



Using technology creatively to engage hard to reach learners

Research report

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Contents

	Page
1 Introduction	4
2 Methods	6
3 Literature, Policy and Legislation	7
4 Themes	11
4.1 Human Resources, Training and Development	12
4.2 Teaching and Learning	13
4.3 Organisational and Management	17
4.4 Learner Specific	18
4.5 Technical	19
5 Discussion and analysis	20
6 Conclusions and Recommendations	24
 <i>References</i>	

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1. Introduction

Since 2005 and the release of the DfES strategy for ICT in education – Harnessing Technology – there has been a growing body of both evidence and policy advocating the use of technology in education. Much has been written about its *potential* for enhancing the teaching and learning environment (Fanning, 2007). Can technology in education be both a palliative and a solution as some of the literature would suggest? The dichotomy stems from too much emphasis on technology in its own right, and perhaps not enough on technology as *one pedagogic opportunity amongst many*. This paper takes the view that ICT – defined in the broadest sense as being the delivery of teaching and learning in which technology plays a role – is a tool which needs to be moulded to the education aims, and tailored to the profile and real needs of the users.

Doncaster is one of four Metropolitan Borough Councils involved in the South Yorkshire e-sy project which has been running for three years, and which is due to complete in mid-2008. The project has the core aims of increasing educational attainment, addressing social exclusion and reducing the digital divide, increasing the skills base of the working population and increasing the competitive abilities of businesses. More than £54M will have been invested during this period on computer infrastructure, ICT training for teachers and skills training. Around 140 schools have been equipped and upgraded with laptops, tablet PCs and computers, leading to a noted improvement in ICT access throughout the Borough (Costello, 2006).

Although Costello (2006) reports that the cultural shift prompted and supported by the e-sy programme are sufficiently embedded to be sustained after the project's end, there is yet a lack of two constituent underpinning elements to embedded ICT: the lack of development of e-learning networks and no evidence of teachers using ICT to develop their own resources or share them with others. This is particularly at odds with the recent Becta Schools Survey which reports that 35% of primary schools and 46% of secondary schools collaborated with other schools on ICT resources development. As long ago as 2003, Hargreaves was placing emphasis on effecting improvement to learning through knowledge sharing between institutions, and that innovation networks were key.

There have, none-the-less, been positive impacts from the programme such as increased uptake of the ECDL qualification and an increase in teacher training and development in ICT. However the project has not resulted in any significant benefit for hard-to-reach learners, including those classified

as Not engaged in Employment, Education or Training (NEET). A recent report on e-sy inclusion, "Technology and inclusion in South Yorkshire" (2007), noted that NEET figures in South Yorkshire remain a concern at 10%, and above the national average of 8%.

As the e-sy project draws to a close, each of the four Councils has been given a share of the remaining investment monies to spend on ICT projects. Sheffield, for example, is investing its share into the development of a bespoke "virtual school" which will particularly focus on children and young people classified as NEET. Doncaster's e-learning team took the approach of commissioning this research study into how technologies may be most effectively deployed with maximum beneficial impact on hard-to-reach learners, in order to determine a strategic use of ICT based on the evidence. This report is the result of a three-week study carried out during August and September.

What do we mean by *hard-to-reach learners*? NIACE (Hesse, 2005), using guidelines provided by the Learning and Skills Council, defines learners who are hard-to-reach as being older and semi-skilled workers and people with poor basic skills or qualifications. According to NIACE, the LSC describes lone parents, ex-offenders, people working in SMEs, people with low literacy and numeracy skills, refugees, travellers, people with mental illnesses and learning difficulties, and those with emotional or behavioural problems as being groups *with low levels of participation*. This definition does not particularly suit our purposes. This study defines hard-to-reach (potential) learners as being young people who, for whatever reason, cannot or do not regularly attend educational institutions and consequently their life chances are in jeopardy, or who are denied access to the support and resources needed to ensure their abilities are developed to enable them to make informed choices about their life route. We also include in this definition adults whose skills and competencies are at such a reduced level as to put at risk any kind of normal life and contribution to the community. This definition is quite broad but has a clear foundation on the evidenced correlation between persistent absence from education and low attainment rates at all ages (e-sy inclusion, 2007). Even more so today than ever before, basic skills are essential not just to work, but to daily living and normal day to day engagement with society and commerce.

The study did not review the range of technologies available, with an assessment of their efficacy in this or that circumstance. Rather, the study consulted with professionals working in education in Doncaster to capture opinion, experience, knowledge and perspective in order to be able to propose a strategic and focused approach that would achieve high impact, be capable of being run as a

project until June 2008 with its output being able to be formally evaluated by independent assessors as part of the CAMEL collaborative approach to the management of e-learning, and which would build on the core aims of the e-sy programme.

The report starts with a brief discussion of the methods used in the research, then considers the available literature together with a review of government policy, strategy and relevant legislation. Taking a thematic approach, the report goes on to discuss the findings from the study on a theme-by-theme basis, before drawing the strands together into an analytical discussion. The report ends with conclusions and recommendations for action.

2. Methods

The study aims and the timescale within which it had to be completed led the researcher to adopt qualitative as opposed to quantitative methods, nor were empirical methods used. Consequently, it is not the intention of this report that its findings can or should be generalised. The research question at the heart of the study was: “How can digital technologies be most effectively used to enhance the learning experience and outcomes of pupils and people, *in the Doncaster Metropolitan Borough Council area*, who are hard to reach using traditional methods, or who are considered to have Special Educational Needs: who are these groups, and how would they benefit from such a use of technology?”

No predictions were made at the start of the study, neither were any assumptions formed. We did, however, accept as a central tenet that ICT, properly deployed will support individual and personalised learning (Becta, 2007), that “...assistive technology can be viewed as technological scaffolding” (Price, 2006: p 22), that “..used in the right way multimedia is a critical resource for accessibility,” (Slatin & Rush, 2002: as cited in Sloan, Stratford & Gregor, 2006: p 43) and that it can extend the learning environment to otherwise inaccessible places (Sloan *et al*, 2006.).

The research started with a literature review, and a review of relevant central government policy and strategy, together with appropriate legislation. Semi-structured interviews, mainly carried out face-to-face, were held with identified professionals working within education and who have direct experience, knowledge and expertise in the fields of ICT, SEN and hard to reach learners. In each interview, participants were asked to confirm their job role and responsibility. In a series of open

ended questions, participants were then asked about their experiences, opinions and views with respect to hard-to-reach learners and ICT in general, to discuss any ICT related projects they were aware of, and to offer their opinions on what they considered to be the main issues, and in particular, the barriers and successes involved in the effective use of ICT with these groups of learners.

A further literature review was undertaken to follow up on some of the issues identified in interview. Using a form of discourse analysis, the data gathered in interview was analysed and grouped into a range of categories, which were then categorised into broader themes: these form the main headings of section 5 of this report and are used as the basis for the discussion and conclusions.

3. Literature, Policy and Legislation

There is a large and growing body of literature on the impact of ICT with hard-to-reach learners, although studies tend to focus on one type of hard-to-reach learner (e.g., traveller children, or those with impaired vision) rather than the “category” as a whole. This is perhaps reflective of the accepted view that different types of hard-to-reach learners have different needs, and require different types of intervention. They also tend to be very specific about technology, focusing in on one or more pieces of technology. Wald (2006) for instance considers the benefits of Automatic Speech Recognition software for students with hearing impairments, concluding that, while the accuracy rate is only 85%, ASR does have its advantages, and could also be beneficial for students who do not have English as a first language.

In a study of the way in which multimedia can help to widen access to education, Sloan *et al.* (2006) argue that there is a need to move on from seeing accessibility itself as a “technical definition”. This is certainly a concept that shines through in a number of case studies showcased by the JISC in its “Effective practice with e-learning” guidelines (2004): a learning centre established in Newcastle United Football Club attracts 1,000 learners a week to attend e-learning supported literacy, numeracy and ICT Skills courses where the flexible learning “menu” and emphasis on empowering learners to set their own goals are seen as two fundamental factors to its success. In another study, Abingdon and Witney College made assistive technologies available to all students and this helped in the rapid identification of learning problems, enabling effective support to be provided through a much earlier intervention than might have been the case.

In general, the literature supports the notion that ICT can be highly effective in supporting and motivating learners of all ages, and in particular it is a fundamental scaffold in the delivery of personalised learning. But it must be recognised that ICT is only one element in the education landscape, and it cannot solve every problem. If, for instance, the personalised learning envisaged by Every Child Matters is to be realised then, according to some experts, schools need to evolve into networks with other schools, homes and community groups, and both students and parents need to invest in children's education (Leadbeater, 2005).

The literature can also provide us with a dialogue of useful signposts. One study which focused on the debate around inclusion in mainstream schools and attainment concluded that while there is some anecdotal evidence of inclusion having positive effects on wider pupil achievement such as social skills, and that Special Education Needs pupils in mainstream school generally make good academic and social progress, there is no significant relationship between inclusion and pupil attainment (Dyson *et al*, 2004). It seems, then, that one should be cautious about making claims for inclusive approaches.

A study by NIACE (Hesse, 2005) drew the unusual conclusion that the learner needs identified at the outset of an e-learning intervention were not in fact the real needs of the learners, and that these were often quite different from those anticipated. This is a notion touched on by the e-sy inclusion report in highlighting the need to address individual needs and vulnerabilities on a case by case basis. The NIACE study goes onto conclude that e-learning offers the flexibility, informality and a non-threatening environment which supports learner-centric provision, that using e-learning to meet learner needs proved the most important rule, and that teachers needed to enhance their e-learning skills in order to use it effectively.

In Marks' influential final report on the E-Learning and Mobility Project (E-LAMP²) critical success factors in using ICT to engage with Traveller children included careful preparation and training of the children and their families, as well as teachers in what is, in effect, a completely "new way of thinking" (Marks, 2005: p 11). The report also found that mobile learning worked well where schools had a named member of staff in the role of tutor-coordinator, and that the role was fully structured into the school organisation. In effect, what this project offered was the classic blended learning environment which, when properly structured and supported with trained teachers, can produce positive impacts on pupil attainment and, often, lead to a positive impact on parent perception of both

education and their own ICT skills. This is a similar finding to that of the NIACE report: “most projects showed that the key to success does not lie in the e-learning itself but in how it is being used,” (Hesse, 2005: p 13).

A case study on widening participation by bringing technology to the learner by Gloucestershire College of Arts and Technology used satellite communications and GPS to enable hard to reach adult learners to acquire ICT skills in their own environment (JISC, 2005). The study found that the value of informal learning lies in its removal of traditional institutional boundaries. Key factors to success included the provision of reliable technical support, team training, and promotion and publicity to involve hard-to-reach learners, but acknowledges that the high dependence on specialist staff could be a risk to this success.

What these and other studies all have in common is a co-ordinated and strategic approach, in which preparation, training and technical support are absolutely fundamental to achieving a successful and measurable outcome. However, it is important to view these and other studies with some caution, as their research methods and numbers of participants on which their findings are based can be criticised as lacking in validity and reliability (Fanning, 2007).

The main policy driving all of these initiatives and the embedding of ICT into the curriculum at all levels is the Harnessing Technology strategy (known as the “e-strategy”) which has a core aim of using technology to engage with hard-to-reach learners using special needs support, and in finding more motivating ways of learning, while offering choice about where and how to learn (DfES, 2005). “The strategy described collaborative learning through online environments and pupils developing cognitive and social skills of communicating and collaborating, the first time this kind of language begins to be used in policy documents” (Fanning, 2007: p 14). This builds on the 2004 Five Year Strategy for Children and Learners which made the direct connection between social class and achievement, and made the commitment to opening up services to new and different methods of delivery and access.

The Special Education Needs and Accessibility Act of 2001 set out the rights of learners to a quality education, placing a duty on mainstream educational institutions to educate children with special needs, unless this conflicts with parents’ wishes. In this way, central Government policy, strategy

and law underpin the drive towards an inclusive learning culture, in which technology is seen as a key enabler.

Looking to the wider picture, Leitch notes that in the 21st century, the natural resources are people, and that there is a need to develop a shared responsibility between employer, employee and Government to increase action and investment in developing skills (Leitch, 2006). Leitch also notes that the employment rate amongst disadvantaged groups in the UK has risen faster than the European average, and that there are clear links between skills and the wider social outcomes such as health and crime.

Some researchers (e.g., Fanning, 2007) have strongly criticised the general policy now enshrined in much of central Government policy (and notably in some studies aswell) of making a direct link between technology in education, educational attainment and employment / economy. Although we would agree that there is some merit in accepting such correlations with care, we take a simpler view that if technology is viewed as a tool that can aide the delivery of teaching and learning, and if attainment of a certain level of educational qualification can enable a person to be capable of undertaking employment, then there is a connection. But, there are other elements and influencing factors involved in this chain.

4. Themes

Doncaster is the largest Metropolitan Borough Council in England, with more than a quarter of its population aged up to 19 years, of whom a significant but unidentified number experience some form of deprivation. The Borough also has one of the highest incidences of young unmarried parents. There is a substantial Gypsy and Traveller population, estimated to include around 3,000 children (of whom only 400 are said to be enrolled in a school at any one time), and a growing population of Eastern Europeans. The statistics for South Yorkshire as a whole suggest that some 10% of young people can be classified as NEET, which is two points higher than the national average (e-sy inclusion, 2007). In fact, according to this report, only 7 out of 10 16-year olds are in full time education or training. Statistics gathered in 2006 suggest that 17% of the population of mainstream schools have some form of Special Educational Need, with the largest group (just under 4,000) comprising pupils with general learning difficulties.

The “Making Children and Young People Matter” strategy, based on the Hear by Right model, was established to address these and other growing issues. The strategy seeks to encourage active involvement of all citizens in shaping their lives, the services they need and the organisations set up to provide them. In today’s modern society, if young people and adults are to benefit from such strategies they must have – as an absolute minimum – good literacy, numeracy and ICT skills. Without these, their ability to find employment, gain an education, contribute positively to their community, and guard their most basic rights is compromised.

The Scottish Executive’s 2001 paper on Digital Inclusion stated: “The groups most affected by the digital divide are those which are already the most excluded within society.” The focus of this report is to understand how ICT can be most effectively used to engage with hard-to-reach (potential) learners, with the most positive impact on attainment levels, and in so doing, to address the digital divide, and empower previously excluded young people and adults to take control of their own lives and futures.

This section of the report documents the issues and evidence provided by the people who form the front line of engagement with these vulnerable groups.

4.1 Human Resources, Training and Development

Gaps in the availability of skilled human resources, and ICT training and development for teachers were frequently cited as being issues. There are many examples, for instance, of people having retired or who are about to retire but who are not being replaced, and this has resulted in gaps in support and provision. One participant differentiated between SEN and mainstream schools as having the human resources needed to deliver services, and the “other excluded” groups where professional human resources were simply not available as they should be. In one particular case, the provision of distance learning services to Traveller children may be jeopardised as a result of the loss of a key team member, who is not being replaced. Successes, where they are reported, are largely based on the highly proactive activities of small groups of individuals in the field. As we have seen from the literature, co-ordinated and consistent support is essential to successful outcomes of the use of ICT.

Perceptions of teachers’ ICT skills tends to be polarised between a small number of “anti-technologist” or “traditionalist-diehards” on the one hand, and self-trained enthusiasts on the other. None of those interviewed, including teachers, made a direct reference to teachers as *experts* in the use of ICT. There is quite a strong perception amongst the non-teacher interviewees that teachers in general lack confidence in using ICT and that perhaps more training is needed. The teachers themselves offered a slightly different perspective: one participant held the view that it was really up to the teachers themselves to be responsible for developing their own IT skills. The underlying issues appear to be:

- ICT training tends to be systems training, rather than pedagogically focused: that is, while the teachers may be trained in how to use the tools, they are not given any real assistance or training in how to apply the tools within a teaching and learning environment.
- Teachers need to be given time by their institution to learn to apply their new skills once acquired through training: training can only provide an initial skills foundation.
- The language used in ICT training (technical language) and the speed of inset can be off-putting to some.
- There is no mechanism for teachers to network within and between institutions to share knowledge and practice.

- Concerns about keeping pace of technology developments against a background of considerable change and reform within the education sector itself.

This would appear to be backed up by earlier research undertaken into the effectiveness of ICT training provided to teachers through National Lottery funds which found that teachers' confidence in the use of ICT was improved, but that there was dissatisfaction in the training content and style of delivery (Galanouli, Murphy *et al*, 2004: as cited by Fanning, 2007).

In considering ICT and motivation, there is an interesting contrast between perceptions of teachers and learners: people talk about teachers needing to be motivated to use ICT, yet they talk about ICT as being a motivating tool for learners!

4.2 Teaching and Learning

Under the theme of teaching and learning, the research identified a number of issues including the need for some form of exchange network to enable practitioners to share information and resources between and within institutions, home access, the need to provide tailored services for learners and, high on the agenda, a need for a more consistent and accessible form of IT support.

There is currently no mechanism that allows teachers to share information and resources, although the e-portal pilot project does offer a mechanism for families to become involved in the school curriculum. There are also plans to create a new web resource for SEN Co-ordinators based around the "Meeting the Need" documentation and the "Inclusion Today" magazine, which may eventually be expanded to offer discussion forums, although there is no evidence on which to predict service take-up. Sharing resources is not core to a practitioner's job role, and there are many perceived barriers to this practice including licensing issues, theft and misuse, plagiarism, copyright and professional shyness / earning ability. With respect to the latter, some teachers may lack confidence in their resources and be reluctant to "go public" with them, while others may believe that their resources have financial value. Even if these barriers could be addressed, it is not enough to simply provide a mechanism for information exchange: as Laurillard put it: "It is absurd to try and solve the problems of education by giving people access to information as it would be to solve the housing problem by giving people access to bricks" (as cited in Fanning, 2007).

Although the notion of using technology to mount some form of information / resource exchange network was frequently touched on by non-teacher participants, the teacher-participants placed more emphasis on using technology to extend the school boundaries outwards to the home. For example, by enabling SEN assistive technologies to be accessed via the e-Portal, and by ensuring that the homes of learners are equipped with the same (or similar) technologies as they have access to within institutions. For example, in one SEN school, a pupil may have access to a particular technology which enables him or her to communicate, but is unlikely to have access to this at home. The responsibility for funding this use of technology is not clear.

Following on from this, participants also raised the difficult issue of some learners not having access to ICT in their homes, or only having limited access to institutional facilities outside of formal learning hours. According to one participant, this imbalance, in effect, creates and fosters exclusion. Another participant proposed that no-one should be unable to access a computer and the internet on the basis that there are plenty of free, public-access facilities available in libraries, for instance. However, the profile (if such can be applied) of hard-to-reach learners is such that they are highly unlikely to visit a public library or, as in the case with Traveller children, might find it difficult to do so. Such public access facilities are also unlikely to have readily available ICT support staff. To address this particular issue, one teacher runs regular lunch-time clubs where pupils can have access to ICT in a staff supervised environment.

Almost all participants highlighted problems with IT support. The environment of a SEN school is particularly highly technical, yet there is no on tap technical support available. Also, SEN schools are, from next year, bound to provide pupil attainment data using a new software system, but the responsibility for providing support and training in its use has not been identified. There was, in general, a perception of a lack of centrally available – and targeted – ICT expertise and support, and there is a need for a mechanism to deliver rapid replacement of technology particularly where, for instance, a piece of technology is absolutely essential to a learner's active participation in an educational instance.

There are plenty of examples of activities and some successful interventions, using ICT with the aim of improving the teaching and learning experience:

- In terms of hardware, most are agreed that the picture in Doncaster is far better than it was even two years ago.
- Champions have been shown to have a marked positive effect.
- All schools in the Borough have Accessibility plans in place.
- The New Born Hearing Scheme, in which the language development of babies born with a hearing impairment is captured on video to facilitate clinical judgements, and to train and prepare teachers on a case by case basis. The videos are also being used to develop an evidence database to better understand language development in general.
- The use of Radio-Aide equipment in mainstream schools enables pupils with hearing impairments to take part in classroom sessions, and the use of Clicker software has proved particularly helpful with pupils who have poor language and writing skills.
- The North City Learning Centre is working with EMTAS to provide ICT skills training including the provision of laptops to the EMTAS team, and to support their delivery of ICT resources and services to Travellers children (E-LAMP). There is a mixed perception of the success of this particular project, and there is a view that the project is now at risk as a result of loss of key personnel.
- The North CLC is also working with Don Valley school on a pilot project involving the use of mobile devices in the context of the Maths curriculum, with an interim report scheduled for the end of the year. In other areas, the CLC lays claim to considerable success in helping young people to pass the British Computer Society Level 2 exam, and is also working with a pilot group of primary schools using the espresso package of learning software. This pilot project, which started in September, will run for one year during which the CLC will provide a Managed Learning Environment, and also an e-learning “Champion” to work with the schools.
- The Borough is currently piloting an e-Portal with 5 schools as a form of Managed Learning Environment, and which allows parents to track their children’s attendance amongst other things.
- A SEN school took part in a project known as Artemis which provided video conferencing equipment to enable remote assessment of pupils, which resulted in at least two successful interventions.
- There are examples of individuals being helped with special equipment. One of these involved a Year 11 student with profound visual impairment being provided with a printer-embosser, which enabled her to complete her GCSEs. This one piece of equipment allowed

this student to engage with the standard curriculum, which might otherwise have been impossible.

- NEO notetaker technology has proved successful for autistic children, and there is anecdotal evidence to suggest that use of this technology leads to improvement in concentration and behaviour.
- EMTAS are producing a DVD featuring interviews with Traveller families talking about their experiences and perceptions of the school system. The aim is to use this to help train teachers and other relevant staff on how to better target Traveller families with services and information. EMTAS also has a plan to produce a website offering basic admission information in a variety of languages.
- An anti-bullying software system known as Sentinel has been set up in 60 schools, which is seen as an important step forward in establishing a safe, secure and enjoyable school environment for all pupils.
- Adult and Family Learning courses are available to the wider community through the CLCs. It was noted that the First Steps in Management proved particularly popular.
- The Borough Council provides a digital audio book service to schools which has proven very successful, and has also introduced specific software programmes for laptops which make literature accessible to pupils with visual impairments.

What is noticeable about this list of interventions using ICT is they are either passive – the service is there to be used if anyone wants it – or they are reactive as direct and highly specific solutions for one individual or a group. There is no common strategic plan linking them or leveraging their values in order to spread impact. Nor is there any central repository where one could discover detailed case studies and evidenced outcomes from the interventions. Institutions are, by and large, operating in isolation, without any particular ICT strategy for teaching and learning.

4.3 Organisational and Management

The background to all of these activities is one of considerable change and reform. The Borough Council itself has undergone a radical transformation. The SEN schools are in the process of being

transitioned from 7 schools to 5, and these will have changed remits in terms of student profile. Some will have new responsibilities to provide outreach services to co-located mainstream schools. Within the SEN school environment, at this time, there is a perception of major change and even anxiety about the future. There are also concerns over how to involve parents in this process and ensure that they are kept informed.

There would appear to be a lack of ground level ICT strategic plans in place, and also strategic plans for the use of ICT to meet the needs of hard-to-reach learners in general. There is a widely held perception that ICT is deployed on an “ad hoc” basis, which practice is likely to limit the positive impact and outcomes of ICT.

Another commonly held opinion was that there is a general lack of communication, yet “everyone is talking about the same thing” – that technology can be used to engage with hard-to-reach learners, and that ICT is a “liberating tool”. The result is what is seen as a fragmented approach, with considerable gaps in provision, and this situation is only likely to increase as a result of future deficits in funding from the Accessibility Fund, for instance. It was clear from some of the participants that assumptions are being made about certain key areas such as the ability of SEN schools to provide Outreach services to mainstream institutions, and the availability of ICT technical support for SEN schools provided by mainstream schools. There is a tendency to take the view that providing information via a web page, for instance, will resolve a particular problem. The conundrum, then, is one of too much information versus not enough. And, of course, relying on web services to disseminate information immediately excludes those people without internet access or whose basic skills are low. In other words, the very people that an inclusive strategy seeks to reach.

4.4 Learner Specific

All of the practitioners interviewed raised the issue of ICT access at home. They cautioned that one could not make the assumption that all students have ICT facilities in the home, and that this variance between home and school resulted in both a social divide and also a physical barrier separating school and home activity. In the case of pupils in SEN school, as we have discussed earlier, this can result in a fundamental loss a functional ability. On an equally practical level, the introduction of an e-

Portal, with the intention of encouraging family participation in children's education, will also be restricted to those with their own internet access.

A second and linked issue raised by all practitioners in mainstream education was the importance of Basic and ICT skills. One participant highlighted the significant underachievement in basic literacy and numeracy within the Borough. It is hard to see how initiatives such as the Personalisation Agenda and Active Involvement Strategies can succeed when a significant portion of the population is unable or unwilling to develop the most basic of skills.

This issue may well be compounded if, as more than one participant stated, the level of basic ICT skills amongst teachers themselves is patchy.

The experiences of the North CLC with the provision of ICT training leading to formal qualifications for "borderline" students have shown that such students can be motivated and can achieve recognised skills.

There is a recognition of the need to understand individual needs and to tailor learning packages accordingly. In this sense, the "one size fits all" does not apply. A tailored approach must include the parents, according to some participants. An example of this type of thinking would be organising Traveller children to have laptops on loan. A standard approach might be to provide parents with a lot of forms to complete: however, it cannot be assumed that Traveller adults have sufficient reading and writing skills to fill in forms.

Motivation is central to any form of successful education intervention. Many regard ICT itself as a motivator and an enabler. However, when considering specific cases such as Traveller children (trying to use laptops in a busy caravan environment, for instance) or single teenage parents (who have child-minding issues to contend with), or young people who have been excluded from school and find themselves excluded from employment, it is important to consider motivation on an individual basis. One participant proposed that families who do not have ICT facilities at home, should be invited to take part in an ICT course and, if they complete the course, they could be given a laptop as a reward. The belief is that by involving the parents, the benefits of computers and the internet can be realised in whole family terms not just in education value terms. However, there is no evidence to support such an outcome as a "given" if this approach were adopted.

4.5 Technical

We have mentioned elsewhere in this report the consistent requests for IT support, and ICT support in particular. Another aspect of the technical theme is that relating to institutional IT policies. We have several reports of IT departments within institutions using IT policies to limit access to ICT facilities. For example, evidence suggests that NEO tablets are very useful and effective with autistic pupils: pupils use these to write text. In order to transfer their files to a standard PC to print copies of their files, they need to use memory sticks and USB ports. There are many instances where IT policy prohibits access to USB ports for security reasons. There are other anecdotal references to IT personnel within institutions being slow to fulfil special requirements for configuration of equipment to make it usable and suitable for SEN pupils, or take up of assistive technologies.

There is also considerable anecdotal evidence that pupils are prevented from using ICT resources outside of formal learning hours, and that they are certainly not allowed to be used in game play.

This type of limitation on ICT access, whilst understandable from a security perspective, is not supportive of the Accessibility legislation requirements, nor of the Harnessing Technology strategy.

5 Discussion and analysis

There are undoubtedly many pockets of excellence within the education sector in Doncaster, and many initiatives and projects established to support and meet the needs of various sub-groups of the hard-to-reach learner group. There is, none-the-less, no coherent and co-ordinated strategy for ICT, with interventions and initiatives happening through the enthusiasm and commitment of a core group of people, many of whom are or will be leaving the sector within the short term. However, this and many of the other issues raised during the research interviews unfortunately fall outside of the purpose of this study and its criteria for qualification.

The research set out to identify the most effective use of technology to enhance the learning experience and outcomes of hard-to-reach learners, to determine who these groups are, and how they might benefit from such an intervention. What we found was little if any criticism of technology itself – in fact, none of the participants identified any improper selection of ICT, other than for one to make a generic reference to the uses of ICT not always being successful. By and large, the professionals working within education in Doncaster have proven to be expert at identifying and deploying ICT to provide a solution for any given circumstance. This may not continue to be the case in respect of SEN pupils as a consequence of funding being cut from 2008. Setting aside that particular problem, there is an absolute consensus agreement that ICT is a good thing, and that it is an enabler for education, providing a means of access which might otherwise not be possible.

Many of the issues associated with achieving maximum beneficial impact with ICT are practical in nature: IT policies preventing the use of assistive technologies, whiteboards being set up to broadcast to all PCs in a classroom, limited IT support (both within institutions and at home), lack of access to ICT in the home, for instance. A great deal of these issues could be resolved through establishing a unitary framework for ICT for the Borough, to which all institutions sign up.

What is also clear is that the experience and expertise to deliver targeted ICT based interventions exists within Doncaster's education system and within Council teams. But, as one participant suggested, whilst everyone is saying the same thing, they are all working in silos.

It would be easy to propose that DMBC invest its available ICT funding into a shopping list of technology – a few more NEOs here, some more Radio-Aides there, a couple of hundred laptops and

perhaps some more training course opportunities for teachers. Whilst gaining appreciation from a few in the short term, this approach is unlikely to deliver any longer term goals. To adapt an often used phrase: it is important to think *around* the box.

Consideration of the issues that “wrap around” the use of ICT in education is important. ICT is not, on its own, the answer. Numerous studies have indicated that the most effective use of ICT in an educational context is within the blended learning model. Interestingly, none of the participants interviewed mentioned this term. In the blended learning model, ICT forms part of a learning solution that is supported by teachers or mentors, which has a structured communications approach, which provides immediate feedback to learners, and which supports their learning at their own pace, anywhere, anytime. In fact, those participants who are involved in the delivery of teaching and learning, including the North CLC, all described what could be loosely called blended learning environments.

Bearing in mind the limiting factors for this study’s purpose, the most obvious high impact and potentially beneficial use of technology to enhance the learning experience of people who are hard to reach using traditional methods would be to equip them with ICT resources at home. This would directly address one of the major problems identified by practitioners. If this provision were to be focused on raising Basic and ICT Skills levels, this would address one of the other major issues raised. If we were to add to this a mechanism whereby teachers could exchange information, resources and case studies within and between all institutions (that is, not just a service targeted at SENCOs, for example), this would address many of the issues raised concerning teachers’ ICT abilities and knowledge. Obviously, the perceived barriers to information exchange mentioned in section 5 will need to be addressed, but we do not see these as being insurmountable.

In terms of identifying groups – and bearing in mind the specific limitations of time and finance on any ICT intervention proposed here – it appears that the most obvious groups to target would be:

- traveller children
- adults with low Basic and ICT skills
- unmarried teenage parents
- those categorised as NEET
- pupils in mainstream education who have no access to a computer / internet at home.

This is the group of people most likely to suffer from a lack of Basic Skills, and/ or who are most likely to be denied access to education and training, voluntarily or otherwise, at present. This is also the group of people who would need most co-ordinated and targeted support in the form of tutors and mentors. If one were able to reach all of this group, and provide them with Basic Skills learning using methods and in an environment to which they could relate and feel comfortable with, this would have a significant impact on their life chances and ability to engage with their communities.

The opportunity to mount a targeted intervention of this type lies with the existing e-Portal pilot project. This involves five schools (Armthorpe, Hungerhill, Hall Cross, Hatfield Visual Arts College and Mexborough Schools along with the South City Learning Centre). In terms of their student populations, we know that there are Traveller Children enrolled at Hungerhill (2) and Hatfield College (10). We also note that one of the schools involved in the pilot scheme, and who also took part in this study, identified lack of ICT access at home as a significant problem, as well as the need to support teachers who are less IT literate. This same school is also already used to provide IT courses (ECDL) for the community, and is committed to providing basic skills learning to help bridge the so-called digital divide.

The key criteria for success, as seen both in the literature and in the discussion of the themes arising out of the research interviews include:

- planned co-ordination
- realistic levels of training for teachers
- realistic levels of training for students and, where relevant, for students' parents
- abilities to set own attainment targets
- flexible learning content "menu"
- support and reliable communications
- comfortable, non-threatening learning environment
- learning in "chunks" with immediate feedback
- zero reliance on gimmicks such as discussion forums which, while they undeniably have some educational value, have as yet no established method of best practice.

With respect to those not enrolled in a school or college, consideration must be given to the learning environment, acknowledging the evidence from other studies which suggests that removing the traditional institutional boundaries can help to engage with hard-to-reach learners, particularly adults. There would also be a need to find an effective way to communicate the opportunity to hard-to-reach learners through carefully targeted promotions and publicity, which does not rely on the ability to read and which is not presented in places which are highly unlikely to be visited by the people to be targeted (e.g., a public library).

Resources, human and otherwise, need to be identified and targeted to the project to ensure full support and communication is maintained for the duration. The aim would be to achieve a measurable increase in Basic Skills and ICT Skills levels and uptake of formal IT related qualifications by the conclusion of the project in June. Because access to learning materials would be controlled via the e-portal, student use of content and performance in any assessment could be monitored.

By using the e-portal for a very focused and co-ordinated project, teachers would have the opportunity to collaborate within and between institutions, to share resources and methods of practice, to engage in discussion and peer review. To ensure that such a network develops, it is essential to set simple yet effective targets for teachers (although probably wise to avoid using the term "targets"!). For the targeted schools, this would not mean having to accept and learn a completely new system, as they are already signed up to using the e-portal. Rather, the emphasis of this project would be on learning to use communications technologies to analyse and improve on teaching delivery, and on developing best practice in ICT pedagogy.

What we aim to achieve is a concerted and active move towards identifying gaps in Basic and ICT Skills and resources, and through channelling co-ordinated and supported resources, raise attainment levels, and an increase in the uptake of formal IT qualifications. Each individual sub-group within the hard-to-reach learners must be addressed individually, and targeted accordingly.

6. Conclusions and Recommendations

“Doncaster Children and Young People will have the chance to choose the future they want for themselves. Wherever they live, they will grow up feeling happy, safe and secure. They will lead active, healthy and fun lives and will be able to choose the route they want to take to prepare them for work and for a prosperous, fulfilled life. They will make a contribution to the Doncaster community and we will trust in them to create a secure future on our behalf. In this way we will be sure that every Doncaster Child Matters”.

An inclusive approach is one which offers the same opportunities to all. Technology can be a powerful ally in delivering those opportunities, and in helping people to realise their potential. Our conclusion is that the existence of the e-portal pilot programme, which includes five schools in Doncaster as well as the South City Learning Centre, is an opportunity to target, engage and reach those children and adults who are already excluded or who risk exclusion. The basis of this conclusion is that these five schools are already signed up to using a piece of technology (albeit in pilot form) which can deliver access to learning resources and plans anywhere, anytime, and that it represents a means and a method of communication for registered users. Teachers and students within the five schools already have access and logins to the portal, and the portal itself is technically supported and hosted.

We conclude by offering two types of recommendation: those that could be enacted as a project to be delivered and completed by June 2008 and funded through the e-learning funds, and those that fall outside of this report’s remit but which have grounding in the findings, and are offered for consideration.

Project recommendations

Customised learning services for hard-to-reach learners

- **Overview:** the recommendation is to make use of the existing e-portal pilot – both the software and the five schools – to generate a new project, with a focus on Basic and ICT Skills, which will specifically target a number of young people and adults (perhaps up to 10 per school) within the catchment area of each school. The recommended approach is that

each school focus on one type of hard-to-reach learner: (1) Traveller children, (2) those classified as borderline exclusion, (3) those classified as NEET, (4) single, unmarried parents, (5) children from disadvantaged backgrounds with low Basic / ICT Skills. Once identified, the “project learners” should be assessed for Skills levels against formal assessment criteria to enable the drawing up of individual Learning Plans, which are agreed with each learner and which contain learning aims developed in consultation with each learner. In some cases, the learning aim might be to improve written English, in others the aim might be to reach a formal qualification in IT. Each learner will be able to choose from a menu of courses or qualifications suitable to their learning aims. It is recommended that the e-Portal be used as the “gateway” to online learning resources suitable for the chosen course or qualification, and as a means of communication between learners and teachers. Each learner would their own account in the e-Portal; as well as providing access to e-learning resources, the e-Portal could also be used to store Learning Plans, Progress Achieved and records of achievement. It is also recommended that the e-Portal be technically enhanced to facilitate cross-institution communication for teachers to enable information and resource sharing. The project would aim to end with each of the 50 project learners having successfully completed their Learning Plans and achieved their learning aims. A project deliverable should be a detailed project report containing signposts for strategic and practical development as a next phase.

- **Rationale:**

- The portal provides the means of being able to deliver learning and teaching anywhere, anytime, which is vital to addressing the needs of hard-to-reach learners. By using a portal as the gateway to learning and resources, the learners are free to choose *where and when* they learn. The evidence from the literature supports this as a success factor. We are *not* recommending that the portal itself is assessed as part of this project: it is merely being used as a common delivery channel.
- The ability to exchange information and resources between teachers and between institutions, whilst acknowledging that there are issues and concerns, is a repeated request from the teachers interviewed in this study, as well as being a central Government strategy.

- Case studies and the literature has shown that assessing people's skills individually and agreeing on learning goals with the learners themselves is a successful factor in helping people back into education.
- By using the e-Portal, teachers will not have to learn a new system. Research has shown that teachers are often reluctant to take on new software systems.
- This project would represent a co-ordinated and strategically focused approach, which is the type of approach that has been shown to be successful in case studies and in the literature.
- By focusing on Basic and ICT Skills, we are directly addressing an area which the research has shown to be problematic, and following on the theme and aims of the e-sy project.

Recommendations in detail:

- Extend the current e-portal pilot project to include access to high quality Basic and ICT Skills e-learning content (including fundamental skills such as touch typing), together with other e-learning resources relevant to the "menu" of courses and qualifications to be offered, and which should be agreed with each school. Develop a detailed project plan which is grounded in good pedagogic practice, which carefully and clearly profiles the targeted groups, and details a plan for communications and motivation. Showcase the project plan to the five schools and gain "buy in" to the project.
- Identify and put into place an overall co-ordinator with responsibilities including management of the project and risk management, communicating and liaison with the 5 schools, reviewing learner progress and achievement, ensuring technical support, co-ordinating with the teachers / mentors (see below), reviewing the project as it runs, collecting project data, producing a detailed project report on the conclusion of the project to include clear signposts to the next stages of development.
- Recruit teachers and mentors to the project, and ensure that they are fully equipped, trained and supported in the technology and its use in the teaching and learning environment, and which is clearly grounded in constructivist learning theory. Identify Champions, and provide them with a mandate and a value role. Clarify how these roles fit within the existing school

structure. Could mentors be drawn from local businesses? Research has shown that if e-learning student support mentors or teachers are shown to have a clear role within the school structure, it is more likely to lead to a successful outcome. It is recommended that each school appoint at least two teacher /mentors to support their (approx.) 10 Project Learners.

- Identify those Project Learners who do not have access to ICT at home, and provide them with the necessary hardware, software and internet connectivity. Prior to being given the equipment, they should be given a short training course in the use of a computer and the internet – if needed. Where children are involved, the training course should include their parents. Technical support will also be needed, together with a process for rapid equipment replacement when needed.
- Adapt the e-Portal to enable it to deliver or provide access to assistive technologies such as screen readers, many of which are free. A technical and licensing investigation will be required, as well as consultation with the Visual / Hearing impairment teams on which technologies are more suitable for incorporation. This is in answer to a specific request from the Visual Impairment team representative, on learning of the existence of an e-Portal.
- Develop a new feature for the e-Portal based on a teacher information and resource exchange “mart” where teachers can upload content for peer review or for use by others (resources must always be accompanied by notes on *how to use them*). A proposal is that teachers can only get access to download resources for their own use if they in turn load some of their own assets for use by others. In other words, it is a kind of “swap shop”. The aim is to encourage teachers to develop their own methods of best practice, relevant to this highly diverse group of targeted learners. It is not a discussion forum. We would recommend that a special teacher email network be established: such networks are proving to be quite popular at all education levels with teachers using email lists to ask questions and offer solutions to others.

- Once set up, and with all pre-project preparation such as teacher training having been completed, operate the project until the end of June 2008. Records should be kept on all individuals who engaged with the project, including a pre and post assessment (informal) to gather data on impact.
- Develop detailed case studies of successful learner outcomes from the project which can be used to promote and raise awareness of the “learn anywhere, anytime” opportunity, and the benefits of learning and qualifications.
- If the project is successful and can be shown to have evidenced and positive impact on individuals’ attainment, consideration can be given as to how to expand the “service” to all institutions within the Borough.

The following two discrete and separate recommendations fall within the parameters of the project timescale and funding, but are not linked to the e-portal programme recommendations, other than through their general benefits to teaching and learning:

- As a discrete and separate element, funding could be given to ensure that all schools have Sentinel software installed, and that recording of racist / bullying incidents is undertaken throughout the borough using the same software tool, resulting in data that would be easily available (allowing for data protection rules) for analysis and correlation, as well as being able to be used to inform future teacher / professional worker training. It is estimated that to equip the rest of the schools in Doncaster with this software, and including hosting for one year, the cost would be £4000. It should be noted that additional provision may be required to cover the costs of training in the use of the software. We believe that a plan for Sentinel adoption has already been prepared. If it is accepted that the adoption of Sentinel can lead to reductions or termination of bullying in schools, then this action will support the aim of providing a safe, happy and secure environment in which to learn. As part of this implementation, we recommend that schools be encouraged to run “lunchtime ICT clubs” where pupils can come and use ICT under supervised conditions. These clubs also offer a measure of security and protection to vulnerable pupils, as well as giving young people additional opportunity to work with ICT.

- A second discrete and separate element involves making training provision for those relevant staff in SEN schools in the use of Assessment Management software. A further recommendation is to establish a User Group to support and provide advice to all staff required to use this software package, and particularly to include staff from SEN schools.

Both of the above have no direct impact on teaching and learning, but have been identified and recommended as relatively low-cost but strategic investments that apply to all schools in the Borough (and consequently to students and parents, and the community at large).

Non-remit recommendations

- Develop a detailed and practical ICT strategy for education in the Borough, firmly grounded in good pedagogy, and which represents a pragmatic, flexible and achievable transformation. This should include a strategy for communications in the widest sense, to include, for instance, some method of ensuring that the projects and lessons learned (no matter where, how or with whom) involving ICT are communicated to the whole education community. The intention of this recommendation is to address the lack of co-ordination and cohesion expressed by the majority of participants.
- Review the IT policies of all institutions and identify those which are not flexible enough to be able to support the special needs of some pupils. Alternatively, develop a borough-wide IT policy or charter specific to educational institutions and which accommodates for special needs, then require schools and colleges to sign up to it. The intention of this recommendation is to bring some cohesion to the IT policies deployed by individual institutions and to support the strategy of “Making Children and Young People Matter” by ensuring that IT issues do not present barriers to the (often essential) use of ICT.
- Provide a mobile IT support technician to service the technical requirements of all 5 SEN schools. This will avoid their dependence on co-located mainstream schools’ ICT support (if such even exists), and enable a more rapid resolution to technical difficulties than is presently the case, which in turn should lead to an increase in teacher confidence in ICT.

- Identify alternative sources of funding to replace the Accessibility funding, rather than leaving it to individual team leaders to do so, to address the concerns of those teams which currently rely on this funding to underwrite the costs of basic and essential ICT equipment.

- Develop a process of home technical appraisal to help the families of children with severe learning difficulties to acquire and manage similar technology aides as are used in the schools. The intention of this recommendation is to address the disparity between assistive technologies available to children at school and at home, where it is often the case that being at home means loss of any form of control over environment, or ability to communicate on any level.

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