ReflectED

St Mary's Journal of Education

Aims and Scope
ReflectEd provides a forum for the publication of interdisciplinary articles that celebrate the challenging and changing nature of educational research and practice. It is published by the School of Education, Theology and Leadership to encourage, celebrate and disseminate research, scholarly activity, and exciting pedagogical practice that is in keeping with our mission. This mission is to advance education through continuing reflective practice and professional development in diverse schools.

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Editorial: In the Folk Tradition

Dr Christine Edwards-Leis
Editor

I recently returned from a folk festival in a small town in southwest England. English folk festivals are a new experience for me and I have been particularly enthralled by a capella singing where chorus songs provide opportunities for audience participation. During the festival, a performer from the United States noted several times how 'quick' the audience were to learn the chorus of the previously unheard songs he was singing, joining in with joyous, tonal harmonies that made the hairs on the back of my neck stand up. He was right. The ability of the audience, numbering into the hundreds, to join his singing of the chorus was repeated throughout his set and certainly made the session engaging and memorable for all who were there. This particular performer was reviving old folk songs and tunes from his home state in the United States and they, like folk songs in England, told stories of living on the land, hardships in relationships, nonsense animal rhymes, and the significance of the harvest. The folk song tradition seems to reflect that it is the "selection by the community that ensures continuity" (Roud & Bishop, 2012: x) of songs and that there must be some quality they have that contributes to the repetition required for their existence in modernity.

One of the first nonsense verse songs I heard, apart from the cumulative verse song, *The Twelve Days of Christmas*, was the *The Herring Head*, performed several years ago in the Durham dialect in Adelaide, South Australia. Roud and Bishop (2012: 473) investigated its roots and found evidence of it first being learned "in 1810 from Jan and Tom Hive, two old men in Liskeard". It is in the oral tradition of a question-response song where folk are invited to make a variety of interesting rhyming artifacts from the different parts of a herring! The herring's head will make loaves of bread while the herring's eyes will make pudding and pies. Suggestions are included in Roud and Bishop's (2012) version for other parts of the fish such as fins (needles and pins), tail (barrel of ale) and guts (pair of boots – remember it was originally in the Durham dialect). However, the performer who led the song in Adelaide challenged audience members to create their own responses thereby handing over control of the song's progress and the associated hilarity to others. There were delicious moments of anxiety when I thought I might be chosen to offer a response to a herring body part thereby limiting my ability to remember the string of parts that preceded 'herring's scales'. But, the performer asked the person beside me who, having experienced the song before, proudly replied 'packet of nails'.

A discussion of folk songs, poetry and dancing is relevant to discussions of formal education particularly as the new curriculum is launched in English schools this coming September. Prior to recording devices becoming so accessible, allowing the sharing of music beyond the walls of a room where the performance happened, folk music was situational, relevant to its particular rural context. We have many ways of sharing ideas, music, literature and image today and the associated increased awareness of how others contextualise such material may lead to greater homogeneity. The new curriculum is 'representative' including material to be covered in key stages. However, how we in our individual schools and classrooms work with the content in the curriculum will be contextualised to our situation and performed and shared by the learners who are present.

Roud and Bishop (2012: xxxi) caution against the romanticisation of the folk tradition and its "deep psychological value as the glue that held communities together" but they also acknowledge that singing together gives a communal feeling that is often lacking today. Classrooms are communal places and perhaps the only gathering of people outside the family that many pupils will join. Teachers designing learning experiences within the framework of the new curriculum have the responsibility to prepare an environment of shared learning where children can be challenged to gain greater understanding of relevant material so that they can apply it to their individual context. I would hope that, like the audience members at a folk session, children can learn quickly the words and melody of new songs so that they can fill a space with the shared joy of participation. I would hope that when challenged to take control of a question-response situation, children have the confidence to contribute new ideas while being able to remember what came before and how it has shaped the current discourse. The content of this edition of ReflectEd encouraged me to believe that the passion and determination to lead children forward in learning via the new curriculum is alive and thriving in the hearts, minds and hands of our new teachers.

This edition begins with a report from Alex Sinclair, a senior lecturer at St Mary's, on the management of St Mary's bees. While the hives have been moved while repairs are made to the balcony where they reside, the impact of the bees' arrival since 2010 is evident in the establishment of a flowering meadow at the front of the university, dance crazes in Physical Education and sustainability events with local school children. The first research article is by fourth-year undergraduate student at St Mary's, Emma Bassett, who discusses her values of education and how she hopes they will shape her teaching. Edward Teversham, a PG student at Wandsworth SCITT, presents a thought-provoking piece about how curriculum plays a role in maintaining the achievement gap of pupils from different backgrounds across Britain. He proposes that teachers become agents of change rather than unwitting purveyors of dominant ideology. Juulia Stigzelius, a student from the University of Jyväskylä, Finland writes about Design and Technology, offering a review of the theme working method and how it has advantages as an approach to learning. This method starts children thinking about a problem or phenomena thereby engaging them in a rich context through which they will learn new skills and ways of thinking.

The seminar series returns and a paper presented at the Pupils' Attitude to Technology conference in New Zealand in December 2013 by Christine Edwards-Leis and shared with colleagues at a seminar in January this year is included. Her writing on the Mental Model Mode, a construct that explains how individuals problem solve has been tested and validated in both Design and Technology and Mathematics. The Reflection in this edition has been written by Sue Keegan, a PG student at St Mary's, in the mode of Dan, the main character of Dominic Utton's (2014) *Martin Harbottle's Appreciation of Time*. While Dan wrote scathing emails to Martin Harbottle, the managing director of a railway company responsible for the train service he used, Sue wrote thoughtful and informative emails to her tutor during her enhancement placement as a way of capturing the learning journey she was on. It is my pleasure to announce the addition of a new member to the editorial board. Dr Jennifer Chung, lecturer in Education and Social Sciences from St Mary's University joins our team.

The quality of writing, particularly by students who aim to be the educators of tomorrow, is worthy of sharing just as a valued folk song deserves to be shared. Roud and Bishop (2012) describe folk songs as traditional because they are songs that are passed on from person to person usually in a face-to-face performance and then passed on down the generations. It is the *process* of hearing, learning, performing and passing on that makes a song a 'folk' song. While our recording and sharing of ideas is a more 'formalised' and modern process, I would like to think that this journal offers a similar community of practice where we, as educators, can learn from each other, share ideas and pass on effective practice to each other. I would like to think that when challenged to create innovative connections between ideas, we can respond with inspiration and insight so that the evolution of our education 'folk' tradition continues.

Oh, what'll I do with my herring's head?
Oh, what'll I do with my herring's head?
We'll make them into loaves of bread
Herring's head, loaves of bread
And all manner of things.

Roud and Bishop (2012: 265)

References
Roud, S. & Bishop, J. (2012) *The new Penguin book of English folk songs*, London, UK: The Penguin Group.
Utton, D. (2014) *Martin Harbottle's appreciation of time*, London, UK: Oneworld Publications.

Bee-haviour Management: A Report on St Mary's Bees

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The end of 2010 saw a group of like-minded lecturers from the then School of Education, at St Mary's University start the process of planning for the arrival of a colony of bees on the University campus. This introduction was part of wider initiatives in education to promote sustainability at a curriculum, campus and community level. With the well-publicised knowledge of the declining bee population worldwide it was hoped that the colony would act as a symbolic focus to help develop knowledge and understanding of some of the issues relating to sustainability at St Mary's. On top of this there was the lure of farming our own honey.

Sponsorship from the University, several fundraising activities and the obligatory health and safety checks preceded the bees' arrival in April 2011. They now reside on a balcony outside one of the main lecture halls. Although hidden from view, hive visits have been made by a number of students and staff throughout the summer months to learn more about the St Mary's Bees. Visitors have had the opportunity to dress in bee suits, hold frames containing up to five thousand bees, locate the Queen and learn about the insect's life cycle.

Questionnaires have been used to identify staff interest in the bees and whether they could be used as a teaching tool. Responses from these questionnaires initially showed that, due to issues of safety, some members of staff had negative feelings about the bees' residence.

Figure 1. One of our healthy hives.

Figure 2. Hive visits prove popular.

Three years on and there has not been one report of anyone being stung. These fears are understandable and were mirrored by Headteacher Tim Baker from Charlton Manor Primary School when a swarm of bees arrived 'uninvited' at his school. He noted that it was the teachers who were overly anxious and the children who remained calm and inquisitive. Subsequently, he decided to introduce a colony of bees to his school and is insistent on the benefit that they have had on all of the children but particularly those exhibiting behavioural difficulties. St Mary's staff, who teach on both the PGCE and undergraduate teacher training courses, have visited Charlton Manor to gain an insight into the experiences the children gain from their bees. This link has proved fruitful as students on these courses have been invited to teach at Charlton Manor while Tim has returned this favour by speaking to whole cohorts about his experiences.

The questionnaire has also shown how some members of staff have identified ways to incorporate the theme of bees within their curriculum areas. Science has taken the opportunity, when teaching about flower structure and insect-pollination, to look at the effects that a decline in population can have on fruit formation. Students also have used St Mary's bees as specimens when learning how to use the digital microscopes. In Design and Technology the value of bees is highlighted during sessions on food. Discussions about what a breakfast without bees might look like are undertaken. There has also been the chance to taste a range of different types of honey based on the type of flower that the nectar has been foraged from and compare it with generic brand varieties. On occasions St Mary's honey has been used. The use of our honey during this process is always dependent on the strength of the colony at that time of year. In times when the population is low the main objective is survival and therefore taking honey, the bee's food source, for human consumption is not advised. Cold winters and swarms, of which we have had a few, can reduce a population, and rainy summer days can halt foraging for food. Unfortunately, the tasting of St Mary's honey has been rare so far! Physical Education lectures have been used to learn about the Waggle Dance; the communication method that bees use when directing each other to food sources. Not only have St Mary's students been seen to "shake their sting and do the honey bee," but also children from a local infant school during their sustainability week.

Figure 3. Bees foraging for food in St Mary's meadow

It has not just been the academic staff who have embraced St Mary's Bees, but also the Estates team. Their actions have also helped to sustain their existence. Should anyone have made a visit to the University campus last summer they will have been greeted by a glorious array of bee-friendly plants which kept flowering throughout the season. The seeding of the area at the front of the University provided a welcome addition of colour to an otherwise drab expanse of non-productive grass. In addition to this, and perhaps more importantly, was the nectar and pollen that was subsequently provided. You did not need to look carefully to see this benefit as the area was covered in insect-pollinators foraging for their food.

At the time of writing it is spring. Having sensed the warmer weather, the bees have started their flights to the surrounding areas in the search for food. A hive inspection has shown that they have survived the winter, the colony is strong and that honey production is well under way. Unfortunately, for this summer, while repairs are made to the balcony where they are housed, St Mary's Bees will have to be transported to a local apiary. We wish them all the best in their temporary accommodation and look forward to their return in the autumn.

Teaching: A value-laden profession

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Abstract

Reflecting on my schooling I can vividly remember the dedicated teachers who motivated and engaged children with learning throughout the curriculum; my inspiration for pursuing a teaching career. Hargreaves (1992) considers the reason to enter the teaching profession is one that is based upon the individual's background and life experiences which directly affects their values (Ghaye & Ghaye, 1998). Notably, Ghaye and Ghaye (1998) and Whitehead (1989) have argued that teaching is a value-laden process because values are essential for development as practitioners. They highlighted that values help teachers to make decisions (Ghaye & Ghaye, 2008; Barnett, 2003), respond to dilemmas (Newton, 2005; McFarland, 2002) and inform practice (Skelton, 2005) which relates to the development as a reflective practitioner. This reflective journal will address the personal reasons for why I have entered the teaching profession, and how the values I hold, which are love and inclusion, have influenced my learning and development as a reflective practitioner.

Key words: values, reflection, inclusion, love, holistic teaching

Who Am I?

Who we are as teachers impacts on our career, values and life experiences (Ball & Goodson, 1985). Similarly, Ghaye and Ghaye (1998) discuss that through reflecting on our own teaching, we are able to identify the values we hold in practice and how these influence the way we teach. These values have stemmed from personal experiences and the behaviours associated with these are values I aim to embed into the classroom to positively affect teaching and learning (Halstead, 1996). Therefore, the core values I hold are love and inclusion.

Love

Firstly, love is an educational value that I hold because relationality is important within the classroom. As a child I built a strong relationship with a teacher who established a positive rapport with the class. When a task was not fully understood, her approachability and positive communication encouraged children to see this as a learning point rather than failure. This strategy relates to Laird's (1985) theory of facilitative learning, which highlights the importance of establishing an atmosphere in which children feel comfortable to learn in and do not feel threatened by failure. This experience has directly influenced my practice because I encourage children to see mistakes as a part of learning and use misconceptions to inform teaching points which creates a motivational classroom. This behaviour links to the value of respect through creating effective relationships based on thoughtfulness and consideration which is fundamental to our personal development, the development of others, and the community (Bailey, 2004).

A Caring Behaviour

Personally, caring about children is an important behaviour because during my schooling I was diagnosed with an illness which resulted in physical disabilities. My value of love was challenged at this time, because there were individuals who did not think it would be possible for me to overcome problems which meant that relationships and behaviours such as approachability and communication were sacrificed. For example, I lost the ability to walk and spent much of my time in a wheelchair. I was told I would never walk again but instead of accepting this opinion, I decided I would try my hardest to prove the people wrong. Work by Jensen (1987) highlights the emergence of personal values at times of struggles because values influence the way we tackle challenges (Ghaye & Ghaye, 1998). Ball (2003) calls this 'value schizophrenia' and later comments on the occurrence of this situation when commitment and experience are compromised for personal impression and performance, usually at times of illness or struggle (Ball, 2004). Similarly, Whitehead (1989) considers that at these times we become living contradictions because our actions do not align with our values. It is not always possible to uphold our values constantly and so Elliott (1987) considers that these challenges develop our understanding of how to embed educational values into practice, a difficulty recognised by Haydon (1997). Reflecting on this experience I have identified the emergence of the value of inclusion because it was personally important to feel part of the whole school community rather than an individual who needed extra care. This experience links to the values of respect and equality of all learners because these values are important to ensure that successful learning occurs.

The Oxford English Dictionary (Oxford University Press, 2014: 263) defines care as 'the provision of what is necessary for the health, welfare, maintenance, and protection of someone or something'. The role model who presented the caring behaviour understood the importance of working towards personal health goals rather than educational ones, thus promoting the value of love. For example, confidence was an issue because I lost the ability to communicate through speech and so therefore participation within lessons was affected. The teacher used a caring approach to support and encourage me to achieve personal goals through offering opportunities to use language in social contexts, as well as supporting academic learning (Forbes, 2003). A strong rapport was built because the value of mutual respect was apparent. Laird (1985: 121) considers this to be a holistic style of teaching which is based around developing an individual as a whole person. For effective learning Laird (1985: 121) states those opportunities should arise to develop an individual's intellect, emotions, body impulses, intuition and imagination. For example, providing a child with the opportunity to explore their emotional and cognitive intelligence enables the child to develop their own personal identity.

Therefore, it is important that care is embedded within the classroom to ensure that children develop into well-rounded children and are given personalised opportunities to ensure they fulfil their learning, whether this be academic or personal, in a supportive environment. This view is supported by the Every Child Matters Policy (Department for Education and Schools, DfES, 2004) which highlights the importance of supporting children's learning by differentiating activities and providing resources which ensure that learning goals are met. This supportive environment can be achieved through developing effective relationships with each child. Therefore, care can be taken to target learning for each child based upon their attainment. As a result this action aims to improve motivation because it encourages children to achieve the expectations set by the practitioner.

I am striving to achieve care in the classroom after working at an American Summer camp because I have witnessed the personal development of children in an environment where care is taken to nurture the whole person, based upon a holistic teaching style. At camp children participate in activities which are designed to develop the child intellectually, emotionally, physically, socially and spiritually (Miller, 2005) in an outdoor learning environment. For example, some children arrived at camp shy and lacking self-esteem, but after a week of team and confidence building activities such as rock climbing, the children developed their own personal identity and were more comfortable in social situations. In terms of Skelton's (2005) view that values, behaviours and attitudes inform practice, I have reflected on the positive impact this experience has had on my own learning. I consider it to be important to embed a holistic style of teaching and learning into the classroom to aid the development of personal and social skills, achieved through building positive relationships. Hence, practitioners are able to value each child as an individual and as part of the school community through adopting a holistic teaching approach. Therefore, children are more engaged with learning through an approach which develops their confidence and self-esteem.

Inclusion

Inclusion is a core value that I hold because it is important that children are involved in all aspects of learning. This behaviour links to the value of love and relational teaching because building successful relationships ensures that practitioners are able to meet the learning need of each child. The value of inclusion held by my teacher was important post-illness to ensure that I was able to reach my full learning potential through removing educational barriers to ensure that progress, achievement and participation were not limited. This approach links to personalised learning which underpins inclusion (Department for Children, Schools and Families, DCSF, 2008). This approach is also related to transformational learning because children have the opportunity to think autonomously, independently and acting on their own decisions (Mezirow, 1997) through supportive relationships with a practitioner (Cranton, 2006). The value of inclusion was significant because I was not segregated from other learners to have my individual needs met. I was included in the learning but with the appropriate differentiation needed in order to reach realistic goals. Therefore I felt valued as an individual (Sapon-Shevin, 1994). This experience significantly influences my current teaching by identifying ways to create inclusive activities in practice where each child is able to succeed and feel part of the community, regardless of additional needs, in a respectful environment.

Differentiation

In practice, I aim to embed the value of inclusion by creating an appropriate, supportive, challenging and creative curriculum which develops children's knowledge and skills. The key factor is planning for progression and differentiation to support and extend learning. Based upon my understanding of how I learn best and observations on practice, I have identified that sharing learning objectives and success criteria with children is important so that they know what is expected and how they can achieve their targets. This strategy allows children to focus more directly on tasks and can be used as a form of formative self and peer assessment which underpins personalised learning and the value of inclusion (DCSF, 2008). Furthermore, by setting learning expectations children are motivated to produce a high-quality piece of work due to being in control of their own learning. This control creates engagement and motivation through giving children the opportunity to explore a topic at their own pace (Holt, 1996), promoting an inclusive learning environment.

Differentiation is a behaviour displayed by the value of inclusion and is defined by The National Curriculum Council (1989: 8) as 'the process by which curriculum objectives, teaching methods, assessment, resources and learning activities are planned to cater for the needs of individual pupils'. My view of learning in this area has been influenced by a teacher who catered for various learning styles. The work of Gardner (1983) demonstrates that lessons can be designed to meet individual needs in an engaging way. For example, to introduce the water cycle, children acted out the water cycle using various props in front of the whole-class and their actions were then recorded onto the board. Kinaesthetic learners were catered for in the physical movement and manipulation, visual learners in the water cycle created on the board, and audio learners because the cycle was discussed. Therefore, through accommodating each child's preferred learning styles the teacher was able to target learning by creating a personalised learning approach (DCSF, 2008). This approach enables the practitioner to demonstrate equality of teaching by including all children in learning opportunities.

Gardner (1983) states that all children have the chance to be gifted and so I strive to provide children with opportunities to challenge their thinking and learning. Mathematics was a personal strength throughout school but there was a teacher who encouraged me to achieve a higher grade. The positive relationship that we shared was used to improve my achievement and confidence in the subject area using a supportive and inclusive approach. The teacher challenged learning by using differentiated activities which motivated and engaged me to fulfil expectations. The core value of love was prominent at this time because the teacher was able to meet my own educational needs which were identified through her relational teaching approach.

Reflection

Personal experiences have influenced my decision to enter the teaching profession and consequently the values I hold as a practitioner (Ghaye & Ghaye, 1998; Halstead, 1996; Ball & Goodson, 1985). The core values I hold of love and inclusion are ones that I aim to embed within my classroom because they represent the teacher I want to be, a teacher who displays the behaviours that demonstrate each value. These values have affected my ontology and consequently my epistemology of how to use values within practice. Ghaye and Ghaye (1998) point out that through reflecting on our personal experiences we are able to identify the values in practice because each value provides us with a reason for teaching in a particular way. Therefore, it is important to reflect on our learning journey to ensure we understand ourselves as teachers (Scott, 1993) so we can accommodate for the learning of each child.

The Reflective Learning Journey

Becoming a reflective practitioner is considered by Bartlett (1990) to be significant when critically integrating theory and practice through immersion into the wider context of learning. Ghaye and Ghaye (2008) and Barnett (2003) highlight that the process of reflection is important for personal development because it gives reasons for our choices in practice (Skelton, 2005) based on how dilemmas are dealt with in the classroom (Newton, 2005; McFarland, 2002). To be reflective it is important that practitioners consistently examine values, beliefs, attitudes, assumptions and practice to improve teaching (Newton, 2005).

Reflective Practice

Predominantly the work of Schön (1983) highlights the importance of two types of reflective practice referred to as in-action and on-practice. For the critical reflection process to be successful Dewey (1933) describes a reflective practitioner as one who is open-minded, responsible and whole-hearted. Therefore, reflection is an important part of the learning journey and understanding teaching because it is supported by our personal philosophy of education. Through reflecting on the philosophy of education, practitioners can think about their strengths, weaknesses and own learning needs (Department for Education and Employment, DfEE, 2001) whilst displaying Dewey's (1933) qualities. However, it is important that teachers focus on benefitting the learners, rather than emphasising self-improvement, known as 'self-referential' (Leavy, 2007) which is achievable through reflecting on how pedagogy affects learning.

Firstly, reflection-in-action is a reflective process which requires practitioners to 'think on their feet' based on the element of surprise (Schön, 1983). Schön's (1983) view highlights that the reflection-in-action process provides practitioners with the opportunity to amend teaching when a problem occurs, to benefit children's learning. In practice I have identified misconceptions and used these to identify where more teaching is needed, relating to my core value of love which is embedded through creating an environment where children see mistakes as a part of learning (Laird, 1985). Therefore, the reflective process during lessons means that actions are more reasoned and purposeful because practitioners are able to modify learning to meet the personal needs of the child which is an important aspect of personalised learning (DCSF, 2008).

Reflection-on-action is fundamental to professional development and capability (Pollard, Collins & Simco, 2002) but what is meant by this term is debatable (Ghaye & Ghaye, 2008) because there are no rules to the reflective process. There is a general consensus by Ghaye and Ghaye (2008) and Pollard et. al. (2002) that reflection-on-action is a process which involves making sense of teaching to learn from and consequently apply this learning to future practice. Eraut (1995) highlights that it is through 'time-out' reflection that teachers are able to make sense of their professional life (Cuthbert, Danai & Ghaye, 1996). This reflective process allows practitioners to make wise and principled decisions about how to improve practice to ensure that learning is promoted in the classroom. It is through the reflection-on-action process the practitioner develops self-knowledge which contributes to professional development (Ghaye & Ghaye. 2008).

Therefore, reflection-on-practice is a process that I understand to be a productive aspect in my development as a reflective practitioner because it promotes effective learning and offers the opportunity to question decisions made based on my core values (Davis, 2006). Sweigard (2007) highlights that through observations and reflection time I am able to gain ideas about how to embed love and inclusion effectively in the classroom, ensuring that successful teaching and learning occurs. However, I agree with the Department for Education (DfE, 2010) and Day (1999: 22) who argue that collaboration and dialogue with other practitioners are an important part of the reflection process. This is because discussion encourages the use of inquiry skills which can be used to identify areas of strength, weakness and learning needs within practice (DfEE, 2001).

My Philosophy Of Education

The greatest challenge faced by teachers is developing their personal philosophy of education and teaching (Carr, 2005), underpinning their development as a reflective practitioner (Newton, 2005). My view of education is one that has been influenced by my reflective journey and personal experiences of the education system shown in my creed (see Appendix 1). Consequently it is through this view that I aim to embed the values of love and inclusion into the classroom.

Education is a part of life which is deeply embedded into the national culture (Wood, 2004). Like Winch (2012), I consider a school to be a place where children are taught skills and knowledge to progress in today's society in a social community, through creating contexts that make learning possible (Prosser & Trigwell, 1999). This social community is one that Mead (2008) states to be based upon the use of social activities and play to improve children's learning because it develops the child personally and academically, linking to holistic teaching. This view is confirmed by Gregory (2002) and shared by Hirst (1965) who states that education is about equipping children's minds, rather than transmitting knowledge (Peters, 1966), to make sense of the physical, social and cultural world which is constantly changing. The Royal Society of Arts (1999) share Peters' (1966) view because they argue that education should be competence led where children are assessed on their ability to understand and do.

On the other hand, being 'educated' and the process of learning is one that Gardner (1991) argues to be about continuously developing knowledge through building upon past knowledge and creating new learning. Education is highlighted by Day (1999) to be a process of lifelong learning. I consider the process of lifelong learning to be consistent as long as the learner is engaged with their education. This process is achieved through creating a learning environment where children acknowledge learning as a facilitative process (Laird, 1985).

Facilitative Teaching And Learning

Therefore, holistic teaching is an essential part of education. This view of education has been supported by my experiences in school and at a summer camp, and one that reflects my learning journey. A holistic style of teaching develops the individual as a whole person (Laird, 1985) because each child is valued as an individual (Hirst, 1965). Therefore, practitioners are able to give children the opportunity to progress through personalised learning opportunities. This is a key aim of the Every Child Matters Policy (DfES, 2004) and one that is arguably reliant on social interaction (Patel, 2003). Patel (1994) highlighted that the holistic teacher is also the learner because it is through the reflective process that improvements can be identified to benefit pedagogy.

Learning outside the classroom is an important aspect of education because when used it can stimulate and engage children with learning. Ofsted (2008) argue that the first-hand experience created through learning outside the classroom makes subjects more interesting and enhances understanding, whilst contributing significantly to the individual child's personal, social and emotional development (Muñoz, 2009; Alves, Bell, Hamilton, Montarzino, Rohnie & Travlou, 2008). The reflection process has made learning outside the classroom more pronounced in my philosophy of education because I have witnessed the enthusiasm and engagement that children experience from taking control of their own learning in a facilitative environment. This environment is also one where the practitioner is the learner (Patel, 1994; Laird, 1985) because learning is a continuous process. Therefore, Abbott (1994: 108) argues that it is important that schools progressively wean children off their dependency on teachers so that they are given the opportunities to gain confidence and manage their own learning through a variety of situations.

However, the DCSF (2008) argue that using a holistic teaching style and learning outside the classroom can sometimes provide too much stimulus and inclusion. For example, I have observed that children get too excited with the stimulus material rather than focussing on how to display their learning to the best of their ability. This situation occurs because too much freedom is given to the children and they become overwhelmed by the learning experience in a new social environment. In this situation, personalised learning is unsuccessful because the children have been provided with an 'over-rich' environment which floods a child with too much stimulation, denying a child's individual personality (Wallace, Maker, Cave & Chandler, 2004). Therefore, it is important that learning is structured and that children are aware of the activity guidelines. Rieser (2012) believes that this is achievable through adopting a 'social model' through reflecting on practice and the barriers that prevent inclusion. This observation formed part of my personal reflection-on-action and is one that has influenced how I embed my philosophy of education into the classroom.

Reflection

To conclude, reflective practice is a process that is fundamental to developing our personal philosophy of education through examining how our values, beliefs, attitudes and assumptions can improve teaching and learning within the classroom (Newton, 2005). To be a reflective practitioner it is important that this process is entered with an open-minded, responsible and whole-hearted attitude (Dewey, 1933) to reflection. As a practitioner I understand that this process is one that will be consistent throughout my career and is one that has influenced my thinking and learning journey. Through reflecting in-action and on-practice (Schön, 1983) I have been able to identify my strengths and weaknesses, and make improvements based on this reflection to ensure that my personal philosophy of education is upheld. The DfEE (2001) and Day (1999) describe this as a key factor in becoming a reflective practitioner because as teachers we are constantly learning through reflection which is a lifelong learning process.

Further Research

After reflecting critically on my learning journey, an emerging area of interest lies with supporting and enhancing children's learning. The definition of learning is one that is constantly changing within schools. However, there is a general agreement based upon theory and practice that learning is a process based around the acquisition of knowledge and skills, and thus the progression of this learning in education. Therefore, the learning process is dependent on the child's ability to use knowledge successfully, which relates to the use of thinking (Vygotsky, 1978). Consequently, Perkins (1992) noted that learning can only take place when thinking is used within the classroom.

Thinking Within The Classroom

Notably thinking within schools has been influenced by three key theorists: Piaget (1990), Vygotsky (1978) and Bruner (1963), and their work still has a direct impact on teaching and learning within schools today (Whitebread, 2002). They highlight the importance of the use of thinking time (Piaget, 1990), scaffolding learning (Bruner, 1963) and the encouragement of thinking language and tools in a collaborative environment (Vygotsky, 1978), which is achieved by using thinking skills.

Subsequently, a recent practice highlighted the importance of developing thinking within primary schools, a view shared by Dewey (1916). This is because thinking promotes the development of the mind and teaches children to to think critically, creatively and effectively through the application of skills and techniques (Thinking Schools International, 2012; Fisher, 2011). Therefore, this experience created an emerging interest in the area of thinking because the quality of children's learning is dependent of their ability to think successfully, which underpins the core values I hold in education. The values of love and inclusion have prompted the interest in thinking because it is through these values that teachers can embed a love for learning in the classroom.

Professional Development

To develop my understanding of how thinking and thinking skills are used within schools, I am going to undertake a small-scale study. This study will take place in an 'advanced thinking school' that embeds thinking into the school community explicitly throughout the curriculum. McGuinness (2000) highlights that for effective learning and thinking to take place, children need to be encouraged to ask questions, try out experiments, speculate information and reflect, rather than accepting information unthinkingly (Smith, Cowie & Blades, 2011; Nisbet & Shucksmith, 1986). Therefore, through this study I will gain more understanding of how thinking and thinking skills can be used to successfully support and enhance learning within the classroom. This will form part of my development as a reflective practitioner because I will be able to identify where I can embed my core values further. Hence, I will be able to accommodate for children's needs to ensure that their thinking is supported and enhanced throughout the curriculum.

Final Reflection

Throughout the learning journey I have identified that personal experinces have contributed to the values and behaviours I hold within education. This reflective process has provided the opportunity to identify and improve how to embed each value into practice to ensure that children's learning is suppported and challenged. This process has provided a refreshing reminder of the reasons why I entered a value-laden profession and how important these values are.

In the future I hope that love and inclusion are prominent within my classroom, however it is understandable that values may change at times when we becoming living contradictions (Whitehead, 1989). Therefore, this journey has posed some prominent questions: 'Will I still hold these values in the future?' and 'Will my values be compromised?'. I do not know what the future might hold but nethertheless my key aim as a practitioner is to provide an engaging motivational environment where each child is able to reach their full learning potential.

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Appendix 1
What is School?

I believe that school is a part of life.

I believe it is a place where children are educated, education being a social community.

I believe that school is a place where children are taught skills and knowledge to progress in society.

I believe that knowledge and skills are developed throughout, but not limited to, a child's education.

I believe that children should also be taught the skills they need to live in today's society, that being communication and practical skills such as cooking.

I believe that more time should be spent developing the child as a person.

I believe that much of children's education today is limited to 'teaching to the test'. This is where failure comes in, as much of the current testing requires children to memorise information rather than apply it to an area.

I believe that there should be a strong home-school link where parents or carers can work together to improve learning.

I believe that schools need to educate the parents and carers for this to work.

I believe that too much time is spent teaching in a classroom. The outdoor environment should be used to stimulate and engage children in learning.

I believe that the use of talk and collaboration are important factors in learning and are not currently used enough in schools.

'Engines of Social Mobility'?
The Role of the Primary National Curriculum in (Under)Achievement

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Abstract

Class and socio-economic status have resurfaced as significant factors behind the achievement gap of pupils from various backgrounds across Britain. This article explores the way in which the curriculum plays a role in the maintenance of that gap. Previous scholarship on the socio-economic impact of the curriculum has tended to focus upon secondary level curricula. This article maintains that its role is equally influential at the primary level, as it forms a foundation for later social assumptions and attitudes to learning.

Keywords: class, socio-economic status, curriculum leadership, cultural capital

Introduction

Schools should be engines of social mobility. They should provide the knowledge, and the tools, to enable talented young people to overcome accidents of birth and an inheritance of disadvantage in order to enjoy greater opportunities.
Michael Gove, DfE Press Release, 26th July 2010

When the British Minister of Education, Michael Gove, introduced the coalition's plan for a pupil premium, he was selective in his vocabulary. The policy's purpose was to address the systemic underachievement of 'disadvantaged pupils', and to equalise their potential with those from 'richer families'. At no stage did the minister directly mention social class as a significant influence in academic achievement.

This silence is echoed in the new National Curriculum for England, due to come into force in September 2014, where a list of 'potential barriers' includes 'race, disability, sex, religion or belief, sexual orientation, pregnancy and maternity, and gender reassignment', but does not mention socio-economic background or social class (Department for Education [hereafter DfE], 2014: 8). The only hint or recognition appears in clause 4.1, where it is stipulated that teachers have 'an even greater obligation to plan lessons for pupils who have low levels of prior attainment or come from disadvantaged backgrounds' (DfE, 2014: 8). Socio-economic factors have therefore been marginalised within educational policy whilst other influences have been given greater attention.

This official line is in contrast to much academic literature which has argued for class and socio-economic status (SES) as the most significant determinants in academic (under)achievement (Boone & Van Houtte, 2013; Carr, 2008; Hempel-Jorgensen, 2009; Hill & Robertson, 2009a; Perry & Francis, 2010; Reay, 2013; Willis, 1977). My article draws upon that literature, focusing in particular on an overview by Goodman and Burton (2012), to explore the extent to which SES impacts upon attainment. With the correlation between class, SES and achievement mapped, I then concentrate upon the role of the National Curriculum, both current and new, as a key component in that dynamic. Finally, I explore options available to curriculum leaders to ensure that the impact of a pupils' SES on their educational potential is limited.

The Impact of Social Class and SES on Achievement

Under the influence of postmodernism in the latter decades of the Twentieth Century, the notion of 'class' as a social unit of inquiry came to be seen as too reductionist (Cole, 2006: 162). Instead, identities were deemed to be established around various categories of repression, such as ethnicity, gender, or disability (Cole, 2006: 163). This repudiation of socio-economic determinants, it could be argued, only served to conceal class as a legitimate classifier, rather than explain the inequality of opportunity that has divided British society.

Today, class and SES have re-emerged as justifiable categories, albeit with greater nuance: SES has begun to take on social, cultural and political features (Hill & Robertson, 2009a: 2). For example, in April 2013 the BBC encouraged the British population to take part in an online survey to place themselves within a new class system (Heydon, 2013). This new classification accounted for cultural practices and social contacts as well as means of employment. The classification process has thus moved beyond the purely economic to incorporate and account for a more complex matrix of influences. Relationships to centres of wealth, power, and the means of production are all still evident in this multi-focal lens, but class now requires multiple coordinates to be properly mapped.

Educational research has been very much part of this revival of SES as a legitimate social category (Kerr & West, 2010; Lehmann, 2012; Sveinsson, 2009). This has partly been in response to changes in the global economy alongside developments in the world of education. Throughout the 2000s successive government strategies have attempted to tackle the disparity between economically advantaged and disadvantaged pupils. Academies, Free Schools, the Fairness Premium and schemes such as Every Child Matters in 2003 have all been

well-publicised attempts to bring greater parity. Yet the persistence of endemic underachievement, as indicated by various measures, including GCSE grades or university entrance (Sutton Trust, 2010), has brought wider structural issues back into the debate. Class can now be seen, along with SES, in the titles of various reviews published in the last few years (Lambeth Council, 2010; National Union of Teachers, 2010; Sveinsson, 2009).

One of the most comprehensive reviews of these structures is an article by Goodman and Burton (2012) on the 'nature of the achievement gap'. Much of the literature on the achievement gap focuses upon inequity at secondary level, yet Goodman and Burton (2012: 501) make clear that social justice is just as relevant at the primary level. They argue that the coalition has focused on standardised assessment and accountability, which ultimately place blame on individuals, rather than addressing key structural issues behind inequality (Goodman & Burton, 2012: 506).

One of the strengths of Goodman and Burton's analysis is that it presents SES as part of a complex configuration. The term itself is shown to be ambiguous and difficult to demarcate, with eligibility for Free School Meals (FSM) often supplanting what are more intricate processes (Goodman & Burton, 2012: 502). The difficulties of definition create further issues for the study of class and SES in education. For example, the criteria for classification are irregular between researchers, leading to uncertainty and subsequent difficulties with comparison. Furthermore, Goodman and Burton (2012) acknowledge that SES as a category sits within an elaborate matrix of influences that can have damaging effects. For example, Reay (1991) has shown the extent to which gender or ethnicity can entwine with SES in powerfully oppressive ways. Yet despite this opacity we should not abandon SES as a category. Statistics on pupils eligible for FSM reveal systemic failures (Strand, 2010). For example, in 2012 there was a gap of 14 percentage points in English between students on FSM and their peers (DfE, 2012: 10). The results for pupils on FSM from schools targeted as below standard are even more serious (Sutton Trust, 2012: 8).

The complexity of the issue extends beyond definitions and classifications. Goodman and Burton's study focuses on the role of assessment and parental involvement on outcomes for pupils with low SES. Citing work by William and Bartholomew, as well as Reay, Goodman and Burton underline the negative impact that assessment and setting can have on pupils from disadvantaged backgrounds, who usually find themselves in lower ability groupings (Goodman & Burton, 2012: 502). Informing these decisions are teachers' judgements. Goodman and Burton cite Rosenthal and Jacobson's seminal study from 1968 that explored the fulfilment of teachers' low expectations of their working class pupils (Goodman & Burton, 2012: 503). More recent scholarship has further complicated this picture. Hempel-Jorgensen (2009: 446), for example, has examined the ways in which the 'ideal pupil' is constructed at schools. She argues that schools with predominantly high SES pupils differ markedly in their expectations of an 'ideal pupil' to schools with predominantly low SES pupils. Assessment, judgement and expectation therefore take place within very different sets of guidelines depending on the SES of the school population, which can have major repercussions on pupils' subsequent attitudes to learning.

The other main focus of Goodman and Burton's study is parental involvement in education. They show that SES influences the levels of parental participation as well as parental expectation (Goodman & Burton, 2012: 504-5). Work by Reay and others has further explored how heavily mothers in particular, as the parent more frequently taking responsibility for childcare, are conditioned by SES in their expectations (Reay, 2005). Reay argues that mothers with low SES manifest their support for their children's education in different ways to mothers with higher SES. For example, Reay found middle class mothers got involved in academic aspects of schooling while working class mothers contributed through their domestic labour (Reay, 2005: 109).

Goodman and Burton's study touches on a number of important factors that influence outcomes for pupils from disadvantaged backgrounds. Their main foci are assessment and parental participation, mainly because those are areas that the government has become more involved. Their intention is to challenge the individualization of educational achievement and propose a more systemic interpretation. Some of the papers they refer to unsurprisingly make reference to a body of sociological theory that attempts to illuminate that system. This body of work, I would argue, helps us understand one of the most significant factors shaping the impact of SES on schooling. It is so significant because it helps to explain the structures at work within the school. Much of the scholarship is inspired by the writings of the French sociologist Bourdieu (1960-2005), whose analysis of the functions powering the education system helped to explode the idea that schools are engines of social mobility. In fact, Bourdieu would argue that schools are deliberately the very opposite.

Recently, perhaps spurred by the post-2008 economic slump, Bourdieu has provided a helpful tool for an increasing number of socio-economic analyses of educational provision (Hill, 2009; James, 2011). His work is extensive and complex, and the subject of numerous overviews (Burawoy, 2010a; Grenfell, 2004). As such, I will summarise the most relevant parts of his theory to this discussion, and contextualise them within education studies.

Bourdieu sought to understand how dominant groups in society have been able to reproduce their dominance across generations. He argued that dominant groups achieved this through cultural taste (Bourdieu, 2010). Education was important in this process, and Bourdieu explicitly examined the education system and the role of the curriculum and pedagogy in perpetuating inequality (Bourdieu & Passeron, 1990). He argued that knowledge about culture, including ways of seeing and ways of behaving, is a vital determining factor in the ways that groups include and exclude. For Bourdieu, the accrual of cultural knowledge is akin to the accrual of any other type of capital that can then be exchanged, either for wealth or social status. In much of his writing Bourdieu acknowledged the role played by education in the passing on of this cultural capital, those ways of seeing and ways of behaving, from one generation to the next.

An important part of this process was the application of 'symbolic violence' (Bourdieu & Passeron, 1990: 7). Cultural knowledge that was not acknowledged by dominant groups as legitimate, such as the cultural knowledge of the working class, became the victim of this form of semiotic repression. Either through direct disparagement or more subtle classification, culture was sorted into legitimate and illegitimate. For example, legitimate culture is termed 'high' whilst illegitimate culture is termed 'low' or 'popular' (Bourdieu, 2010: 247). Bourdieu showed how the cultural capital required to enter the dominant class is concealed from those deemed undesirable (Burawoy, 2010b: 1). Effectively, education operates as a gate-keeper of cultural knowledge and, consequently, social status.

Yet education in the UK is, nominally speaking, universal, and theoretically offers equal opportunities to its pupils to succeed. However, even excluding the privately educated, there is still a great discrepancy in achievement between pupils from advantaged and disadvantaged backgrounds. For example, 53.5% of children with FSM at Key Stage 2 achieved expected levels, compared to 75.5% of children not on the FSM register (Perry & Francis, 2010: 5). It has been argued by Bourdieu, Passeron and others that this is because schools operate to a set of codes tuned to suit the dominant groups in society (Bourdieu & Passeron, 1990; Giroux, 1983; Grenfell, 2004). The values, ideals and philosophy that inform the practice inside a school are inherently the same values, ideals and philosophy as the dominant groups in society. For example, the cultural capital prized in schools mirrors the cultural capital prized by the middle and upper class, such as literature, theatre and ballet. Schools and dominant groups share views on the way that people should speak, and the way that they should act, including mannerisms and affects. These dispositions are not only preferred but also seen as 'natural' (Hill, 2009: 298).

Bourdieu calls this collection of values, behaviours and understandings that make up a person 'habitus'. He argues that 'when habitus encounters a social world of which it is the product, it finds itself "as a fish in water", it does not feel the weight of water and takes the world about itself for granted' (Bourdieu, cited in James, 2011: 3). The education system, constituting the curriculum as well as extra-curricular aspects, is therefore the water, perfectly harmonised for the middle class 'fish'. As such, middle class pupils are more likely to succeed within the current education system than those for whom there is a cultural distance from the expected norms. Through such means an 'achievement gap' appears.

This conceptualization of society has informed some radical but necessary critiques of educational policy, and helped to uncover a myriad of ways that pupils with low SES are further disadvantaged by an educational system that professes meritocracy. Reay has demonstrated how 'habitus' affects attitudes to learning in primary schools, and how the classroom operates as an arena for the working out of social difference (Reay, 1995). Others have shown how family life and school can either act synchronically or discordantly depending upon SES (Hoadley, 2008; Symeou, 2007). Much of the research has been conducted to expose the inherent mechanisms in schools that propagate inequality in wider society. A critical area where this happens is within the curriculum. In the following section I will explore the role that the curriculum has played in reinforcing disparity and contributing to the 'achievement gap'. Yet I will also argue that the curriculum contains possibilities for empowerment, provided that it is imparted judiciously.

The Role of the Curriculum

The exposure of the curriculum, as a component of social oppression, was initiated in the 1970s through work by Bourdieu, Passeron, Willis and Bernstein (Peim, 2009: 86). The mantle has been followed most substantively by a strand of scholarship known as critical pedagogy, which has worked to uncover social injustice at the heart of the educational system (Hill & Robertson, 2009b: 2). The bulk of this research, however, has focused upon secondary level (Ianelli, 2013). Yet with so much formative education taking place at the primary level, there is a strong argument that it is the primary curriculum that requires more attention.

Critical pedagogues, drawing on work by Marxist theorists such as Althusser and Gramsci, have argued that the curriculum can serve to reinforce inequality by promoting ideologies that benefit the dominant groups. As Bourdieu and Passeron have argued, the selection of material for inclusion in a curriculum is not objective, but what they call the result of a 'cultural arbitrary': an imposition of one culture's values upon dominated groups (Bourdieu & Passeron, 1990: 11). Through such propagation the status quo is effectively naturalised. Particular practices and knowledges that benefit dominant groups are normalised into a shared 'common sense' (Hill, 2009: 301). To critique those practices and knowledge is therefore made more difficult.

The selection of knowledge for the formal curriculum, alongside the value placed on that knowledge by teachers, combines to create the arena in which cultural capital can function best (Hill, 2009: 294). Furthermore, a national curriculum links the state into this process, adding a further layer of legitimacy and protection to the knowledge that has been selected (Hill, 2009: 296). Types of knowledge become hierarchised within such a system, with subjects such as Latin, or visits to museums, viewed more positively than woodwork, or trips to variety performance. This hierarchy is supported throughout the entire education system, led by expectations at universities.

The dynamics of this process vary from subject to subject. As a core subject, it is worthwhile considering how this practice embodies itself within the primary English curriculum. Peim (2009) has deconstructed the National Curriculum that is due to expire in 2014. For Peim, English is a subject that frequently espouses a reputation for freedom and creativity, yet is in fact a subject that has been an effective agent for domination since its beginnings as a discipline in the early Twentieth Century (Peim, 2009: 85). The elevation of particular cultural values begins in the Early Years, Peim argues, with the expectations placed upon speech. In nursery and reception, the language of the children is 'subjected to both scrutiny and improvement' to standards set by the dominant classes (Peim, 2009: 87).

Peim (2009: 88) also makes clear that no grammar system is objectively worse than another. Despite this, a set of grammatical codes and patterns of speech are privileged in all schools, and it is the grammar and speech patterns of the dominant groups in society that are able to enforce particular ways of speaking upon society. As Peim explains, 'non-standard language users are heavily penalised' and can find themselves playing catch-up in a system catered to others (Peim, 2009: 94). Peim extends his analysis to reading and writing, where he argues there is a taxonomy of the textual field which favours certain forms of expression over others (Peim, 2009: 90). For example, the requirement to study 'significant children's authors' speaks to a 'common sense' view that knowledge of who such authors might be is implicit and objective. However, the decision regarding inclusion in that vague list of writers is made by the dominant class, and is therefore anything but objective (Peim, 2009: 89).

Similar issues are evident elsewhere in the curriculum (Gutstein, 2006; Margalit & Garter, 2009). The importance of content selection was perhaps best demonstrated during the furore over the new history curriculum where, in a public spat conducted in the national press, the syllabus was criticised for being overbearingly national and Hegelian (see, for example, Cannadine, 2013). Borrowing the idea of cultural literacy from Hirsch, the Department for Education sought to establish within the new National Curriculum a bank of information to be shared and accepted nationally (Abrams, 2012). In early drafts of the history syllabus, this bank contained numerous references to events played out at the individual, elite level of British society, with significant figures such as monarchs, politicians and inventors providing the core focus. Popular movements and struggles barely featured. Under a barrage of academic criticism in the media the prescriptive list of national events and significant actors was gradually eroded.

This example goes to prove that concerted action at a national level has been able to face down hegemonic pressures and manipulate the curriculum into fairer directions. Even though the National Curriculum has been finalised and is ready to be implemented in September 2014 there remains the possibility of making it fairer still. However, I will argue that such battles need not be fought at the national level, but can just as effectively take place in the classrooms and the primary schools. Winning those battles can help with closing the achievement gap.

Firstly, as Giroux and others have argued, it is imperative that educators make themselves aware of the 'ideological interests embedded' within the curriculum, as well as the other value systems in the school (Giroux, 1983: 292). The ability to identify potentially alienating discourses is an essential starting point. Scholars have argued that, in order to combat the disjunction between schools and particular groups of disadvantaged pupils, the curriculum has to be taught in a way that does not demonise alternative knowledge (Carr, 2008; Gutstein, 2006; Hill, 2009; Peim, 2009). However, practicalities interfere with these intentions. With the various national summative assessments in place, certain standards are established at maintained schools that cannot be ignored.

In English, Peim argues there is a way to square this circle. Rather than enforcing a singular expectation of language, one should teach language as a flexible entity, where context is a crucial component (Peim, 2009: 91). For example, alternative forms of expression should be celebrated so as not to disparage forms of communication that may be practiced in the pupils' local community. Similarly, it is important to teach pupils about 'subject positions' and how meanings are generated and manipulated (Peim, 2009: 92). Such a project has been conducted recently in France in an effort to explode gender stereotypes within much of children's literature (Barker, 2013). A similar approach to class-based stereotypes is necessary. In the new history curriculum there has been so much erosion that space has been made for more popular histories to be taught. While suggestions have been made in the curriculum as to what could perhaps be taught, there is nothing stopping a more people-focused Anglo-Saxon history that does not seek to valorise kings and nobles (DfE, 2014). Similarly, the opportunity to study ancient civilizations from around the world creates the chance to explore alternative sets of meaning and practices and helps encourage critical evaluation.

Indeed, the encouragement of a critical approach to knowledge is arguably the best foundation for a smaller achievement gap. Margalit, Garter and Gutstein have all worked on ways that mathematics can be used to work towards social justice by empowering students with critical faculties (Gutstein, 2006; Margalit & Garter, 2009). They argue that carefully selected examples can be used to solve mathematical problems. For example, statistics on world poverty or the wealth gap in Britain are all fruitful challenges in which data handling or fractions could be taught. Ideally these creative but irregular means of teaching the curriculum would be taught across the school. However, a recurring issue in much of this literature is the possibility for conflict at a school leadership level (Carr, 2008: 89). Kanpol warns critical pedagogues that changes to the curriculum in such a manner should 'be attempted cautiously' (Kanpol, 1999: 55). This is an inevitable obstacle when attempting to tackle the status quo.

While leadership in this field may be problematic, it is not impossible. As Brundrett and Anderson de Cuervas (2008) have argued, a recognition of social justice in school leadership training has extended from the merely implicit to the overtly explicit in recent years. However, the impact of these developments on pupil achievement has not yet been sufficiently assessed. For success on this front a staff motivated by social justice, who are eager to be constantly critical and creative, would be a good start. Burton and Brundrett (2005: 52) argue that leadership within the school requires trust, honesty, as well as clarity about any underlying philosophy. Elsewhere, Brundrett and Duncan, among others, emphasise the importance of reflective practice alongside a 'carefully staged process of change' (Brundrett & Duncan, 2010: 4). Challenging the status quo therefore requires sensitivity and a candid approach, and even then it may find itself up against obstructions.

Summary

This article provides a brief overview of some of the challenges facing curriculum leaders who aim to develop a more socially just school. It has agreed with the central premise of Goodman and Burton (2012) that structural issues require immediate attention rather than changes that address the role of the individual within those structures.

Many of the arguments relating to class and SES can also be applied to other forms of oppression that hinder equity in the education system. For example, there are normative positions of gender and ethnicity that can serve to surreptitiously and subconsciously exclude alternative positions. It should also not be overlooked that each of these issues exist within a far broader system of structural imbalance. The labour demands of capitalism combined with patriarchy and racism all present significant obstacles to a fairer society. These all make for an enormous challenge if we are to close that achievement gap, and we should not fool ourselves into thinking that schools offer a panacea.

However, this is not to say that schools cannot be part of the solution. I have tried to offer some pedagogical possibilities for action; to encourage the teacher to become an agent of change rather than merely an unwitting purveyor of dominant ideology. Awareness and creativity are necessary prerequisites for successful teaching of the curriculum. To integrate this type of approach on a school-wide basis would require an eager and motivated staff, as well as a sensitive and reflective leadership style that must be ready to deal with opposition. Without this motivation for change I do not believe that the achievement gap will do anything but grow wider.

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A Period Plan Using The Theme Working Method

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Introduction

This paper offers an example of a period plan made by using the theme working method. It starts by briefly defining the term theme working method and by explaining the advantages of using it in technology education classes. This is followed by a period plan that provides an example of how to use the theme working method in practice.

Key words: theme working method; design and technology; primary

A theme working method means that the starting point for the lesson would be a problem, a phenomenon, or a theme instead of the traditional style where the teacher shows an artefact that the pupils are expected to copy (Saari, 2013). In the theme working method example tasks could be asking the pupils to design a wooden game or a toy that needs wind to move (Kovanen, 2013; Saari, 2013). The theme working method involves pupils designing the product, deciding how it will be made, actually making it, and finally evaluating the finished product and reflecting on the entire process.

All these different aspects covered in the theme working method (designing, making, correcting, processing, evaluating) result in the pupils practising numerous skills during one project. Firstly, they will be developing their designing skills as well as their problem-solving skills when they are asked to come up with their own answers and designs (Huovila & Rautio, 2007). Secondly, they will have a chance to improve their social skills while working in small groups or in pairs. Also they will gain a better understanding of the content of the technology education by not copying the teacher's model piece, but by doing independent thinking while figuring out how they could make something work. All of these skills will most certainly be beneficial for the pupils in their future lives. Through self-evaluation the pupils will also be developing their meta-cognitive skills by reflecting on their own actions and decisions during the making process and making connections between those and the final product.

In addition to giving pupils all these skills, the theme working method can have an important role in encouraging girls to choose the technology education classes. A study by Virtanen and Ikonen (2011) found that girls and boys find different things motivating when it comes to technology education, as girls hope to make useful and aesthetic products and consider the environmental issues, whereas boys are more drawn to making electronic devices and enjoy working independently. Depending on the project, a theme working method could give pupils a chance to pursue their own interest.

An Example Of Theme Working In Technology Education

The following example of a theme working method in school is a period plan aimed for sixth graders. In this example, the task for the pupils is to solve a common problem in many schools: how to get people to put the paper towels in the bin instead of leaving them all over the floor. In this project, the objectives for the knowledge and skills of technology education are to use the materials wisely, ecologically, and economically, and to make use of the skills the pupil has practised and learned during her other primary school years. For the designing skills pupils are aiming to design a product that can be manufactured easily and that serves its purpose in helping the paper towels to end up the bin. With the working skills, the pupils aim at practising their group working skills, working towards a certain task, and perseverance in finishing the work. As with the working skills, the educational skills also include practising social skills and group working skills.

To start the project, the pupils are first presented with different problems inside the school that have been solved in different ways. An example might be a fence that was built to protect the small garden at the school yard, or a door knocker that was built for the teachers' room's door to help the teachers to hear the knocks. After talking about these problems the teacher asks the pupils to go into small groups (3-4 pupils per group) and announces that he or she has a problem for them.

After the pupils have made it into their groups, the teacher presents a picture of the washing basins and the bins next to the school canteen. As it can be seen from the pictures, instead of having all the paper towels in the bins, they are scattered all over the floor around the bins. The pupils' task now is to improve the binning system so that the papers would end up in the bin, not around it. Posters, praises, and threats have proven to be ineffective in the school, therefore other methods are needed.

Before the pupils get to start planning, the teacher presents them with some information about the materials, techniques, tools, and machines used in this project. The pupils are not given concrete material limitations, but they are told that their design must be cheap to manufacture and easy to copy, in case it works so well the school would like to use it for all the bins in the building.

Having cheap materials is crucial, since the school would rather use its money on new technology, iPads, and other useful things for the pupils rather than putting money into bins. The teacher deals out these instructions on paper as well, with some questions the pupils can later use to evaluate their final plan. These questions are:

1. Is the product ecological and economical to produce?
2. Is it possible to produce in the technical work classroom?
3. Does it serve its purpose?

At this point the teacher also tells the pupils that their ideas will be used in front of the school canteen so that they can be tested in authentic circumstances. Depending on the class, a small competition on which bin has least paper towels around it could motivate the pupils. Instead or in addition to the competition, the teacher can also say that after the test period the pupils will have a chance to fix their product, if they see that it is not working in a desired way. The other motivational factors in this project are the chance to try to fix something that the school staff has not been able to fix and the chance for the pupils to use their own problem-solving skills.

After the teacher's introduction, the pupils can start the planning. The pupils will keep a learning diary throughout the period which will record their thoughts and ideas. When they start, they are asked to use the lotus model. In this model, the paper is divided in four or more squares. The pupil will draw his or her design on one of the squares and then passes the paper around to three of his or her classmates to let them give some feedback about the idea. Each pupil will use one of the squares left to draw or write some ideas, questions, or improvements about the original idea. That way the pupil will receive feedback not only from the teacher, but from the peers as well. After everyone has had a chance to design and comment on others' designs, the pupils will decide in their groups how they are going to solve the given problem. Because of the lotus model, the groups now have several ideas to choose from. Their solution can be one of the ideas from their papers, or it can be a combination of two or many. This is where the pupils will be practising both their designing skills and their social skills while planning the final product in a group.

Before pupils get to start building their final project, they must present their plan to the teacher to make sure it is realizable. In this project the pupils are also encouraged to check the instruction paper given to them earlier and to make sure their design ticks all the boxes. When the pupils present their ideas, the teacher should take notes about the different methods and techniques the pupils are going to need for their project, so that he or she will know what machines and techniques he or she needs to go through with them later.

When the plans are ready, groups can start constructing their designs. As mentioned, the pupils or groups can have very different starting points and can need different machines for their work, but it is still important to teach the principles of the machine usage to the whole class. This is where the teacher's notes will help him or her to decide which machines to go through with the class. Since the project is for sixth graders, it is expected that they are already quite familiar with most of the machines and therefore only need revision with the usage and safety procedures. In case new machines or techniques are needed, a bus stop method would give pupils a chance to practise these new techniques before using them in their project. A bus stop method involves the pupils moving around the classroom in small groups from one stop to another and where each stop has a different machine or technique they will get to try and test their skills.

While building their designs, the teacher will help and guide pupils, but does not take the responsibility for the final product and its design. When all of the groups are ready with their products, the works are put in front of the canteen and the pupils get to see how their product works in real life. After examining it in use, the groups will talk about how their design worked, what was good in it, and what they would do differently. In addition to this reflection, the pupils would also individually fill out a self-evaluation sheet. The sheet has different statements and the pupils will grade the way the statement fits to them using a scale from one to five. Figure 1 presents an example of a self-evaluation sheet.

Self-Evaluation

Name: _____

Circle the number that suits you the most (5: strongly agree, 4: agree, 3: neutral, 2: disagree, 1: strongly disagree).
Explain your answer on the lines below the statement.

1. I enjoyed working with the project: 5   4   3   2   1

Why/why not?

_____

2. I was an active member of the group: 5   4   3   2   1

How was your activity shown?
If you did not feel like an active member, why not?

_____

3. I learned something new: 5   4   3   2   1

What did you learn?
If you did not learn anything new, what was the reason?

_____

4. I used materials wisely: 5   4   3   2   1

How? If not, how could you have used them more wisely?

_____

5. I used the machines wisely: 5   4   3   2   1

How? If not, how could you have used them more wisely?

_____

Figure 1. Self-evaluation sheet for a pupil on a technology education course project.

Teacher's evaluation would be based on notes taken during the designing and manufacturing process, the final product, the reflective notes about the finished product, and the self-evaluation sheet. This way the assessment would not be based on the final product only, but on the making process as well (Leponiemi, Virtanen & Rasinen, 2012). If possible, the teacher would give written feedback for the pupils. If the school requires numerical assessment, a good grade (8) would be given for a pupil who has worked well in the team with a good attitude, has practised the existing skills and possibly challenged himself or herself by trying something new, has used the materials and machines wisely in the classroom, and has shown the ability to analyze the final project and his or her own working with it.

Conclusion

As can be seen from this paper, the theme working method has some significant advantages when compared to the more traditional way of teaching the technology education. In the example period plan the pupils will be practising skills they would not be practising in the typical model of technology education teaching where the teacher presents a model artefact the pupils are expected to copy. Here, the pupils will be designing their own piece. They are also asked to consider the ecological and economical aspects of their design. The pupils will be working together, therefore practicing their social skills and group working skills. Through the self-evaluation and a learning diary the pupils will also be making connections between their own actions and the final product, therefore practising their meta-cognitive skills. Although the theme working method can seem challenging to use at first, the benefits for using it are undeniable and can lead to valuable results.

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Knowing where the shoe pinches: Using the Mental Model Mode to understand how Primary pupils can design intelligently

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Abstract

This paper uses the English proverb, "Only the wearer knows where the shoe pinches" (Scheffler, 1997: 73) as a metaphor for the often hard to explain difficulties that individual Primary pupils can face when meeting design challenges. Blisters on toes and heels are hidden beneath the firm leather of the shoe just as the obstacles to designing are embedded in internal, idiosyncratic mental models. Mental model theory provides a theoretical exegesis of the individuality that emerges when pupils seek to respond to authentic problems in Design and Technology.

But, an explanation of the originality of process and product is insufficient if pupils are either stultified by mundane tasks or stalled by their own inability to complete the design process due to cognitive 'blisters'. The Mental Model Mode (Mode) (Edwards-Leis, 2012) explains what happens when pupils are encouraged to take off their cognitive shoes when they pinch and how to deal with the blisters that impede progress. The Mode emerged from a longitudinal research project into primary pupils' mental models of problem solving in robotics (Edwards-Leis, 2010). It comprises six mental model functions and its efficacy to explicate the problem-solving process was validated through tests with pupils.

This paper continues its exploration of pupils overcoming challenges in designing through a critical discussion of how the Mode can contribute to centering Fry's (2009) design intelligence in general education. The Mode delineates a pedagogical approach to Design and Technology that foregrounds metacognition and celebrates the diversity of individuality of thought because it helps to investigate thinking (Freire, 1972). The clarification of a pupil's nature of thinking enables them to walk freely and be risk-takers; creating unique ways to view, critique and redesign the future can only emerge from a greater understanding of how individuals solve problems and design intelligently.

Key words: mental models; cognitive blisters; design intelligence; problem solving; metacognition

Introduction

This paper outlines mental model theory and specifically the Mental Model Mode (Edwards-Leis, 2012), a construct that has been tested to explain the problem-solving process used in designing. It then folds Fry's (2009) design intelligence into a pedagogical approach that involves problem solving and reflection – where meta-cognitive activity is used to add to the process of being reflective interrogators of self. This approach to problem solving in design and technology not only demonstrates how we idiosyncratically deal with problems but how we bring latent knowing (Polanyi, 1966) to all that we do. A richer understanding of what is really going on in pupils' heads as they address design problems may provide a more interesting path for them to follow: a path that lets them walk freely into new ways of thinking without developing cognitive blisters that arise from unnecessary repetition and ill-fitted tasks.

Mental Models

Mental model theory evolved from an interest in how information was processed in problem-solving situations particularly those that involved some interactive artifact such as a computer. Craik (1942) developed the theory to explain the possible differences in interpretation of systems when computer users attempt to interpret the system model created by the designer. Studies since that time (Barker, van Schaik & Hudson, 1998; Edwards-Leis, 2013; Halford, 1993; Henderson & Tallman, 2006; Johnson-Laird, 1983; Norman, 1983) have continued to investigate the processes used by individuals as they negotiate successful solutions to problems or challenges when interacting within a system or domain.

Mental models are of particular interest to educators because of their bimodality (Edwards-Leis, 2010) and there is a 'chicken and egg' type argument about what comes first: an individual will create, retrieve and/or re-work one or several mental models in order to solve a problem the solution of which guides the formation of a remodeled mental model. As a product, they are purposeful cognitive structures that function as storage facilities (O'Malley & Draper, 1992; van der Veer & Peurta-Melguizo, 2002); they are stored in long-term memory and are related or connected to many other models, cognitive structures such as schemata (Johnson-Laird & Byrne, 1991) which are static, and the senses. An individual will create, store and retrieve a mental model idiosyncratically in accordance to the individual's perception of its trueness, its relevance to the situation and its usefulness to achieve a satisfactory outcome.

Mental models also have a process function (Carroll & Olson, 1988; Halford, 1993) where they act as centres for solving problems (Johnson-Laird, 1983; Newton 1996) thereby enabling an individual to perform in novel situations with real world phenomena. The context is important because Halford (1993) argued that mental models used to solve problems reflect the structure of phenomena in the environment within that context. Such phenomena could include situations, events, tasks, problems, procedures or a concept with which an individual is faced. Halford (1993) concluded that if we, as problem-solvers, correctly or incorrectly understood the phenomena then we would have a respective correct or incorrect mental model of it. The reason that incorrect mental models are stored is that they are seen as purposeful; an individual retains mental models that are 'true' for them.

The inaccurate or incorrect nature of mental models that Norman (1983) explored helps explain why we hold fallacious facts, wrong ways, and imprecise information. This "inaccurate/functional nexus seems paradoxical" (Edwards-Leis, 2013: 24) but Senge (1992) explained that such a multifarious nature allows us to carry the complexity of life's details in our heads. Williamson (1999) suggested that we do not need a have a complete conception of a phenomena or system in order to act. Johnson-Laird (1983) agreed with Norman (1983) that they can be incomplete and be parsimonious but they are, nonetheless, useful. Inaccuracies in mental models can arise from a multitude of circumstances including social and cultural nuances (Vosniado, 2002), beliefs (Norman, 1983) and experiences, personal perceptions and superstitions that may actually help to anchor a mental model.

The bimodality of mental models has implications for teaching: incorrect mental models may be difficult to manipulate and alter due to the strength with which they are embedded in our ways of knowing. However, it is this very strength of caching that serves to make learning more rich and memorable (Edwards-Leis, 2013). To conclude, mental models help us express what we know (Jonassen, 1995) and form the basis of all of our behaviour (Barker, Van Schaik & Hudson, 1998). Senge (1992) suggested that we do not just have mental models – we are our mental models.

The Mental Model Mode

The Mental Model Mode (Mode) (Edwards-Leis, 2012) shown in Figure 1 was designed from the six functions of mental models including explaining, diagnosing, predicting, recalling from memory, communicating and controlling. The Mode explains the mental modeling that occurs when individuals are faced with novel problem-solving situations.
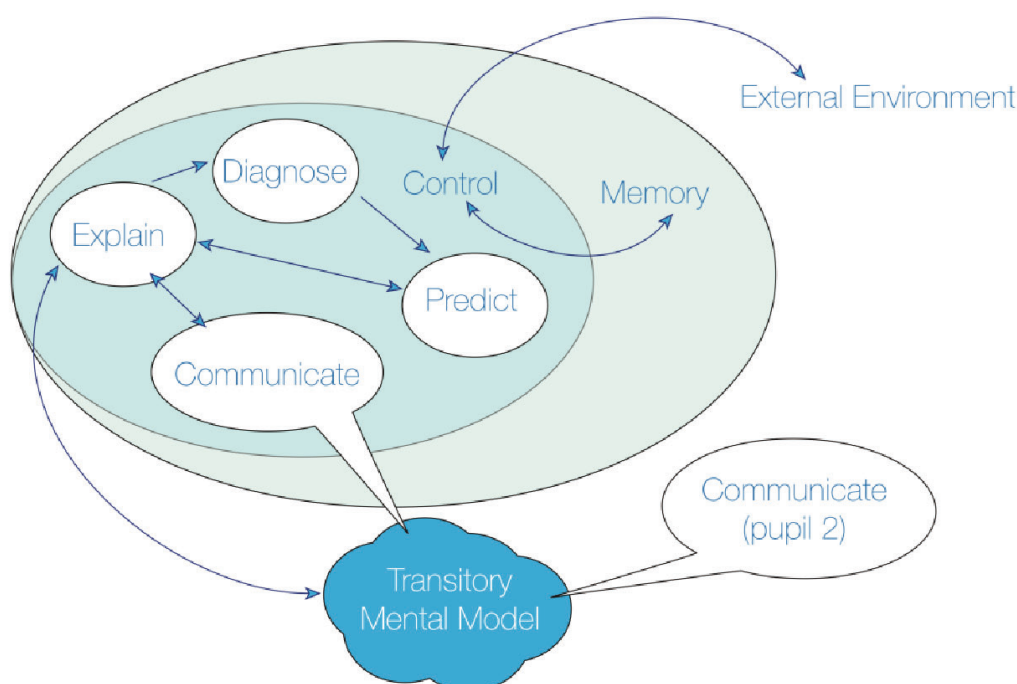

Figure 1. Mental Model Mode

A synopsis of the functions explicates their successful collaboration in seeking solutions. Explaining what is understood enables individuals to find meaningful connections between concepts, knowledge and procedures so that they can select strategies by "facilitating cognitive and physical interactions with the environment, with others, and with artefacts" (Henderson & Tallman, 2006: 25). Predicting what might happen empowers an individual to forecast how a system or a strategy selected to solve the problem will work (Johnson-Laird, 1983; Norman, 1983). This function differentiates mental models from other cognitive structures, such as schema, that do not account for novel situations encountered. Diagnosing exercises an individual's meta-ability because it enables a testing of the success of the chosen strategy alongside the individual's capability to deliver the required knowledge for its application. This function relies on an understanding that the individual may be working with a mental model that does not allow them to assimilate the new concepts required to complete the task without further guidance or assistance (Royer, Cisero & Carlo, 1993).

The memory function highlights the bimodal nature (Edwards-Leis, 2013) of mental models because of their transience in working memory while they are being run and permanence in long-term memory when stored (Gentner & Stevens, 1983; Henderson & Tallman, 2006). How well they are stored relies on the logic and interrelatedness of an individual's network of understandings (Henderson & Tallman, 2006) fashioned when the mental model is created and stored. Communicating enables individuals to see and understand the mental models of others because they facilitate the communication processes of writing, reading, talking, and listening while thinking through problem-solving situations (Barker et al., 1998). Communication enables an individual's transitory mental models to become evolutionary repositories for the exchange of ideas (Edwards-Leis, 2013). Each partner to the exchange will incorporate selected aspects of the transitory mental model into their evolving mental models. Controlling is the overseer of the other five functions and coordinates, consciously or unconsciously (Henderson & Tallman, 2006) their performance then evaluates the effectiveness of selected strategies.

The validity of the Mode to explain problem-solving processes was established through a study with 11 year-old pupils in a London school who were given a design problem to solve. Their brief was to design something that would be of use to an individual who was commencing Secondary school and the guidance provided enabled them to interrogate the context and assess their efforts including the artifact's user, purpose, and function. They also were required to consider design decisions such as materials, components and production as well as how innovative the product was and whether it met an authentic need. The four participants were filmed while working and were asked to think aloud or talk to each other while working so that their thoughts would be exteriorised. On the same day that the participants were filmed working to solve the problem, the video was played back to each of them individually, using Stimulated Recall Methodology to gain the in-action thoughts. This interview protocol allowed the functions being used to solve the problems to be exteriorised and analysed so as to confirm the use of the Mode to explain problem-solving processes.

What was evident from the study was that encouraging pupils to engage in problem solving in design offers a significant opportunity for them to explain how they interact with the world to solve challenges. The data also indicated that individuals operate in heterogeneous ways during the design process even while working together, simultaneously, to reach a shared goal. A greater understanding of the individualistic approaches for the teacher and the pupil themselves would enable a greater emancipatory potential (Welsh & Dehler, 2001) for learning. This study of how the Mode can be used to externalise the cognitive processes used in problem solving in design through the pursuit of relevant challenges highlights the idiosyncratic or 'un-uniformity' of what really happens when individuals problem solve. How the Mode can be used in classrooms to understand, diagnose, remediate and celebrate individual cognition and meta-ability while they navigate pathways through learning experiences has the potential to give some structure to the "common reflection and action" (Freire, 1972: 44) necessary for co-intentional and sustainable education.

Cognitive Blisters

The Mode has the potential to unlock what is happening cognitively in the problem-solving process that promotes designing for learners and their teachers. It contributes significantly to the understanding of metacognition which is more than simply having an awareness of how we learn. Royer et al. (1993: 226) provided a succinct definition for and some guidance about metacognition when they described it as "one's capability of governing and being aware of one's own learning". It is the governance of the thinking process and the deployment of "strategies to enhance and problem solve situations when there is understanding failure" (Henderson & Tallman, 2006: 28) that foregrounds meta-ability in pedagogical practice. Learners, with guidance from teachers, can map the functions in the Mode to useful processes such as diagnosing and explaining. Royer et al. (1993) suggested that the development of these meta-skills should begin with a diagnosis of what the learner already knows. Once the learner and the teacher have established this, the learner can retrieve information from long-term memory or control the redemption of procedural or declarative knowledge from their environment in order to utilize the necessary strategies to match the demands of the task. This matching requires the learner to predict the likelihood of the success of those strategies. Monitoring this success (or otherwise) is necessary so that the learner can plan the use of resources (for example time, knowledge, materials) effectively and efficiently. Haycock and Fowler (1996: 28) found that mental models were a "convenient mechanism with which to consider how we acquire knowledge, achieve understanding, and generalize problem-solving skills to make them available to different situations and develop metacognitive skills". The Mode is, therefore, significant to the learner for the enhancement of metacognition through an understanding of the purpose the functions serve in delivering solutions to novel problems.

The control function, while governing the operative effectiveness of the other functions, also serves as a warning bell when a learner is stalled in the problem-solving process. We can only guess what is really happening in pupils' heads: a learner themselves knows best whether, or not, they have the capacity and capability to complete a task successfully. In order to be successful, an individual is required to control the recognition, selection and retrieval of knowledge from the internal or external environment to meet a challenge. But, the idiosyncratic way in which knowledge is stored, sometimes erroneously, through links created by the individual may make these processes problematic. What also may be difficult for the learner is expressing what is known or thought. Polanyi's (1966: 4) discussion of tacit knowing where "we know more than we can tell" indicated that knowledge can be deeply personalised. Polanyi (1966) explained that a pupil will approach new knowledge with an acceptance of a teacher's authority, or view of knowledge, in order to start creating meaning for themselves. Such an act, understood metacognitively, will ensure that the pupil can continue to control the recognition, selection and retrieval of knowledge according to their perceived needs to complete the task.

Teachers understand that the pupils who are undertaking challenges in design and technology, particularly at primary school level, will 'copy' what they see as being desirable by the teacher. A meek acceptance without awareness of the 'authority' given to the teacher's model can be a unexpected consequence of the imperatives of Wiggins and McTighe's (1999) Backward design method where knowledge is transferred and applied by pupils with the use of scaffolds provided by the teacher. Often, such design activities are repeated in a similar way to processes and application of concepts in mathematics that are repeated in order for them to be internalized and remembered.

The mundanity of repetitious tasks which are either ill-designed or designed to keep pupils busy replicating the design of a teacher may also contribute to stalled learning or cognitive blisters where pupils' enthusiasm for learning is rubbed raw by exposure to monotonous missions. Such tasks thwart progress on the learning journey because the "lle" or "life, learning, excitement" has been taken out and the task leaving a pupil to simply undertake "changes" to designs put forward by others. Educating teachers and learners to be aware of how they control their problem solving functionality is essential and part of the meta-ability that they can develop through design and technology education.

Design Intelligent Activity

Fry (2009) was critical of design theory that has a limited focus on the design act itself and the economic and cultural products of such action. He stated that humans are simply too many and that "there is a pressing need for the way we human beings live, act and engage the world around us, to change" (Fry, 2009: 12) due to our sheer numbers. The only way forward is to develop design intelligence where sustainment becomes the focus of our development through "design made with sustain-ability" (Fry, 2009: 12). The Mode can contribute to placing Fry's (2009) design intelligence firmly in education through its focus on control over individual thought and how it allows teachers and pupils to both investigate the thinking process and understand the potential to control those processes.

Fry (2009) admitted that aspects of design intelligence have been around for a long time due, in main, to their inherent link to craft. Resolving design problems through the machine, and now the digital, ages required an increasingly high level of tacit knowledge (Fry, 2009) which Polanyi (1966) would call tacit knowing. Such implicit or latent ways of understanding would account for how any design problem would be validated, approached and solved along with the knowledge of any implications embedded in the solution (Polanyi, 1966). Design intelligence, promoted by Fry (2009: 12) therefore, has the potential to inform all educative practice because it would lead away from content that "inducts learners into unsustainable ways of thinking and acting" and instead become a life skill.

The ethical issues of design as a problem-solving process are often touched on lightly particularly in the primary curriculum where design and technology classes involve creating solutions to problems. Most primary educators would promote sustainable practice given the current focus on recycling and reusing. But is this sufficient to engage learners in the critical thinking required for problem solving in the twenty-first century. Fry (2009: 3) described design as being "bonded to a human-initiated act" and that it "takes on a determinate life of its own – designed things go on designing". So, contemplating how the things we encourage pupils to create to solve problems continue to act beyond their function (Fry, 2009) would be that part of our tacit knowing that Polanyi (1966) saw as the consequences or implications of such solutions.

Fry (2009: 12) saw design intelligence as involving the ability to "read the qualities of the form and content of the designed environment" as a "mode of literacy acquired by every educated person". It would engage pupils in aspects of critical literacy which also looks at the practices of everyday life but through the use of linguistic media to analyze and critique the various norms, systems and practices of those social fields (Luke, 2004). It is, unashamedly, political and originally had the aim of social justice for communities who had been marginalised or disenfranchised (Luke, 2012) such as those supported by Freire (1972: 44) who propounded "common reflection and action" as necessary for learning. Freire (1972) like Fry (2009) described the consequences of any action becoming the object of critical reflection and through such interrogation forming authentic praxis. Fry's (2009: 174)

reflective interrogation of knowledge would allow teachers and their pupils "to begin to identify what one has formally and informally learnt and what, in hindsight, can be seen as 'induction into error'".

Such errors can be unintentional and perhaps not dissimilar in effect to the ignorance that perpetuated the 'systematic education' that Freire (1972) said subjugated the working classes by social systems that evolved over time. Reflective interrogation is part of a re-educative process that allows the unsustainable to be eliminated from action (Fry, 2009) and such meta-activity can be developed through the Mental Model Mode as a method used by teachers and pupils to develop critical understanding and control of their own thought processes in problem solving.

In Conclusion

The Mode is a proven explanation of thought processes used in problem solving and, as such, can enhance greater pupil metacognition. The control function governs which mental models are run and what knowledge is retrieved enabling individuals to become purposeful reflective interrogators of self (Fry, 2009). The control function also enables the individual to be more aware that they can know more than they can tell (Polanyi, 1966) and that such latent knowing may contribute to how they validate, approach and solve design problems. Teachers can use the Mode with learners to improve their meta-awareness thereby enabling them to gain a conscious realisation of self and of how what influences them (spiritual, social, personal, familial) will be incorporated into their ways of knowing, designing and problem solving. It provides the structure for rich communication with others about how we think. The Mode incorporates the 'fact' of individuality and that any resolution to a problem is going to be imbued in some way by that which is us.

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Reflection

Reflections on a special enhancement placement:
A PGCE student's weekly email reflections to her academic tutor

Sue Keegan
St Mary's University, UK

The Reflection in this edition was written by PGCE student, Sue Keegan, while on her enhancement placement and comprises four emails written to her personal tutor at St Mary's University. Students were required to keep a reflective journal during this placement and Sue decided to send her reflections for the journal to her tutor so as to create a 'real' audience for the story of her learning journey. The entries have been recorded in full but with identifying names of pupils, teachers and the school removed.

Enhancement Placement Week 1
Saturday 25th January 2014, 6.27pm
To: Christine Edwards-Leis <christine.edwards-leis@smuc.ac.uk>;

Hi Christine

Just thought I'd let you know how I'm getting on at my enhancement school. This first week has whizzed by and there has been so much to take in I've hardly known which way to turn.

The school takes boys with a variety of Special Educational Needs (SEN) (mainly Dyslexia, Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD)), who have not coped in mainstream. My Class Teacher Mentor (CTM) is head of Year 7 but teaches mostly Year 6 classes. Boys are taught like the secondary students, i.e. moving to a different teacher and room for each lesson and having a separate form tutor for registration in the morning and afternoon.

I have been blown away by the individualised support each boy gets. They have the most amazingly powerful database which sets out for each boy what his current weekly challenge is (this could vary from anything from being able to split out the phonemes in a five-phoneme word to being able to sit upright for the first 10 minutes of the lesson), based on targets derived from their annual review. These challenges are shown on the register for each lesson and reinforced at some point every lesson. Boys see their mentor once a week to review progress on these challenges and set new ones. These and academic subject targets can be accessed via the database so they can be built into planning. They adopt a skills-based approach and each subject area sets out several target skills and different levels for each skill, each of which is signed off by the subject teacher once attained. This all feeds into termly reports to parents and back into the annual review process.

This has been an unusual week as the whole school has had exams/assessments so I have not seen a full week's teaching. However, from what I have seen so far, the boys are taught in classes of 10-12 and the individual needs of the boys in each class varies widely. Many of the boys cannot read so there is a lot of use of discussion (hard but good for the boys with ASD), pictures/drawing, matching games, treasure hunts, etc. A lot of thought is put into ensuring the boys can access the learning and that where reading/writing is not the Learning Objective (LO), this is avoided as much as possible. There is a lot of emphasis on making the learning meaningful.

Once a fortnight they have a day of cross-curricular teaching called Flexi-Friday, where all the boys in Years 4, 5 and 6 are put into mixed age and ability groups. This week the topic was 'Stories from around the world' and used the stimulus of two stories, one from Australia and one from Africa, to write poems and alternative endings, make animal masks, Aboriginal style paintings, African style 'cave' drawings and branching databases of animals.

The main area where I feel I have learnt a lot this week is behaviour management. I observed and took part in a brilliant music lesson, teaching rhythm and then moving on to playing a simple tune on brass and percussion instruments (all boys have to learn to play an instrument). The specialist music teacher (unqualified) took a class of 23 Year 6 boys with hugely varying needs and had them eating out of the palm of his hand through a combination of firm expectations, immediate rewards and sanctions and great humour and wit, as well as practical activities involving everyone and an element of competition, which the boys love.

The school has a very well thought out and monitored Behaviour for Learning system, which is used across the school. The training director here has kindly included me in the school's Newly Qualified Teacher (NQT)/new teacher induction programme and this week it was about this system. Any rewards given are recorded on the database so that form tutors can reinforce the praise during tutor time at the end of the day. Similarly, any censures (called consequences) are dealt with swiftly through lunchtime or playtime detentions or in mentoring sessions. However, staff are always at pains to ensure the boys take responsibility for their actions and take part in deciding what sanctions/actions should result from their behaviour so that they feel they have control over their learning.

I have really been impressed by the extremely positive learning environment at the school and how the teachers convey that they want the best for each boy even when telling them off. From talking to some of the boys, many of whom had had very negative experiences of education before coming to the school, they all seem to believe that the teachers at the school understand them as individuals and have their best interests at heart.

One thing I have found really interesting is how minimally documented the lesson planning is and often how last minute it is. My CTM says she tries not to plan more than a day ahead, so that she can address misconceptions as they arise. She clearly knows the individual needs of the boys very well and is creative in putting together a plan at the last minute involving minimal resources but addressing the key issues. The learning appears to be effective. I saw a great quote framed on the wall, which I think sums up the school's ethos very well: "The important thing is not so much that a child should be taught but that he should be given the desire to learn".

Sorry to have waffled on at such length but I have found this week quite inspiring and am really looking forward to getting stuck in to some teaching next week.

Hope you have a good weekend.
Best wishes
Sue

Enhancement Placement Week 2
Saturday 1st September 2014, 7.15pm
To: Christine Edwards-Leis <christine.edwards-leis@smuc.ac.uk>;

Hi Christine

Hope you have had a good week.

Teaching here has returned to normal after last week's exams and my lovely CTM put together a timetable for me so I could observe other teachers teaching foundation subjects, as well as help her teach the core subjects. I have also been able to observe interventions in the Learning Development Centre (LDC) including speech and language therapy, literacy skills teaching and occupational therapy, which was fascinating

One highlight of the week was attending a twilight seminar on supporting children with literacy and language difficulties. This was part of an outreach programme the school runs, providing seminars free of charge to local school Special Educational Needs Co-ordinators (SENCos). I picked up some brilliant tips and ideas for enabling children to access activities involving reading, writing and sequencing, using colour, pictures and model-making amongst other things. I shall definitely aim to use some of these strategies in my teaching.

The main things that I learnt from this week were to do with individualised learning and (yet again!) behaviour management. From teaching Year 6 maths and English, I was able to get a much better understanding of the individual needs of the boys in the class and could see how it is even more crucial for these boys to have a good grasp of this to inform my teaching. For example, I taught improper fractions and mixed numbers in a visual way using shaded shapes, thinking that this would be easier for all of them. However, some of them just could not understand it when presented this way but could, for example, understand it numerically or using a fraction wall. From this I learnt that there is not a 'one size fits all' solution to teaching any topic and that I need to have a variety of approaches at my fingertips to enable them all to make progress. I also found that I needed to be more flexible and adapt (or even abandon!) my teaching plan when faced with their misconceptions. I was also surprised by the variety of misconceptions I came across, the result, I imagine, of years of not really being able to access lessons in mainstream. Although it takes me out of my comfort zone, I am starting to understand why my CTM leaves planning to the last minute and finds it pointless to spend a lot of time documenting it. Instead, she just has a vague learning objective in mind but does not share it with the class explicitly, as she wants them to dictate the pace of the learning.

My time in the LDC gave me a great insight into the severity and variety of the boys' difficulties. I observed speech and language therapy aimed at improving the boys' memory, sequencing, descriptive and categorising skills as well as social skills activities such as turn-taking games and literacy skills interventions to aid reading and spelling. The most interesting LDC session was an Occupational Therapy (OT) sensory integration session where the boys used stretchy body suits to exert deep pressure to calm themselves and scooter boards to improve upper body posture. It was amazing to see how much calmer the boys were following these sessions.

My scariest but most informative experience of the week was being asked to cover a Year 5 literacy session for a class of boys I did not know. Suffice to say that the lesson did not go according to plan and my behaviour management strategies proved ineffective. Discussing it with my CTM later, I was reassured that they are a notoriously tricky class, whom even she finds difficult to manage. She also said that one lesson she has learned is that you cannot *control* behaviour and it may not be a result of your teaching but could stem from playground issues, personality clashes, home life issues, or just a child having a bad day. The only thing we as teachers can do is remain calm and be consistent and fair. She finds it helpful to avoid confrontation and work around the child, always offering choices while being clear about the consequences of each choice, so that they feel they have some control.

By the end of the week, my CTM and I were on our knees. Another reason she gave for avoiding over-planning is so she has enough time to rest. I have found in mainstream that I cannot teach well unless I am well rested but this seems even more important here, where it is crucial to maintain a calm and positive demeanour at all times.

Apologies for yet another epic. This placement is being so thought-provoking. Having initially wanted to come here so that I could steal ideas for mainstream, I am finding myself increasingly drawn towards the special school sector and am in two minds about it at the moment. Any advice would be gratefully received!

Best wishes
Sue

Enhancement Placement Week 3
Saturday 8th February 2014, 5.03pm
To: Christine Edwards-Leis <christine.edwards-leis@smuc.ac.uk>;

Hi Christine

Hope you are well and have had a good week. Week 3 here has been as busy as ever, not least because there has been a lot of teacher absence due to illness, so lots of last minute cover required.

There has been more to learn about behaviour management this week. I have been able to observe lessons taught by the other Key Stage (KS) 2 teachers and see some different styles of teaching. These have varied from the very strict and more controlling to the firm but more relaxed and flexible. I find that the boys do not react well to very rigid teachers and tend to push against this, resulting in confrontation and upset. However, those who show they listen to the boys' concerns and are willing to adapt if necessary seem to get better results, even if they then decide they will not make any changes. The key seems to be to show you are genuinely listening and to explain your reasoning, whatever your decision. I think some of the boys have had so much experience of being dismissed as troublemakers that it is important to gain their trust in this way.

This week's staff training session was about tracking LDC interventions for occupational therapy, speech and language therapy, and literacy and numeracy interventions. The target skills in each area are determined for each individual boy and colour coded from red (weakest) through the rainbow to violet (strongest). All staff have access to the system and can record progress after every session. Parents can also access this system remotely to see how their son is progressing. This method of tracking has also recently been adopted for all other subjects and has replaced national curriculum level tracking in the school, the first example of such a system I have seen. It also focuses teachers' planning much more easily on target skills.

I taught maths to Year 6 all week. The topic was time and we covered digital format, am and pm, 24 hour clock and calculating the difference between two times. My main learning from this has been about the importance of differentiating. Even in this small group, the range of abilities was huge; from the boy who could not even grasp that the first two digits represent the hour and the second two the minutes to the boy who knew most of the content of my lessons already and who needed moving on to interpreting timetables. You really do need to have thought about a wide range of individualised activities, much more so than in mainstream. I enjoyed the experience of seeing a topic through and am starting to feel more relaxed as I get to know the boys better. I have also been developing the confidence to be more flexible with deviating from my plan, due to unexpected interruptions (boys from the parallel maths class coming in to take polls for their work on data handling!) or needing to work on an unexpected misconception. I also noticed a big difference in the boys' ability to focus in the afternoon compared to the morning. If I was planning this series of lessons again I would definitely aim to do something more hands on in the afternoon sessions.

Physical Education (PE) is set by motor ability. The PE teacher is very good at breaking down the game and targeting the skills needed to play it, introducing them at a low level to build up confidence and gradually increasing the skill level required. He taught an improvised strike and field game: a sort-of proto-cricket/dodgeball hybrid, where the boys kicked a large ball, 'bowled' at them by the teacher. The fielders, who were not allowed to run with the ball, then had to pass the ball between themselves and try to hit the 'batter' below the waist with the ball before he got to the other end of the sports' hall to score a run. They absolutely loved it!

My week ended with last minute cover on Flexi-Friday, teaching four periods of drama based on the Aesop's fable 'The Bundle of Sticks' to mixed groups of 12 boys from Years 4-6, with about 15 minutes notice. This started off really well for the first two groups in the morning and the boys were really creative but behaviour in the two sessions in the afternoon was very difficult to manage. I think the idea of Flexi-Friday is great as it allows specific time for cross-curricular teaching and also offers controlled opportunities for the ASD boys to experience changes to routine but I think they all find it rather stressful and tiring, with the result that afternoon sessions are even more prone to poor behaviour than during the rest of the week. The teachers commented that they find it stressful too as they end up teaching some boys whom they normally never teach and so do not know as well. I noticed that the more challenging behaviour has come from boys I have not taught regularly and it reminds me of my first year as a TA, when the children did not know how I would react in any given situation and tried to see how far they could push things. I suppose this is bound to continue to be an issue until I have established myself with my own class.

Yet another epic – only one more to go!

Best wishes for a relaxing weekend.
Sue

Enhancement Week 4 – the final instalment!
Monday 17th February 2014, 5.07pm
To: Christine Edwards-Leis <christine.edwards-leis@smuc.ac.uk>;

Hi Christine

Hope things are fine with you. I can hardly believe my enhancement placement is over already. Week 4 was as eventful as ever and I am looking forward to a bit of relaxation time. The highlights of this week have been observing OT interventions and Year 7 Spanish; teaching Year 6 English; and assisting my CTM with some behaviourally 'interesting' Year 5 science lessons! I also attended a fabulous in-house training session on differentiation. All the boys (and teachers!) were very tired this week and there was a lot of illness, so behaviour was a little trickier than usual – everyone was very ready for half term.

The week started with observing maths skills interventions for boys in Years 5 and 6, focussing on basic number skills and calculator use. This was taught through games and the boys were really engaged – they love anything competitive and the teacher has a Yahtzee and Shut the Box league. She also has individual challenge cards on the wall for each boy to complete before playing the games, which they were very motivated to succeed at. The maths skills teacher teaches General Certificate of Secondary Education (GCSE) and A Level maths, too, which I thought was great as she has a very clear idea of where the boys need to get to. She has devised her own rainbow target skills tracker for maths and put together colour-coded resources to help the boys achieve each target skill, so they are aware of their own progress too. They seemed very motivated to move up the colour bands.

Monday evening training focussed on differentiation this week and was brilliant. The training director loathes the term 'differentiation by outcome' and thinks it leads to lazy teaching, so we focussed on exploring differentiation by content, process, product and learning environment. We then chose a lesson we were teaching this week and looked at how we could differentiate it by looking at these four aspects. It really helped me consider explicitly the specific needs of each child and how they could be supported and improved my English planning no end. I will definitely adopt this process in future.

My Year 6 English lessons this week involved writing diary entries and personal letters about an episode in *James and the Giant Peach*, including time connectives and adjectives. There were two lessons in the afternoon and two first thing in the morning. As I had noticed that the boys find it hard to concentrate in the afternoons, I used these for games and drama-based preparatory activities and the morning sessions for writing. I asked them to write from two different perspectives, quite hard for some of the ASD boys but they managed it – I think the hot-seating I used helped. I asked them to choose one of the sentences from their first piece of writing to uplevel and they seemed to find this very specific activity easier to manage and could then see exactly what I wanted them to achieve in their second piece of writing. I used a colour-coded self-assessment checklist for the second piece of writing. I was pleased that most of them seemed to find this really helpful and that their second pieces of writing were much improved. I was especially pleased that one of the boys for whom I had previously had to scribe all his work, wrote two sentences all by himself!

On Wednesday and Friday, I observed Year 7 Spanish. This is a new thing for the school, having previously avoided teaching languages as most of the boys have difficulty enough with English. However, from discussion with the Spanish teacher, research seems to show that teaching a second language can have knock-on effects on the improvement of language and literacy skills across the board. The teacher explained that they chose to teach Spanish as it is the most phonetically regular of the commonly taught Modern Foreign Languages (MFLs). She teaches it through lots of songs, games and hands on activities and says the boys seem to love the fact that they're all starting at the same level and have the same chance to do well.

Another highlight of Wednesday was another marvellous music lesson, which started with a warm up of the introduction to 'Eye of the Tiger' and segued into Beethoven's 7th symphony! I loved the way the teacher gradually increased the complexity in clear steps so by the end of the lesson the boys were able to produce a creditable performance of quite a complex piece.

I observed four fabulous half hour OT sessions this week to build upper body and core strength and gross and fine motor skills. The boys were really engaged and there was much less poor behaviour than in academic lessons. I was amazed by how poor some of their motor skills and strength are and it made me appreciate just how hard lessons must be for them. In the first session, I was working with a boy who had been really tricky in maths but was great fun to work with in OT and put in a lot of effort. The sessions later in the week had a winter Olympics theme with nine different activities each done for two minutes, including colouring the Olympic rings on the IWB, balancing on a 'snowboard' and a 'luge' run on scooter board. The succession of short bursts of different activities really kept the boys focussed and they loved the theme. I saw two sets of boys doing this and it was interesting to note how much noisier and less engaged the weaker group was as it was slightly out of their comfort zone. All behaviour communicates!

I saw some great kinaesthetic learning activities this week. Two Year 5 science lessons were on the water cycle and involved creating a collage to show how it works. They loved all the cutting and sticking and it seemed to make it much more meaningful for them than just writing or doing a worksheet. In Year 7 Religious Education (RE) the boys were tasked with junk modelling a synagogue including all the key features. I was really impressed with their enthusiasm and the effective group talk, discussing all the different features, where they should go and why. Loved it!

I had a lovely chat with the director of training when I went to get her to sign off my form. She gave me lots of career advice and in particular recommended that I do at least a couple of years in mainstream before moving to special education, if I still feel that's the right thing for me. She reckons that mainstream primary is an excellent training ground for differentiation and managing the learning environment and that her colleagues who have only ever worked in special education are at a disadvantage.

Looking back over the last four weeks, I am really pleased I chose to spend my enhancement placement in a special school. It has given me a great opportunity to see great examples of individualised teaching and learning and lots of brilliant strategies and engaging teaching methods suitable for teaching children both with and without SEN. Unexpectedly, the placement has also really improved my repertoire of behaviour management strategies, which is an added bonus.

Here endeth the final epic email! I look forward to seeing you next week.

Best wishes
Sue

Guidelines for Contributors

Submissions are welcome from early years, primary, secondary and higher education sectors. Contributions are encouraged from any country and it is expected that the Journal will publish articles that offer readers insightful, inspirational as well as practical information about teaching, learning and assessment across the curriculum.

The normal word limit for articles is 3000 words although up to 5000 words will be permitted in exceptional circumstances. We would welcome the opportunity to publish articles that describe good practice in schools, literature reviews that increase understanding of particular educational domains, research articles that explore new ideas, and articles from practitioners that demonstrate the contribution that reflective practice and informed action can make to effective teaching.

Articles for consideration by the Editorial Board should be emailed to christine.edwards-leis@smuc.ac.uk.

The articles will be 'blind' refereed by referees, who will remain anonymous and authors will receive feedback through the editor. Articles can be submitted at any time during the year.

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Developing Research Assignments For Submission

Many teachers and students write assignments that include literature reviews or that report on inquiries into aspects of their practice undertaken in a range of settings. These pieces of writing could be considered for submission. Ensure you provide an abstract and key words and reference according to the Harvard Method of Referencing. Contact the editor for guidance and support in converting your assignment piece into a journal article.

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It is expected that research articles make an original contribution to education research. They should be based on evidence such as newly acquired data through empirical research, historical data, or published work.

Sharing Good Practice And School Projects

Great things happen in schools. Teachers and head teachers are encouraged to share their practice with the education community through descriptions of projects that they have created, implemented and evaluated. While these pieces are not necessarily expected to be supported by evidence from the literature (as a research article would be) the theories that underpin the practices described should be included to demonstrate informed pedagogy.

Preparation of Articles

Title
Please write a succinct title and include author/s, affiliations and email address of lead author.

Abstract
An abstract should be 200-250 words. It should have 6 key words for reference purposes. The abstract should provide the argument put forward, a rationale for the research, method used and major findings/recommendations. A good practice abstract will include an explanation of the project (length, participants, curriculum focus), its purpose and pertinent outcomes.

Article format
The article should include the abstract, all figures, tables and reference list. Do not include a bibliography. It should be typed on A4 portrait in Word and pages should be numbered. Use Times New Roman (or similar serif font), 11pt font typeface. Headings for each section are recommended to guide the reader. Avoid footnotes and endnotes unless essential to clear communication. All figures and tables must be numbered and labelled and be on separate pages rather than embedded in the text. Indicate where they are to be inserted. Avoid grey or coloured shading on graphs. If photographs are to be included then ensure that you have both ethical approval for publication (this is particularly necessary for children) and copyright approval.

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