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THE ROLE OF SUPPORTERS IN FACILITATING USE OF TECHNOLOGIES BY ADOLESCENTS AND ADULTS WITH LEARNING DISABILITIES: A PLACE FOR POSITIVE RISK TAKING?

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ABSTRACT

The role of supporters in facilitating access to and use of technology by people (adolescents and adults) with learning disabilities has not been the primary focus of much of the research that has been undertaken to date. The review of literature presented in this paper suggests however that issues of support, risk and safety are emerging as factors that have a significant influence on the quality of technology access and use that adults with learning disabilities experience. There is a need for more research into how the relationship between supporters, technologies, adolescents and adults with learning disabilities is mediated by risk and this paper offers an original perspective on how positive risk taking might be a useful conceptual framework to aid in the exploration of this relationship.

Keywords: technology, support, access, risk

INTRODUCTION

A wide range of specialist and generic technologies have been used by people (adolescents and adults) with learning disabilities. A review of research and practice literature indicate that reasons for using these technologies range from facilitating access to information to promoting friendship and teaching independent living skills (See Table 1). Technology use by people with learning disabilities needs to be considered however, within the context of an increasing 'risk culture'. For example, Seale, Nind and Simmons (2012) argue that perceptions of vulnerability, safeguarding and performance can dominate the way those who support people with learning disabilities think about and enact risk management. In health and social care settings, concerns regarding the abuse and exploitation of children and adults with learning disabilities and fears regarding litigation over client and employee safety influence risk practices. In educational settings, pressures relating to school performativity and perceived risk of educational failure influence approaches to risk.

The focus of this paper is people (adults and adolescents) with learning disabilities aged thirteen or older. I examine the role that supporters play in facilitating their access to and use of technologies and the extent to which this role is influenced by perceptions of and responses to risk. This examination is informed by my previous research and a review of international literature that makes reference to risk or safety in the context of technology and people with learning disabilities. In particular this paper will propose a framework for understanding why some supporters are content to adopt a safe but restrictive approach to facilitating access to technologies:

his centre manager would be happier to know the service users were 'looked after and kept safe' rather than going and taking digital photographs for a website' (P.Williams 2011, 9).

and others appear to want to strive for something potentially more risky, but empowering:

We need to get better at empowering indiv's with id to take the risks and dare to dream of what is possible for them (Zhang-Farrelly 2011, 45 [sic]).

In this paper I will review research literature and evaluate the extent to which support, risk and safety have emerged as factors that have a significant influence on whether and how people with learning disabilities use technologies. I will use this review to argue that there is a need for more research into how issues of risk, safety and support influence the quality of technology use by people with learning disabilities. I will then discuss how positive risk taking might be a useful conceptual framework to aid in the exploration of this relationship. I will use examples from the research literature to show how a positive risk taking framework can suggest questions that would enable a rigorous and insightful interrogation of the nature and quality of support provided to people with learning disabilities to enable them to benefit from the use of technologies.

For the purposes of this paper, supporters will be defined as parents, carers, teachers and other professionals who work with people with learning disabilities. Technology is used as an all-encompassing term to include: desktop or mobile computers such as laptops; the Internet, email; mobile phones; hand-held devices often with touch screen that have diary, calendar, clock, note-taking and reminder functions (often called personal digital assistants or PDAS); virtual reality environments (e.g. SecondLife); software programs (e.g, word-processors, games, or educational programmes); social networking sites (e.g. Blogs, FaceBook, Flickr); assistive technologies (AT) such as communication aids and telecare equipment such as environmental control systems.

< Table 1 About here >

THE EMERGENCE OF SUPPORT AS AN ISSUE OF INTEREST IN RELATION TO FACILITATING USE OF TECHNOLOGY BY PEOPLE WITH LEARNING DISABILITIES

The role of supporters in facilitating the use of technology by people with learning disabilities has not been the primary focus of research. Instead, research in the field has aimed primarily to identify: 1) potential positive outcomes of using technology (e.g. Cromby et al. 1996; Wu et al. 2005; Kydlund et al. 2012); 2) patterns of usage (e.g. Hegarty and Aspinall 2006; Parsons et al. 2006b; Gutierrez and Martorell 2011) and 3) factors that influence access to and use of technologies (e.g. Standen et al. 2002; Harrysson, Svensk and Johannson 2004; Stendal. Balandin and Molka-Danielson 2011). While the primary focus of research literature has not been on support, many studies have revealed relevant findings in relation to: 1) the need for support; 2) the ability and willingness of supporters to provide technology related support 3) the quality of support.

The need for support

Based on their experiences of introducing technologies to people with learning disabilities several researchers have highlighted the need to provide one-to-one support in order to support the development of technology skills and provide encouragement and reinforcement (Schindler and Borchardt 2001; Johnson and Hegarty 2003; Li-Tsang et al. 2004; Kydlund et al. 2012; Naslund and Gardelli 2013). For example, Schindler and Borchardt (2001) noted that they had to adapt their teaching strategy when teaching young people with Down Syndrome to access the Internet. Participants required one to one support that involved, breaking tasks down into smaller chunks; providing opportunities for repetitive activities and providing lots of positive reinforcement. Kydlund et al. (2012,261)report how twelve participants with learning disabilities were taught to use the social media tool Flickr and guided in its use for eight weeks. They were taught technical aspects such as logging in, uploading pictures, adding pictures to a group, commenting and searching for photos. They noted that 'the participants needed support to become engaged' and that one-to one sessions were critical in achieving engagement.

The ability and willingness of supporters workers to provide technology related support

Based on their observations of how supporters facilitate use of technologies some researchers have noted the importance and influence of supporters' ability and willingness to provide technology related support. The ability to provide support is linked to levels of technology skills and familiarity with technologies (Parsons et al. 2006b; Stendall, Balandin and Molka-Danielson 2001; Zhang-Farelly 2011). For example, in a review of the use and potential of the virtual reality application, SecondLife, for people with Aspergers or Cerebral Palsy Stendall, Balandin and Molka-Danielson (2011) concluded that the complexity of technology coupled with the fact that many staff are not familiar with virtual worlds was a significant barrier to access. In a survey of service providers perceptions of the use and need of AT by people with intellectual disabilities in Ireland, Zhang-Farelly (2011) noted that there was a lack of skilled professions to make good AT recommendations.

The willingness to provide support is linked to the attitudes and perceptions of supporters (P. Williams 2011; Gutierrez and Martorell 2011; Naslund and Gardelli 2013). For example, P. Williams (2011) explored the barriers to the creation and use of an accessible web site about transitions for people with learning disabilities and their supporters. Both supporters and people with learning disabilities were trained in the creation of information and how to upload it onto an accessible template. Although Williams noted that generally staff had a positive attitude he suggested that time constraints may be invoked by those who have little interest in the project. Gutierrez and Martorell (2011) explored the patterns of technology use of 156 adults with learning disabilities. They reported was that 25% of the participants whose families had Internet access, never used it. Although they provided no evidence, their hypothesis was that a significant proportion of parents whose children have learning disabilities are prejudiced about their ability to use the Internet, apprehensive about their children causing equipment breakdown and fear them being affected by harmful Internet content.

The nature and quality of support

P. Williams (2006,177) observed a range of approaches to supporting people with disabilities to access and use technologies: ' From exemplary support and skilful use of communication to practice where control was taken away from the learner and tasks undertaken on their behalf by staff keen to demonstrate a product, rather than a process.' P.Williams (2011) also noted a tendency for support workers to make choices for people with learning disabilities rather than fostering independent thinking. This echoes observations made by Hegarty (1998) and P. Williams (2008). C.Williams (2008) reported the use of an audiovisual immersive environment developed for children and adults with learning disabilities to encourage creative interaction and expression. Williams observed that the supporters intervened in such a way as to divert participants from meaningful engagements with the technology. C.Williams (2008, 209) concluded that these interventions were influenced by 'a pre-conceived idea of what they are supposed to do [...] also a unintentional cossetting of activity such as the 'aww bless' mindset'.

THE EMERGENCE OF RISK AND SAFETY AS FACTORS THAT INFLUENCE THE NATURE AND QUALITY OF SUPPORT FOR TECHNOLOGY USE

In the previous section, a review of research literature suggested that support is an important factor in facilitating access to technologies for people with learning disabilities; that the ability and willingness of staff to provide this support varies as does the nature and quality of support provided. In this section, I will use the research literature to examine in more detail the factors that influence not only the decisions to use technologies with people with learning disabilities, but also the way people with learning disabilities are supported to use technologies. One factor in particular is identified, that of safety and risk. It is argued that this factor exerts a differing influence depending on the nature of the technology; the purpose for using the technology; and the context in which technologies are used.

Safety, risk and the nature of technology

Two examples of where the nature of technology elicits differing responses from support workers in relation to safety and risk are Virtual Reality and the Internet (See Table 1). Virtual reality is frequently perceived as offering a safe environment in which to teach skills that are associated with some level of danger (e.g. pedestrian safety, stranger safety). Implicit in the way virtual reality is used is an assumption that, for people with a learning disability, making errors in the real world is a risk, with potentially dangerous circumstances, that must be avoided (Parsons et al. 2000). For example, talking about the design of a virtual supermarket shopping environment for students with severe learning disabilities aged between 14 and 19 Cromby et al. (1996,103) write:

[..] Alternatively, training can be attempted in situ. However, this [...] involves an element of risk, and in some instances the consequences of making a mistake may be so great that training in the real world is simply not an option. For example, use of a light industrial workshop by people with learning disabilities would require a grasp of basic health and safety principles before any in situ training could even be attempted.

The example given by Cromby et al. of a light industrial workshop is not helpful however in aiding understanding of what kind of shopping errors pose such an extreme risk that they cannot be countenanced for health and safety purposes.

In contrast, the Internet is frequently associated with risk in relation to cyber bullying. For example, Plichta (2011) conducted a study of cell phone and Internet usage among 23 adolescents with learning disabilities. Almost half of the students reported receiving threats or sexual proposals and one third of the respondents gave examples of 'undertaking aggressive actions'. Such risks can lead to support workers instigating risk management strategies. For example, Holmes and O'Loughlin (2012) describe a therapy support group set up by a Community Learning Disabilities Team, designed to help service users manage the risk of using FaceBook. The group focused on building self-esteem, assertiveness training, maintaining privacy settings and reporting cyber abuse. There is also some evidence to suggest that people with learning disabilities appear to appreciate the support offered them. For example, Naslund

and Gardelli (2013) talk of the sense of security that participants felt when they received help to use technology. In their study of the use of social media tool Flickr, Kydlund et al. (2012) noted that participants' concerns regarding their photographs being available to others were allayed when they were showed how to use the privacy settings.

Safety, risk and the purpose for using technology

Two examples of where the purpose for using technology elicits differing responses from support workers in relation to safety and risk are when technology is used to teach how to live safely or independently and when the Internet is used for making friends and identity management (See Table 1). Personal technologies such as mobile phones are frequently associated with security and safety in relation to people with learning disability (Aspinall 2008; Burke et al. 2010). For example, Burke et al. (2010) evaluated the efficacy of a fire safety education application delivered via an iPhone to adults with learning disabilities. The program included behavioral skills training, and a "performance cue system". The requirement for safety is often linked to the activities that people with learning disabilities are considered unable to undertake (Carmien. et al. 2005; Stock et al. 2008). For example, for Stock et al. (2008) a perceived deficit linked to literacy and numerical comprehension justify their use of mobile technologies to promote independence.

Seale (2001, 2003, 2007) explored whether and how young people with learning disabilities used personal home pages (the fore-runner to FaceBook) on the Internet as a tool for managing their identity and/or making friends. Seale noted occasions where supporters appeared to be mediating the content and voice of these home pages. Seale postulated that this may be motivated by a desire to protect people with learning disabilities from the risks of being targets of Internet abuse or of accessing harmful websites (e.g. porn). Seale (2003) gave two examples of how support workers facilitated safe access either by acting as an online supervisor or chaperone, or by installing filtering software which prevents access to potentially harmful websites. This was an early example of the inherent tension caused by the perceived need to balance the positive potential of technologies against the perceived risks. Seale (20003) questioned the extent to which the Internet could be perceived as a potential tool for empowerment if the opportunity for people with learning disabilities to choose and control how they used it was being mediated by powerful others.

Safety, risk and the environment or context in which technologies are being used

A key aspect of the role of support workers is to promote independent living and a central part of this is ensuring that people with learning disabilities can live both full and safe lives. These considerations may in different contexts (e.g. home, workplace, community) lead support workers to either advocate for the provision or withdrawal of technologies. For example, in arguing for the value of Virtual Reality in providing leisure activities for people with learning disabilities, Yalon-Chamovitz and Weis (2008, 274) note that although activities such as swimming and horse riding are available, they 'may involve a risk to personal safety' which virtual reality activities do not. Whilst the risk of swimming and horse-riding is undeniable;

what is not made clear here is why such a risk is deemed particularly unacceptable for people with learning disabilities.

Aspinall and Nichols (2008) present a case study of Jo who, with the help of a wide range of technologies, such as a “smart oven” which gave simple text instructions on a screen about how to cook selected items, was being supported to live safely in her home. Some of the examples given in the case study, however, lead us to question how much control and choice Jo really had:

Jo has also been provided with a panel of soft pulsating lights which she can use safely in her bathroom to help with her relaxation rather than candles which can cause a fire hazard. Jo had seen candles used in bathrooms when reading magazines and thought they looked pretty but had been discouraged from using them by staff and family because of the dangers. (Aspinall & Nichols, 2008,237)

What is illuminating here is that even in a 'smart home', human intervention is considered necessary and judgements regarding safety appear to be non-negotiable, despite the fact that candles can be found in the bathrooms of many non-disabled people.

The Need For More Research Into how The Relationship Between Supporters And Technology Users Might Be Mediated By Risk

As perceptions increase regarding the role technologies play in both promoting safety and putting the safety of adults with learning disabilities at risk, so too will assumptions regarding the obligations of supporters to mediate these safety and risk factors. It is imperative however; that we seek to understand in more detail the nature and quality of support provided so that people with learning disabilities can use technologies in the way they wish to, whilst also managing the risks associated with this use. Any exploration of the nature and quality of support provided will need to include a detailed examination of the decision-making processes undertaken by support workers. The review of literature presented in this section suggests that this process may be influenced by issues of control and protection and that this in turn may influence the extent to which i) the negative aspects (e.g. potential for harm or risk) are considered alongside the positive aspects (e.g. potential for benefit) ii) adults with learning disabilities are involved in the decision-making process. In the next section I will discuss how this examination might usefully be underpinned by a positive risk taking framework

POSITIVE RISK TAKING AS A FRAMEWORK FOR EXPLORING THE ROLE AND IMPACT OF SUPPORT ON THE USE OF TECHNOLOGIES BY PEOPLE WITH LEARNING DISABILITIES

Much of the research into the role of technology in the lives of people with learning disabilities has focused on positive aspects, in particular the extent to which technologies enable people with learning disabilities to live independent lives. More recent research has included a focus on negative aspects, such as the risk of not using technology (e.g. not knowing how to cross the road safely etc.) as well as the risks of using technology (e.g. cyber bullying). Both areas of research lead to one important question: How can people with learning disabilities and their supporters balance the positives against the negatives?

One way to explore this question is through the lens of positive risk-taking. Positive risk-taking is generally understood as enabling people with learning disabilities (among others) to have greater control over the way they live their lives, which may bring benefits in independence and well-being, but may also involve an element of risk either in terms of health and safety or in a potential failure to achieve the intended goal (Manthorpe et al. 1997; Alaszewski and Alaszewski 2002; Morgan 2004). Positive risk-taking stresses managing risk not avoiding or ignoring it; taking positive risks because the potential benefits outweigh the potential harm.

The idea that risk-taking can be beneficial for people with learning disabilities first emerged in the 1970's (Perske 1972; Jay 1979). Perske (1972, 195) for example, argued that experiencing 'the risk-taking of ordinary life' is necessary for human growth and development. In more recent years, the UK strategy document, 'Valuing People Now' referred to services getting the balance wrong between protecting vulnerable people and helping people have a life and argues that 'positive risk taking should be a part of everyone's life' (Department of Health 2007, 77).

Positive risk taking, shared decision-making and risk perceptions

Central to the concept of positive-risk taking is the notion that it involves a shared decision-making and negotiation process between adults with learning disabilities and their support workers. In supported decision-making the 'risks of independence for individuals are shared with them and balanced openly against benefits' (Department of Health 2005, 10). The success of positive risk-taking therefore relies on 'shared risk taking' where supporters and people with learning disabilities work together to discuss and agree actions (McConkey and Smyth 2003). These discussions will be influenced by the different perceptions of risk that each stakeholder has. For example, Clarke et al. (2005) found that people with learning disabilities, their family and professional staff often had different expectations for risk taking which resulted in a lack of shared understanding regarding desired levels of independence.

Arguing that there is a lack of clarity about how positive risk-taking might be enacted and that the factors that might influence the development of positive risk-taking practices have been ignored, Seale and Nind (2010) and Seale, Nind and Simmons (2012) have developed a conceptual framework which focuses on creativity and resilience. Positive risk-taking involves developing strategies so that the risks of an activity or option are balanced against the benefits. This might require an element of creativity in terms of how risks, problems, possibilities and opportunities are conceptualised or re-framed. Taking risks however can take practitioners and the organisations in which they work, outside of their comfort zone, which might be stressful. Responding to this stress in order to maintain and develop long-term successful positive risk-taking practices may therefore require resilience.

Positive risk-taking and creativity

Seale, Nind and Simmons (2012) draw on the work of Craft and colleagues and their concept of possibility thinking (Craft 2002; Jeffrey and Craft 2006) in the development of their conceptual

framework. Possibility thinking is part of the process of creative thinking and is defined as refusing to give up when circumstances seem impossible and using imagination, with intention, to either identify or solve a problem. Burnard et al. (2006) propose that problem finding and problem solving involves the posing, in many different ways, of the question 'What if?'

'Possibility thinking' was developed in the context of mainstream schooling for non-disabled children and the teaching of creative thinking. Although not developed in the context of risk and learning disabilities Seale, Nind and Simmons (2012) argue that it has relevance. For example, applying this idea in the context of supporting positive risk-taking by and for people with learning disabilities Seale, Nind and Simmons argue that practitioners need to balance the '*what if* something goes wrong' questions with '*what if* something goes right' questions. Here possibility thinking is not about ignoring the big risks associated with something going wrong; but about giving space to consider the big benefits, if the proposed action goes right. Possibility thinking through the use of positively framed 'what if' questions might, in this model, be the catalyst for change that Lindqvist, Nordanger and Landahl (2009) call for in terms of prompting practitioners to explore the possibility of doing something new or different which would have been previously considered impossible or unthinkable.

Positive risk-taking and resilience

Our ability to thrive when faced with risky situations is linked to our resilience and is sometimes seen as resulting from a self-righting capacity (Bernard and Marshall 1997). In the context of learning disabilities and risk, resilience is about the ability to cope when a decision regarding taking a risk results in an unexpected outcome. Part of coping in this context may be about 'bouncing back' and not being afraid to take a risk in the future. For people with learning disabilities and their support workers the ability to 'bounce back' will be influenced by environmental factors such as supportive service managers, peer support groups etc.

Resilience is about achieving good outcomes in spite of various threats (Masten 2001) and therefore, like possibility-thinking, is focused on the capacity for good to happen. Seale, Nind and Simmons (2012) draw on Goodley's (2005) socio-cultural (contextual) framework in which resilience is viewed as a political response by people with learning disabilities and their supporters to disabling and disempowering circumstances. Resilience also optimistically encourages supporters to assume that people with learning difficulties have the potential for resilient lives. For Goodley, therefore, resilience adds 'some notion of resistance' and challenge to commonly held views of learning difficulties (Goodley 2005, 334).

APPLYING A POSITIVE RISK TAKING FRAMEWORK TO ANALYSIS OF THE NATURE AND QUALITY OF SUPPORT PROVIDED TO ENABLE PEOPLE WITH LEARNING DISABILITIES TO USE TECHNOLOGIES

It is my contention that a positive-risk taking framework provokes certain kinds of questions that enable a more rigorous and insightful interrogation of the nature and quality of support provided to enable people with learning disabilities to use technologies. I will illustrate this

argument by applying the framework to examples of risk perceptions and risk management in relation to learning disability and technology, drawn from the research literature.

Examining the influence of risk perceptions on whether and how supporters facilitate access to technologies

Didden et al. (2009) conducted a questionnaire survey of the prevalence of Internet and mobile phone cyber-bullying amongst a group of young people with intellectual and developmental disabilities aged between 12 and 19. Key findings were that 90% of students were not involved in bullying via the Internet and that only 7% were victimized. Whilst this might paint a positive picture of students with learning disabilities not experiencing significant levels of online bullying, the conclusions drawn by Didden et al. are rather contradictory. On the one hand they suggest that the lower IQ of students with learning disabilities means that they have a somewhat lower probability of being victimised and/or bullying. On the other hand, they recommend that teachers develop programmes for identifying, removing and preventing cyber-bullying and that parents should exert more control. Using a positive-risk taking lens certain questions about this example are raised: Why, despite the findings, are people with learning disabilities presumed to be vulnerable and to lack any kind of resilience to deal with the risks of cyber bullying? How were the students behaving online and can any practices be identified that would explain the low levels of victimization. In other words, can we identify in the decision-making and resulting risk management strategies antecedents for 'things going right' rather than 'things going wrong'? How does the behaviour and practices of the supporters of those who were cyber-bullied compare to those of people who were not cyber-bullied and are there any differences in relation to creativity and resilience?

This apparent disconnect between the reality of the risk (low levels of cyber bullying) and the response to the risk (increased control/intervention) highlights the complexity of risk perceptions in relation to learning disabilities and the Internet. This is further emphasised when we look at the responses to risk that people with learning disabilities themselves make, compared to their supporters. For example, Lofgren-Martenson (2008) interviewed 10 young people with intellectual disabilities and 12 staff members about their use of the Internet. The results revealed marked differences in risk perceptions. The young people viewed the Internet as a positive arena where they could be "like everybody else". However, the staff worried considerably and focused mainly on the risks involved. Lofgren-Martenson argued that the perceptions of staff were influenced by preconceptions of people with learning disabilities as 'gullible'. The staff therefore felt they had a responsibility to protect. The young people, themselves were not unaware of risks; however, the most prominent risk that they spoke of, was the risk of being denied access to the Internet. This example, raises questions about how the young adults were weighing the risks of getting into trouble online against the potential benefits of being like everyone else online. Could this process be usefully shared with their supporters? How confident were the young adults in their personal resilience and the resilience of supporters to deal with any negative consequences of their decisions to be online?

Examining risk management strategies of supporters

A common risk management strategy regarding facilitating access to the Internet, is for people with learning disabilities to be provided with chaperones or supervisors (Slavin 2002; McClimens and Gordon 2009) For example, McClimens and Gordon (2009) examined the consequences of giving people with intellectual disability supported access to online blogs. Underpinned by a research ethics framework that they argued bound them to address issues of risk and Internet safety, McClimens and Gordon report how they offered training on issues such as using pseudonyms and withholding private information. Despite the training, participants' Internet use was under of the direct supervision of 'student chaperones'. Neither Slavin or McClimens and Gordon elaborate on whether people with learning disabilities were able to choose who they worked with or what guidance the chaperones were given regarding whether and how to intervene in online interactions. There is a silence therefore around the extent to which decisions regarding these chaperones were negotiated with the people with learning disabilities. Is it right for example that an ethics committee should decide the extent to which the participants in the study were vulnerable and in need of protection on-line? What evidence was there of a potential need for protection?

Aspinall (2008) reported how job coaches in a supported employment agency had difficulty withdrawing their support from people with learning disabilities, because they felt they often needed to give prompts about health and safety issues. Health and safety animations were therefore installed onto PDAs which could be run in the workplace or used as a reminder before getting to the workplace. Aspinall (2008, 55) reported however that the use of the PDA was withdrawn from the workplace because:

[...] the job coaches identified that sometimes it was inappropriate for workers to get out their PDAs in the middle of a task and also this penalised those people who did not have a PDA at their disposal.

This example raises questions about whether and how the decision to withdraw the PDAs was negotiated with the people with learning disabilities. Why was it an appropriate response to ignore the inequalities of the situation and withdraw technology from the minority simply because the majority did not have access to it? What was it about the workplace that prevented a potentially more resilient response from the job coaches?

CONCLUSION

The review presented in this paper suggests that issues of risk and safety are emerging as factors that have a significant influence on the way that that people with learning disabilities are supported to use technologies. The examples of attempting to minimise the risk to people with learning disabilities through exerting control and power that have been highlighted in this review are in many senses not surprising; it is commonly reported across many aspects of their lives. I would argue however, that it is important to highlight these examples and the issue of positive risk taking in the context of technologies because technologies are frequently conceived and talked about as a revolutionary tools capable of transforming the lives of people

with learning disabilities. They might indeed have this potential, but this potential can be mediated by powerful others: supporters (professionals and parents).

There is a need therefore for more research into how the relationship between supporters, technologies and people with learning disabilities is mediated by risk and this paper offers an original perspective on how positive risk taking might be a useful conceptual framework to aid in the exploration of this relationship (See Table 2). Possible research questions that might usefully be framed by this conceptual framework include: Is there a difference between the risk perceptions and responses of different support workers (e.g. parents, teachers, social and health care workers)? To what extent are risks assigned to technology by supporters real or exaggerated? Is the language of risk used by support workers to deny access to technologies by people with learning disabilities more to do with factors such as inflexible routines rather than a genuine fear of risk? How do previous instances of risk experienced by both supporters and adults with learning disabilities influence shared risk-taking practices? Is it possible to design a decision-making tool that helps supporters and people with learning disabilities weigh up the risk and probabilities of technology use and the significance of risk outcomes?

< Table 2 about here >

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Table 1: An overview of the range of technologies that have been used with/by adults with learning disabilities and the purposes of their use

Type of Technology/Purpose for Use	Access to Information	Friendship, social skills, community participation	Independent living and life skills e.g. shopping, cooking, road safety, self-advocacy	Vocational Training/career preparation	Leisure: games, hobbies, sports
General computers and input devices such as keyboard and mouse	P. Williams 2006,2011 Lsi-Tsang et al. 2008	Parsons et al. 2006b Renblad 2003	P. Williams 2006 Renblad 2003 Nicol and Anderson 1997	Feng et al.2008	Naslund and Gardelli 2013 Renblad 2003
Internet, including online discussion forums and email	Li-Tsang et al. 2004 P. Williams 2006,2011 Harryson, Svensk and Johannson 2004 Johnson and Hegarty 2003 Schindler and Borchardt 2001	Sharabi and Margalit 2011 Didden et al. 2009 Plichta 2011 Lofgren-Martenson 2008 Harryson, Svensk and Johannson 2004 Hegarty 1998 Schindler and Borchardt 2001	P. Williams 2006, 2011 Kotzer and Margalit 2007 Butler and Bayne 2000		Slavin 2002 Johnson and Hegarty 2003
Virtual reality - non-immersive virtual worlds including Second Life		Stendal 2012 Stendal Balanddin and Molka-Danielson 2011 Cobb et al. 2002 Parsons et al. 2000, 2006a	Tam et al. 2005 Wu et al. 2005 Shopland et al. 2004 Brown, Shopland and Lewis 2002 Cromby et al. 1996	Brooks et al. 2002 Standen et al. 2002	Stendal et al. 2011 Yalon-Chamovitzand Weiss 2008 Lotan, Yalon-Chamovitz and Weiss 2009
Telecommunications including video telephony and mobile phones		Plichta 2011 Bishop 2003 Renblad 1999	Burke et al. 2010 Stock et al. 2008 Dawe 2006	Gutierrez and Martorell 2011 Burke et al. 2010	
Assistive technologies including telecare		Abbott et al. 2010	Zhang-Farelly 2012 Aspinall and Nichols 2008		Abbott et al. 2010
Handheld devices (personal digital assistants, global positioning systems)			Carmien et al. 2005	Aspinall 2008	
Social media e.g. blogs, Flickr and FaceBook		Holmes and O'Loughlin 2012 Kydlund, Molka-Danielson and Balandin 2012 McClimens and Gordon 2009			
Multimedia interactive environments (e.g. Snoezelen)		C. Williams 2008			

Table 2: Scoping the components of a positive risk taking framework in relation to supporting the use of technologies by people with learning disabilities

Key components of positive risk taking	Related components	Potential Influencing factors
<p>Shared decision-making process: between people with learning disabilities and their support workers in which both the potential positive and negative outcomes of technology use are considered.</p>	<p>Possibility-thinking: Identifying possibilities for positive outcomes as a result of technology use</p>	Nature of the technology
	<p>Resilience: the decision regarding whether or not to use technologies will be influenced by the extent to which people with learning disabilities and their support workers believe that 1) people with learning difficulties have the potential to be resilient or to live resilient lives 2) support workers have the potential professional skills and experience to be resilient</p>	Reason for using the technology Context in which technology being used Risk perceptions
<p>Risk management: Putting in place strategies that attempt to mitigate the risks of technology use, in the hope that there will be positive outcomes</p>	<p>Possibility thinking: Refusing to give up when circumstances seem impossible. Using imagination to solve the 'problem' of how the risks related to using a particular technology can be managed in order to maximise the possibilities for a positive outcome</p>	Nature of support role (e.g. parent; teacher; health and social care worker)
	<p>Resilience: the chosen risk management strategy will be influenced by the extent to which support worker and person with a learning disability believe they have the ability to cope if using the technology in question does not result in the expected outcome</p>	Previous non technology related 'risk' experiences (positive and negative) Previous technology related experiences (positive and negative) Supportive environment: support from parents, managers, peers etc.