Challenging highly able learners in the mainstream primary school: a digital approach

Postgraduate Dissertation

Masters of Inclusive Education: Research, Policy & Practice

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Abstract

In Scotland, under an inclusive approach to education, highly able learners are entitled to additional support to help them to achieve. How this translates into classroom practice can vary across education authorities (Stack and Sutherland, 2014). The use of ICT has the potential to connect highly able learners who benefit from interaction with other like-minded individuals who may be out with their same age peer group (Winstanley, 2010). Informed by literature pertaining to inclusion, highly able learners, challenge and digital learning, the researcher established a digital approach to enrichment for a small group of highly able primary school pupils, using iPads to promote communication and collaboration between children from different classes and stages. This paper presents the findings from the investigation into pupil and teacher perceptions of ability, challenge and the value of digital technologies in facilitating challenge for highly able learners in a Scottish mainstream primary school. Data was collected by means of pupil focus groups (10 children), teacher and senior management interviews (4 class teachers and 1 head teacher), and document analysis of both pupil work products and a reflective journal kept by the researcher over the course of the study. Themes that emerged naturally from the data were used to code the results. The results and implications for practice are discussed from a school perspective. Issues relating to continuing lifelong professional learning are also discussed.

Chapter 1

Rationale

In my role as class teacher in a mainstream primary school, I have gained experience in working with a diverse range of learners. In a number of cases, I have worked with children whose differences and needs have interacted with other factors to make them particularly vulnerable in education. It was my experiences with these learners and my wish to better serve them that motivated me to return to my studies, pursuing further qualifications in Inclusive Education at the University of Glasgow. Completing a module in relation to highly able learners pressed me to critically examine my own experiences with such pupils, ultimately leading me to question the extent to which their learning needs were being met in my classroom and in my establishment. Feedback from the school's most recent HMIE inspection, over eight years ago, indicated that the school should aim to 'develop a systematic approach to the identification of pupils' learning needs, to ensure sufficient support and challenge for all pupils' (HMIE, 2009). More recently, a validation conducted by the local authority found the school to offer appropriate support to learners experiencing difficulty, but suggested that staff continue to place a focus on ensuring challenge for the more able. In a challenging financial climate, it is now more important than ever that we as school think creatively about how we might offer challenge and extend pupil learning. For these reasons, in this enquiry I have elected to focus on how we might better include highly able learners by meeting their needs in the mainstream primary school.

As globalisation and technological advances continue to transform the world around us, educators are increasingly required to adapt to evolving priorities and wider change in their classroom practice. In the face of ongoing change, it has been suggested that teachers might benefit from a more reflective and enquiring approach to classroom practice (Menter et al., 2011). Building upon the work of Stenhouse (1976), who first envisioned the teacher as researcher, the process of practitioner enquiry or action research has been presented as a useful tool for professionals wishing to extend their capacity for reflection and for continuous improvement (Mockler and Sachs, 2011). Practitioner enquiry affords teachers the opportunity to generate new knowledge that is not only relevant to their setting but which can also be put to practical use in future (Dadds, Online). Considered to be a powerful learning method (Coleman, 2007), enquiry has been linked to improvements in classroom practice and positive pupil outcomes (McLaughlin et al., 2004; Baumfield and Butterworth, 2005). It is worth bearing in mind, however, that enquiry is often a challenging and disruptive process for classroom teachers who have a responsibility to question and challenge 'routine action' (Dewey, 1933) where it is not best serving children and young people. Crucially, however, enquiry is thought to support and empower teachers as they grapple with challenges brought about by external reform (Mentor et al., 2011) and seek to affect change of their own in the classroom (Coleman, 2007). In a dynamic educational climate which increasingly calls for teachers to act as 'agents of change' (Pantic and Florian, 2015), this is valuable.

Over the past several decades, as social justice and the rights of the individual have become increasingly prioritised in Western society, the international community has turned its collective attention towards the goal of achieving inclusive and equitable education for all. Since the first calls for inclusive education in

UNESCO's (1994) 'Salamanca Statement and Framework for Action on Special Needs Education', the movement has only gathered momentum, remaining at the forefront of the international development agenda some twenty years later with 'equitable and inclusive education for all' a UN Sustainable Development Goal (UN General Assembly, 2015) to be achieved by 2030. This has lead to an increase in the diversity of learners being educated in the mainstream environment and has necessitated marked changes to the way we approach education. In Scotland, the inclusion agenda has driven significant reform in legislation and policy with considerable implications for educators who now have a duty to ensure that all children and young people are able to benefit from education and have their learning needs met in mainstream environments (The Standards in Scotland's Schools Act 2000; The Education (Additional Support for Learning) Act 2004; The Children and Young People Act 2014; Getting it Right for Every Child, 2008).

As a Scottish primary teacher hoping to establish my own inclusive approach to classroom practice, I am interested in the insights that practitioner enquiry might offer. This paper will consider the development and outcomes of my own practitioner enquiry with a focus on meeting the needs of highly able pupils in the mainstream primary setting.

Chapter 2

Review of Literature

The literature in relation to the themes of inclusion and highly able learners is extensive and often contentious in nature. This review of literature will, therefore, give consideration to the following:

- Inclusive Pedagogy
- Highly Able Learners
- Provision and Challenge
- Digital Learning

It is hoped that an examination of these themes will assist in the development of a distinct focus for enquiry within the practical setting.

Inclusive Pedagogy

If we are to achieve equitable and inclusive education for all in the near future, it is important that those involved it's practical realisation have a clear understanding of what it is that they are working towards. While engaging with the conceptual debate around inclusion is important, Florian (2014) asserts that achieving inclusive education will require a focus on theory concerned with the practicalities of inclusion and what this will look like in our schools and classrooms. Rouse (2009) contends that inclusive practice is concerned with teachers 'knowing', 'doing' and 'believing'. The inclusive teacher must know about learners, teaching and the context in which they practice; do what it takes to turn this knowledge into effective action and believe in their capacity to make a difference in the lives of children, who are all worthy and capable of learning. This notion of 'believing' is raised again and again in literature relating to inclusive pedagogy. Head (2011), for example, suggests that inclusive pedagogical approaches are complementary in nature. A complementary pedagogy recognises the ability of all learners and seeks approaches that complement and build upon this ability. Florian and Spratt (2013) in their Inclusive Pedagogical Approach in Action framework, assert that inclusive pedagogy requires teachers to view difference as part of being human, view all children as capable of making progress in the right conditions and view themselves as qualified and capable of teaching all children, regardless of need. They also contend that inclusive pedagogy requires teachers who are committed to developing new and creative ways of working with others. The paper suggests a variety of ways that these underlying assumptions might be evidenced in practice but also recognises that there is no one way of 'doing' inclusion as different contexts will require different responses. Above all, Florian (2014: 289) asserts that inclusive pedagogy is characterised by approaches that 'respond to the individual differences between learners, but avoid the marginalisation that can occur when some students are treated differently.' This does not mean adopting a 'one size fits all' approach but, rather, moving away from arbitrary notions of what will be suitable for 'most' and 'some' towards strategies for teaching and learning that give all children the opportunity to pursue their individual next steps as learners.

Highly Able Learners

Although the abovementioned literature suggests that inclusion takes into account all kinds of difference, where inclusive pedagogies were exemplified this was almost always in response to the needs of pupils experiencing some form of difficulty. Including everyone in a culture that respects and responds to individual difference requires that all levels of ability be given consideration - including the highly able. While the terminology differs geographically, with 'gifted and talented' more commonly used the USA, Canada and England, in Scotland 'highly able' is the term used to describe those individuals with the ability to work in advance of their same aged peers in one or more areas of the curriculum (Sutherland and Stack, 2009). Within and beyond education, there is longstanding debate around the nature of ability and how it should be understood (Sutherland and Stack, 2014b). Historically, ability has been conflated with notions of intelligence and this remains relevant today as research suggests that teacher perceptions of intelligence have an impact on learning interactions in the classroom (Dweck, 1999; 2006). It, therefore, becomes worthwhile to consider the different ways in which ability might be understood.

The Intelligence Debate

As the literature around intelligence and ability is extensive, it might be expedient to frame the wider debate within an overarching framework. Dweck (2000) offers such a framework in her research on 'self-theories', the beliefs that individuals hold about the nature of intelligence. Dweck argues two theories or ways of understanding intelligence. An entity theory understands intelligence to be innate, fixed and unchangeable. Those with an entity viewpoint tend to hold deterministic beliefs about the nature of intelligence, considering that an individual's level of intelligence will determine the extent of what can be learned and at what rate. This marries with popular understandings of intelligence as genetically determined (Brooks, 1984) and theories of general intelligence, or intelligence as 'g', which has been a primary factor in a number of models of intelligence developed over the past century (Spearman, 1904; Renzulli, 1977; Tannenbaum, 1983). An incremental theory, on the other hand, constructs intelligence as being dynamic, malleable and multifaceted in nature. Those with an incremental perspective believe that intelligence can be demonstrated in different ways across a variety of domains and as such it is possible to increase one's intelligence through effort and perseverance. Contributing to the body of work supporting these presumptions are Feuerstein (1980), whose research around 'instrumental enrichment' upholds the notion of a dynamic, modifiable intelligence; Sternberg (1985), who suggests practical, experiential and componential forms of intelligence, and Gardner (1983), who - considering all faculties to be cognitive in origin - proposed the idea of 'multiple intelligences' across a variety of domains. Such a view of intelligence might be considered to better account for the diverse spectrum of human ability and talent.

Theories of Giftedness

Diverse beliefs around what denotes intelligence have understandably resulted in differing interpretations of what it means to be highly able or 'gifted'. An examination of the most prominent theories of giftedness

suggests an evolving and increasingly sophisticated understanding of high ability, what it entails and how it is developed. An important commonality between each of these theories, however, is the recognition of intelligence as being only one in a number of factors determining an individual's ability to demonstrate highly able or 'gifted' behaviours. Looking to early theories, Renzulli's (1977) Three Ring Conception of Giftedness suggests that three elements contribute to the development of gifted behaviour: above average ability, creativity and task commitment. The notion of general ability as a necessary component in highly able behaviour is also evident in Tannenbaum's (1983) Sea Star Model of Giftedness, alongside specific aptitudes, socio-affective requisites and influences out with the individual including environment and chance. It should be noted that, the inclusion of the cognitively defined 'g' factor in early understandings of high ability has drawn criticism from scholars who argue that this contributes to problems in identifying highly able underachievers (Gross, 1993). As theory has developed, this type of academic or 'schoolhouse giftedness' is increasingly considered to be but one of many possible expressions of ability. For example, Gagne's Differentiated Model of Gifts and Talents (1985) supposes that 'gifts' or natural aptitudes across a variety of domains can be turned into 'talents' or competencies in different fields through formal and informal learning processes. The model emphasises the role of environmental and interpersonal catalysts in nurturing or, conversely, stifling individuals' talent development and recognises chance as a factor in determining the kind of giftedness one might possess and the extent to which it is developed. More current theory, however, appears to call for 'paradigmatic shift' in the way giftedness is understood (Ziegler and Phillipson, 2012; Ziegler, Stoeger and Vialle, 2012). Ziegler (2004) offers a systems rather than trait-based theory in the Actiotope Model of Giftedness. This considers giftedness to mean that an individual has the chance to attain excellence in a domain through the development of an excellent action repertoire and suggests that the extent to which one might be considered gifted can change over time as a result of the interaction between the individual and the environment. This renders giftedness as a dynamic quality, which can be developed through effective learning but which can equally be lost where abilities are not fostered and used. Contemporary theory suggests that the environment, over which we as teachers have some control, is of paramount importance in the identification and talent development of highly able learners. From this perspective, what teachers do in their practice becomes of vital importance.

Policy vs. Practice

Focusing on the Scottish context, Stack and Sutherland (2014a) contend that legislation, policy and the curriculum, a Curriculum for Excellence, provide a strong structure for meeting the educational and developmental needs of highly able learners. However, a strong framework in terms of legislation and policy is by no means a guarantee of effective provision. In a survey which asked twenty-six schools to evaluate their capacity to respond to changes in policy concerning provision for 'gifted and talented' pupils, Ofsted (2008: 4) found that even in cases where it was recognised that improved provision for such pupils was important, it was not considered to be a priority. While the survey was conducted in England and not Scotland, this should

still concern those of us seeking to enact inclusion in schools and classrooms as it suggests that meeting the needs of some learners is considered optional or something to facilitate when and if time and resources allow. This has significant implications for highly able children and young people as the absence of appropriate provision can deny individuals the opportunity to demonstrate their abilities (Freeman, 1998: Sutherland, Stack and Smith, 2009) contributing to widespread issues of underachievement and under identification in the highly able population.

Underachievement and Under Identification

Rimm (1997: 18) describes underachievement as 'a discrepancy between a child's performance and some index of the child's ability.' Considering the highly able, Gagne (1995) characterises underachievement as gifts that do not develop into talents. Gillies (2008: 8), however, suggests that the term 'underachievement' in educational settings is 'grossly presumptuous' and problematic, as it is linked to vague notions of 'potential' and is often used to mean 'differential attainment' or attainment that does not meet expectations. Although it is difficult to gauge the prevalence of underachievement among the highly able, research suggests as many as half of highly able children and young people fail to attain to predicted levels (Richert, 1991; Rimm, 1994; Whitmore, 1982). This can be considered an issue of social justice as the literature suggests that within the highly able population, some learners are more vulnerable to underachievement than others. Learners from disadvantaged or ethnic minority backgrounds and learners with multiple exceptionalities, who are highly able in some areas but experience difficulty in others, are not only more likely to underachieve (Hughes, 2010; Montgomery, 2012) but also at greater risk of having their abilities overlooked in the first instance (George, 1992; Baum, Cooper and Neu, 2001). A failure to recognise and respond to individual's abilities can lead to a range of underachieving behaviours. Wallace (2010: 8-11) in their typologies of underachievers describe 'conforming coasters' who are happy to conceal their abilities and quietly underachieve, 'apathetic non-engagers' who are withdrawn and disinterested in school activities and the 'disaffected disengaged' who are challenging, disruptive and considered 'hard to reach'. These behaviours tend to conceal learners' ability and, therefore, present challenges for identification. When it comes to identifying and providing for highly able learners, the evidence suggests that there is room for improvement in Scotland. For example, in a survey that examined the number of pupils identified as highly able over a four-year period, the Scottish Network for Able Pupils (SNAP) found significant disparity between local authorities (Sutherland and Stack, Online). The same study found that over half of the authorities that agreed to contribute, nine out of thirteen in total, had no working definition of a highly able pupil, meaning that in many cases identification of such learners was dependent on how ability was understood and measured in individual settings. While teacher judgement can allow for effective and tailored responses to local situations, it can also be influenced by unhelpful 'structures of feeling' (Gibson, 1984) that can in turn lead to some forms of intelligence being overlooked and some highly able pupils being 'missed'.

Provision and Challenge

Identify to Provide vs. Provide to Identify

When it comes to addressing the needs of highly able learners, approaches to provision often differ from context to context. Some students identified as highly able may find themselves in specialist provision, where others may be supported in mainstream environments via pull out programmes, an individualised curriculum or extra-curricular activities (Urban, 1993). Passow (1986) contends that appropriate provision for highly able learners involves a combination of acceleration and enrichment but expresses some concern about the number of narrow and under valuated approaches employed as a means of responding to individual needs. Wallace et al. (2007: 13) express similar worries, asserting that suitable differentiation for learners should not be 'a series of bolt-on exercises without coherence or sound educational rationale'. While traditional approaches would see the highly able first identified and then provided for, there is increasing support in the literature for the 'Sports Approach' to identification proposed by Freeman (1998, 2000) where learners are provided with regular opportunities to demonstrate ability, are identified on a dynamic basis and are further challenged as a result (Smith, 2005; Sutherland, Stack and Smith, 2009). Such an approach accounts for the possibility of emerging ability in individuals not previously identified and might be considered an inclusive alterative to approaches that require the learner to be considered highly able before appropriate provision is made available.

Challenge

When it comes to meeting learners' needs, Sutherland and Stack (2014b) contend that challenge is essential. Arguing challenge to be a key feature of good learning and teaching as well as 'an integral part of an inclusive approach to education', Sutherland and Stack (2014b: 148) suggest that many of the approaches used to challenge the highly able can be used to the benefit of all learners. This proposition is supported by the work of educational theorist Vygotsky (1978), who proposed that with appropriate support individuals can extend their learning through the 'zone of proximal development' to achieve beyond that which they would be capable of alone. Looking to how we might practically offer challenge in the classroom, Sutherland and Stack (2014b) suggest approaches that support ownership, agency and choice in learning can be valuable. In a small-scale practitioner enquiry exploring challenge for the highly able, Williams (2006) found that learners felt more challenged when engaging in purposeful, open-ended tasks that facilitated the use of higher order thinking skills and autonomy in learning. Many of these ideas are recognised and expanded upon by Winstanley (2010) who, in 'a well structured, thorough discussion about challenge, based on research evidence' (Ferretti, 2011: 509), proposes the 'ingredients' of challenge in the classroom to be cognitive engagement, metacognition, independence and self direction, risk taking, interaction with like-minded and aged peers, as well as novelty and passion. While Winstanley's discussion has been criticised on the basis that it does not offer sufficient practical solutions for teachers wishing to integrate challenge into their daily practice (Feretti, 2011), the 'ingredients of challenge' themselves can be considered a useful guide for practitioners in developing their own creative responses to the needs of highly able learners.

Digital Learning

The Potential of a Digital Approach

Sheffield (2007) presents technology as an 'integral component' in the education of gifted students today, considering digital approaches to be particularly valuable in bringing relevance to the learning of 'digital natives' who have grown up in technology-rich environments. Considering the potential of digital approaches, Boyle and McKinstry (2014) characterise technology as a vehicle for many different kinds of learning and suggest that therein lies its value. Higgens et al. (2008), conducting a meta-analysis on behalf of the Educational Endowment Foundation, support this notion asserting that *how* we use technology in the classroom is the determining factor in it's value for children and young people's learning. A vocal advocate for the benefits of using digital technology with highly able learners is Siegle, who has written extensively on the themes of technology and gifted students. Siegle (2004a, 2004b) contends that there are marked parallels between the skills that we would hope to develop in highly able children and young people and the skills required in the development of digital literacy, making specific reference to critical thinking, problem solving, creativity, innovation and collaboration. A government commissioned literature review focusing on the impact of digital technology on learning and teaching supports this stance, stating that there is 'promising evidence' to suggest that digital tools, used effectively, can build skills in critical thinking, interactivity and collaboration (The Scottish Government, 2015: 2). In a small-scale qualitative study exploring school-based perceptions of iPad based teaching and learning, Smith and Santori (2015) found that devices in the classroom were considered to support effective differentiation and to foster increased independence and agency among learners. Moreover, digital approaches to teaching and learning were perceived as engaging, dynamic, collaborative, interactive and fun. The researchers, however, admit to having invited participation from educators they knew to be doing good work with iPads, impacting on the wider applications of the findings. Taken as a whole, however, it could be argued that the literature suggests some overlap between the 'ingredients of challenge' and what digital approaches to learning and teaching can provide.

An examination of the literature has allowed us to consider some of the key debates of these important themes. It highlights that there are a number of ways of understanding ability and that teachers' views are likely to influence who is considered to be highly able and how they are provided for. Crucially, challenge has been presented as an important factor in meeting the learning needs of the highly able. The literature has also suggested that digital technology has the potential to be a valuable tool in facilitating the 'ingredients' of challenge in the classroom. The limited range of literature explicitly exploring the relationship between technology and challenge for highly able learners, however, carves out a space for further enquiry. This paper will, therefore, give consideration to the following question:

"What is the perceived value of digital technology as a tool for challenging highly able learners?"

Chapter 3

Methodologies

This enquiry seeks to investigate pupil and teacher perceptions of ability, challenge and the value of digital technology in facilitating challenge for highly able learners in the mainstream primary school. The research was conducted in a mainstream primary school in one of Scotland's most populated local authorities and takes into account the views of ten children, four class teachers and the head teacher. An interpretivist paradigm

informed the approach taken to the study, as this recognises the value of research that seeks increased understanding of specific contexts as opposed to generalisable findings and considers the subjective researcher to be a necessary component of research that is interactive, cooperative and participative (Pizam and Mansfeld, 2009). The study necessitated the generation and analysis of qualitative data and so ethical approval was sought and granted by The University of Glasgow Ethics Committee prior to the commencement of the practical research activity. Groundwater-Smith and Mockler (2007) assert that valid research requires an ethical approach that is direct and transparent. To ensure informed consent, all participants and their guardians, in the case of pupil participants, were issued with plain language statements written in clear and accessible language. This information was also shared verbally with eligible participants who afterwards were given the opportunity to ask questions and clarify anything that they were unsure of. It was made clear that participation in the study would be on a wholly voluntary basis and that individuals were free to withdraw at any time without repercussion. To promote open and honest feedback, participants were assured that all data gathered would be de-identified for anonymity. Although the literature suggests that ability can be demonstrated in many ways and that starting with provision can help teachers to identify the highly able on a more dynamic basis, there was a need for a robust and consistent means of identifying potential participants that ensured the involvement of at highly able pupils whilst removing teacher judgement as a factor in who got to participate. For this reason only pupils aged seven or older, achieving a standardised score of 130+ in reading, general maths or mental arithmetic in the most recently administered Centre for Evaluation and Monitoring (CEM) assessment were considered eligible for participation. The data gathered through online CEM assessments highlighted unanticipated levels of performance from some children, considered by staff to be doing well, but not exceptionally so. These children were of particular interest, as in the digital environment they had demonstrated ability beyond that which was evident to class teachers, myself included. Eligible pupils were invited to attend a weekly enrichment session over a six-week period. I, as researcher, assumed the role of group facilitator and was responsible for the planning and delivery of the approach. Each session lasted for around thirty minutes with a different learning focus addressed each fortnight. Initial sessions focused on mathematics and problem solving based puzzles. In subsequent sessions, pupils were given the opportunity to engage with and respond to moving image texts. In the final weeks of the approach, participants were asked to complete a self-directed learning task linked to an area of common interest – coding. In the week between each session, participants were assigned a challenge linked to the current learning focus, which required them to interact with other members of the group in different digital environments. Participants completed the challenges by making use of a selection of iPad apps that allowed them to share work and collaborate between different class settings. Apps used included Apple Clips, Padlet, Notes and Pyonkee, a coding app based on the Scratch programming language. The activities of the group were designed to incorporate the ‘ingredients of challenge’ as presented by Winstanley (2010) and to give participants a taste of what digital technologies could bring to the learning process. The approach also incorporates elements of Renzulli et al.’s (1981) ‘revolving door model’ of enrichment; which extends the learning of highly able individuals through short-

term, project based learning opportunities. As small group learning is already common practice in the school, this made it possible to bring together 'like-minded peers' from different stages without marking those involved as being decidedly 'different' from their peers. Participating pupils, their class teachers and the head teacher were all invited to feedback on the digital approach at the end of the six-week period. All prospective participants agreed to take part in the study. As focus groups are considered to be 'a valuable, versatile, interactive, fun and developmentally effective method for use with children and young people' (Gibson, 2007: 482), two small focus groups were conducted to gather data from pupil participants. This measure was taken to ensure that groups were manageable and that each child was given the opportunity for their voice to be heard. Interviews were conducted to gather data from teacher participants. Each focus group session or interview lasted for around thirty to forty minutes. Discussions were semi-structured in nature with questions devised to explore the themes of ability, challenge and digital learning. Audio was recorded, transcribed for accuracy and returned to participants for verification. I, as the class teacher of five pupils but also the researcher, kept a research diary to record my own thoughts and observations about the digital approach as it developed. Keeping a research diary can contribute to increased transparency and rigour in the research process (Snowden, 2015) and I hoped that this would assist me in recognising any bias in my interpretation of data gathered from participants. The digital work product generated by pupils was also made available for analysis where this might prove useful in illustrating points raised by participants. A thematic approach to analysis was taken wherein data was coded to identify naturally occurring themes which later formed the basis of findings and subsequent discussion.

Chapter 4

Findings

Ability

Exploring teacher perceptions of ability, the study found that staff generally defined highly able pupils as those individuals performing in advance of their same aged peers in one or more areas of the curriculum. While staff recognised performance in a variety of domains, the majority felt that they would look for ability in core academic areas of the curriculum – particularly literacy and numeracy - to consider a pupil as being

highly able. Other indicators of high ability suggested by staff included developed problem solving skills and the ability to think quickly as well as to explain thinking to others. Staff commonly associated high ability with a positive attitude towards and enjoyment of challenge. Although this theme was not discussed directly with pupils, ongoing discussion revealed an awareness of their own abilities in most cases.

Challenge

The study found that all pupils recognised the importance of challenge in helping them to learn and achieve their best. They associated a lack of challenge with feeling bored and a variety of other negative outcomes including carelessness, rushing and coasting in their work. Discussing how often they felt challenged in their learning at school, the younger children painted a more varied picture than the older children. Most children in the younger group felt that they were challenged between some and most of the time, where children in the older group identified as being challenged only sometimes or rarely. Pupils were able to illustrate a number of approaches to challenge that had been taken in class but most frequently discussed engaging with challenges as an extension task or a bolt on to core classwork. When asked to illustrate a time when they did not feel challenged in their learning, pupils discussed instances of having been assigned tasks that were too easy or given 'easy challenges' to choose from upon completing a task.

Likewise, all members of staff considered challenge to be an important feature of quality teaching and learning. Teachers took a reflective and critical view of their own practice. They expressed commitment to providing challenge for learners and outlined the different ways they planned for and provided challenge in classroom, however, when it came to the highly able the majority did not feel learners were always challenged as much as they could be. Coasting in highly able pupils was a concern for all members of staff. Finding the time to prioritise the needs of the highly able in live interactions with pupils was considered an ongoing challenge for all members of staff. In the inclusive classroom, staff felt that pupils in need of support often demanded more of their time and that there tended to be more problematic consequences where their needs were not immediately addressed.

The Digital Approach

> "I feel that if I was doing this every week, every day, I would feel more excited. It's something to look forward to."
>
> Pupil J

Pupil response to the digital approach was largely positive. Pupils expressed that the activities had been fun and engaging. They had required perseverance and had brought variety to their learning. The digital learning opportunities that children perceived to be most valuable allowed them to collaborate by sharing their work with others, talking through their thinking and by giving as well as responding to feedback. One pupil remarked:

> “I think it was really fun and it was something different because we never usually get to work with the other classes and it was nice to be able to share our work with other people... It was good when we got the feedback from other people because it showed you if you had got something wrong, then you could go back and work on it.”
>
> Pupil I

An examination of children’s digital work product indicated that some pupils interacted with the digital environment more than others, particularly when it came to peer assessment. The quality of feedback given varied between participants, in terms of length and level of detail. Older participants tended to give feedback more often and be more specific than their younger counterparts when they did, as illustrated by Figure 1. and Figure 2. The research diary noted pace in completing assigned classwork and school absence to be factors in instances where challenges were not completed in the given time frame.

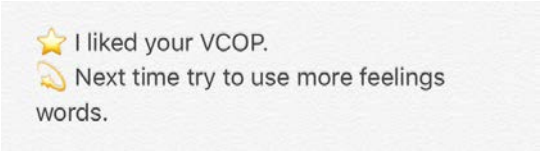

Figure 1: Feedback from Pupil A (Age 8)

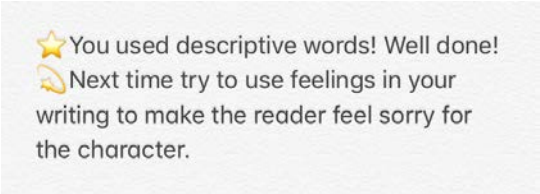

Figure 2: Feedback from Pupil I (Age 11)

Most of the pupil participants felt that the digital approach taken had helped them to feel more challenged in their learning than they might otherwise have been, although a minority of children felt that the approach had led to neither an increase nor decrease in the extent to which they felt challenged at school.

All pupils felt that there was a case to be made for using digital technology to support challenge in future. Most children in the younger group felt that it would be a positive experience to pursue similar activities with their same-age peers in class. They felt that this would allow everyone to enjoy and benefit from the approach.

> “I think that I would quite like to see it be done with the class because I think they would all be quite good at it and they would be quite happy.”
>
> Pupil E

Some of the older children expressed an interest in similar digital strategies being used in class but recognised that the digital skillset of the class teacher might place limits on what could be achieved. The older children also seemed to place more value on the revolving door approach, feeling that they had benefited from the opportunity to work together with other like-minded individuals out with their same-age peer group.

Moving on to staff perceptions, all participating members of staff felt that children had benefited from and enjoyed their involvement in the digital approach. The use of technology was viewed as a highly motivating influence on pupils learning.

> "I think that's a good way of drawing people in, using digital technology to motivate. Especially nowadays because everybody's on their iPads and their phones."
>
> Teacher A

Most teachers considered pupil collaboration to be strength of the approach, although this was illustrated in different ways. Some members of staff felt that giving the pupils a platform to share and celebrate their work was beneficial. Others felt that the approach had given the children the opportunity to give and act on quality feedback, with technology and the peer group as factors motivating them to return to their work. Most class teachers found the approach to be very self led, allowing pupils to take responsibility for and gain some ownership over their own learning. Staff on the whole deemed the digital learning opportunities to have been valuable and, therefore, worth taking forward in some way in future. Staffing, however, was recognised by several participants as a potential barrier to the sustainability of the approach as a 'pull out' model. There was a consensus among staff that what had benefited highly able learners had the potential to benefit all learners, with support in some cases.

> "It would be great for absolutely every child to have, you know, these kind of resources and be able to engage in this type of learning, highly able or not. "
>
> Head Teacher

Those who were class committed expressed an interest in taking the approach forward in some way in their own classes. Most staff felt that improving their own confidence and skill set in the use of ICT would make the approach more sustainable. Reflecting on aspects of the approach that she would be keen to try out for herself, one member of staff commented:

> "I mean it's something that could quite easily be done and implemented in the class. It's just getting my head around quite how to do it. You know?"
>
> Teacher C

The research diary noted the importance of my own digital skillset in facilitating the effective use of digital technology in learning. Knowing how to respond when 'technical issues' arose was essential in ensuring the approach ran smoothly. Positively, all staff conveyed a willingness to learn but expressed that training would be essential in helping them to make effective use of technology as a tool for challenge in the classroom. Some teachers expressed feelings that cascading the approach would require Senior Management Team support. Making the approach a priority in terms of time for staff learning and regular monitoring in the development stages was viewed as being important. It was also suggested by some participants that an increased number of devices per class would be helpful as this sometimes placed limitations on what teachers could do with technology in the classroom.

Chapter 5

Discussion

This study set out to explore pupil and teacher perceptions of ability, challenge and the value of digital technology in facilitating challenge for highly able learners in a Scottish mainstream primary school. Reflecting upon the findings collectively, several themes emerge meriting further discussion.

Perceptions of Ability

The literature suggests that teacher perceptions of intelligence and ability are an important factor in the learning experiences of children and young people, including the highly able (Dweck, 1999; 2006; Winstanley, 2010). As perceptions are formed within specific historic and cultural contexts and are influenced by personal and collective experience, it is important to reflect on and challenge beliefs and attitudes where these create unintended barriers for learners.

The evidence from the data suggests that although teaching staff recognised that individuals might demonstrate outstanding abilities across a variety of domains, in line with a multifaceted view of intelligence (Gardner, 1983), for most the determining factor in whether or not a child was considered highly able was their academic performance in traditionally valued subjects. This warrants further discussion, as while teachers expressed an appreciation of talent in many forms, academic abilities still seemed to be prioritised in a way that other forms of ability were not. This begs the question, why? Why, when the data indicates the potential for a broad and multifaceted understanding of ability, does academic performance appear to take precedence as the measure by which highly able pupils are identified?

As previously stated, perceptions do not develop in isolation. Such an understanding of ability is perhaps an unsurprising product of a "society that assumes that economic advancement, social mobility and power are the criteria by which success is to be judged" (French, 1997: 13). These priorities contribute to a pervasive culture of competition in Western education, wherein achievement is increasingly measured in terms of academic attainment (Gillies, 2008). In the era of the 'National Improvement Framework' and the 'Scottish Attainment Challenge', where pupils' academic attainment is subject to increased scrutiny at local and national level, the task of challenging such entrenched ways of thinking may seem insurmountable. However, challenge we must, as where certain forms of ability are believed to be more important than others, highly able pupils who do not achieve in these areas are at increased risk of being overlooked and under provided for (Brualdi, 1996).

Changing the narrative around what it means to be highly able is likely to be an important step in ensuring that, as a school, we meet the needs of all highly able children and young people. This will require teachers to have the courage to challenge the narrow vision of intelligence implicitly expressed at a structural level in our society and to respond in their practice to what they already at some level know to be true - that ability can be expressed in a variety of ways. As a staff, we might enact such a response by ensuring sufficient opportunities for learning in a variety of domains and by fully owning our responsibility as teachers to nurture learners' talents wherever they present themselves.

Making Time for Challenge

Challenge has been presented as an essential component of provision that seeks to meet the needs and extend the learning of all pupils, whatever their level of ability (Sutherland and Stack: 2014b). While the data indicates a common appreciation of the value of challenge between staff and pupils, it also suggests that as a

school we have some way to go in getting this right for every child. This was acknowledged by teachers, who both questioned and expressed concern about the extent to which highly able learners were challenged in their busy and diverse classrooms.

Although participants discussed a variety of approaches taken to challenge in the classroom, pupils most commonly spoke about challenge as an additional task to be engaged with upon completion of core classwork. Concerningly, several pupils expressed that they often found such tasks to be 'easy' or 'straightforward'. While it may seem paradoxical for pupils to refer to something they don't always find challenging as a challenge, the experiential knowledge I hold as a member of staff might help to bring some clarity to the situation. Within the school, it is commonplace to have an area resourced with a selection of independent learning activities referred to as 'challenges' to be undertaken by pupils who have completed assigned classwork. Informed by the literature around challenge and provision for highly able pupils, I would consider this approach to be somewhat problematic on the grounds that it seems to 'talk the talk' of challenge without always 'walking the walk'.

While a bank of challenging learning activities can arguably assist in the delivery of challenge in the classroom, this is only the case if they are just that – challenging. As a staff it is, therefore, essential that we take a critical eye when selecting and devising resources to be used in the interest of providing challenge. Moreover, Goodhew (2002: 26) contends that challenge needs to be viewed as 'an integral part of the curriculum, not an add-on.' In instances where bolt-on activities are the primary source of challenge in the classroom, those children with a slower pace of work are placed at increased risk of missing out. Although pupil participants were instructed to address digital challenges only after they had completed assigned classwork to minimise disruption to routine learning, the data highlights that this had implications for some children who were ultimately unable to give as much time to the challenges as others and so at times engaged in a more limited way.

Fortunately, the data suggests that members of staff are more than willing to reflect on and develop current practices when it comes to providing challenge, especially for the highly able. Facilitating opportunities for professional learning and dialogue may, therefore, prove valuable in helping teachers to develop a variety of approaches to challenge that really do challenge all learners.

A Digital Recipe for Challenge

A variety of elements are thought to bring challenge to the learning experiences of children and young people. Among the 'ingredients of challenge' proposed by Winstanley (2010) are cognitive engagement and interaction with like-minded and aged peers. Findings imply that digital technology can be utilised to support these specific features of challenge particularly effectively.

Considering the strengths of the digital approach, participant responses commonly highlighted the

motivational and affective benefits that technology had brought to pupil's learning. Pupils had enjoyed taking part and had engaged well with the learning because they had found it 'fun'. This enjoyment was noted by members of staff, who associated the use of technology with high levels of motivation in learners. I would suggest that this element of 'fun', when paired with suitably demanding activities, motivated children to persevere in their learning when they encountered difficulty or challenge. As perseverance and effort in learning are considered to be indicators of cognitive engagement (Meece et al., 1988), it stands to reason that digital technology has the potential promote such engagement among highly able learners.

Discussing the aspects of the approach that they felt brought challenge to their learning, pupils frequently made reference to the opportunities that they were given to collaborate and share their learning with others in the group. Winstanley (2010:111) asserts that peers can extend the stimulation and difficulty of tasks, leading to a greater degree of challenge in learning. The data suggests that this is the case even where peers are connected by digital technology. Working with other like-minded individuals, pupils were compelled to share work that was of a good standard and to improve their work by responding to the feedback given in the digital environment. While findings indicate that a number of pupils were keen to undertake similar activities in class alongside their same aged peers, some children explicitly expressed that working with like-minded individuals out with their same aged peer group had been a valuable part of the experience for them. This suggests that the approach taken had resulted in meaningful interactions between the highly able learners involved.

Taken as a whole, findings indicate that pupils and teachers alike recognised the potential of digital technology as a tool for challenge within and beyond the classroom. For this perceived potential to translate into continued opportunities for challenge in learning, it is important to consider how digital approaches might be taken forward in future. As stated previously, *how* we use technology in the classroom is the determining factor in its value for children and young people's learning (Higgens et al., 2008). The data shows that pupils understood that how they used technology in school would be in some way governed by the digital skillset of the teacher leading the learning. While there was a consensus among staff that a 'pull out' approach was unlikely to be sustainable in the long term, class teachers conveyed a willingness to learn and to try similar approaches in their own classes, provided there was adequate support and training offered. Ertmer and Ottenbreit-Leftwich (2010) posit that teacher skillset and confidence in using technology are key variables in determining the success or failure of technology as a pedagogical tool. Equipping staff with the digital skills required to confidently use technology as a tool for learning and for challenge should, therefore, be viewed as a priority.

Chapter 6

Limitations

Before going on to consider implications for future practice, it is important to discuss the limitations of the study as it was conducted. As established earlier, this enquiry sought to explore pupil and teacher perceptions of ability, challenge and the value of digital technology in facilitating challenge for highly able learners in my own context. While the interpretivist approach taken has allowed me to achieve these aims, findings are context specific and, therefore, of limited value to those interested in research with wider applications. For

reasons discussed earlier in this paper, stringent criteria were applied in the selection of pupil participants. While this resulted in the selection of pupils who had proven themselves to be highly able, this means of selection limited the variety of learners invited to participate to the top 2% of pupils in terms of performance within very specific academic domains. This meant that in the targeted age group only boys were deemed eligible for participation, creating an overly exclusive 'talent pool' that I would argue does not reflect the diversity of ability to be found in the school. Were I to carry out such a study again, I would be inclined to take a more inclusive approach to selection, inviting participation from a more diverse group of learners. This would mean that the research could involve already identified highly able learners whilst also providing opportunities for as yet unidentified individuals to demonstrate their talents and abilities.

Chapter 7

Implications for Practice

Under an inclusive approach to education, all children and young people in Scotland are entitled to an education that meets their learning needs. Enacting inclusive pedagogy in the classroom requires teachers to recognise the ability of each child and to provide opportunities for individuals to build on their next steps for learning, whatever they may be (Florian and Spratt, 2013). As such, all children are entitled to support to help them to achieve - including the highly able who often require additional challenge to stretch their learning further.

The literature contends that the highly able and, in fact, all learners stand to benefit from challenge in the classroom. It also suggests an overlap between key features or 'ingredients' of challenge and what digital technology, used effectively, can bring to children and young people's learning. This paper, therefore, set out to give consideration to the following question:

"What is the perceived value of digital technology as a tool for challenging highly able learners?"

Having explored pupil and teacher perceptions of ability, challenge and the value of technology in facilitating challenge for the highly able, I believe that I am now in a position to offer a response.

The findings of this enquiry suggest that, on the whole, both pupils and teachers could see the value of digital technology as a tool for challenge in our school - not just for the highly able but for all learners. It also suggests that highly able pupils value and benefit from the opportunities they are given to collaborate, be that face-to-face or in digital spaces. The data appears to imply that digital technology can be utilised to support specific features of challenge particularly effectively, as there was evidence to suggest that the digital approach taken had led to increased cognitive engagement and increased opportunities for interaction between highly able learners. The evidence from the data highlights that, while there may be some work to be done in helping staff to feel confident in the use of new and developing technologies, there is a heartening willingness to learn and do what it takes to meet the needs of learners among staff in our school.

Going forward, it is my hope that this study will make a significant contribution to ongoing professional dialogue in my establishment as we consider how best to recognise and respond to the needs of the highly able. On a strategic level, I would suggest that the school can help teachers to develop their toolkit for challenge by making time for and providing staff training to support effective use of digital technology in learning across the curriculum. I would also recommend that as a school we make efforts to facilitate increased opportunities for pupils who are performing well to work together, as this study has shown that these pupils value and benefit from the opportunities they are given to collaborate. I would, however, contend that this need not be at the exclusion of other pupils who, as the literature suggests, may just the need right opportunity to demonstrate their ability and to shine.

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