to find that e-commerce met their needs. In this way again, it seems that elements of situational relevance pattern individuals' use of ICT.

Political engagement

The potential for increased political participation is often advanced as an important benefit of the Internet by policy makers. This seems to be predicated on the notion that because communication is facilitated by the Internet, people will become more politically engaged. The quantitative analysis had indicated that civic engagement had a strong relationship with ICT use, although it is not possible to infer the direction of the causal relationship from this. However, the incentives for Internet use cited by the participants did not generally include political participation. Beyond using the Internet to read the news, political engagement or participation did not emerge as an incentive for using ICT, or as a common use of ICT. As discussed in Chapter 4, the majority of the respondents would not be described as politically engaged using measures such as voting or active involvement in political organisations, although many of them were keen followers of political events. However, quite a number were civically engaged in the sense that they were highly involved in voluntary work. Some of these used ICT to support their activities in this field, and it seemed in these cases that civic engagement predated ICT use. Analysis of the 2003 British Social Attitudes dataset to investigate the impact of Internet use on political participation suggests that those who use the Internet for political activity were active before they used the Internet, concluding that there is 'no evidence that the spread of the Internet in recent years has been accompanied by an increased sense of political efficacy amongst the public as a whole.' (Curtice & Norris 2004, p.113). Dutton and di Gennaro's (2006) analysis of political participation among respondents to the 2005 OxIS survey similarly suggested that those who were already politically active offline were more likely to be active online. However, there was evidence that political activity was increased in some cases. The authors concluded that longitudinal research was required to assess the impact of the Internet on political activity.

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However, it would seem on the basis of the available evidence that there is support for Selwyn *et al's* (2005) argument that rather than stimulating new pursuits, ICT use generally supports existing activities and interests. As such it seems that hopes surrounding the potential for the Internet to engender increased political engagement are not supported by the available evidence.

Public services

Enhanced access to public services is another aspect of the Internet often deemed to be of specific benefit, and particularly attractive to, excluded people, because they tend to be heavier users of such services (Office of the e-Envoy 2002). In the context of a target to deliver all public services online by 2005, this appeared a particularly pressing issue. However, there was little evidence that using public services acted as an incentive to ICT use among the respondents. There appeared to be very little use of the Internet for e-government – several respondents had looked for information online, but very few had conducted transactions online. In this respect, the respondents appear to differ little from the general population; Margetts' (2006) analysis of data from the 2005 OxIS survey indicated that only 24% of the UK population had used the Internet to interact with government in the preceding 12 months, a figure which dropped still further when conducting transactions online was considered. Focus groups of excluded people conducted on behalf of the SEU suggested that for individuals who lack home access, there is little obvious advantage in accessing government services online if it involves travelling to a specific location in order to do so (Thompson & Crush 2005). It seemed that most respondents strongly preferred face to face interactions with government agencies. Huntley *et al's* (2004) focus groups with socially excluded Scots generated very similar findings. Several studies have suggested that people are unwilling to conduct personal business in public access settings (Anderson 2004, Skinner, Biscope & Poland 2003, Hassani 2006). However, since many of the respondents in the current study did have home access, it could not have been issues of this kind which militated against use of online public services. In many cases there did not appear to be high awareness that such services were available online. Perhaps also, as Magretts suggests, noting the poor record of many UK government IT projects, poor perception of the supply-side

of e-government limits use of such services. These issues with online delivery of public services have implications for ICT policy as a whole, which are returned to in section 7.5 below.

Other incentives

For 2 ICT users, using the Internet seemed to engender a sense of freedom. Some participants in the Homenettoo project reported similar feelings of escape, or of connection to a wider world (Jackson *et al* 2002). This seemed to refer to the ability to access information on any subject of interest to the respondent. Use of email among the self-defined ICT users was quite widespread. Several of these respondents also referred to using Instant Messaging services to keep in touch with friends and family as a strong continuing incentive for using ICT, and one which saved them money when compared with the cost of phone calls. Although the majority of the intermediate and non-user respondents were aware of email, communication by this or any other electronic means did not emerge as a major incentive for wanting to use ICT.

Incentives - Summary

Overall, incentives for using ICT were wide-ranging and often highly idiosyncratic. As with barriers to ICT use, they frequently did not accord with policy makers' expectations. The evaluation of the Digital Communities project similarly found that few of the project participants used their computers in the expected ways, i.e. to access government services, to participate in education, or for employment related activities, leading the report to comment that the incentives for people to take part did 'not necessarily match the explicit objectives of the initiative as set out initially' (Scottish Executive 2004 p.8). For the respondents to this research, the very broad category of 'finding information' involved a range of personal interests that was as numerous as the respondents. The respondents had frequently appropriated technology to make it work for them in ways that were relevant to their needs and aspirations. There was a marked difference between functions cited as initial and continuing incentives, which may reflect Dutton and Shepherd's (2003) findings regarding the nature of the Internet as an 'experience technology', with individuals' range of uses broadening over time as their familiarity with the technology

increases. The respondents' reasons for using ICT were generally informed by their personal needs, motives and aspirations, and also by their social contexts.

7.3 Links between social and digital exclusion

7.3 a) Quantitative analysis

Logit regression analysis of the determinants of personal Internet use in the Scottish Household Survey dataset for 2002, fully reported in Chapter 3, had indicated that social exclusion and demographic factors in combination explained a moderately high amount of the variance in the dependent variable. In a model which included the whole sample, but did not control for the effects of educational attainment, 33.9% of the variance was explained. Factors which stood out as having a particularly strong relationship with Internet use included age and variables relating to education. Increasing age had a very strong negative relationship with Internet use. The positive effects of being qualified to degree level and being in higher education on personal Internet use were very strong. Without controlling for education, being aged over 60 had a very strong negative relationship with ICT use among the sample as a whole. Of the variables indicative of social exclusion, those relating to proximity to the labour market had the strongest effects, with the negative effect of being long-term sick much stronger than that of being unemployed. This suggested that there was a functional and exposure element rather than a financial basis to non-use of the Internet – where employment status requires Internet use, it is much more common, even when personal use is measured. Civic engagement and low social interaction had surprisingly strong effects, with the civically engaged more likely to use the Internet and those with low levels of social interaction less likely to do so. Of all the variables indicative of social exclusion, low income surprisingly had one of the weakest negative effects.

The effect of education was even more marked when educational qualifications were included in a model run on the under 60s in the sample. Here, the 4 strongest effects related to education – being in higher education had the most marked effect overall, increasing the odds of Internet use. Having a degree again had a very strong positive effect. Having no qualifications, when

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compared to the reference category of O grades (the second lowest level of qualification), had a remarkably strong negative effect. Again, it seems that factors not indicative of social exclusion had the strongest effects. In combination with this model's modest R^2 of 29.8%, this would appear to indicate that social exclusion *per se* does not explain a great deal of the variance in Internet use – rather variables related to age and education had the strongest effects. On this basis, it seems that positing the existence of a causal link between social exclusion and digital exclusion, or of a demographic 'overlap' between the socially excluded and the digitally excluded, is problematic. While the R^2 is not exceptionally low, given the stress in the literature on age, gender and social exclusion as determining ICT use, it is perhaps lower than might have been expected. The qualitative findings may go some way to accounting for the relatively low variance explained; the contribution of these to answering the relevant research question is considered below.

7.3 b) Qualitative analysis

Those who participated in the qualitative research, while highly excluded in many cases, generally used ICT. Thus, in the sense that socially excluded people are thought to use ICT less, ICT use and social exclusion did not appear to be connected in this sample. Further, this use of ICT did not appear to lead to social inclusion for the respondents. Although this cannot be said categorically in the absence of longitudinal evidence, it can perhaps be surmised in this case because the interviews elicited respondents' histories of ICT use within the context of their changing life circumstances. Some of the ICT users had been using computers for many years, but did not appear to be any more socially included by virtue of this use. Hence, it would appear that while they were digitally included, they were not thereby socially included. Further, it did not seem that those who did not use ICT were further excluded or disadvantaged by their non-use. In particular, like the majority of the lapsed respondents in the OxIS 2005 survey, the erstwhile intermediate users did not appear to be suffering any disadvantage as a result of ceasing to use ICT. Thus neither of the ways in which social exclusion and ICT use are thought

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to be connected, that is, that fewer socially excluded people use ICT, and that ICT use is seen as a route to social inclusion, appear to be supported by this evidence.

Social exclusion and ICT use

The other sense in which digital and social exclusion are seen to be connected is that fewer socially excluded people are believed to use ICT. As we have seen, the statistical analysis does not lend overwhelmingly strong support to this view. Similarly, in this group of excluded people, there does not appear to be a direct connection between social exclusion and non-use of ICT. Most of the respondents, all of whom were excluded to a greater or lesser degree, used ICT, some at a very high level. Many of those who claimed not to use ICT did use it. However, as the description of the respondents' characteristics in Chapter 4 showed, there were varying levels of exclusion within the sample. Hence, a further question of interest was the relationship between level of exclusion and level of ICT use. The categories of exclusion described in Chapter 4, wherein the respondents were assigned a level of exclusion by modifying Burchardt *et al's* framework to account for other factors not captured by quantitative measures, were used to investigate the connection between ICT use and level of social exclusion in the group. As table 7.1 below shows, there does appear to be a pattern.

Exclusion	Low	Moderate	Severe	Total
User	9	8	0	17
Intermediate	3	3	3	9
Non-user	0	1	2	3
Total	12	12	5	29

Table 7.1: ICT use and exclusion in the sample

In the upper right hand corner of the table, slightly excluded, the majority of ICT users are found. However, none of the slightly excluded respondents are non-users. Conversely, of the 5 severely excluded respondents, none are ICT users. Thus, while levels of ICT use in this sample of excluded people are higher than might be expected overall, it appears that there is some relationship between level of exclusion and ICT use. Furthermore, the 3 severely excluded intermediate users fall into the category of very minimal use levels and skills, whilst 2 of the 3 least excluded intermediate users had relatively high skills and levels of past or present use. However, those who fell into the categories of very low or non-use tended to have very severe ongoing problems. As such, with reference to the other sense in which ICT use and social exclusion are seen to be linked, that is that using ICT can help to overcome social exclusion, it seems unlikely in these cases that ICT use would address the severity of these individuals' exclusion. There is some evidence that policy makers now recognise this issue: the recent SEU report (2005) on ICT and exclusion listed preliminary needs as the greatest barrier to ICT use for excluded people. However, this is solely indicative of a possible pattern which may point to some possibilities for future research, since the sample is clearly not of a size which will support statistical inference.

Other interesting patterns within the group related to age and gender. There did not appear to be any gendered disparity in ICT use, and nor did increasing age appear to have the usual negative effect on ICT, with more of the older respondents using ICT than those from the younger age brackets. Again however, given the small size of the sample, comments on the possible meaning

of these trends must be limited to the sample alone, although they do suggest possible avenues for future research among excluded people.

7. 3 c) Self-definition

A further question of interest raised by the findings is that of why certain individuals, in spite of using ICT to varying degrees, and in some cases quite extensively, nevertheless thought of themselves as non-ICT users. There were no discernible patterns linking gender, age or level of exclusion to propensity to self-define negatively. Of the 9 intermediate users, 3 belonged to each category of exclusion, 4 were male and 5 were female, and they were evenly spread across the age range. Some other factors emerging from the data which may have played a role in self-definition are considered below.

In some cases it was not surprising that the respondent self-defined negatively – the range of uses was so limited or use was so infrequent that the respondent was unlikely to adopt the status of 'computer user'. Thus in these cases the bases for self-definition could be categorised as *functional* or *frequency of use*. In other cases, negative self-definitions were somewhat more surprising and seemed to have a *temporal* basis. These respondents, while having ICT skills and access did not currently use ICT and therefore defined as non-users. It should be noted that these respondents may well be measured in surveys as 'lapsed' or 'dropout' users, although each of them recognised the likelihood that changing circumstances would require them to start using ICT again. In other cases, the respondents' negative self-definition was truly puzzling, given that the respondents were current ICT users and used it for a range of functions. In these cases, it seemed that a variety of factors contributed to negative self-definition. Self-concept, identified by Stanley (2003) as a barrier to ICT use among low-income respondents, appeared to act as a barrier to positive self-definition in these cases. For one respondent this inhered in the context of use, that is, outwith the labour market. For another, it rested in a belief that he was, at 35, 'too old' for computers. A poor self-assessment of one's ICT skills, sometimes known as self-efficacy, has been identified in other studies as a barrier to use for both women (Hargittai &

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Shafer 2006) and older people (Marquie, Jourdan-Boddaert, & Huet 2002). This also appeared to play a role in these respondents' self-definition. Neither respondent rated their skills very highly, and it seemed that this may have contributed to the formation of a negative self-definition. A further issue for one respondent seemed to relate to the content of some of the ICT courses he had attended. These appeared to be pitched at quite a high level, and to include applications likely to be of relevance only in a labour market context, such as Excel. However, the difficulty this respondent encountered in mastering these seemed to add to his sense that his ICT skills were poor, and thus to his belief that he was not an ICT user. Thus it seems that certain factors can act as barriers to self-defining as an ICT user, rather than to use *per se*. This in itself may create problems for the user however. For instance, it may lead them to self-exclude from jobs requiring ICT skills in the mistaken belief that they do not have the requisite skills.

There were several ICT user respondents whose use and skills levels were comparable to those of some intermediate users who self-defined negatively. Thus, their positive self-definition was somewhat surprising. In three cases, the individuals used ICT for a limited range of functions, used only rarely, or lacked confidence in their skill, yet self-defined positively. Why this should have been the case is unclear. In a few cases, discussion with ICT user respondents about when they first started to use ICT shed some light on the point at which they first began to self-define as a 'user'. One particularly striking case illustrated the issues of context, confidence, and the manner in which the bases for self-definition can vary from one individual to another very strikingly. This respondent, who had been a skilled manual tradesman all his life, had used ICT at work, and had owned a computer which he broke while attempting to fix the operating system. However, it was not until he had attended a number of courses and gained a sufficient technical mastery to modify operating systems that he self-defined as an ICT user:

> So you had used them before that [attending courses] though?
> I had used it but I wasn't exactly what you call … I didn't … I mean, I could …
> You weren't confident?
> I wasn't confident. *I could have mucked it up and I wouldn't have known how to fix it,* do
> you know what I mean. But now I can just go in and just … you know

You know what to do.

Aye. After I done ECDL I was quite kind of confident on them. (emphasis added)

Thus it seems that processes of self-definition are extremely complex and subject to differing influences which can vary from one individual to another. Further research focussed on this issue would generate greater insights into the factors influencing self-definition.

7.4 Conclusions

7.4 a) What the research shows

The relationship between ICT use and social exclusion in the Scottish Household Survey dataset had been investigated using a rigorously operationalised model of social exclusion, in conjunction with multivariate statistical techniques which permitted estimation of the unique effects of variables included in the model. This analysis had suggested that while social exclusion indicators had strong and significant effects on ICT use, as a whole they did not explain as much of the variance in ICT use as might have been expected. This suggested that a number of other, as yet unknown, factors had a role in influencing ICT use. The qualitative phase of the research shed some light on these factors, whilst also reflecting back on the quantitative phase in important ways. In particular, the qualitative findings demonstrated that the means of measuring ICT use employed in this and many other surveys did not adequately capture the complexities of ICT use. The manner in which people use ICT would appear to be so fluid and discontinuous that fixed categories of 'user' and 'non-user' bear little relation to reality. In addition, it would seem that some people who use ICT have a tendency to self-define as non-users. For these reasons, it is possible that existing survey evidence underestimates levels of use. The qualitative research afforded insights into these and many other aspects of individuals' relationships with ICT. These are summarised below.

Barriers to ICT use among the qualitative respondents were few, and did not accord with those suggested in the policy literature. In particular, lack of interest or awareness were not common,

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and many of the respondents were keen to use ICT for a variety of reasons. Where lack of interest was an issue, as with the erstwhile intermediate respondents, it was not generally linked to lack of awareness. Similarly, access did not appear to be a significant issue for the majority of the respondents, who had little difficulty finding places to use ICT if they wished to do so. Where barriers of skills, anxiety or access did exist, the respondents appeared to be quite adept at overcoming them, sometimes going to considerable lengths to do so. This suggests a high degree of motivation to use ICT in many cases. Lack of relevant content was not an issue at all, as the respondents used ICT to support engagement with their many and varied personal interests. However, certain factors appeared to act as barriers to self-definition in some cases, including context of use, self-concept and self-efficacy.

Incentives to ICT use were multifarious and highly individuated, but again they tended not to accord with policy makers' assumptions regarding the drivers or benefits of ICT use for excluded people. The incentives tended to be structured by individual needs, motives and aspirations, and also by social context. Thus issues connected with children, pursuing personal interests and ubiquity in, or encouragement from, one's social network emerged as the greatest incentives to use. Incentives also appeared to change with the passage of time, again in response to changing circumstances, but also perhaps reflecting increasing comfort with the technology. For some respondents, incentives to use ICT disappeared altogether at some stages. However, these respondents were unfazed by the notion of starting to use again if necessary, suggesting that some who 'drop-out' of Internet use may just as easily 'drop-in' again when their needs change.

Another aspect of interest was the seemingly very high levels of ICT use. It was extremely difficult to find absolute non-ICT users, even when seeking respondents among very excluded groups. Had it been appropriate to do so, many more interviews with ICT users could have been conducted. However, non-users proved extremely elusive. As we have seen, the majority of the 'non-users' sampled proved in fact to be users. Very few respondents, even the most severely excluded, were totally excluded from ICT. Thus the overall picture was one of a high degree of ICT use, skills and familiarity in the sample, much higher than one would expect based on a reading of much UK survey evidence for the period in question. Similarly, home access was a

great deal more common than might have been expected given the economic circumstances of the respondents. ICT use was highly prevalent among the respondents' social networks, and many were able to access ICT in the homes of friends or relatives. If they lacked the means to conduct a given task, often they were able to ask social contacts to do so on their behalf. This would appear to support Rose's (2006) argument that rather than the 'digital divide' model, a 'diffusion model', wherein individuals are increasingly exposed to new technologies by their proximity to those who have already adopted it, is a more accurate representation of the situation regarding ICT.

Even more surprising however, was the number of respondents who, for a variety of reasons, defined themselves as non-users even when they were in fact quite competent and regular users. This may go some way to explaining the modest variance explained by the regression models described in Chapter 3; if people have a tendency to self-define as non-users, yes/no questions in surveys will potentially lead to quite severe underestimation of the actual levels of use in the population. If the dependent variable is not an accurate measure of the phenomenon of interest, this will be reflected in a low explained variance. The manner in which individuals developed a given self-definition appeared to be exceedingly complex and to involve a variety of factors. In some cases, factors thought to act as barriers to ICT use acted rather as barriers to self-definition as an ICT user. This issue is discussed further in section 7.4 e) below.

There was a strong preference for home access among the majority of the participants. This reflects the findings of recent surveys (OxIS 2005, ONS 2006), and other research evidence which indicates that home access is preferred, particularly when conducting personal business (Selwyn 2003b, Anderson 2004, Huntley *et al* 2004). Indeed, Hassani's (2006) analysis of US data suggests that the primary activities for which there is tangible evidence of benefits accruing from Internet use (searching for health and product information, making purchases and banking) are far more likely to be conducted by those who have home access. Similarly, ICT skills were often acquired through self-teaching or informally through social contacts. Again this accords with survey findings (ONS 2006) and other research evidence on the importance of family and

friends in gaining ICT skills (Selwyn 2005). Indeed, in some cases it seemed that formal ICT training had the effect of limiting ICT use.

7.4 b) Generalisability of the findings

In discussing the conclusions drawn from the qualitative findings, it is necessary to be clear about their applicability in a wider context. The issue of generalising from qualitative evidence is exceedingly complex and, for many, contentious. In this study, a theoretical sampling frame was developed, such that the sample was relevant to the research questions at hand. This is seen by Silverman (2001) as one means of attaining generalisability in qualitative research. Ritchie and Lewis (2003) suggest that there are three distinct types of generalisability in qualitative research: representational, which involves generalisation to the parent population from which the sample was drawn; inferential, involving generalisation to settings beyond that of the parent population; and theoretical, which involves the development of theoretical propositions from the research data which have a potentially wider application (including the field of policy). In this case, the sample will support neither inferential nor representational generalisation. However, some of the conclusions have a greater degree of theoretical generalisability, such that they may suggest further avenues for confirmatory or exploratory empirical research (Ritchie & Lewis 2003).

Clearly one aspect of this sample which differentiates it from the wider population is its youth. It is possible that similar research with older age groups would generate very different findings. Selwyn's extensive research on ICT non/use among elderly respondents (Selwyn *et al* 2003, Selwyn 2004a) suggests that, like some of the respondents to this study, many non-users of computers aged 65 and over reported having no need to use ICT, and did not appear to experience or perceive themselves to experience any disadvantage arising from their non-use. This was often in spite of having acquired ICT skills in the workplace or using ICT in the past. Indeed many of these elderly respondents had either home access or quite substantial social access, and were frequently encouraged to use ICT by younger family members. The contribution of the findings generated by this sample to answering the research questions is considered in depth below.

7.4 b) Overarching conclusions

In this group of young, socially excluded respondents, ICT use and social exclusion did not appear to be connected in the manner posited by policy makers and many academics. Although the respondents were excluded, many used ICT, or planned to use it in the very near future. Those that did use it did not appear to be less excluded as a result, even where their use of ICT spanned many years. Conversely, those that did not use it did not appear to be more excluded as a result. In particular, the erstwhile intermediate respondents seemed to suffer no disadvantage arising from non-use. This is not to say that those respondents who used ICT derived no benefit from it: in many cases they clearly both benefited from, and enjoyed using, ICT. However, the evidence drawn from these respondents does not support notions of ICT use 'overcoming' social exclusion, nor of non-use leading to exclusion. Indeed it is clear that one can be an ICT user and still be relatively socially excluded. These findings thus suggest that the nature of the relationship between social exclusion and non-use of ICT needs to be rethought. If those who do not use ICT are not socially excluded as a result, and those who do use ICT are not thereby socially included, it becomes necessary to question the posited relationship between social and digital exclusion which holds that digital exclusion is both a cause and a consequence of social exclusion. Indeed at this juncture it becomes necessary to reflect on the use of the term 'digital exclusion' itself. The manner in which it is employed across a range of academic and policy literature is open to a number of differing interpretations, and at times implicitly connotes one or more of these simultaneously. Thus, there is a lack of conceptual clarity around the term, similar in nature to that discussed in Chapter 2 around the term 'social exclusion'. Arguably, wherever such a lack of clarity occurs, obfuscation and confusion regarding the issue at hand is inevitable. Hence, in this case, digital exclusion can be read as meaning one or more of 3 things:

1) Non-use of ICT
2) Exclusion from other areas of society caused by non-use of ICT.
3) Non-use of ICT caused by exclusion from other areas of society.

In any case, it carries the connotation that non-use of ICT is always by definition problematic. However, the evidence presented here suggests that this is by no means inevitably the case. Thus it is proposed that in the interests of conceptual and operational clarity, the phrase 'non-use of ICT' should be employed in place of the term 'digital exclusion'. The implications of these finding for digital exclusion policy are discussed in section 7.5 below.

7.4 c) The Information Society?

One reason that these respondents did not appear to be suffering marked disadvantage arising from low or non-use of ICT may be that ICT itself has not developed in the way many believed it would. For instance, some believed that within a short period of time, the majority of public and private services would be exclusively available online (Anderson 2005). As things stand, whilst the UK government is endeavouring to expand the range of online services, exclusivity of delivery via the Internet is a far-off prospect, if indeed it is ever likely to occur. Meanwhile, there appears to have been a recognition that multi-channel service delivery will have to continue for the foreseeable future (SEU 2005). Similarly, it seems unlikely that the majority of retail outlets will close their doors in the next few years. In this context then, non-use of ICT does not entail the kind of disadvantages many feared it would. If and when public and other services become truly Internet-only operations, it is possible that people will suffer real disadvantage as a result of ICT non-use, meriting further research into its impacts. However, evidence from this and other studies (e.g. Margetts 2006) also suggests that there is scope for proxy use in situations where an individual absolutely requires to conduct a transaction online and lacks the means to do so personally.

Similarly, predictions regarding the beneficial effects of ICT use may have been confounded by the failure of ICT to have the social impacts many expected. For instance, the anticipated increase in political participation, leading to a reinvigoration of democracy, does not appear to be imminent. Evidence suggests that people will not use ICT for things they do not already do. In other words, they use it to support existing offline interests (Selwyn *et al* 2005). Thus, it seems

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unlikely that the relative ease of online political participation will cause those who are not already politically engaged to become active in this sphere.

Arguments such as those made by van Dijk and Hacker (2003) concerning the inevitability of the divide's persistence due to the ongoing costs of Internet access already appear outdated in the light of changes in the market. The cost of both equipment and Internet access has fallen rapidly in a short space of time. Broadband prices in particular have dropped sharply, although there are question marks over the quality of some of the cheaper providers (*Sunday Times* 27/8/06). Similarly, the evidence provided here, generated by interviews conducted only 2 years ago, is already somewhat outdated by the continuing progress of media convergence. At the time of the research, MP3 players and digital photography were still somewhat unusual. MP3 in particular was still seen as the preserve of the computer geek. In the last year, the market has exploded; in 2005 alone sufficient MP3 players were purchased to supply one quarter of UK households (audacious communications 2006). As Internet access is required to make effective use of such an item, so desire to own one may spur people on to using ICT. Further, it seems likely that these will appeal to people in many strata of society, including those on lower incomes. Further developments, such as the availability of film and TV via the Internet, can only serve to increase its 'utility function' (Anderson 2005). Indeed, it is possible that one of these may prove to be the 'killer app' so often believed to be essential to speeding the uptake of a new technology (Dutton *et al* 2004). Some commentators have argued that expanding use of the Internet will not deliver digital inclusion if it only involves the use of mass entertainment applications (e.g. van Dijk & Hacker 2003). However, it seems likely that such uses could help to address any remaining issues of unfamiliarity and as such, serve as an entrée to more advanced uses. In any case, such arguments can be made in relation to traditional media. Some people read *The Independent* and some people read *The Sun*; again it seems likely that the uses individuals make of the Internet will be conditioned by their interests prior to commencing use.

As Webster (2005) has argued, policy around ICT in the UK has been based on acceptance of a technologically determinist interpretation of Information Society theory, within which it was predicted that very rapid social change would result from the spread of ICT. Public services,

discussed above, are just one example of how these expectations have proved to be somewhat overblown. Thus, the 'Information Society' has not developed in the way that many predicted it would, and therefore people are not disadvantaged by non-use of ICT to the extent that was feared. As Dutton *et al* (2004) have argued, ICT is 'intrinsically social' in nature. As such, attempts to predict the impact of these technologies are inevitably confounded by the role of individual decisions about their use and uptake.

7.4 e) Typologies of ICT user

Having set out to interview 'ICT users' and 'ICT non-users', it was found that these categories bore little resemblance to individuals' actual orientations towards ICT. Rather, there existed a spectrum of modes of ICT use, with very little contact at one end and highly competent and skilled at the other. In many cases it was difficult to assign individuals to a category of use, even when a more nuanced schema was developed. It was similarly difficult to identify a point in time at which a given individual should be identified as an 'ICT user'; reflecting Selwyn's notion of the technology 'career', patterns of use were often so discontinuous and fragmented that such categories made little sense. This evidence also supports the arguments of those who have called for a more nuanced understanding of ICT use. As Cushman and Klecun (2005b) have argued, it seems that ICT use is more accurately represented by conceiving of a continuum, or a spectrum of use levels and skills. Further, this appears to be a spectrum on which individuals can and do move around in response to their ever-changing life needs and circumstances. In this sense, again Selwyn's concepts, both of the technology career and situational relevance, appear to shed much light on individual ICT use.

As noted earlier in this chapter, other authors, notably Selwyn, have recently developed more complex typologies of ICT use to describe individuals' relationships with ICT. Based on their extensive qualitative investigations of ICT use, Selwyn *et al* (2005) suggested that ICT users may be defined in terms of 'broad frequent' 'narrow frequent' 'occasional' and non-users. Selwyn (2006) later advanced the sub-division of non-users into 'absolute', 'lapsed' and

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'minimal. These typologies clearly have some advantages over the dichotomous definitions of user and non-user. The former set of categories account for variations in the range and frequency of use, whilst the latter set both captures subtle differences in levels of non-use and the phenomenon of cessation of ICT use. Nonetheless, the typology developed for use in the current research arguably offers some advantages over these. The sub-category of 'intermediate user' recognises that many people who self-define as non-users may in fact use ICT. The further gradations within this sub-category also allow for a greater degree of subtlety and ambiguity in individuals' relationships with ICT, capturing more of the dimensions of these relationships. In distinguishing between 'erstwhile competent', 'erstwhile low level', 'current competent' and 'current low level' this schema accounts for both temporality and skills level when describing individuals' use of ICT. It further recognises that although some people may not currently use ICT, or self-define as an 'ICT user' they may nonetheless be quite skilled and competent users when they so desire.

Given the recognition in this volume of the inefficacy of survey questions which permit only a dichotomous response to enquiries regarding ICT use, it is necessary to make some comment on possible means of operationalising such categories in large-scale surveys of this topic. Clearly, operationalising the typology advanced here would pose some difficulties in the context of a large scale survey. Limitations of both time and resources inevitably preclude the type of probing which allowed these categories to emerge in a qualitative context. The questions now employed by the ONS (2006) which explore use in the preceding 3 months, 12 months and over 12 months represent an advance on simple yes/no enquiries, in that they will capture those individuals whose use has ceased. However, there remains a strong likelihood that, given their failure to define their ICT use as such, many of those who initially responded 'no' to a dichotomous question in the current research would respond thus in a survey context, despite the inclusion of a temporal element in the question. It is possible, however, that a question could be developed which would account for the tendency to self-define negatively among certain individuals, potentially worded as follows:

"Do you, or have you ever, used computers or the Internet, even if it was only once or twice, or just for playing games/looking for a single piece of information or something similar?'

Those who responded 'yes' to this question could then be provided with a range of options designed to elicit the nature, frequency and range of their use. In this way it may be possible to capture more of the complexity of individuals' lived experience of ICT on a larger scale than that afforded by qualitative research, and in so doing to investigate further some of the issues raised by this research. In particular, the related issues of whether and how factors related to social exclusion influence the manner in which people arrive at ICT use self-definitions, and how self-efficacy is linked to such factors, could be explored much more thoroughly if such a line of questioning were followed.

7.4 f) Wider implications of the research

The role of agency in individual decision-making processes is very frequently underplayed in research and in policy literature. Certainly with regard to ICT use, it is necessary to give greater consideration to the role of individual needs, motivations and aspirations in patterning decisions regarding ICT use. The respondents in this study clearly exercised agency when reaching decisions concerning whether, where, how, when and why to use ICT. As in Selwyn's (2006) qualitative study of marginal, lapsed and absolute non-ICT users, many respondents' non-use of ICT either at the time of the interview or for specific purposes was shaped by the lack of relevance of ICT to them. This highlights the issue of the role of agency in research of social exclusion generally; as was discussed in Chapter 2, some authors acknowledge that non-participation in some spheres of life may be voluntary (Burchardt, Le Grand & Piachaud 2002b). In quantitative studies however, such non-participation will be taken as evidence of exclusion. This is particularly well illustrated by the approach taken to 'lack of interest' in ICT, so often translated into 'lack of awareness of the benefits'. In this case it would appear that policy makers cannot accept that some people simply do not need or want to use ICT, or that they are capable of reaching a rational decision about whether to use ICT. This appears directly to deny agency to those individuals, generally 'excluded' people, who report lack of interest in ICT. There is a risk,

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both in quantitative research and in policy discourse, of homogenising people under such labels, and 'othering' them, with the concomitant risk that they are thus stripped of agency. This is not intended as a criticism of quantitative research *per se*, but one would argue that it necessitates the development of more nuanced methods of defining and measuring social phenomena. In this study, the use of both quantitative and qualitative methods has ensured that such issues are accounted for, further emphasising the efficacy of mixed method research. The identification of lack of 'relevant' content as a barrier to ICT use similarly appears to be based on a perception of 'excluded people' as 'other', requiring content which is different from that used by the 'included' population. As we have seen, for the participants in this research, neither lack of awareness nor lack of relevant content acted as barriers to ICT use: they had no difficulty identifying either benefits of ICT use, or content which was relevant to their many and varied interests. Thus, efforts should be made to acknowledge the agency of those who participate in such research, or who are the target of policies aimed to tackle social exclusion and other social problems.

7.4 g) Directions for future research

A number of potential avenues for future research are suggested by these findings. The tendency of many ICT users to self-define negatively suggests that research aimed at exploring the manner in which individuals arrive at a given self-definition may generate some useful insights both within the field of ICT use and in a wider context. In particular, the role of self-efficacy and the question of the relationship between self-efficacy and socio-economic position represent interesting fields of future research.

Longitudinal quantitative research exploring the effect of ICT use on social exclusion would assist with the provision of more definitive answers to the nature of the relationship between these phenomena, in particular on the question of causality.

A further area of research suggested by this work is that of developing survey instruments more capable of detecting subtle differences between individuals without imposing pre-ordained

categories upon respondents. By extending the deeper insights afforded by qualitative research to a wider population such a project would contribute greatly to social research as a whole.

7.5 Policy implications

These findings have some implications for digital inclusion policy, which are discussed below.

There is a need to accept that some people do not want or need to use ICT, and that they do not appear to be overly disadvantaged as a result of non-use. 'Lack of interest' is constructed as a problem that can be fixed by making excluded people aware of the benefits of ICT use, but evidence indicates that for some it is a perfectly valid and rational response to ICT. Further, it seems that when people find they have a need to use ICT, they are very well able to equip themselves with the necessary resources. As such, it is debatable whether it is necessary actively to promote ICT use. Similarly, there is a need to accept that people will use ICT for purposes that meet their own self-defined needs, and that these may not accord with those expected by policy makers. As the evaluation of the Digital Communities (Scottish Executive 2004) initiative observed on finding that participants did not use their new computers in the expected ways, 'future policy initiatives should make much more explicit reference to the expressed requirements of the target group' (p.8). Thus, it may also be necessary to scale down expectations of the wider social aims associated with ICT use, such as promoting social cohesion or encouraging political participation.

All available evidence indicates that people prefer accessing ICT in their own home, for a wide variety of reasons. As the market develops, both ICT hardware and broadband access are becoming more affordable. This would suggest that home access should be promoted, and possibly subsidised for those on low incomes. As pay as you go mobile phones have proved to be extremely popular with those who lack a home address, good credit history or who do not wish to commit to a monthly outlay over which they have no control, possibly some form of Internet subscription could be developed that does not require a fixed monthly outlay. However, at the

current time it seems that digital inclusion policy continues to focus on public access provision, in part because this is seen to deliver wider social objectives for which the evidence is, at best, contradictory.

The Internet is arguably a 'public good' however. Just as public telephones continue to be publicly provided, it seems that there is an argument for residual public Internet provision for those who wish to use ICT but lack other means of access. Such public provision also needs to be truly accessible; the one major barrier to using ICT identified by a number of the respondents to this study who wished to use ICT was lack of childcare in PIAPs.

Aspects of ICT which do appeal to people on low incomes, such as cheaper phone bills, tend to be overlooked when promoting the Internet, possibly because these are largely dependent on having home access. Perhaps promotional material should focus more on functions which have an immediately obvious application, such as downloading music, printing photos, contacting distant relatives, and saving on phone bills.

Much ICT training, being based on the assumptions of policy makers regarding the ways in which people ought to use ICT, appears to be overly focussed on labour market applications, and as such is off-putting to many. Indeed, it may in fact act as barrier to some individuals self-defining as an ICT user. The European Computer Driving Licence, for example, is structured in such a way that trainees must learn about networks, spreadsheets and databases before they are permitted to learn how to use email and the Internet. The Penceil project is explicitly designed to develop ICT curricula in consultation with excluded non-users so that it is relevant to their needs (Cushman & Klecun 2005a, 2005b). If the project succeeds in its aims, it is to be hoped that ICT training will improve as a result. However, it seems that the majority of people acquire ICT skills informally, through self-teaching or social contacts. Again, however, UK digital inclusion policy seems to be geared towards providing formal training.

The prevalence of proxy use suggests that there may be some scope for formalising this for groups who are particularly unlikely to engage with ICT. The 'Net Neighbours' project, run by

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Age Concern, uses telephone intermediaries to purchase groceries online for older people is one example of such a scheme already in operation (Blythe & Monk 2005). Similarly, in relation to public services, Margetts' (2006) analysis of OxIS data for 2005 suggested that there was considerable scope for those who do not use the Internet personally to conduct interactions with government by proxy where necessary. It is possible that formal schemes could be expanded, although a good deal of proxy use already appears to occur without the need for intervention.

While the need to maintain multi-channel delivery of public services appears to have been recognised, expanding the delivery of services online is still a major focus of government policy (Cabinet Office 2005). It is argued that online service delivery is quicker and more efficient than traditional means. However, evidence indicates that many individuals prefer face-to-face contact when conducting transactions with the state. The relatively poor take-up of online public services may well be a result of the relative lack of efficiency of these services. While the government claims that 75% of services are now available online (ibid.), it appears that the majority of these are still limited in their functionality. For instance, often the only service offered by government websites is the posting of a form to the address entered into the website by the user. Often the required transaction can be more easily conducted over the phone. While this continues to be the case, it seems unlikely that use of online public services will act as a driver to Internet use.

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Appendix 1 Education variables

Education variables used in logit analysis of SHS:

Level 1

No qualifications
School leaving Certificate

Level 2

O Grades
Advanced School Leaving Certificate
SVQ 1 and 2

Level 3

Highers
SVQ 3
City and Guilds

Level 4

Degree
Professional
HNC

Appendix 2: Quantitative diagnostics

It is necessary to perform certain diagnostic tests on any regression model in order to test for potential problems with model. Following the protocol for logistic regression diagnostics suggested by Menard (1995), the model was subjected to the following diagnostic tests:

Collinearity

Collinearity occurs when any of the explanatory variables are related to one another in a linear fashion. For instance, in this model it is quite likely that income and education are related to one another to some extent. A degree of collinearity is inevitable in the social sciences, as social factors have a tendency to be interrelated. However, if the degree of collinearity is high it will compromise the ability of the model to correctly predict the outcome and to estimate the influence of individual variables (Field 2005, Menard 1995). There are a number of ways of testing for collinearity. The simplest method is to run bivariate correlations of each independent variable on all other independent variables. A value of 0.8 or above is taken to indicate severe multicollinearity and suggests that the variable in question should be removed from the model (Menard 1995). Testing in this manner revealed that the highest correlation coefficient, 0.754, was generated by correlating age as a continuous variable with the dichotomous variable retired. This was not particularly surprising, as the majority of retired people are over 60. However, this did not exceed the threshold of 0.8. Further collinearity diagnostics indicated that there were no other problems with collinearity in the model. As the inclusion of retired in the model did not appear to influence the odds ratios for other variables, it was decided that it should be retained.

Influence

It is possible for certain cases to exert an undue influence on the model. Diagnostic tests are available to establish whether this is the case for individual cases in the

model. SPSS generates a number of variables, such as Cook's distance which calculates the effect on the odds ratios of excluding a given case from the model, DFBeta, which is a version of Cook's distance standardised to take account of different units of measurement, and leverage values, which also give an indication of the influence a case is having on the model (Field 2005). No values for Cook's distance should be greater than 1, and in this case, none were. No DFBeta values should be greater than 1, and again none in this model were. The leverage values did exceed their optimal levels (which equal the explanatory variables + 1/sample sizex3), but if the Cook's distance and DFBeta values give no cause for concern, large leverage values do not require any action (Pryce 2003).

Residuals

In order to gauge the efficacy of the model's prediction of the outcome variable, it is possible to measure the difference between the predicted outcome and the actual outcome for every case in the model. This difference is known as the residual, and it also allows outliers which are influencing the model to be easily identified. SPSS saves different versions of it to allow the model fit to be assessed. Large residuals indicate that there may be cases which are not being efficiently predicted by the model – a normally distributed sample should have no more than 5% of cases with residual values greater than ± 2, and no more than 1% with residuals of greater than ± 2.5. Cases greater than ± 3 warrant closer inspection. In this case, there were a number of problematic values for the normalised residual – 138 cases were greater than 3. When these cases were investigated, it transpired that all were respondents who the model would have difficulty in predicting - all were ICT users but the majority were either in a very low income bracket, aged over 60, or otherwise very unlikely to use ICT. For this reason it is not surprising that the model had difficulty in predicting them correctly. In such a situation, where the values are not erroneous, their influence on the model is considered to be valid, and the cases should be retained (Pryce 2003). Other possible diagnostic tests were not required in this situation because each explanatory variable included in the model was dichotomous.

Appendix 3: Application for ethical approval of qualitative interviews

FACULTIES OF LAW AND FINANCIAL STUDIES AND SOCIAL SCIENCES ETHICS COMMITTEE

APPLICATION FOR ETHICAL APPROVAL

NOTES:

THIS APPLICATION AND ANY ACCOMPANYING DOCUMENTS MUST BE SENT ELECTRONICALLY TO a.lindsay@socsci.gla.ac.uk

THIS APPLICATION FORM SHOULD BE TYPED NOT HAND WRITTEN.

ALL QUESTIONS MUST BE ANSWERED. "NOT APPLICABLE" IS A SATISFACTORY ANSWER WHERE APPROPRIATE.

INTERNAL IDENTIFICATION NUMBER SSL/03/

Project Title _ Social exclusion and ICT; Barriers and incentives to digital inclusion

Date of submission ___ 10/5/04

Name of all person(s) submitting research proposal   Marcia Gibson

Position(s) held _____ PhD Student

Department/Group/Institute/Centre _____ Urban Studies

Address for correspondence relating to this submission

Urban Studies Department, 25 Bute Gardens

Name of Principal Researcher (if different from above e.g., Student's Supervisor)

_____Robina Goodlad_____

Position held ___Professor of Housing and Urban Studies

1. Describe the purposes of the research proposed.

In the context of the increasing ubiquity of ICTs in every area of life, there is growing concern amongst policy makers that inequities in levels of ICT use amongst different socio-economic groups may lead to a deepening and/or spread of social exclusion amongst those groups who do not use ICT. Since there is a high correlation between social exclusion and non-use of ICT, this study aims to investigate factors, particularly attitudinal barriers, which act as either barriers or disincentives to ICT use among socially excluded groups. The research thus aims to address the following research questions:

To develop a greater understanding of the statistical relationship between ICT use and a number of socio-economic factors.

To develop, through qualitative research, a deeper understanding of the incentives and disincentives to ICT use among excluded groups.

In particular, to gain an understanding of what motivates those excluded groups who do use ICT to use it, i.e. how do they feel that they benefit from it?

To investigate the nature of reported attitudinal barriers, such as lack of interest, which are not easily evinced through quantitative methods.

2. Please give a summary of the design and methodology of the project. Please also include in this section details of the proposed sample size, giving indications of the calculations used to determine the required sample size, including any assumptions you may have made. (If in doubt, please obtain statistical advice).

The first aim of the research has been met through statistical analysis of the Scottish Household Survey dataset.

These questions will be investigated using one-to-one, in-depth semi-structured interviews. It is intended that a total of 32 respondents will be interviewed, 16 users and 16 non-users of ICT. These will be pre-defined as 'socially excluded' by means of selecting only participants who are economically inactive and in receipt of benefits. Statistical evidence indicates that those aged 16-35 are a great deal more likely than those in older age groups to use ICT. Thus, non-use in younger age groups is to some degree anomalous, and therefore of greater interest, both in terms of the immediate aims of the research and in the longer term policy context. Respondents aged 18-35 will therefore be targeted. Access will be achieved through the relevant gatekeeper (Scottish Enterprise Digital Champions Team, which has a remit to deliver digital inclusion in Social Inclusion Partnership areas), with whom the researcher has an established relationship (they are co-sponsors of the research). ICT using respondents will be located through community based digital inclusion initiatives, which the Scottish Enterprise Team has a major role in fostering and supporting. Since evidence suggests that many lower income groups in fact use ICT in the home of a friend or relative, snowballing will also be employed to attempt to access such users. Non-users will be located through centres where there are also non-ICT based projects, and also through the use of snowballing. Since Glasgow has a particularly high incidence of social exclusion, and there are many suitable centres based there, the research will be conducted at centres located in Glasgow.

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3. Describe the research procedures as they affect the research subject and any other parties involved.

Initial contact with centre staff will be made through the Scottish Enterprise Digital Champion for Glasgow (Steven Latta). Having established contact with centre staff, a means of directly identifying potential respondents will be established – dependent on the nature of the centre and the types of monitoring procedures employed there, either through word of mouth, centre records, or advertising within the centre. If potential respondents are recommended to the researcher by centre staff, these will then be approached and invited to participate in the study. If, having been fully appraised of the nature and aims of the research, they wish to participate, they will be asked to sign the consent form. Taking part in the research will involve a one-to-one in-depth interview of around an hour's duration, which will be tape-recorded.

4. What in your opinion are the ethical considerations involved in this proposal? (You may wish for example to comment on issues to do with consent, confidentiality, risk to subjects, etc.)

The research will be guided by the common ethical considerations of obtaining informed consent, ensuring that respondents' confidentiality is not breached, and maintaining the anonymity of respondents. To these ends, an information sheet will be provided, written consent will be obtained, and data will be stored securely and anonymised. (Information sheet and consent form attached.)

I will be enquiring, among other things, about what people use ICT for. Evidence suggests that many people use the Internet to view pornography. Since this is likely to cause embarrassment to the respondent, and is not of primary interest to the research, I intend to state in the information sheet that I am aware that some people use it for this purpose, and if this is the case it need only be described as 'leisure' for the purposes of the interview.

There is another more serious issue of use of the Internet for illegal purposes (viewing paedophiliac material, fraud, etc.) I am aware that disclosure of information about such activities would render any confidentiality agreement void. I therefore intend to inform participants that in the event of revelations of illegal activities I am legally obliged to inform the appropriate authorities, and to include a clause stating that the respondent is aware of this in the consent form.

5. Outline the reasons which lead you to be satisfied that the possible benefits to be gained from the project justify any risks or discomforts involved.

I do not anticipate that the research will cause any discomfort or risk to the respondents, with the exception of the illegality issue outlined above. It is hoped that the course of action outlined above will obviate this risk.

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6. Who are the investigators (including assistants) who will conduct the research and what are their qualifications and experience?

The research will be conducted entirely by the applicant.
Qualifications: MA Hons (1st Class) Sociology, Glasgow 2001

7. Are arrangements for the provision of clinical facilities to handle emergencies necessary? If so, briefly describe the arrangements made.
Not applicable

8. In cases where subjects will be identified from information held by another party (for example, a doctor or hospital) describe the arrangements you intend to make to gain access to this information including, where appropriate, which Multi Centre Research Ethics Committee or Local Research Ethics Committee will be applied to.

Not applicable

9. Specify whether subjects will include students or others in a dependent relationship.

Subjects will not be in any form of dependent relationship with the researcher.

10. Specify whether the research will include children or people with mental illness, disability or handicap. If so, please explain the necessity of involving these individuals as research subjects.

No such groups will be involved.

11. Will payment or any other incentive, such as a gift or free services, be made to any research subject? If so, please specify and state the level of payment to be made and/or the source of the funds/gift/free service to be used. Please explain the justification for offering payment or other incentive.

It is intended to give participants a gift to the value of £10-15, in the form of cash or a gift voucher. This will be drawn from the researcher's annual Research Fund, and is intended to increase the response rate, to compensate for any expenses incurred, and to recompense participants for their time.

12. Please give details of how consent is to be obtained. A copy of the proposed consent form, along with a separate information sheet, written in simple, non-technical language MUST ACCOMPANY THIS PROPOSAL FORM.

Informed consent is to be obtained by providing respondents with an information sheet detailing the nature and purpose of the research, and providing written consent forms to be signed by respondents (see attached).

Given the nature of the target group, the researcher will have to be sensitive to the possibility of literacy problems. Should these arise, consent forms and information sheets will be read to respondents by the researcher.

Permission to publish material, in anonymised form, may be sought at this stage, to avoid the necessity of tracing respondents should this eventuality arise at a later date.

13. Comment on any cultural, social or gender-based characteristics of the subject which have affected the design of the project or which may affect its conduct.

The focus of the project on the 'socially excluded' has affected the design of the research in the manner described above. The term 'socially excluded' could be construed to have negative connotations, and as the researcher does not wish to stigmatise respondents, it was decided to avert this possibility by avoiding use of the term. The decision to target benefit recipients specifically was taken in part to obviate the necessity of a potentially embarrassing filtering process designed to identify 'excluded' respondents.

It is probable that the information sheet will refer to concern about low levels of ICT use among people on low incomes as opposed to the 'socially excluded'.

14. Please state who will have access to the data and what measures which will be adopted to maintain the confidentiality of the research subject and to comply with data protection requirements e.g. will the data be anonymised?

All data will be stored in secure conditions (locked office, and locked filing cabinet to which only the researcher will have access), and anonymised. Where others are employed to transcribe data, anonymisation will be carried out prior to this.

15. Will the intended group of research subjects, to your knowledge, be involved in other research? If so, please justify.

They will not be involved in any other research to my knowledge.

16. Date on which the project will begin

.......17/5/04......................... and end .....30/10/04.................................
17. Please state location(s) where the project will be carried out.

The research will be carried out in community centres which provide a number of services including ICT access and/or training. These will be located in SIP areas within Glasgow. Specific centres have yet to be finalised through discussion with Scottish Enterprise – there are 93 SIP-based ICT projects in Glasgow, and a certain amount of narrowing down is required to identify those serving the exact target groups.

18. Please state briefly any precautions being taken to protect the health and safety of researchers and others associated with the project (as distinct from the research subjects) e.g. where blood samples are being taken

The aim is to conduct most interviews in a public place (e.g. ICT centre), but it is possible that at times they will take place in the home of the respondent. Where this is the case, the researcher will inform another responsible person of her whereabouts and planned departure time, and will carry a mobile 'phone at all times.

Name_____Marcia Gibson_____   Date

_____05/04_____

(Proposer of research)

Where the proposal is from a student, the Supervisor is asked to certify the accuracy of the above account.

Name ___Professor Robina Goodlad, Professor Anne Anderson   Date   /05/04

(Supervisor of student)

COMMENT FROM HEAD OF DEPARTMENT/GROUP/INSTITUTE/CENTRE

Name _____Professor Ade Kearns   Date
_____/05/04

(Head of Department/Group/Institute/Centre)

Send completed form to

Aileen Lindsay at a.lindsay@socsci.gla.ac.uk

Appendix 4: Information sheet for qualitative participants

Barriers and Incentives to Digital Inclusion - information for potential participants

I am a student at the University of Glasgow, studying for a PhD about how different groups of people use computers. My research is partly funded through a student grant, and partly funded by Scottish Enterprise, who are interested in encouraging people to use computers. As part of my research, I want to interview some people who do use computers, and some people who don't. This information sheet is for people who might be interested in being interviewed. It explains what my research will be used for, and what taking part involves.

If you agree to take part in the research it will involve being interviewed for about an hour, and asked about the kinds of things already described. Interviews may take place in community centres, or if you don't use community centres, and you agree to this, they may take place in your own home. The interviews will be tape-recorded. Everything you say in the interview is completely confidential, and everyone who is interviewed will have their identity disguised by changing names and locations etc. The tapes and any other information about the interviews will be stored securely, and only I will have access to them. There is a small payment for taking part in the research, to compensate you for your time and thank you for taking part. If you agree to take part, I will ask you to sign a consent form agreeing that you understand what the research involves and have given permission for your interview to be used in my PhD. Taking part in this research is completely voluntary. Even if you agree to take part and sign the consent form, you are free to change your mind and withdraw at any time.

Surveys show that a lot of people use the Internet for looking at pornography. This study is not about whether or not people do use it for pornography, and I do not need to know if this is what someone uses it for. If someone uses it for this, it only needs to be described as 'leisure' in the interview.

The Internet can be used for illegal activities, such as viewing child pornography. Although everything that is said in the interview is confidential, if information about taking part in illegal activities is revealed, I am required by law to inform an appropriate person (e.g. the police). This means that the confidentiality agreement is no longer binding.

The results of the interviews will form part of my finished PhD thesis, and it is possible that at some time in the future they will be published as part of an academic article. The results are also of interest to Scottish Enterprise because they may help to develop ways of encouraging more people to use computers. It is possible that they may be included in a report for Scottish Enterprise. If you are interested in finding out about the results of the research, I can provide a copy of your interview or of my finished piece of work.

Further information about any aspect of this research can be obtained by e-mailing me at 9505122g@student.gla.ac.uk. If you are concerned about any aspect of this research, you can contact the Convenor of the Social Science Faculty Ethics Committee at the University of Glasgow.

Appendix 5: Consent form for qualitative participants

Interviewees' consent form

I have read the information sheet and I understand the purpose of the research project and what taking part in the research involves.

I am aware that participation in the research is completely voluntary and that I may change my mind at any time.

I understand that all information I give during the interview is completely confidential, and that the researcher will store the information securely.

I understand that my personal details will be changed so that my name and other information cannot be identified from the researcher's work.

I also understand that if anything illegal is revealed during the interview, the researcher is legally obliged to inform the appropriate authorities, and the confidentiality agreement no longer holds.

I am aware that the contents of my interview may be included anonymously in the researcher's PhD, and may in the future be included in published articles or reports.

I have received a gift voucher to the value of £15, in recognition of the time I have spent being interviewed.

Name: _____

Address:

_____

Where Interviewed:

_____

Signed: _____

Appendix 6: Interview schedules

Interview guide - ICT users

1) REITERATE PURPOSE OF RESEARCH, CONFIDENTIALITY.

2) **BACKGROUND INFORMATION:** First of all, I'd like to ask you some questions about yourself.

a) Name

b) Age

c) Gender

d) Hhtype – live with parents/partner/child/ren

d) School-age children

e) Type of benefit respondent receives

f) Ill-health/disability

g) Area/length of residence in area

h) Ease of access to amenities

i) How do you spend your spare time, if you have any?

3) EXPERIENCE OF LABOUR MARKET/EDUCATION:

a) What age were you when you left school?

b) **What was your experience of school like?** Probe – negative or positive experiences of formal education?

c) Did you get any qualifications? (If yes, what are they?)

d) Are you attending, or have you attended any courses since you left school? **Would you like to/do you plan to in the future? What sort of subjects studied? Qualifications gained?**

e) Did you use ICT at school at all? **What sort of things did you use it for? Were you taught how to use it? Did you stop using it after you left school? If so, why?**

(Clarify that I am not connected with Job Centre/concerned with getting people into employment or detecting casual work.)

h) What sort of jobs have you had? **Explore employment history – long periods of benefit dependency? Engaged in labour market? What sort of skills were involved?** *(Has respondent been active in labour market/ used ICT in employment situation?)*

i) Would you like to get a job? **If so, what sort of things prevent you from getting one? Are there any skills that you think would help you to get one?**

4) CIVIC/POLITICAL ENGAGEMENT, SOCIAL INTERACTION:

a) Do you do anything to help relatives, friends or neighbours? For instance, do you babysit, pop in to check on elderly people, help people with shopping, decorating, moving house etc. If so, how frequently?

b) Do you do any sort of voluntary work? Probe - help out at local school or community centre, WRVS, meals on wheels, sports clubs, etc? If so, in what way/how involved are you?

c) Are you a member of any clubs or societies that are connected with hobbies or pastimes? E.g. fishing, reading, playing sports, sewing etc.

d) Would you say you were interested in politics? **If so, in what way – read papers/ watch news/keep up with local events etc.**

e) Do you vote? Have you ever voted/do you intend to in future?

f) Are you involved with any political organisations or campaigns? If so, in what way/how involved are you?

g) Do you ever do any of the following? *(i.e. activities corresponding to spheres of exclusion that can be done using ICT more easily or cheaply than by traditional means.)*

Write to or phone friends/relatives who live far away.
Look for or apply for jobs
Large grocery shopping.
Buy clothes, books, CDs etc.
Book tickets for the cinema or other leisure activity.
Book flights/holidays.
Pay bills or do banking at local branch/by phone.
Get books out of the library about something of special interest to you.
Write to or otherwise contact your councillor or MP.

Listen to music

Photography

Explore methods used to carry out such activities – ICT or non-ICT? Need to repeat any in next section? (Do they in fact do any of these things? How excluded are they across different spheres, and if they are really excluded is ICT relevant to them?)

NEXT SECTION ONLY IF NOT COVERED BY PRECEDING QUESTIONS

h) Do you have friends or relatives who live nearby? If not, how far away do they live? Do you keep in contact with them? How do you do that?

i) How many family members are you in regular contact with? (Including members of household) Who are they? Probe – parent/s, sibling/s, child/ren, grandparent/s, aunts or uncles etc.

j) How often are you in contact with them? Probe – everyday, once or twice a week, less than once a week.

k) What sort of contact do you have with them? Visit each other's homes, talk on phone, go out together etc.

l) Do you have friends or relatives you can ask for help if you have a problem/need support? Probe – physical or financial help, emotional support, help with childcare etc.

5) EXPERIENCE OF ICT: Now I'd like to ask you some questions about your experiences of computers and the Internet.

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a) How long have you been using ICT?

b) **How and where did you first start to use ICT?** When you started to use it, was it something you'd wanted to do for a while? Did you find it easy/hard to find somewhere to use it? Did you start using it at this centre? Had you used this centre for other things before? *Try to probe if the nature of the centre was important?*

c) **What attracted you to using it?** Were there particular things you wanted to use it for? (If so, probe – e.g. job skills/education/ help kids with schoolwork etc.) Did you have friends who used it? Was there anything that prevented you from using it?

d) **What did you know about ICT before you started using it?** Did you think it was difficult to use? Had you heard of the Internet? If so, what had you heard about it?

e) **How did you learn to use it?** Did you learn to use it here? Was it through formal classes or drop-in access? Did you find it easy/hard to learn? Was it easier/harder than you expected? Have you taken any formal qualifications in ICT? Do you intend to?

f) **Where do you use it?** At this centre? At other centres/PIAPs/educational institutions/ in home of friend or relative?

g) **How often do you use it?** Less than once a week, once a week, or more than once a week. Use Internet or PC functions more?

h) **What do you use it for?** List/probe; e-mail, chat-rooms, grocery shopping, other shopping, finding out about hobbies/interests, playing games, booking cinema tickets etc, booking flights/holidays, news/politics, banking, looking for work, writing CVs/job applications, education/helping with coursework, government services, digital photography, downloading music, general information. *(Corresponding with spheres/dimensions of social exclusion)*

i) Do you find it easier/quicker to do x, y, z of the above on computer/internet? If so, in what way? Probe if necessary – espec. nature of area – are shops etc. in/accessible, is Internet more convenient?

j) What do you like about using ICT? How does it benefit you? Do you think it's improved your life? Do you think ICT skills are useful in other areas of life? Probe – above activities easier/ improve chances of finding work/ increase confidence/ help kids with schoolwork/made new friends/ etc. etc.

k) Do you have or think you'll ever get a computer/internet access in your own home? If you do have home computing facilities, is it difficult to manage paying for these on a limited budget? (Try to get some sense of how this is prioritised for those on very low incomes.) Do any of your friends/family have home access? **(Is it preferable to have home access?) If you do have home access, do you think you would use ICT elsewhere if you didn't have it at home?**

l) Do you think it's a problem/does it matter if some people don't use ICT? Probe/clarify – people on low incomes miss out on advantages, access to cheaper goods/services etc.

m) Is there anything that you think would encourage more people to use it? Probe – more public access, greater awareness of benefits, incentives etc.

n) Can you think of any other types of technology you use in every day life? Probe – mobile phones, DVDs, gaming systems etc techno-literate, confident/frequent tech user etc

o) Is there anything else you'd like to say about your experience of ICT?

******************* END OF INTERVIEW *******************

Interview guide – ICT non-users

1) REITERATE PURPOSE OF RESEARCH, CONFIDENTIALITY.

2) BACKGROUND INFORMATION: First of all, I'd like to ask you some questions about yourself.

a) Name

b) Age

c) Gender

d) Hhtype – live with parents/partner/child/ren

d) School-age children

e) Type of benefit respondent receives

f) Ill health/disability

g) Area/length of residence in area

h) Ease of access to amenities

i) How do you spend your spare time, if you have any?

3) EXPERIENCE OF LABOUR MARKET/EDUCATION:

a) What age were you when you left school?

b) What was your experience of school like? Probe – negative or positive experiences of formal education?

c) Did you get any qualifications? (If yes, what are they?)

d) Are you attending, or have you attended any courses since you left school? **Would you like to/do you plan to in the future? What sort of subjects studied? Qualifications gained?**

e) Did you use ICT at school at all? **What sort of things did you use it for? Were you taught how to use it? Did you stop using it after you left school? If so, why?**

(Clarify that I am not connected with Job Centre/concerned with getting people into employment or detecting casual work.)

f) What sort of jobs have you had? **Explore employment history – long periods of benefit dependency? Engaged in labour market? What sort of skills were involved?** *(Has respondent been active in labour market/ used ICT in employment situation?)*

g) Would you like to get a job? **If so, what sort of things prevent you from getting one? Are there any skills that you think would help you to get one?**

4) CIVIC/POLITICAL ENGAGEMENT, SOCIAL INTERACTION:

a) Do you do anything to help relatives, friends or neighbours? For instance, do you babysit, pop in to check on elderly people, help people with shopping, decorating, moving house etc. If so, how frequently?

b) Do you do any sort of voluntary work? Probe - help out at local school or community centre, WRVS, meals on wheels, sports clubs, etc? If so, in what way/how involved are you?

c) Are you a member of any clubs or societies that are connected with hobbies or pastimes? E.g. fishing, reading, playing sports, sewing etc.

d) Would you say you were interested in politics? **If so, in what way – read papers/ watch news/keep up with local events etc.**

e) Do you vote? Have you ever voted/do you intend to in future?

f) Are you involved with any political organisations or campaigns? If so, in what way/how involved are you?

g) Do you ever do any of the following? *(i.e. activities corresponding to spheres of exclusion that can be done using ICT more easily or cheaply than by traditional means.)*

Write to or phone friends/relatives who live far away.

Look for or apply for jobs

Large grocery shopping.

Buy clothes, books, CDs etc.

Book tickets for the cinema or other leisure activity.

Book flights/holidays.

Pay bills or do banking at local branch/by phone.

Get books out of the library about something of special interest to you.

Write to or otherwise contact your councillor or MP.

Listen to music

Photography

Explore methods used to carry out such activities – would these be easier for the individual if they were done using ICT? (Do they in fact do any of these things? How excluded are they across different spheres, and if they are really excluded is ICT relevant to them?)

NEXT SECTION ONLY IF NOT COVERED BY PRECEDING QUESTIONS

h) Do you have friends or relatives who live nearby? If not, how far away do they live? Do you keep in contact with them? How do you do that?

i) How many family members are you in regular contact with? (Including members of household) Who are they? Probe – parent/s, sibling/s, child/ren, grandparent/s, aunts or uncles etc.

j) How often are you in contact with them? Probe – everyday, once or twice a week, less than once a week.

k) What sort of contact do you have with them? Visit each other's homes, talk on phone, go out together etc.

l) Do you have friends or relatives you can ask for help if you have a problem/need support? Probe – physical or financial help, emotional support, help with childcare etc.

5) EXPERIENCE OF ICT

a) Have you ever used computers or the Internet? If so – when did you use it, what did you use it for and why did you stop?

b) Would you like to use ICT? **If so, why?**

c) If yes to b), is there any particular reason why you don't? Probe – no access, too expensive, too difficult. (If too difficult, probe nature of 'difficulty' – think that ICT is just too hard, or possibility of literacy problem?)

d) If no to b), is there any particular reason why you don't want to? Probe – not interested, too expensive, no need, too difficult. *(Depending on reason given, probe further.)*

e) Do you know of anywhere you could go to use/learn to use computers if you wanted to? **If yes, where? PIAPs/friend or relatives? If PIAP, would you go there? (Explore)**

f) Do you think of learning to use computers as difficult? **If so, what do you think is difficult about it?**

g) Do you know what the Internet is/what kind of things it can be used for?

h) Do you have any friends or relatives who use ICT? **If yes, probe for more info – how prevalent is ICT use in respondent's social network?**

i) Do you ever get other people to do things on computers for you? **E.g. find info, book tickets, write letters etc.**

j) Do you think there's anything you could do with ICT that might be useful to you or quicker/easier than doing it normally?

k) Do you think you will ever use ICT? **If yes, what might you use it for?**

l) Is there anything that you think would encourage you to use it? **Probe – more public access, better chance of getting a job, cheaper shopping/holidays etc.**

m) Do you think it's a problem/does it matter if some people don't use ICT? **Probe/clarify – people on low incomes miss out on advantages, access to cheaper goods/services etc.**

n) Can you think of any other types of technology you use in every day life? Probe – mobile phones, DVDs, gaming systems etc techno-literate, confident/frequent tech user.

o) Do you use your mobile phone for – gaming, texting, photography, information services, accessing the Internet etc?

p) Is there anything else you'd like to say about your experience of computers?

****************** END OF INTERVIEW ******************

Appendix 7 Qualitative sample demographic characteristics

Name	Age	Gender	Children	Ill-Health	Age left school	ICT use	SE 'level'
Annie	34	female	school age	yes	16	no	moderate
Annette	32	female	school age	yes	16	yes	low
Aileen	35	female	none	yes	18	yes	low
Brian	28	male	school age	no	14	yes	moderate
Cam	33	male	school age	no	16	yes	moderate
Cassandra	27	female	pre-school	yes	16	yes	moderate
Carly	19	female	pre-school	yes	15	yes	moderate
Ewan	31	male	pre-school	no	16	intermediate	low
Fred	24	male	none	yes	17	intermediate	high
Geraldine	22	female	none	no	16	intermediate	low
Hal	33	male	school age	yes	16	yes	low
Janie	35	female	none	yes	16	yes	low
John	33	male	none	yes	12	yes	moderate
Jennifer	23	female	pre-school	yes	14	intermediate	moderate
Janette	23	female	none	no	16	yes	low
Jean	32	female	school age	no	16	yes	low
Lanie	25	female	school age	no	15	yes	moderate
Lindsay	25	female	school age	yes	16	intermediate	moderate
Lisa	34	female	school age	yes	17	yes	low
Lorna	23	female	school age	yes	16	yes	moderate
Nadia	26	female	pre-school	yes	15	intermediate	high
Peter	29	male	school age	no	16	yes	low
Sam C	26	male	pre-school	yes	15	yes	moderate
Sam P	23	male	none	yes	15	intermediate	high
Sarah	25	female	pre-school	yes	12	no	high
Ted	35	male	school age	yes	13	intermediate	low
Tim	38	male	school age	yes	17	yes	low
Terence	21	male	none	no	16	no	high
Wilma	21	female	pre-school	no	16	intermediate	moderate

Appendix 8: Node report

NODE LISTING

Nodes in Set: All Nodes

Created: 28/09/2004 - 14:26:05

Modified: 28/09/2004 - 14:26:05

Number of Nodes: 150

1   (1) /Demographics

2   (1 3) /Demographics/Demographics labour market

3   (1 3 1) /Demographics/Demographics labour market/identify skills

Description:

does respondent identify any skills that would help them to get a job?

4   (1 3 12) /Demographics/Demographics labour market/labour market history

Description:

How engaged in the labour market has resp been? Is there a particular reason they're not at the moment? Have they been employed in non/manual, un/skilled jobs?

5   (1 3 13) /Demographics/Demographics labour market/computing skills at work

6   (1 3 14) /Demographics/Demographics labour market/Career plans

7   (1 4) /Demographics/Demographics education

8   (1 4 7) /Demographics/Demographics education/age left school

9   (1 4 8) /Demographics/Demographics education/experience of school

10   (1 4 9) /Demographics/Demographics education/qualifications at school

11   (1   4   10)   /Demographics/Demographics   education/post-school education

12   (1   4   11)   /Demographics/Demographics   education/computer use   at school

13   (1 4 22) /Demographics/Demographics education/education plans

Description:

Does respondent plan to return to education?

14   (1 5) /Demographics/Demographics social exclusion

15   (1   5   15)   /Demographics/Demographics   social   exclusion/Civic engagement 2

16   (1   5   16)   /Demographics/Demographics   social   exclusion/political engagement

17   (1   5   20)   /Demographics/Demographics   social   exclusion/Social engagement

18   (1 17) /Demographics/Activity list

19   (1 18) /Demographics/Demographics general

Description:

General characteristics

20   (1 18 2) /Demographics/Demographics general/household type, school age children

21   (1 18 3) /Demographics/Demographics general/Economic status

Description:

Type of benefit, economic status

22   (1 18 4) /Demographics/Demographics general/residence in area

23   (1 18 5) /Demographics/Demographics general/accessing amenities

24   (1 18 6) /Demographics/Demographics general/Spare time

25   (1 18 21) /Demographics/Demographics general/disability

26   (1 18 23) /Demographics/Demographics general/age

27   (2) /ICT Users general

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28   (2 3) /ICT Users general/difficult to learn~

Description:

did respondent expect/find ICT to be difficult to learn?

29   (2 4) /ICT Users general/formal ICT training

Description:

Has respondent or do they intend to do formal training? Do they have or plan to get formal qualifications

30   (2 5) /ICT Users general/previous experience

31   (2 6) /ICT Users general/other comments

Description:

Any general comment of interest not covered by pervious categories.

32   (2 8) /ICT Users general/Role of training or assistance

Description:

Does respondent identify the context in which they learned or the quality of training as important?

33   (2 9) /ICT Users general/Initial incentive

Description:

What does respondent identify as the initial reason for starting to use?

34   (2 10) /ICT Users general/How long using

35   (2 12) /ICT Users general/Children as incentive

Description:

Does respondent mention helping or keeping up with children as important?

36   (2 13) /ICT Users general/security fears

Description:

Are fears about security an issue?

37   (2 14) /ICT Users general/how learned

Description:

Formal/informal traing, shown by a friend etc.

38   (2 15) /ICT Users general/ease of initial access

39   (2 16) /ICT Users general/Where started using

40   (2 17) /ICT Users general/Initial barriers

41   (2 18) /ICT Users general/Prior awareness

Description:

Was respondent aware of things that could be done using computers/Internet prior to using?

42   (2 19) /ICT Users general/Uses of ICT

Description:

What does respondent use ICT for? Answers to various questions in schedule. Will need to be broken down into separate types of use later.

43   (2 19 7) /ICT Users general/Uses of ICT/would like to use for

Description:

does respondent mention anything they would like to use ICT for?

44   (2 19 11) /ICT Users general/Uses of ICT/Specific personal uses

Description:

Anything peculiar to respondent

45   (2 20) /ICT Users general/What resp likes abt ICT

46   (2 22) /ICT Users general/Personal confidence

Description:

Respondent's level of confidence about using ICT prior to commencing use and after - any expression of fear about ability

47   (2 24) /ICT Users general/place of use

Description:

where does respondent use ICT

48   (2 25) /ICT Users general/home access~public access

Description:

Does respondent have or want home access? What is respondent's attitude to home access as compared to public access?

49   (2 26) /ICT Users general/frequency~nature of use 2

Description:

how often does resp use? PC or Internet more?

50   (2 27) /ICT Users general/other technology

51   (2 28) /ICT Users general/ICT easier than trad

Description:

Does respondent find doing things with ICT easier than by tradsitional methods?

52   (2 29) /ICT Users general/ICT skills useful in life

Description:

Does respondent think of ICT skills as useful in other ares of life?

53   (2 30) /ICT Users general/prioritising cost

Description:

If respondent has home access, how do they manage this financially?

54   (2 31) /ICT Users general/social network

55   (2 32) /ICT Users general/resp view of digital exclusion

Description:

Responses to questions about non-ICT use being a problem, things that might encourage greater use, and general discussion of digital exclusion and policy

56   (2 34) /ICT Users general/role of initial context

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Description:

Did the nature of the initial venue for ICT use play a role?

57　　(2 35) /ICT Users general/barriers to greater use

Description:

factors which prevent respondent from using ICT as much as they would like to

58　　(2 36) /ICT Users general/barriers to particular uses

Description:

factors which prevent respondents from using ICT for particular purposes

59　　(3) /ICT non intermediate users

60　　(3 1) /ICT non intermediate users/Past ICT use

Description:

Has resp used ICT in past? If so, in what context, and why did they stop?

61　　(3 2) /ICT non intermediate users/Attitude to using

Description:

Would respondent like to use ICT in future? If so, why? If respondent has used computers, what was their reason for so doing?

62　　(3 3) /ICT non intermediate users/Reason for non use

Description:

What reasons does respondent give for non use? BARRIERS. Also barriers to specific uses.

63　　(3 4) /ICT non intermediate users/Attitudinal barriers

Description:

Does respondent cite attitudinal reasons for non use?

Such as? lack of interest, no reason to use etc - should lack of confidence come into this?

64   (3 5) /ICT non intermediate users/Awareness of PIAPs

Description:

Is respondent aware of places could use or learn to use ICT, either PIAps or friends/relatives home?

65   (3 6) /ICT non intermediate users/Perception of difficulty

Description:

Does respondent think of ICT as difficult to learn?

66   (3 7) /ICT non intermediate users/Awareness of internet

Description:

Is respondent aware of the internet and the sort of things it can be used for?

67   (3 8) /ICT non intermediate users/Social network

Description:

How prevalent is ICT use in respondent's network?

68   (3 9) /ICT non intermediate users/Proxy use

Description:

Does respondent get other people to do things with ICT on their behalf?

69   (3 10) /ICT non intermediate users/Awareness of uses or benefits

Description:

Is respondent aware of personal uses of ICT and how these might be of use to them?

70   (3 11) /ICT non intermediate users/Plans to use

Description:

Does respondent think they will use ICT in the future? If yes, what for?

71   (3 12) /ICT non intermediate users/Encourage use

Description:

Does respondent identify anyhthing specific that would encourage them to use?

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72   (3 13) /ICT non intermediate users/Resp view of DE

Description:

How does respondent percieve the issue of digital exclusion?

73   (3 14) /ICT non intermediate users/Use of other tech

Description:

How competent a user of other forms of technology is respondent?

74   (3 15) /ICT non intermediate users/Mobile phone use

Description:

Does resp use mobile for ICT fuctions?

75   (3 16) /ICT non intermediate users/Technophobia

Description:

Does resp express any fear about using ICT or other technologies?

76   (3 17) /ICT non intermediate users/Other comments

Description:

Any general comment of interest not covered by pervious categories.

77   (3 18) /ICT non intermediate users/Present uses

Description:

If resp is an intermediate user, do they currently use? If so, what for, in what context, when and why did they start, what has their experience of ICT been like? This will have to be sub divided later.

78   (3 19) /ICT non intermediate users/Attitude to PIAPs or home access

Description:

Does respondent see PIAPs as inferior to home access? Wd they like home access?

79   (3 20) /ICT non intermediate users/Instrumental use

80   (3 21) /ICT non intermediate users/ICT skills

81   (3 22) /ICT non intermediate users/children as incentive

82   (3 23) /ICT non intermediate users/experience of computing training

83   (3 24) /ICT non intermediate users/prior awareness

84   (4) /Contradictions

Description:

Where respondent's idea of computer use exposes contradictions

85   (5) /Self definition

Description:

Anywhere that conversation reveals anything about how respondent arrives at self-definition as non/user

86   (6) /Search Results

87   (6 1) /Search Results/training search

Description:

Union: text with any of these properties: { text coded by the node, '(3 1) Past ICT use', text coded by the node, '(1 3 13) computing skills at work', text coded by the node, '(1 4 11) computer use at school' } { text matching the pattern, 'train* (or) course*' }

Scope: { Annie PSYA, Ewan Annexe, Fred Douglas, GERALDINE, Jennifer Arden, Lindsay PSYA, Nadine PSYA, Sean , Sarah PSYA, Ted Arrexe, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 1) /Search Results/Union (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

88   (6 2) /Search Results/barriers + access

Description:

Union: text with any of these properties:{ text coded by the node, '(2 15) ease of initial access', text coded by the node, '(2 17) Initial barriers' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lindsay PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (6 2) /Search Results/Union (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

89   (6 3) /Search Results/awareness
        Description:
Union: text with any of these properties:{ text coded by the node, '(3 7) Awareness of internet', text coded by the node, '(3 10) Awareness of uses or benefits', text coded by the node, '(3 24) prior awareness' }

Scope: { Annie PSYA, Ewan Annexe, Fred Douglas, GERALDINE, Jennifer Arden, Lindsay PSYA, Nadine PSYA, Sean , Sarah PSYA, Ted Arrexe, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 3) /Search Results/awareness (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

90   (6 4) /Search Results/ICT use school
        Description:
Union: text with any of these properties:{ text coded by the node, '(1 4 11) computer use at school', text coded by the node, '(2 2) computer use at school' }

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Scope: { Annie PSYA, Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, Ewan Annexe, Fred Douglas, GERALDINE, HAL, Janie Annexe, John Kelly, Jennifer Arden, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lindsay PSYA, Lisa PSYA, LORNA AITKENS, Nadine PSYA, PETER TRAINER YI RESOURCE, Sam Caletta, Sean , Sarah PSYA, Ted Arrexe, Tim PSYA, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 4) /Search Results/ICT use school (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

91   (6 5) /Search Results/Lab market ICT use
Description:
Union: text with any of these properties:{ text coded by the node, '(1 3 13) computing skills at work', text coded by the node, '(2 1) computing skills at work' }

Scope: { Annie PSYA, Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, Ewan Annexe, Fred Douglas, GERALDINE, HAL, Janie Annexe, John Kelly, Jennifer Arden, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lindsay PSYA, Lisa PSYA, LORNA AITKENS, Nadine PSYA, PETER TRAINER YI RESOURCE, Sam Caletta, Sean , Sarah PSYA, Ted Arrexe, Tim PSYA, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 5) /Search Results/Lab market ICT use (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

92   (6 6) /Search Results/Geraldine uses
Description:

Node lookup: text coded by the node '/ICT Users general/Uses of ICT'

Scope: { GERALDINE }

Result is a node coding all the finds: (6 6) /Search Results/Geraldine uses (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

93   (6 7) /Search Results/non users plans to use
Description:
Node lookup: text coded by the node '/ICT non intermediate users/Plans to use'

Scope: { Annie PSYA, Sarah PSYA, Terence Young }

Result is a node coding all the finds: (6 7) /Search Results/non users plans to use (n)
Document finds are spread to (no spread). Node finds are spread to (no spread).

94   (6 8) /Search Results/difficulty
Description:
Union: text with any of these properties:{ text coded by the node, '(2 3) difficult to learn~', text coded by the node, '(3 6) Perception of difficulty' }

Scope: { Annie PSYA, Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, Ewan Annexe, Fred Douglas, GERALDINE, HAL, Janie Annexe, John Kelly, Jennifer Arden, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lindsay PSYA, Lisa PSYA, LORNA AITKENS, Nadine PSYA, PETER TRAINER YI RESOURCE, Sam Caletta, Sean , Sarah PSYA, Ted Arrexe, Tim PSYA, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 7) /Search Results/difficulty (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

95   (6 9) /Search Results/disability

Description:

Node lookup: text coded by the node '/Demographics/Demographics general/disability'

Scope: { Annie PSYA, Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, Ewan Annexe, Fred Douglas, GERALDINE, HAL, Janie Annexe, John Kelly, Jennifer Arden, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lindsay PSYA, Lisa PSYA, LORNA AITKENS, Nadine PSYA, PETER TRAINER YI RESOURCE, Sam Caletta, Sean , Sarah PSYA, Ted Arrexe, Tim PSYA, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 9) /Search Results/disability (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

96   (6 10) /Search Results/home or public access

Description:

Union: text with any of these properties:{ text coded by the node, '(2 25) home access~public access', text coded by the node, '(3 19) Attitude to PIAPs or home access' }

Scope: { Analysis, Annie PSYA, Annie PSYA - Memo, Annette Annexe1 - Memo, Annette Arrexe, Aileen Bambury, Aileen Bambury - Memo, argument, Brian Agnew, Brian Agnew - Memo, blah, blah 2, Cam Govan, Cam Govan - Memo, Cassandra PSYA, Cassandra PSYA - Memo, Carly Arden, Carly Arden - Memo, Ewan Annexe, Ewan Arrexe1 - Memo, Fred Douglas, Fred Douglas - Memo, General observations,

GERALDINE, GERALDINE - Memo, HAL, HAL - Memo, Janie Annexe, Janie Annexe - Memo, John Kelly, John Kelly - Memo, Jennifer Arden, Jennifer Arden1 - Memo, Janette Gail memo, Janette Gail PCC, JEAN MATTHEWS, JEAN MATTHEWS - Memo, Lanie Bambury, Lanie Bambury - Memo, Lisa 1 PSYA Memo, Lindsay PSYA, Lindsay O' Hara PSYA - Memo, Lisa PSYA, LORNA AITKENS, LORNA AITKENS - Memo, methods, Nadine PSYA, Nadine PSYA - Memo, PETER TRAINER YI RESOURCE, PETER TRAINER YI RESOURCE - Memo, Planning, role of initial context - Memo, Sam Caletta, Sam Caletta - Memo, Sean , Sean - Memo, Sarah PSYA, Sarah PSYA - Memo, Stuff to do coding, Ted Arrexe, Ted Arrexe - Memo, Tim PSYA, Tim PSYA - Memo, Terence Young, Terence Young - Memo, Wilma memo, Wilma PCC, What I have learned, Writing up }

Result is a node coding all the finds: (6 10) /Search Results/home or public access (n) Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

97   (6 11) /Search Results/barriers greater use
        Description:
Union: text with any of these properties: { text coded by the node, '(2 35) barriers to greater use', text coded by the node, '(2 36) barriers to particular uses', text coded by the node, '(2 19 7) would like to use for' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (6 11) /Search Results/barriers greater use (n) Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

98   (6 12) /Search Results/Lanie barriers

Description:

Node lookup: text coded by the node '/ICT Users general/Initial barriers'

Scope: { Lanie Bambury }

Result is a node coding all the finds: (6 12) /Search Results/Lanie barriers (n)
Document finds are spread to (no spread). Node finds are spread to (no spread).

99   (6 13) /Search Results/Union

Description:

Union: text with any of these properties:{ text coded by the node, '(1 3 1) identify skills', text coded by the node, '(1 3 14) Career plans', text coded by the node, '(2 29) ICT skills useful in life', text coded by the node, '(7 1 1) job searching', text coded by the node, '(7 1 9) education', text coded by the node, '(7 1 17) work related', text coded by the node, '(7 2 1) work or education' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (6 13) /Search Results/Union (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

100   (6 14) /Search Results/Single Text Lookup

Description:

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Text Search: text matching the pattern 'course'

Scope: { Fred Douglas, Sean , Terence Young }

Result is a node coding all the finds: (6 14) /Search Results/Single Text Lookup (n) Document finds are spread to (no spread). Node finds are spread to (no spread).

101   (6 15) /Search Results/Single Text Lookup 2
Description:
Text Search: text matching the pattern 'course'

Scope: { Fred Douglas, Sean , Terence Young }

Result is a node coding all the finds: (6 14) /Search Results/Single Text Lookup (n) Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

102   (6 16) /Search Results/Single Text Lookup 3
Description:
Text Search: text matching the pattern 'education'

Scope: { Fred Douglas, Sean , Terence Young }

Result is a node coding all the finds: (6 14) /Search Results/Single Text Lookup (n) Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

103   (6 17) /Search Results/LM
Description:

Text Search: text matching the pattern 'job|work|skills'

Scope: { Annie PSYA, Ewan Annexe, Fred Douglas, GERALDINE, Jennifer Arden, Lindsay PSYA, Nadine PSYA, Sean , Sarah PSYA, Ted Arrexe, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 17) /Search Results/LM (n)
Document finds are spread to 99 characters on either side. Node finds are spread to 99 characters on either side.

104   (7) /ANALYSIS

105   (7 1) /ANALYSIS/users ICT uses

Description:

Node lookup: text coded by the node '/ICT Users general/Uses of ICT'

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (7 1) /ANALYSIS/users ICT uses (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

106   (7 1 1) /ANALYSIS/users ICT uses/job searching

107   (7 1 2) /ANALYSIS/users ICT uses/health

108   (7 1 3) /ANALYSIS/users ICT uses/social

109   (7 1 4) /ANALYSIS/users ICT uses/shopping

110   (7 1 5) /ANALYSIS/users ICT uses/games

111   (7 1 6) /ANALYSIS/users ICT uses/general info

112   (7 1 7) /ANALYSIS/users ICT uses/booking tickets

Description:

booking tickets for cinema, theatre, flights etc - anything

113   (7 1 8) /ANALYSIS/users ICT uses/news or politics

114   (7 1 9) /ANALYSIS/users ICT uses/education

115   (7 1 10) /ANALYSIS/users ICT uses/art projects

116   (7 1 11) /ANALYSIS/users ICT uses/children's activities

117   (7 1 12) /ANALYSIS/users ICT uses/banking

118   (7 1 13) /ANALYSIS/users ICT uses/govt services

119   (7 1 14) /ANALYSIS/users ICT uses/photography

120   (7 1 15) /ANALYSIS/users ICT uses/music

121   (7 1 16) /ANALYSIS/users ICT uses/web design

122   (7 1 17) /ANALYSIS/users ICT uses/work related

123   (7 1 18) /ANALYSIS/users ICT uses/special needs

124   (7 2) /ANALYSIS/user incentives

Description:

Node lookup: text coded by the node '/ICT Users general/Initial incentive', children as incentive, what resp likes about ICT

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (7 2) /ANALYSIS/initial incentive (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

125   (7 2 1) /ANALYSIS/user incentives/work or education

126   (7 2 2) /ANALYSIS/user incentives/cont convenience

127   (7 3) /ANALYSIS/email 2non+int

Description:

Node lookup: text coded by the node '/ANALYSIS/email 2'

Scope: { Annie PSYA, Ewan Annexe, Fred Douglas, GERALDINE, Jennifer Arden, Lindsay PSYA, Nadine PSYA, Sean , Sarah PSYA, Ted Arrexe, Terence Young, Wilma PCC }

Result is a node coding all the finds: (7 3) /ANALYSIS/email 2non+int (n)
Document finds are spread to 99 characters on either side. Node finds are spread to 99 characters on either side.

128   (7 4) /ANALYSIS/place

Description:

Union: text with any of these properties:{ text coded by the node, '(2 16) Where started using', text coded by the node, '(2 24) place of use' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (7 4) /ANALYSIS/place (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

129   (7 5) /ANALYSIS/users INITIAL barriers

Description:

Union: text with any of these properties:{ text coded by the node, '(2 3) difficult to learn~', text coded by the node, '(2 14) how learned', text coded by the node, '(2 15)

ease of initial access', text coded by the node, '(2 16) Where started using', text coded by the node, '(2 17) Initial barriers' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (7 5) /ANALYSIS/users INITIAL barriers (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

130   (7 5 1) /ANALYSIS/users INITIAL barriers/cost
131   (7 5 1 8) /ANALYSIS/users INITIAL barriers/cost/users prioritising
cost
Description:
Node lookup: text coded by the node '/ICT Users general/prioritising cost'

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (8) /ANALYSIS users prioritising cost (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

132   (7 5 2) /ANALYSIS/users INITIAL barriers/access
133   (7 5 3) /ANALYSIS/users INITIAL barriers/skills
134   (7 5 4) /ANALYSIS/users INITIAL barriers/atitudinal

135   (7 5 6) /ANALYSIS/users INITIAL barriers/technophobia

136   (7 6) /ANALYSIS/users ease of access

Description:

Node lookup: text coded by the node '/ICT Users general/ease of initial access'

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (7 6) /ANALYSIS/users ease of access (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

137   (7 7) /ANALYSIS/proxy use users

Description:

Node lookup: text coded by the node '/ICT non intermediate users/Proxy use'

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (7 7) /ANALYSIS/proxy use users (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

138   (7 9) /ANALYSIS/users continuing barriers

Description:

Union: text with any of these properties: { text coded by the node, '(2 35) barriers to greater use', text coded by the node, '(2 36) barriers to particular uses' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (8 1) /ANAYSIS/user particular barriers (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

139   (7 10) /ANALYSIS/USER BARRIERS
Description:
Union: text with any of these properties: { text coded by the node, '(2 3) difficult to learn~', text coded by the node, '(2 13) security fears', text coded by the node, '(2 22) Personal confidence', text coded by the node, '(2 35) barriers to greater use', text coded by the node, '(2 36) barriers to particular uses', text coded by the node, '(2 17) Initial barriers', text coded by the node, '(2 15) ease of initial access' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (6 10) /Search Results/USER BARRIERS (n)
Document finds are spread to 50 characters on either side. Node finds are spread to 50 characters on either side.

140   (7 10 1) /ANALYSIS/USER BARRIERS/PIAPs negative

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141   (7 11) /ANALYSIS/INTERMEDIATE BARRIERS
Description:

Union: text with any of these properties:{ text coded by the node, '(3 2) Attitude to using', text coded by the node, '(3 3) Reason for non use', text coded by the node, '(3 4) Attitudinal barriers', text coded by the node, '(3 6) Perception of difficulty', text coded by the node, '(3 16) Technophobia', text coded by the node, '(3 19) Attitude to PIAPs or home access', text coded by the node, '(2 15) ease of initial access' }

Scope: { Ewan Annexe, Fred Douglas, GERALDINE, Jennifer Arden, Lindsay PSYA, Nadine PSYA, Sam , Ted Arrexe, Wilma PCC }

Result is a node coding all the finds: (6 10) /Search Results/INTERMEDIATE BARRIERS (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

142   (7 12) /ANALYSIS/NON USERS BARRIERS
Description:

Union: text with any of these properties:{ text coded by the node, '(3 2) Attitude to using', text coded by the node, '(3 3) Reason for non use', text coded by the node, '(3 4) Attitudinal barriers', text coded by the node, '(3 16) Technophobia', text coded by the node, '(6 8) difficulty', text coded by the node, '(6 10) home or public access' }

Scope: { Annie PSYA, Sarah PSYA, Terence Young }

Result is a node coding all the finds: (6 11) /Search Results/NON USERS BARRIERS (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

143   (7 13) /ANALYSIS/Ted Wilma barriers

Description:

Node lookup: text coded by the node '/ANALYSIS/INTERMEDIATE BARRIERS'

Scope: { Ted Arrexe, Wilma PCC }

Result is a node coding all the finds: (6 12) /Search Results/Single Node Lookup (n)
Document finds are spread to enclosing paragraphs. Node finds are spread to
enclosing paragraphs.

144   (7 14) /ANALYSIS/social network incentive

Description:

Intersection: text with all these properties:{ text coded by the node, '(2 9) Initial
incentive', text coded by the node, '(2 31) social network' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra
PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN
MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER
YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (6 13) /Search Results/Intersection (n)
Document finds are spread to (no spread). Node finds are spread to (no spread).

145   (7 15) /ANALYSIS/users home-public access

Description:

Node lookup: text coded by the node '/ICT Users general/home access~public access'

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra
PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN

MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (7 15) /ANALYSIS/users home-public access (n) Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

146   (7 16) /ANALYSIS/users skills
        Description:
Node lookup: text coded by the node '/ICT Users general/how learned'

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA }

Result is a node coding all the finds: (7 16) /ANALYSIS/users skills (n) Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

147   (7 17) /ANALYSIS/Intermediate place of use
        Description:
Node lookup: text coded by the node '/ICT Users general/place of use'

Scope: { Annie PSYA, Ewan Annexe, Fred Douglas, GERALDINE, Jennifer Arden, Lindsay PSYA, Nadine PSYA, Sean , Sarah PSYA, Ted Arrexe, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 13) /Search Results/Single Node Lookup (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

148   (7 18) /ANALYSIS/users LM etc incentives

Description:

Union: text with any of these properties:{ text coded by the node, '(1 3 1) identify skills', text coded by the node, '(1 3 14) Career plans', text coded by the node, '(2 29) ICT skills useful in life' }

Scope: { Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, HAL, Janie Annexe, John Kelly, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lisa PSYA, LORNA AITKENS, PETER TRAINER YI RESOURCE, Sam Caletta, Tim PSYA, /ANALYSIS }

Result is a node coding all the finds: (6 13) /Search Results/Union (n)

Document finds are spread to enclosing paragraphs. Node finds are spread to enclosing paragraphs.

149   (7 19) /ANALYSIS/email 2

Description:

Text Search: text matching the pattern 'email|e-mail|e mail'

Scope: { Annie PSYA, Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, Ewan Annexe, Fred Douglas, GERALDINE, HAL, Janie Annexe, John Kelly, Jennifer Arden, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lindsay PSYA, Lisa PSYA, LORNA AITKENS, Nadine PSYA, PETER TRAINER YI RESOURCE, Sam Caletta, Sean , Sarah PSYA, Ted Arrexe, Tim PSYA, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 17) /Search Results/email (n)

Document finds are spread to 99 characters on either side. Node finds are spread to 99 characters on either side.

150   (7 20) /ANALYSIS/ecommerce
Description:
Text Search: text matching the pattern 'shopping'

Scope: { Annie PSYA, Annette Arrexe, Aileen Bambury, Brian Agnew, Cam Govan, Cassandra PSYA, Carly Arden, Ewan Annexe, Fred Douglas, GERALDINE, HAL, Janie Annexe, John Kelly, Jennifer Arden, Janette Gail PCC, JEAN MATTHEWS, Lanie Bambury, Lindsay PSYA, Lisa PSYA, LORNA AITKENS, Nadine PSYA, PETER TRAINER YI RESOURCE, Sam Caletta, Sean , Sarah PSYA, Ted Arrexe, Tim PSYA, Terence Young, Wilma PCC }

Result is a node coding all the finds: (6 17) /Search Results/ecommerce (n)
Document finds are spread to 99 characters on either side. Node finds are spread to 99 characters on either side