How (can) non-users engage with technology: bringing in the digitally excluded

Book section

How (can) non-users perceive usefulness: bringing in the digitally excluded

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Abstract

This paper describes findings from the Penceil Project which aims to explore the experiences of non and minimal users of ICTs, how non-use affects their inclusion or exclusion from society and how they can learn to use ICTs to meet their personal goals. The paper considers the applicability of the Technology Adoption Model (TAM) to understanding the experiences of this group of people. By looking at theories of social exclusion and the project research findings to date the paper argues that TAM: is limited in the range of social conditions it anticipates; and, thus, presumes a facility in formulating aspirations for use that people excluded from the use of ICTs do not have. We consider the implications of these conclusions for designing a revised Basic ICT curriculum and describe a new curriculum based on the research findings. We argue that, as ICTs in general – and internet use in particular – are experienced technologies, perceived usefulness and perceived ease of use will have to be re-formulated to recognise limitations on people's ability to construct plans for future action since an actor's world is disclosed through action not given in advance.

Key words:

Digital exclusion

Digital divide

e-literacy

Model of Adoption of Technology in Households (MATH)

Social exclusion

Technology Adoption Model (TAM)

Basic ICT curriculum

Introduction

It is commonly stated that ICT is transforming every aspect of society: the way people learn; work; conduct business; spend leisure time; organise their social lives. Recent figures show that 58% of UK households own a PC (National Statistics, 2005) and 60% use the Internet (Dutton *et al.*, 2005)[1]. Computer use and internet access at home is supplemented by that at work or local e-gateway centres (such as libraries, internet cafes or local colleges). Yet, some people in the UK still neither own a computer nor (do not or cannot) make use of one; and ownership is strongly linked to

[1] Broadly in line with other economically developed countries, as shown by the country reports gathered by the World Internet Project http://www.worldinternetproject.net/published.html.

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income: home access to the internet ranges from 15% for the lowest income decile to 89% for the highest (National Statistics, 2004). This describes the domestic, as opposed to the international, digital divide.

We would suggest that the commonly used term, digital divide (see for example, Hubregtse, 2005, Korupp and Szydlik, 2005), is less helpful than *digital exclusion* (Devins *et al.*, 2002). Divide implies an even-handedness without, necessarily, adverse consequences for those on one side of the divide. It also implies a technological determinism, with the divide arising from the nature of the technology. Digital exclusion denotes a stronger sense of social process and, through the wording, provides a, helpful, association with other forms of social exclusion. We aim to add to the small, but growing, body of literature that considers different facets of digital exclusion, barriers to and motivation for use of ICTs, and implications of non-use (Haddon, 2000, Liff *et al.*, 2002, Selwyn *et al.*, 2005, Wyatt *et al.*, 2002).

This paper starts by considering the dominant model in the IS literature for how people become users: the Technology Adoption Model (TAM) (Davis, 1989, Davis *et al.*, 1989); and its extension to households, the Model of Adoption of Technology in Households (MATH) (Brown and Venkatesh, 2005). We will discuss to what extent TAM and MATH are appropriate theoretical constructs for gaining an understanding of why people who are socially excluded make no or little use of ICT, and how they might become users – in TAM's terms their adoption intentions.

Our critique of TAM and MATH is multi-level. First, it considers the appropriateness of the research methods applied, in terms of the choice of respondents, the setting and the questions asked. Second, it questions the theoretical assumptions behind such models and highlights their limitations. Finally, it questions whether the popularity of these models in IS literature does not narrow the scope of reported research. Are the utilisation of IS in the workplace and home users' ICT purchasing intentions the only questions worth asking?

The paper then presents an alternative approach to understanding non-use and use of technology that draws on work on social exclusion. A more sophisticated understanding of people's use and non-use of ICT is developing, moving away from a dichotomy of *digital divide*, information 'haves' and 'have-nots' to an acknowledgement of the complex nature of the processes taking place, (Cornford and Klecun-Dabrowska, 2003, Silverstone and Haddon, 1997, Silverstone and Haddon, 1998).Despite increasingly sophisticated accounts of digital exclusion, recently reflected in UK policy, academic understanding of who is making little or no use of ICT, and why, remains weak (Selwyn, 2003a). Furthermore, the ability to use ICT is increasingly seen as a pre-requisite to participating (living and working) in an e-society, but there is limited understanding of how non-use of ICT and e-illiteracy affect people in their daily lives or of people's aspirations for use of these technologies.

The third part of this paper describes our study which aims to address these gaps in research through investigating the experiences of those excluded by technology. Our data was collected as part of the Penceil Project, undertaken on a south London housing estate. As Chatman (1996, p205) observes, "The process of understanding begins with research that *looks* at their [outsiders] social environment and that *defines* information from *their* perspective" (emphasis in original). Woolgar (2002 p 7) also stresses the need to see how people interact with technologies: "We need to focus much more on bottom-up experiences, on the nitty-gritty of actually making the damn modem work." Our research includes both an investigative element through interviews with residents who made no or minimal use of ICTs; and an action-research component through devising and running an innovative Introduction to Computers course based on the interview findings.

The paper concludes with a discussion of research findings in which attitudes of non- and minimal users of computers, their perceptions of technologies and the uses they might make of it are described arguing the need to construct alternative models of how wider use can be supported.

The Technology Adoption Model

In considering how non-users might become ICT users it is useful to see to what extent TAM (Davis, 1989, Davis *et al.*, 1989) might assist us. The model draws, amongst other approaches, on the theory of reasoned action. In his much-cited paper Davis (1989) proposes that two constructs perceived usefulness (PU) and perceived ease of use (PEOU) are the fundamental determinants of user acceptance, and can be used to predict adoption. Davis concludes that PU is the better predictor of acceptance, "ease of use may be an antecedent to *usefulness,* rather than a parallel, direct determinant of usage." (p. 334) but subsequent studies have tended to regard the two concepts more equally.

These two notions, particularly when translated into, "is this any use to me" and "can I make this work easily", are a common-sensical way of approaching the issue but the way they have been applied fails to take account of how potential users come to the technology. We have reviewed recent studies published in MISQ to discover over what domains and with what assumptions TAM has been applied. Our concerns fall into three areas; the narrow domains explored; the assumptions about agency and choice removed from social context; and their view of users rather than actors.

The studies overwhelmingly concentrate on two groups, business professionals and university students, both groups with successful educational backgrounds and familiar with environments where ICTs are pervasive. For example Gefen *et al.* (2003) state "Numerous empirical tests have shown that TAM is a parsimonious and robust model of technology acceptance behaviors in a wide variety of IT across … levels of expertise…" They cite Taylor and Todd (1995) in support of this claim. However, Taylor and Todd studied use of a computer resource centre by business school students: a somewhat restricted notion of 'levels of expertise'.

When Gefen and Straub (1997) wished to address one possible dimension of exclusion, gender, they studied "groups of knowledge workers using e-mail systems in .the airline industry in North America, Asia, and Europe." Again they concentrated on people who were, essentially, insiders.

Gefen and Straub's review (2000) of TAM studies between 1989 and 2000 details 44 investigations, see table 1: they cover a strikingly narrow segment of the total population.

Subjects of Study	Number of studies	Percentage
Knowledge workers	23	52
MBA students	8	18
Undergraduate Students	8	18
Graduate Business Students	2	5
Administrative/clerical staff	2	5
Students (unclassified)	1	2

Table 1: Subjects of TAM studies

If we are exploring non-use of ICTs as digital exclusion our concerns are very different and we need different research instruments. For example, Venkatesh and Davis (1994) conducted a survey: "Forty-seven undergraduate students at a large U.S. university participated in the study. All participants were currently enrolled in an information systems course and had a working knowledge of computers." The first question in the instrument was "Assuming I had access to Wordperfect, I presently intend to actually use e-mail regularly during the undergraduate program." Assuming the ability to decode such a complexly constructed sentence would already exclude many potential subjects.

A major study of adoption of home computers, made serious efforts to recruit a representative sample of American households (Venkatesh and Brown, 2001), but three issues arise. It only reports the mean values for variables such as income for the sample and the whole population (p. 81); it does not report the distribution of the values for variables in the sample and the population as a

whole. Secondly, although the mean values on most variables for the sample and the population are relatively close there is a major, and unremarked, discrepancy. Residence in central cities was only 31% (compared with 39% in the population) and outside metro areas was 20% (compared with 24%), with the result that the sample was considerably skewed towards the suburbs and away from likely areas of social deprivation and exclusion. Thirdly the authors did not report on the employment status or qualification levels of their respondents.

Brown and Venkatesh (2005) extend their 2001 work looking at household adoption of ICTs. This draws on a wide sample, but few details are given of the demographic composition. Their MATH model draws upon the Theory of Planned Behaviour (Ajzen, 1991). It is striking that none of their "sources for normative beliefs" describe the influence of social status, social capital, ethnicity or class except as they are seen as the influence of family and friends nor are these seen as predictive factors for ICT use.

The critical research tradition in Information Systems allows us to identify the unconscious assumptions about the nature of organizations and society that lie behind such a narrowing of vision (Myers and Young, 1997, Ngwenyama, 1991).

Lamb and Kling (2003) offer an important critique of approaches like TAM and MATH in their explanation of engagement with technology: "the most common conception of the user in IS research is of an atomic individual with well-articulated preferences and the ability to exercise discretion in ICT choice and use, within certain cognitive limits." (p. 3). They argue for a view of individuals as social actors who have an engagement with technology, rather than simply as users: as people who contribute to the construction and disposition of ICTs, not passive consumers. Unfortunately they limit this to an organizational analysis and do not extend it to non-work settings. Lamb and Kling encourage us to view people not as users of technologies external to themselves but as more complex networked beings, co-constituted by the technologies they engage with.

TAM, as a predictor of the behaviours of organizational members, is primarily concerned with whether staff will use the tools expensively provided for them and aims to assist managers in deploying IT more effectively and extensively. MATH attempts to predict the likelihood of ICT purchase by households. Neither is concerned with the effects of ICTs on people – as workers, family members or citizens – of their use of technologies and both see individuals as unchanged by the process of technology adoption. They see the learning of, say Excel, as the simple gaining of a skilled practice; it excludes the existential dimension of becoming an Excel user. While we can predict, with lesser or greater accuracy, the use we may make of a new tool, there is a fundamental unknowableness about the change in our disposition towards, and engagement with, the world that possession of a new skill represents; PU is a moving target changing as knowledge about, and facility with, the technology changes.

TAM and the theory of planned behaviour are based on rationalistic causal models. Critiques of them do not have to suppose that individuals act irrationally, more that their ability to analyse their world and define and enact rational intentionalities are far more limited than bounded rationality concepts (Simon, 1982) suggest. Introna (1997, ch. 2) graphically describes Heidegger's notion of thrownness. We are always already within our world, constantly buffeted and disconcerted by events, never able to stand apart from the world and contemplate and plan. There is never the peace that Simon demands to make the best sense of the world we can and plan accordingly within the bounds of our knowledge. We do not have stable intentions we can project forward in time to know our PUs and our plans for our behaviour. We are constantly engaged in bricolage (Ciborra, 2002) forming and reforming our constructions in the flux of events. When we bring less experience to a situation we are even less able to improvise a plan, to make sense of our situation (Weick, 1993). The behaviour of the less experienced and skilled user of ICTs is consequently less amenable to analysis by TAM and MATH: they are methodologies for privileging the worldviews of the included and for further marginalising the already excluded. Further the worldviews that underlie these

methodologies make the powerless, the *other*, even less of account in their suburban world of business men, women and students, at work, at play, at shopping.

Social Exclusion

We suggest that a deeper understanding of why people who are socially excluded do not use ICT or make little use of it, and how they might become users of ICT can be gained by considering literature on social exclusion in order to see how digital exclusion is both a result of, and constitutive of, social exclusion.

Social exclusion is a contested concept in the social policy literature (Hills *et al.*, 2002). Its origin was in France in the 1960s and arose out of a concern with *les exclus*, those on the margins of society, with little connection, or commitment, to general social norms (Burchardt *et al.*, 2002). The concept arises from a concern that poverty, while remaining a central element in exclusion, is not a sufficient descriptor. People's life chances are not solely determined by their wealth but are constituted by a range of resources that they can, or cannot, deploy – their educational, cultural and social capital (Bourdieu, 1986).

Gordon et al (2000 p.73) in their study of poverty in Britain describe social exclusion as "A lack or denial of access to the kinds of social relations, social customs and activities in which the great majority of people in British society engage. In current usage, social exclusion is often regarded as a 'process' rather than a 'state' and this helps in being constructively precise in deciding its relationship to poverty."

Despite this attempt to provide a wider understanding through this term Milbourne (2002 p. 328) argues:

> … 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.

Veit-Wilson (1998 p.45) draws a distinction between strong and weak concepts of social exclusion: weak, linked to deficiency notions places responsibility on the individual for failing to succeed; strong, which identifies the issues as structural, where the powerful elements in society do the excluding. Relating this to non-use of ICTs we may view the problem as individuals failing to take up opportunities to learn and use; or as structural, about the type and availability of access to equipment and to relevant education and support.

Concepts of social exclusion are holistic. They aim to see exclusion as a complex system with multiple elements and systemic properties of feedback and homeostasis. They describe a relatively stable process that persists over time. Remedial actions are inevitably partial and reductionist. They may involve detailed multi-agency intervention at an individual level; changing the state of an individual or family without disturbing the phenomenon at a community or social level (Maguire *et al.*, 2003). Alternatively interventions are singular changes for a community: improved childcare provision; a free internet café; housing renovation; or increased CCTV surveillance. Whilst these interventions can, and do, ameliorate the living conditions of a few, or many, people, they cannot end social exclusion or even, it might be argued, lead to a significant diminution of exclusion. The structures of inequality are too mutually reinforcing and stable for that.

Social exclusion leads us away from a simplistic definition of poverty as the only and sufficient explanation of an individual's ability to participate in the social, cultural and economic life of wider society (Milbourne, 2002). However, it should not be allowed to obscure the deep and continuing economic inequality that lies at its heart (Piachaud and Sutherland, 2002). It therefore follows that in

designing the action-research element of our study we did not set unrealistic goals. Reducing individual digital exclusion allows participants to achieve their life tasks more easily and maybe more cheaply, important for people on low incomes. Such interventions might at the limit of their ambitions allow people to involve themselves, digitally and otherwise, in collective action aimed at changing the social conditions that define the life chances of the excluded.

By discovering better ways of teaching participants digital skills, we may allow them to engage in the e-consumption of government services – to their benefit and to the benefit of the service provider. This, however, is far from participating in an e-enabled democracy.

There is an additional level of risk. The reduction of exclusion experienced by those who can now participate more easily through e-channels, particularly those whose mobility is restricted by disability or caring responsibilities, may be at the expense of further increasing exclusion by those furthest from participation. The new walls of the city may now be extended and include, surround and protect greater numbers, but they are also higher and more difficult for those still outside to scale or enter.

Social Exclusion and Technology

Lack of access to suitable equipment was initially identified as the key reason for non-use of ICT (Blair, 2000). However, physical access to technology is not enough in itself to promote a digitally inclusive society (Selwyn, 2003b). Evaluation of UK online centres stated that learners considered any new ICT skill to be of "limited use" unless supplemented by home access; and pointed to inconvenience, perceived cost and low interest were the key barriers to uptake of provision for individuals, once issues of access had been resolved. (Hall Aitken Associates, 2004, Wyatt, 2003) The Digital Inclusion Panel additionally identified confidence, inaccessible content, lack of physical access and adaptive technologies as barriers to the development of e-skills, coupled with less tangible factors such as lack of knowledge, awareness, skills, and social support Georgiou (2004) also reported that many learners had concerns about content, lacked confidence in the security of the internet for financial transactions, and often felt that technology was too complex for them to fix if it went wrong.

Selwyn (2004) argues that many adults seem to be creating a use for technology rather than the technology filling deficits in their lives, making learner motivation problematic. Similarly, a survey of lifelong learning centres (Wyatt, 2003) indicated that over 70% of users attended the centres to learn to use a computer. The second most common reason given was to learn to send e-mails to friends and family. Longitudinal studies discovered that meeting people, learning new skills, improving skills and confidence, improving employment prospects, re-entering learning and developing skills to help others were also motivating factors (Hall Aitken Associates, 2004), together with accessing information and improving health (Bradbrook and Fisher, 2004). E-mail, shopping and learning for personal interests were additional reasons for interest in the internet by non-users in the survey reported by Russell et al. (2002).

Despite an increasing understanding, Selwyn (2003) criticises existing accounts of non-use of technology for tending towards such assumptions as that ICT use is inherently desirable and non-use is seen as "abnormal", due to a deficit on the part of the non-user: in cognition, personality, knowledge, resourcing, social situation or personal ideology. Selwyn argues that to avoid such assumptions we should study the information needs of the individual rather than the perceived information needs of society. People may have legitimate and well thought-out reasons for not engaging with ICT; engagement depends upon individuals creating their own contextual framework and motivation for adoption, which is unlikely to occur without the encouragement of a "compelling proposition". Woolgar (2002) suggests that the uptake and use of the technologies depend crucially on local social context.

This analysis sets the context for our empirical study of non-users of ICTs and their understanding of the technologies and their aspirations for use to which we now turn

The Penceil Study

The field work for the study was conducted on and around a social housing estate in Lambeth, south London. The estate is typical of many in London being characterised by high, but not extreme, levels of social deprivation; low income and qualification levels; and an ethnically and linguistically diverse population (Cushman, 2004). Interviewees were recruited from users of a number of local agencies including: a local community centre; students attending local basic education and basic IT courses; parents at the nearby primary school; members of the estate's older people's club; and residents of an adjacent bail hostel.

Our interviews covered both total non-users of ICTs and people who were occasional and highly unconfident users. The interview extracts that follow are drawn from the 37 interviews conducted to date.

Motivations and aspirations for use

It was only among older interviewees that we met people with no contact with these technologies and no interest in using them. However it is important to acknowledge Selwyn *et al*'s (2003), warning against identifying older people as a homogenous group. Through our field work we contacted a range of older people, from early 60s to 90s and from would-be enthusiasts to total refusniks.

Most of the sample under retirement age had experienced some, although often very restricted, contact with ICTs and all those who had not had contact expressed a wish to make use of them. Parents of school age children gave several reasons for wanting to know about computers, including, having purchased a computer for their children to use, they wished to know what their children were doing. As one parent explained:

> AA: Sometimes they are on the computer, internet, and you don't know what they are doing.
>
> Int: You want to keep an eye on them.
>
> AA: Yes.
>
> [Ghanaian Female]

Others had acquired computers so their children could use them for their homework and they wanted to be able to support them.

> CM: She [my daughter] has been quite bad at IT at school, and , um, she's struggled with it quite a bit, because she's not been able to practice , um,. So I'm hoping that now we've got this, and when we get it up and running she will be on it quite a bit … And I want to be able to help her.
>
> [English female]

Interestingly, even those who did not use computers nor have plans to use them in a near future expressed a belief that computer skills are becoming 'necessity'; even if they could not articulate activities for which they could potentially use computers,.

> Int What do you think you are missing out on?
>
> DA Well, it makes you feel like, you know, I don't know if I am using the right words, but as if you are in the Dark Ages.
>
> [Ghanaian Female]

Most respondents envisaged some activities they could potentially perform using a computer. Communicating via e-mail was most commonly mentioned. Many respondents were born outside

the UK and had identified e-mail as a way of keeping in touch with family and friends abroad, while avoiding high telephone bills.

Int: What sort of things do you use it for?

VR Just check my mail, and I send mail.

Int: Who to? People back in Nigeria?

VR My people in Africa, my people in the US, my friends in Canada.

…

Int: Why use e-mail rather than the phone? Is it cheaper?

VR Yeah, e-mail is cheaper most of the time.

[Nigerian Female]

AH Oh, my brother says why you not get the email and the computer for? That is easy way for the computer now.

[Somali Female]

Searching for information was sometimes mentioned spontaneously and frequently provoked an interested or even enthusiastic response, when prompted, but it was also an area of anxiety:

Int: Why haven't you tried to look at the web?

AA Maybe I am a little bit scared. Not to do the wrong thing and maybe to affect her [daughter's] work or whatever it is. Just to leave it alone. Until I have more confidence.

Int: Would you like to look at Ghanaian newspapers and things like that?

AA Oh yes. Yes. I would like to. I have a friend, just across, and the children go there and they go on Ghanaian web, and football and all that in the news. And it would be great to see what is going on.

[Ghanaian Female]

Some interviewees express a wider list of aims

DA There are so many things you can do with them, like shopping, research, and other things.

[Ghanaian Female]

Nevertheless, common to the total non-users of ICTs and the occasional users were their limited aspirations for the use of ICTs. Many interviewees knew about e-mail and were using it or wanted to use it for communicating with distant family and friends, none mentioned instant messaging as a way of achieving the same goal. VoIP, which had much media coverage during the later interviews, was not recognised as a possibility.

Most respondents were familiar with the idea of e-shopping (surprisingly frequently identified as eBay), whether they wished to engage in it or not but e-government services were almost totally unknown. Only one or two were aware it was possible to use the internet to contact local or central government. Even when the possibilities were described few people responded enthusiastically – most wished to continue to use the phone or visit offices in person. They appeared to mistrust the responsiveness of these services and believed it necessary to apply verbal or emotional pressure to gain their desired response. It was believed that an internet message would be ignored. The benefits of not hanging on the phone or waiting around in an office, although recognised, were not enough to compensate for the perceived loss of efficacy.

Int: How about using it to sort out problems with the council and things like that?

DB: Um, I never thought of that, actually. I just get the local Lambeth news, and they send the thing to you, so you read it and you know the only thing you have really dealings with the council is to pay them the council tax. Otherwise I [laughs] – and to come and clear your – rubbish. You call them up and you get them to come and clear that.

[African-Caribbean Female]

Int: How about getting in touch with the council about home helps or social services or something like that? Would you like to be able to do that online rather than hanging on the phone?

GR Can you do it online then? Does it cost you as much or not? I am a bit fed up with carers, don't talk to me about Lambeth.

Int: … yes, rather than hanging on the telephone to social services.

GR You are naïve.

…

Int: So you use the telephone to try and sort things out.

GR Yeah, yeah.

Int: You would rather use the telephone then to try to sort things out. Talk to people rather than send them messages.

GR Yeah, because they might not be there.

[English Female]

The local council tries to promote the use of the internet for contacting services, and its newsletter, referred to by interviewee DB, carries many articles about, and advertisements for these channels, but they appear to have little impact on non-users. It is only engagement with the technology that transforms these from unknown possibilities into appreciated. opportunities

As a part of our action research programme we have designed and organised an introductory course *Living with Computers* aimed at those with little or no knowledge about computers. At the beginning course participants were asked about their experience of computers and their aims. Table 2 summarises their responses. Respondents mostly expressed their aims either in generalised terms, 'to learn how to use a PC'; as a wish to perform some activity; or identified specific technical skills.

Barriers to use

Our research indicates that people have a complex relationship with ICT. For the majority of our interviewees ICTs appeared to offer a challenge that other domestic electronics did not. Most respondents described frequent use of mobile phones and many had surmounted the complex interface to send text messages. Most used VCRs for playing tapes and often for immediate recording of programmes; however, few were able to programme a VCR for deferred recording. Most also, occasionally or regularly, use ATMs to withdraw cash.

Main reason [for joining course]	Aim [in attending] 1	Aim2	Aim3	Aim4
Learn how to use a PC	All about what PCs can do			
To be more efficient on PC	e-mail	e-mail a photo	internet	dtp: clip art; shading & borders; accents
How to use computer and advance in life without someone's help	Send an e-mail	Look up on internet	Get a job in an office	
Help me at work	Use computer for football programme	Discover about computer		
Have a basic understanding about the computer	Learn whatever I can			
To do various activities: downloads etc	Learn to do downloads	Advance my business	Learn various uses of computers	
I have a to work with you because of the computer				
Update recent developments in IT (e.g. use a mouse); internet	Using mouse; microsoft; internet			
To learn more of what can be done; learn about internet and attachments				

Table 2: Reasons for joining Living with Computers course

Physical access to computers did not represent the greatest barrier to use. Many have computers in their homes and there are free-to-use public computers locally. The barriers are skills and confidence.

> Int So, how much have you used computers in the past?
>
> AT Never.
>
> Int Never. Have you ever wanted to?
>
> AT I get as far as PlayStation games and that's about it. So it's not really computers. It's just sort of like … I dunno, I just find them hard to work, hard to understand. I've tried. I just can't do.
>
> [English Male]

Another recurring theme from the interviews was people's anxiety about the technology itself. A number expressed the fear, "I might break it." Some people did not use the computers they had at home because they were worried that they might destroy their children or partner's work. This contrasts with the reaction of more experienced users that the technology frustrates them because it breaks down on them. Respondents reported that they would ask a relative or a neighbour (or often the child of their contact) to help them fix a breakdown. There was little knowledge of commercial repairers or of manufacturer or supplier helplines. This indicated that social isolation was a factor enabling or preventing use of these technologies, separate from social exclusion.

Many interviews revealed an amorphous fear that something might happen to their computer from out there – an ill-digested mixture of partly understood news items about viruses, phishing and spam. Some perceived the internet as a source of a threat, particularly for children who might access inappropriate information or engage in chats with unsuitable people. E-shopping raised further anxieties:

Int: And you think shopping? Why shop with the computer?

DA Oh, I think it is nice to go out and about shopping. But when you have got little ones sometimes it can be difficult. So to go online shopping …

Int: Right, you have credit cards and everything.

DA Yes, but I don't normally use them.

Int: Because you have to have credit cards if you shop online.

DA Mm.

Int: Would you be worried about security if you shopped online, do you think?

DA Yes, that's one thing.

Int: What would you worry about?

DA About somebody getting to your details.

[Ghanaian Female]

Use of the internet for shopping requires both possession of a credit or debit card and a willingness to use it under unfamiliar conditions, against a background of media stories about internet fraud and theft. The resulting issues of trust are important in understanding people's willingness or reluctance to use the internet for transactions. Dutton and Shepherd (2003) describe the internet as an *experience technology* and that it is only through use that people develop trust.

Discussion and Conclusions

ICT non-use in the domestic environment is a little researched topic. Research has been concentrated on the user rather than the non-user. The work reported here allows us to start to understand the needs and demands of this group and to engage in strategies to address their needs.

Perhaps, not surprisingly, our research supports a view that lack of confidence is an important barrier to computer use and that there is a link between personal circumstances (e.g. parenthood, age, income) and computer ownership. For example, it appears that people with school age children are more motivated to buy a computer. To this extent, the MATH model holds. However, not all parents actually use the computer they have purchased.

TAM and MATH presuppose a set of dispositions towards technology that require sufficient familiarity with the technologies that allow the users (not actors) to discriminate between alternative technologies on the basis of their anticipated usefulness and ease of use. They are required to see technologies as ends in themselves, to be adopted; not as intermediate steps in achieving ends or completing tasks, or enabling people to make progress through their life-worlds This worldview is reflected in ICT curricula which set targets of learning word-processing or spreadsheets. In contrast, aims for learning that are less application centred such as sending e-mails or searching the web emerged from our research; however achieving these tasks still masks the life experiences they are meant to enhance: maintaining contact with distant family and friends or doing the weekly shopping.

Venkatesh and Brown (2001 p. 94) reported, "non-adopters were influenced strongly by the fear of obsolescence." This emphasis on obsolescence as a barrier, which figures strongly in their discussion of their findings was not mirrored in our interviews and arguably represents the views of people close to the technology and choosing not to purchase it, rather than the perceptions of people excluded by the technology.

Furthermore, we identified an inability among respondents to imagine the variety of uses to which they might put ICTs coupled with a lack of knowledge about some technologies or services available (e.g. VoIP). This indicates a conceptual problem in applying TAM and MATH in this setting. Both

approaches posit a rational user, knowledgeable about their situation and the options that confront them, and thus able to review options and reach an optimal solution. One aspect of exclusion, both digital and social, is lack of knowledge about options, for which a conventional remedy is the provision of advice and advocacy services as exemplified in recent UK proposals on assisting parents in selecting schools or childcare. Equivalent advice on ICT selection is rarely formally provided.

Our data suggests that this unknowingness makes non-user's formulation of plans difficult and the support available to nurture their introduction to the technology – such as through education and training or accessible and trusted technical support – is a more important determinant of adoption than PU and PEOU. This also reflects Lamb and Kling's (2003) concern with actors rather than users.

A revised basic ICT curriculum

Our findings demonstrate that our respondents only imagined narrow uses for computers, largely shaped by popular media. The interviewees did not consider using the Internet to contact their local authorities (actively encouraged in the UK). They did not envisage engaging in civil activities on the Internet, building or joining any 'virtual communities'. This implies that the UK government's vision of e-citizens is over-optimistic and excludes many groups of people, even in its very minimal form, which pictures people as consumers of local and national governments' e-services rather than active participants in e-democracy. The way that consumer ICTs are presented in the media – as black boxes to achieve pre-described ends – makes this imagining of potential more difficult and sets a challenge for educators.

However, it is clear that the interviewees valued the communication aspect of these technologies and wished to engage in communicative actions not data management. They were also aware that communication entails risk, with new and unknown (and to them unknowable) risks generated when the communication is mediated by ICTs. This demands assistance in explanation, management and reduction of technology amplified risk. The needs and aspirations revealed by our interviewees mapped very poorly onto existing basic ICT curricula. There has been considerable investment in Basic IT skills training in the UK and courses are available at the community centre and the local further education college. Our findings, however, call into question the curriculum offered.

UK Basic IT curricula have remained essentially unchanged since they were first developed in the 1980s. They concentrate on learning to use applications, primarily MS Office, although courses in computer graphics, DTP, sound editing, etc are also available. The office productivity courses rest on an assumption that students' overwhelming aspiration is to learn computing to gain an office job. While IT competences are increasingly essential for employment, this is not the only reason to learn. Many of our interviewees were interested in gaining employment skills, but others – and not only those above retirement age – centred their aims on using personal computers for personal purposes. The conventional, highly skills based, curricula, do not promote discussion time to explore possible uses nor the ways these technologies can be enrolled in changing forms of domestic life. Accordingly, in the action research phase of our study we are running a *Living with Computers* course with a new syllabus[2]. This syllabus brings the activities that people have identified as wishing to engage with to the start of the programme rather than relegating e-mail to the end, after the intricacies of word processing have been mastered. Learning keyboard and mouse skills are vital, but they can equally be learned through a Yahoo or Hotmail mail composing window as well as through a Word document.

The findings reported support the approach that e-literacy needs to be considered as a negotiated set of understandings and competencies related to individually conceived tasks rather than an externally

[2] The outline for the course is available at http://penceil.lse.ac.uk/documents/CoursePlan.pdf. We gratefully acknowledge the support of Lambeth adult learning service in funding the course.

imposed programme. These skills sit within an individual's interaction with, and appropriation of, technologies not in abstract form to be banked for future application.

An e-literacy curriculum must also, if it is to challenge social exclusion, respond to Livingstone's (2004) demands for a media literacy curriculum to enable people "To access, analyse, evaluate and communicate messages in a variety of forms". The aspects of analyse and evaluate are frequently minimised or absent, and creation, which Livingstone sees as central, is often marginalised.

Our research has identified issues essential for successful strategies for digital inclusion. The curriculum weaknesses identified in this research do not stand alone. They reflect a view of computer users as adjuncts to a controlling machine, not as active citizens mapping their own routes through this complex and contested terrain. Our new curriculum places learner aspirations at the centre and sees adoption decisions as a dialogic and not an individualised process.

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