'We don't just do what we're told to do!' Exploring pedagogical technology development needs.

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This article investigates the application of technology to pedagogy in early years. The research considers the perceptions of technology that are held by a variety of practitioners in a range of settings. The research explores the factors influencing the participants' interpretation of the pedagogical value of technology by asking two questions. Do the participants follow policymakers who support the application of technology to pedagogy? Do the participants mirror academic research in this area by considering that 'e is only best' when it is applied to pedagogy to develop creative thinking? The study is based in England and draws on the experiences of 16 practitioners who are working in either private or statutory nursery settings. The research is based on an inductive qualitative methodology that has gathered the participants' views on the benefits of technology for pedagogy in early years. The research reveals that a range of personal, social and professional factors influence the participants' pedagogy with technology. The article identifies the challenges that exist for the professional development of these early years educators in this area of pedagogy.

Keywords: technology; pedagogy; professional development; qualitative research.

Introduction

The 17 references to 'technology' within the pre-election Conservative Party Manifesto (2015) confirm that the new English government are maintaining a commitment to supporting the use of technology in pedagogy. Selwyn (2011, 395) outlines that despite the combination of political philosophies within the previous Coalition government in England, a consistent message of support was given to the use of technology in pedagogy. The research in this article explores the complex range of personal, social and professional factors that influence selected practitioners' pedagogy with technology in early years. The purpose of the content is threefold. The article begins by arguing that policymakers in England have consistently supported the use of technology in pedagogy since 1950 (Jones 1980, 33). This support for using technology in pedagogy has attracted academic research into this area. The article develops the work of a number of

influential authors to argue that the policymakers' support for using technology in pedagogy is not necessarily shared by academic researchers (Bers 2008; Drotner, Siggaard Jensen, and Christian Schroder 2008; Goldberg, Russell, and Cook 2003; Marsh et al. 2005; Plowman and Stephen 2005; Prensky 2001; Yelland and Kilderry 2010). Alongside this research, the work of Harland and Kinder (2014) and Macfarlane and Cartmel (2012) draws attention to the challenges for the professional development of educators in early years. The work of the previously cited authors links to the third purpose of the article. A complex range of personal, professional and social factors appear to influence the application of technology to pedagogy in early years. The article develops the argument that practitioners' pedagogical technology skills need to be nurtured through being based on research and evidence from teachers and the wider community as opposed to being driven by political leaders (Leask and Younie 2013). To achieve this goal, the individual needs of the practitioners have to be considered during their subsequent professional development with technology. The research identifies that understandings of technology are based on a combination personal, social and professional interpretations of electronic media.

Research context, limitations and challenges

It is important to emphasise that the research is based on the experiences of a sample of early years practitioners in England who are based in statutory and private settings. The pedagogy of these practitioners is shaped by the Early Years Foundation Stage (or EYFS), introduced in England in 2008 and revised in 2012 (Ingleby 2015). This curriculum initiative emphasises the importance of using technology within the curriculum (Ingleby 2015). In the UK, the EYFS applies to England and it is not applicable to Northern Ireland, Scotland, Wales, Guernsey, Jersey and The Isle of Man.

Each jurisdiction in the UK has its own arrangements for childcare and early years education and the research that is subsequently reported corresponds to England. The research approach is inductive and qualitative and the study is modest as the findings are generated from a sample of 16 practitioners. During the research process, the researcher considered many of the traditional concerns over qualitative research (Brown, Lan, and In Jeong 2015; Thomas 2011). This led to a number of strategies being employed to enhance the credibility of the research. The research was approved by the researcher's research ethics committee and the participants were informed of the voluntary nature of the research (Merriam 2009). The participants were informed of the purpose of the research and they were provided with an opportunity to check the research transcripts (Thomas 2011). In order to enrich the data generated from the research participants, triangulation occurred with published research on pedagogy and technology (Bers 2008; Drotner, Siggaard Jensen, and Christian Schroder 2008; Goldberg, Russell, and Cook 2003; Marsh et al. 2005; Plowman and Stephen 2005; Prensky 2001; Yelland and Kilderry 2010). This enhances the 'credibility' of qualitative research processes (Brown, Lan and In Jeong 2015, 143). The emerging findings were shared with a community of scholars through a research seminar at the researcher's HEI and at an international conference at Aston University, UK. Brown, Lan and In Jeong (2015) argue that this is a further way of addressing the challenges that are associated with qualitative research in education.

The history of technological pedagogical policy in England

In order to place the research focus in context, it is helpful to consider what the policymakers in England have said (and are saying) about pedagogy with technology. The current Conservative government's commitment to technology in pedagogy is evident. 'Security for families' is equated with 'jobs' which are in turn associated with

'investing in science and technology' **(**Conservative Party Manifesto 2015, 17**).** The ideal of the new government is phrased as being to 'make Britain the new technology centre of Europe' (Conservative Party Manifesto 2015, 21). At the top end of the education system is the aim of 'ensuring that Britain's world-beating universities are able to make money from the technology they develop' **(**Conservative Party Manifesto 2015, 21**)**. In general, technology is regarded as having the capacity to contribute to the holistic aim of enabling 'everyone' to 'rise as high as their talents and effort can take them' **(**Conservative Party Manifesto 2015, 81**).**

Before 2015, there were years of continuous support for applying technology to pedagogy in England. As noted earlier, Jones (1980, 33**)** argues that by 1980, England had experienced 30 years of sustained government investment in educational technology. It was Margaret Thatcher's series of administrations from 1979 onwards that resulted in microcomputers being introduced within schools. This initiative occurred 'so that our young people are skilled at an early age' (Thatcher 1983, cited in Ingleby 2015, 145**).** The Thatcher administrations provided a consistent series of policies to increase the use of technology within primary and secondary schools in England (Selwyn 2011, 396 cited in Ingleby 2015). A key theme of this article is that the pedagogical needs of the practitioners who use technology have not always been taken into consideration. This argument is revealed by considering the 1981 *Micros in Schools* scheme. The initiative resulted in over 4000 schools ordering microcomputers by 1992, but the marrying together of the provision of technology and the consideration of the pedagogical developmental needs of practitioners has not always been apparent **(**Marsh et al. 2005, 69).

The establishment of the *National Council for Educational Technology* by the end of the 1980s provides further evidence that technology has been regarded as an

especially important component of the English National Curriculum. Clegg, Hudson and Steel, (2003) argue that in England, pedagogy with computers has become accepted at a political level. Despite some fluctuations in policy approaches, there has been consistent support for using technology in pedagogy in England (Wild and King 1999). The New Labour administrations from 1997-2010 in particular embarked upon a thorough expansion of pedagogy with technology (Selwyn 2011). This argument is amplified in David Blunkett's 'Greenwich speech'. Technology is described as a 'seismic' component of globalisation (Blunkett 2000). The Blair and Brown administrations subsequently introduced a series of sustained educationally focused programmes aimed at developing the application of technology to pedagogy. The challenge in these policies concerned providing technology and meeting the pedagogical needs of the practitioners.

Despite a shift in policy emphasis to 'efficiency savings' from 2010-2015, the English Coalition government still backed the use of technology in education. Although there was what Selwyn refers to as a 'bonfire of the quangos' (Selwyn 2011 cited in Ingleby 2015, 146) in view of the global financial crisis, the use of technology in pedagogy still received support. The research in this article explored the factors influencing the application of technology to pedagogy by selected early years educators in England in view of this policy landscape.

Technology pedagogy and early years
The research project has been informed by literature about pedagogy with technology (Bers 2008; Drotner, Siggaard Jensen, and Christian Schroder 2008; Goldberg, Russell, and Cook 2003; Marsh et al. 2005; Plowman and Stephen 2005; Prensky 2001; Yelland and Kilderry 2010). These authors draw attention to the complex issues that are associated with pedagogy using technology in education. The work of Harland and

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Kinder (2014) and Macfarlane and Cartmel (2012) has also been utilised in considering the challenges for professional development in this area within early years settings. Harland and Kinder (2014) and Macfarlane and Cartmel (2012) argue that effective CPD (Continuing Professional Development) depends upon nurturing leadership, scholarship and professional identity. This literature can be regarded as an antidote to the somewhat simplistic recommendation from the policymakers in England that pedagogy with technology represents 'best practice'. The subsequent section of the article outlines how this literature has informed the development of the primary research.

Research into the application of technology to pedagogy in early years consistently draws attention to pedagogical processes that need to be considered if learning and teaching in this area is to be successful (Bers 2008; Yelland and Kilderry 2010). Goldberg, Russell, and Cook (2003) argue that technology ought to be used in ways that enhance the wider pedagogy that is taking place if teaching and learning with technology is to be successful. The argument runs that there should be a purpose to pedagogy with technology to develop what Yelland Kilderry (2010) phrase as 'multidimensional' (or creative) learning. This theme of applying technology to learning in early years is also developed by Bers (2008) with her recommendation that practitioners and children should work together to produce a shared synergy of creative learning and teaching. The 'so what?' question is asked of technology by these authors (Bers 2008; Goldberg, Russell and Cook 2003; Yelland and Kilderry 2010). In other words, is there a clear pedagogical philosophy informing the application of technology to pedagogy? The mere availability of technology for pedagogy does not necessarily produce successful learning and teaching. This argument is supported by Drotner, Siggaard Jensen, and Christian Schroder (2008). The authors explore the perceptions of

technology that are held by practitioners. Although practitioners may be influenced by dominant discourse about technology, their views on technology are also influenced by their personal and professional backgrounds. The literature suggests that a complex range of factors influence the application of technology to pedagogy. Marsh et al. (2005, 76) draw attention to the 'digital divide' that emerges from the view that technology is associated with 'males' and not 'females'. The complex factors influencing pedagogy with technology are phrased by Prensky (2001) as producing 'digital natives' (who are familiar with technology) and 'digital immigrants' (who are not familiar with technology). These sociocultural factors appear to influence the perceptions of technology that are held by pedagogical practitioners. This can lead to criticism of the message from policymakers in England that pedagogy with technology equates with 'best practice'. Pedagogy with technology may be viewed as being just another example of 'the emperor's new clothes' (Clegg, Hudson and Steel 2003). All these arguments have formed the background to the research project.

The literature consulted on pedagogy with technology in early years outlines the complexities that are associated with pedagogy and technologies (Bers 2008; Drotner, Siggaard Jensen, and Christian Schroder 2008, Goldberg, Russell, and Cook 2003; Marsh et al. 2005; Plowman and Stephen 2005; Prensky 2001; Yelland and Kilderry 2010). Macfarlane and Cartmel (2012) argue that 'innovative' strategies are necessary if professional development for 'children's services practitioners' is to be successful. The authors' research explores the application of a professional development initiative that is referred to as 'circles of change' and 'circles of change revisited' (Macfarlane and Cartmel 2012, 845). The 'circles of change' initiative applied within the University sector, is 'revisited' by the authors and applied with early years practitioners in a new cultural context in Australia. The 'circles of change' (or 'COC') initiative brings

together academics, students and professionals to discuss workplace issues and encourage 'reciprocal and informative learning' (Macfarlane and Cartmel 2012, 846). The main aim of this CPD initiative is to develop critical and insightful thinking. Macfarlane and Cartmel (2012, 846) outline that the 'COC' initiative is based on 'deconstructing' theory related to practice alongside 'confronting' 'personal, social and systemic' issues that are associated with 'untouchable topics'. These topics inform professional practice and they have not been previously analysed (Macfarlane and Cartmel 2012, 847). 'Theories' about professional development are considered in order to enable the practitioners to 'think otherwise' about their professional practice. The advantage of encouraging this 'innovative' way of thinking about professional practice links to the research findings about pedagogy with technology in early years. Harland and Kinder (2014, 672) draw attention to the importance of ensuring that 'affective outcomes' are considered within CPD for those involved with pedagogy. 'Affective outcomes' are associated with enabling a positive emotional involvement with CPD initiatives so that self-confidence in professional practice is increased by 'passing through zones of uncertainty' (Harland and Kinder 2014, 673). Bers (2008) and Yelland and Kilderry (2010) outline the benefits that are possible for pedagogy when technology is applied to early years in an innovative way. Harland and Kinder's (2014) research complements this work (Bers 2008; Yelland and Kilderry 2010) by revealing the importance of generating positive emotional involvement with the curriculum for CPD to become effective.

This collection of research and publication on learning and teaching with technology (and its associated professional development) reveals the complexity of applying technology to pedagogy in early years. A challenge rests in making pedagogy 'creative' and 'multidimensional' **(Bers 2008; Yelland and Kilderry 2010).** The

interpretation of technology that is shared by the practitioners (Plowman and Stephen 2005) and the development of effective professional development appear as further pedagogical challenges in this area (Harland and Kinder 2014; Macfarlane and Cartmel 2012). The presence of this complex set of factors influencing pedagogy with technology in early years contrasts with the policymakers' simplistic message that 'e-learning is best'. These theoretical themes and considerations have been used to develop the research that is reported in the subsequent sections the article.

Methodology

The data generated by the research comes from 16 early years practitioners aged over 21 years of age (eight practitioners working in statutory settings and eight working in private settings). The practitioners are based in different settings in the north-east of England. The research question explores the factors influencing the perception of technology for pedagogy held by the practitioners. 14 of the practitioners in the research sample are female and two of the practitioners are male. The gender balance of the practitioners equates with what Parker-Rees et al. (2004, 128) refer to as 'the overwhelmingly female children's workforce in the UK and beyond'. The participants were selected as a result of purposive and dimensional sampling. The 16 practitioners were selected for the research project because they all use technology in their pedagogy. These participants were selected with this purpose in mind. The participants were also chosen from an equal mix of statutory and private settings in order to be representative of pedagogy in different settings in early years in England. Although in England the number of PVI (private, voluntary and independent) settings 'has increased at a far greater rate than maintained (state) settings' (Parker-Rees et al. 2010, 171) the research project explored the nature of pedagogy using technology according to context. In consequence, an equal number of participants from private and statutory settings were

selected as research participants. This explains the rationale behind the dimensional sampling within the research project. Practitioners belonging to both sectors of provision (private and statutory) were able to comment on their perceptions of applying technology to pedagogy in their respective settings. The data was generated following two focus group discussions (16 participants in total and eight practitioners in each focus group) and 16 loosely structured interviews. Practitioners who provided particularly detailed reflections about using technology in their pedagogy (n=4, two participants from each type of setting) were asked to complete a further follow-up unstructured interview in order to embellish the emerging research themes. The main themes emerging from the focus group discussions (the complex range of personal, social and professional factors that influence the participants' interpretation of pedagogy using technology) informed the content of the subsequent interviews. Content analysis was used to interpret the data from the focus groups and the loosely structured interviews. The application of content analysis mirrored Krippendorp's (2004, 18) summary of this data analysis strategy as 'a research technique for making replicable and valid inferences from texts'. The literature informing the research focus was used to generate key topics that were explored within the focus group and interview discussions. To exemplify this point, the 'content' within the work of Bers (2008) is dominated by references to 'creativity' and 'effective communication skills'. The work of Yelland and Kilderry (2010) is based on key phrases that recommend turning thought that is 'simplistic' (or 'unidimensional') into 'creative' (or 'multidimensional') thinking. Plowman and Stephen's (2005) work is characterised by content that draws attention to the 'tension' that exists 'between policy and practice' over competing interpretations of the purpose of education in early years.

       The application of content analysis was applied to the primary research data by

adopting the recommendations of Weber (1990, 21-24). Small samples of transcribed text were analysed initially for semantic coherence. Relationships between phrases were then made within the primary data. Linkages were in turn made by seeking 'underlying associations' and 'connections' between data subsets (LeCompte and Preissle 1993, 246). This application of content analysis enabled patterns, regularities and relationships between segments of text to be identified. The themes that are reported in the subsequent section are a combination of those gathered from the data alongside those inferred via the research process (Hammersley and Atkinson 1983, 178).

The views of the practitioners

The following main findings resulted from the focus group and interview data:

1. Perceptions of technology are influenced by personal experiences of technology and social factors (childhood and previous experiences in education).

2. The setting that the practitioners work in is also influential in shaping the understandings that the practitioners have about technology and its pedagogical applications.

3. It is too simplistic to assume that all practitioners will endorse the view that pedagogy using technology equates with 'best practice'. This can happen according to the nature of the research sample (see Ingleby 2015) but it does not necessarily happen.

The research reveals that some of the early years educators in the research sample (n=2) mirror the view propagated by successive governments in England that pedagogy using technology is desirable. This represents an example of 'doing what you're told to do'. The dominant political discourse about technology is being reinforced by these practitioners in this example. Both of these practitioners identify a connection between 'employability' and being 'literate with technology'. This

reflects the belief of the current Conservative government in England that 'security for families' links to 'investing in technology' (Conservative Party Manifesto 2015, 17). Not all the practitioners in this research sample 'do what they are told to do' however! A number of practitioners (n=5) express 'doubts' about the merits of applying technology in their pedagogy. Moreover, the application of technology in pedagogy in early years appears to be influenced by a complex range of personal, professional, and social factors that are linked to learning with technology. These factors are 'personal' (individual experiences of learning with technology), 'social' (based on 'social circumstances') and 'professional' (linked to the support given to learning with technology in the individual settings that the practitioners are working in). The rest of this section of the article outlines the views of the research participants about the three key findings.

Key Finding 1: Perceptions of technology are based on personal experiences of technology and social factors (childhood and previous experiences in education).

The professional development needs of the practitioners appear to be influenced by a complex range of personal, social, and professional interpretations of technology. Nine of the respondents in the research sample develop this theme ('Charlotte', 'Diane', 'Jean', 'Joanne', 'Jeff', 'Hannah', 'Laura', 'Sarah' and 'Siti'). 'Jean' exemplifies this theme by reflecting on the 'personal circumstances' that have influenced her understanding of technology.

> I grew up at a time when there wasn't as much interest in technology in wider
> society. But my personal circumstances influenced my experience of technology.
> Although I grew up in a traditional household and technology wasn't really
> acknowledged as being at all important, I still think that I would be sceptical
> about technology even if my circumstances had been different. So this makes me

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a bit sceptical of technology too. I often ask 'is it all just emperor's new clothes'. (Jean, a statutory practitioner)

The research participants also reflected on the social circumstances that influence pedagogy with technology in early years. 'Laura' (a statutory practitioner) makes reference to her experiences of technology as a child by recalling that 'when I was a girl, technology was associated with boys and not girls and this still influences me today'. 'Hannah' (a private practitioner) recalls that 'when I was at school, the only children studying computer science were boys'. As a result of these childhood experiences, these research participants 'lack confidence' when they are using technology within pedagogy.

I do think that it's important to use technology in pedagogy but I'm not that confident about using it. I think this is because of my experiences as a child. Technology was more associated with boys. (Diane, a statutory practitioner)

This reflection is supported by another practitioner who reflects that 'boys' are 'naturally interested in technology'.

I tend to think that boys are better with technology than girls. In my day the only ones who studied technology were boys. There was a girl who studied computing with the boys. But this was very unusual. Almost not natural! (Joanne, a private practitioner)

Four of the respondents ('Jeff', 'Sarah', 'Siti' and 'Sam') draw attention to the importance of having 'positive experiences' with technology in school. This appears to influence their own use of technology as pedagogical practitioners. 'Jeff' (a private practitioner) reflected on his 'positive experiences' of using technology as a student. This has then informed his subsequent pedagogical practice.

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Technology was my favourite subject at school. I liked everything about it so this means that I want to use as much technology with the children as possible. These positive experiences influence my own pedagogy. (Jeff, a private practitioner)

The respondents' educational experiences of technology appear to be influential in establishing their interpretations of the ways that technology ought to be used in pedagogy. 'Sarah' (a statutory practitioner) reflected that 'some excellent teachers made me interested in technology'. 'Siti' (a private practitioner) acknowledged that 'positive experiences of using technology in school made me aware of the importance of this in my pedagogy'. 'Sam' suggested that 'my own ability with technology alongside my experiences in school' enables him to be 'confident with technology in pedagogy'.

Key Finding 2: The setting that the practitioners work in shapes understandings of technology and its pedagogical applications.

The setting that the practitioners are based in is also important in shaping understandings of technology and how it should be used for pedagogy. 'Charlotte', 'Elizabeth', and 'Nicola' who work in statutory nurseries appear to be aware of how to access opportunities to develop their skills through CPD. In contrast, 'Natalie' and Rachel' who are based in private settings are less aware of how to develop their skills with technology through CPD. 'Nicola' (a statutory practitioner) noted that 'the setting is brilliant if I need any technology development' whereas 'Natalie' (a private practitioner) referred to her 'lack of opportunities to develop awareness of technology for pedagogy'. This is amplified by 'Rachael' (a private practitioner).

I would like more help from the setting in this area. We just seem to be so busy looking after the children and I don't think we get the opportunities for professional development in this area. I wish it could change! (Rachael, a private practitioner).

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In opposition to this view, 'Charlotte' (a statutory practitioner) reflected on the key role that professional development in technology plays in pedagogy in her setting. 'Elizabeth' (a statutory practitioner) suggested that 'without the support of my setting and its commitment to professional development, my pedagogy with technology would suffer'. It is the emphasis placed on the importance of technology for pedagogy within the setting that appears to influence the learning occurring within the setting.

Key Finding 3: Not all practitioners endorse the view that pedagogy using technology equates with 'best practice'.

The research findings reveal that only two of the participants ('Julia' and 'Sam') mirror the view propagated by successive English governments that pedagogy using technology represents 'best practice'. Other practitioners (n=5, 'Elizabeth', 'Natalie', 'Nicola', 'Rachel', and 'Suzanne') express 'doubts' about the value of using technology in pedagogy. 'Julia' (a private practitioner) regards technology as being 'a vital aspect of children's learning because it leads to employability'. 'Sam' (a statutory practitioner) considers that technology is 'essential for pedagogy in early years as it gives the children vocational skills'. These reflections are based on the personal opinions of the research participants. It is important to qualify that these views are not 'political opinions' but the acceptance of the importance of technology for pedagogy mirrors the support for technology that has occurred in England since 1960. Other practitioners like 'Suzanne' (a private practitioner) are sceptical that 'e is best' for pedagogy.

> When I think about what's important for pedagogy in early years I think of what
> I enjoyed as a girl. Technology is not up there at all. I used to enjoy creative
> activities like art. So these personal interests are important. I think art is more
> important than technology because of who I am! (Suzanne, a private practitioner)

'Rachel' (a private practitioner) makes reference 'to the importance of traditional games' and claims that past productive ways of play 'have suffered at the expense of

technology'. 'Elizabeth' (a statutory practitioner) notes that the 'ever changing world of technology' makes pedagogy with technology 'a stressful experience'. 'Nicola' (a statutory practitioner) refers to 'the pressure coming from the inspectorate' in explaining why she uses technology for pedagogy despite her reservations about this form of teaching and learning. 'Natalie' (a private practitioner) notes that 'so many children are obsessed with technology it's better to change this by going back to basics'.

The implications for the practitioners in the research sample

The importance of nurturing a 'research-informed knowledge base' for pedagogy is recommended in order to develop teaching and learning (Leask and Younie 2013, 274 cited in Ingleby 2015, 152). Some of the challenges involved in reaching this shared 'knowledge base' informed by 'research' are revealed by the 16 practitioners in the research sample. Leask and Younie (2013, 282) argue for the establishment of a national/international e-infrastructure shaped by practitioners in order to develop pedagogy with technology. The research participants in this study reflect on the personal factors influencing their pedagogical practice with technology. 'Jean' (a statutory practitioner) considers pedagogy with technology in early years by making reference to 'the tale of the emperor's new clothes'. This view has emerged as a result of her personal views on technology and her scepticism about the merits of using technology for pedagogy. 'Jean' reveals that professional development in this area depends on addressing 'individual needs'. Whereas 'Julia' (a private practitioner) and 'Sam' (a statutory practitioner) support the application of technology to pedagogy (because it is perceived as developing the skills that will result in employment in the future), 'Suzanne' (a private practitioner) is sceptical about its value. These differing views appear to link to the personal circumstances that have been experienced by these research participants.

Harland and Kinder (2014, 672) draw attention to the importance of ensuring that 'affective outcomes' (those personal and social factors influencing professional work) are considered in professional development in early years. The research participants in this study also draw attention to the 'affective outcomes' influencing their pedagogy with technology in early years. All the research participants seek to pass through 'zones of uncertainty' in their pedagogy with technology (Harland and Kinder 2014, 673). The research subjects reveal that their 'social circumstances' ('childhood experiences' and 'education') influence their application of technology in pedagogy in early years. These experiences appear to shape the perception of their own abilities as teachers (McKie, Bowlby, and Gregory 2001, 233). Although 'Sam' (a statutory practitioner) and 'Jeff' (a private practitioner) speak positively about the merits of using technology for pedagogy, other practitioners in this research sample (for example 'Laura' [a statutory practitioner] and 'Hannah' [a private practitioner]) are less positive about using technology for pedagogy. These social circumstances result in the practitioners speaking about technology in ways that are different to the assumption that 'e is best'. The research participants 'don't just do what they're told to do' by the policymakers. The participants' social circumstances are 'affective' factors influencing their pedagogy with technology. 'Sarah' (a statutory practitioner), 'Siti' (a private practitioner) and 'Sam' (a statutory practitioner) all reflected on the importance of their experiences 'in school' and how these experiences influence their pedagogy with technology in early years.

Leask and Younie (2013, 280) argue that pedagogy with technology will be improved in England if an 'online environment' is established to promote shared teaching resources for pedagogy with technology. This 'resource' is envisaged as enabling pedagogical practitioners to 'move between different communities in the same

environment' (Leask and Younie 2013, 280). The rationale for having this 'technology resource' is to enable educators to network with peers about pedagogical technology issues. Leask and Younie's (2013) argument is based on the recognition that pedagogy with technology can be improved if there is a sharing of ideas about technology and pedagogy between academics, practitioners and policymakers. Carmichael and Procter (2006) support this argument and recommend providing online resources for professional development in pedagogy. As opposed to providing a model of professional development that is 'led by experts', an onus is placed on enabling the practitioners to engage with online materials in order to direct the process themselves (Procter 2007). The research participants in this article outline the difficulty that is inherent in focusing on 'solutions' as opposed to reflecting on the complex range of factors influencing pedagogical practice. It is too simplistic to assume that making resources for professional development available online will enhance professional development in this area. The practitioners in the research sample (for example 'Rachael' [a private practitioner] and 'Charlotte' [a statutory practitioner]) comment on the impact that their settings have on professional development. Whereas the practitioners in statutory settings appear to be supported in their professional development in this area, those respondents working in private settings appear less supported in their professional development with technology. No matter how innovative the online resources for professional development may be, their application appears to be linked to the support that the practitioners receive within the setting. It seems likely that the current government in England will continue to attempt to release educational settings from the control of the local authorities in order to encourage independence (Conservative Party Manifesto 2015, 34). 'Natalie' and 'Rachael' (private practitioners) commented on a 'lack of professional support' from their 'setting'. These reflections are

hardly representative of a positive endorsement of the nurturing of pedagogy with technology within the independent sector.

Conclusion

This article began by summarising technology policies in England from 1979 to the present. Despite the varying approaches to policy adopted by the politicians due to their political beliefs, there has been a consistent support for pedagogy with technology in England since 1979. This is exemplified in Blunkett's (2000) 'Greenwich speech'. The investment in technology within schools in England from 1979 to the present has attempted to produce a digital revolution in order to enhance the skills base of children. In contrast to the policymakers' acceptance of the importance of technology for pedagogy, the research literature advocates caution in this area. The consensus appears to be that technology is good for pedagogy as long as there is a coherent philosophy behind why it is being applied to pedagogy **(**Bers 2008; Drotner, Siggaard Jensen, and Christian Schroder 2008; Goldberg, Russell, and Cook 2003; Marsh et al. (2005); Yelland and Kilderry 2010). The primary research findings in this article identify that perceptions of technology depend upon personal, social, and professional experiences of using technology. The practitioners in the research sample do not simply follow what their policymaker 'leaders' advocate. Some practitioners (n=5) are sceptical of the idea that 'e is best'. Other practitioners (n=2) are more accepting of this message and they mirror the views of the policymakers. Other factors, including childhood and educational experiences using technology shape the practitioners' understanding of the merits of using 'e-resources' for pedagogy in early years. Moreover, the setting that the practitioners work in and the approach to using technology in pedagogy appears to be another key factor shaping the understanding of technology held by the practitioners. These complex personal, social and professional factors need to be taken into

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consideration if effective professional development in technology is to occur for the pedagogical practitioners in the research sample. The work of Macfarlane and Cartmel (2012) appears to hold the potential to enhance the professional development of practitioners in this area. The application of a 'circles of change' initiative that is based on 'deconstructing' and 'confronting' 'personal, social and systemic' issues that are associated with pedagogy with technology potentially enables the development of critical and insightful thinking in this area. Whether or not this initiative is applied to pedagogy in early years appears to depend on addressing a range of complex personal, social and professional factors.

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