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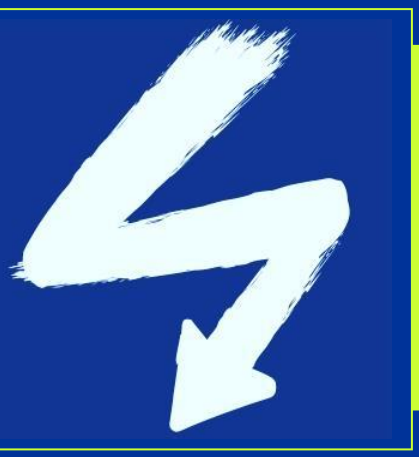

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Editorial

Welcome to our second edition of ***Spark***.

"We are what we repeatedly do, excellence, then, is not an act but a habit."
Aristotle.

This famous quote, for me, accentuates LJMU's inspiring vision to celebrate and commend the academic successes of the faculty's students. The opportunity for undergraduate researchers to share their ideas, findings and experiences through Spark presents an array of qualities and skills ideal for professional development in every field and vocation. I am excited to introduce the Winter Edition of Spark where the critical discussions and investigations surrounding pedagogical theory to societal issues in learning, are sure to encourage readers to take notice of a 'hot off the press' outlook on education research. It is a privilege for me, as student editor, to help support the faculty's ambition to celebrate excellence and to have a key role in advocating the high quality research my fellow students produce.

Lewis Parry *(Student editor)*
Level 6 PE with Education Studies

Spark has returned to publication after a hiatus and we hope that you enjoy the engaging articles that appear in this issue in its revitalised form. If you have work that you would like to be considered for a future issue of the journal, then please do send it to me at d.c.gallard@ljmu.ac.uk

Diahann Gallard *(Coordinating staff editor)*
Senior Lecturer

The importance of positive self-efficacy in determining successful participation in female physical activity at Key Stage 3

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Introduction

Published material over the last two decades has highlighted the problem of participation in physical activity by females entering their teenage years. National and international research has demonstrated the importance of being active over this period; such as research by Malina and Bouchard (1991) which considered the health benefits in early and later life. Their research found that diseases such as cancer and diabetes were a result of physical inactivity in early years. Increased participation in physical activity also has established academic benefits as outlined in the study by Chomitz et al, (2009), which advocated an increase on time spent in PE lessons.

Evidence of a decline in PE for Key Stage 3 females is provided in a report by Biddle (2005) for Sport Scotland which shows the decline starts at age 12, progressing into adolescence. Townsend et al (2012) reported how 27% of children meet the highest recommendation of physical activity a week at age 10, reducing to 12% at age 14. Global studies also demonstrate that there exists a difference between boys and girls; a study in the US by Sallis (1993) established a decline of 7.4% in girls compared to 2.7% of boys in secondary schools. In relation to self-efficacy, a study conducted by Dzewaltowski et al (2010) showed males have greater self-efficacy within physical activity than females. This article draws upon a report into the factors that affect female participation in physical activity at KS3. The original study used a combination of qualitative and quantitative methods to identify factors that lead to an unwillingness to participate fully in PE, drawing upon a small sample from year 7 (11-12) and year 9 (13-14) female pupils in Leicestershire, UK. The specific focus of this article relates to the importance of self-efficacy in determining successful participation in female PE at Key Stage 3 (KS3), with a focus on presenting the importance of individuals having a high level of perceived self-efficacy for successful outcomes in physical activity.

A positive perception of one's self is important as trying to do anything in life that you deem unachievable is unlikely to result in a positive outcome. Bandura (1993) describes this as self-efficacy,

> *'Perceived self-efficacy is defined as people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives.' (pg.125)*

Related to sport, someone with a strong sense of personal efficacy would see racing against someone deemed faster to be a challenge, whereas someone low on self-efficacy would see this as a threat and become anxious, arguably hard to achieve while fighting self-doubt.

This author will now provide a brief review of literature to outline some previous work that has found self-efficacy to be a factor in KS3 physical activity participation. A description of how the report was carried out and applied is detailed within the methodology section with the results presented after this. The conclusion includes the limitations of this research, suggestions for future research and offer solutions to physical education policy that may facilitate pupils low on self-efficacy better at KS3.

Literature Review

Studies have previously discovered there are range of factors that influence female PE participation at KS3, such as peer group pressure (Coleman et al, 2008), role-models and family support (Bailey et al, 2004; Micklewright, 2002) whilst acknowledging the significance of these. This article focuses on the importance of perceived self-efficacy in developing strong attitudes towards physical activity.

Enjoyment is important for an individual to want to engage in physical activity, outlined by Motl et al (2001) in previous studies of measuring enjoyment levels of girls participating in physical activity. Research from Hu et al (2007) in the US has linked the effect that self-efficacy has on the enjoyment gained from physical activity in college aged women; although the study does not focus on the same age group as this article, its findings are still relevant. Participants in the study were randomised in high and low efficacy groups; it was found that those in the low efficacy cohort experienced lesser levels of enjoyment on high intensity exercise than high efficacy participants.

More competition can prevent girls wanting to take part as they do not want to be deemed 'losers' and perceive that they lack the sporting ability to take part. The study by Biddle (2005) found 19% of girls who felt school sport was too competitive also had little belief in their sporting ability. They had increased anxiety when participating, feeling they 'had to' rather than 'want to' take part. This is not the case for all as competition was enjoyed by those with high activity levels. This indicates the curriculum does not facilitate lower ability pupils. Conversely, it has been revealed through a longitudinal study carried out by Kjonniksen et al (2009) that PE participation rates in Norway remain high, with children going into adolescents with a varied and positive PE curriculum.

Methods

The aim of the research was to focus on the influence of self-efficacy as a key factor identified in the results from a report looking at factors affecting female participation in PE at KS3. The main study looked to identify obstacles which affect female participation at KS3, explain why these threaten female participation and consider strategies which may overcome these problems. Questionnaires were the chosen method of data collection because the purpose was to gather thoughts and opinions of those taking part as to their participation in PE. Although there are disadvantages to using questionnaires, outlined by Robson (2007) as sometimes lacking responses and possessing the substance required if they take too long to answer, Greetham (2009) explains how they can be reliable and objective ways of sourcing data.

The methodological approach to the research was multi-method using qualitative and quantitative methods, known as triangulation (Bell, 2010). Positives in using triangulation are described by Law (2003) as

> *'…being able to see the same thing from different perspectives and thus being able to confirm or challenge the findings of one method to another.*' (pg. 281)

Triangulation in qualitative research creates validity. Quantitative data was collected through closed-ended questions modelled on the Likert scale which seeks to measure attitudes of respondents (Thomas, 2009). Qualitative data was acquired through free response open-ended questions supporting and helping to interpret the quantitative data.

The questionnaire was piloted to help gain strength for this research as it adds validity through seeking problems in the questionnaire (Rugg and Petre, 2007). Positively it allowed the scaled question to be simplified and issues missed such as competitiveness were added having been missed from the pilot. Pupils were approached informally during PE time where they were initially asked if they would be willing to take part in the study. It was handed out to a purposeful sample of selected pupils in years that were deemed 'active' or 'non-active' in PE, through consultation with the Head of PE. There was 10 questionnaires issued to each year group; 10 questionnaires were returned by year 7 and 10 by year 9.

Answers from questions asked in the Likert scale using a quantitative method were put into bar charts and interpreted alongside the qualitative method of open-ended questions, these were presented in tables representing each question. Noteworthy extracts from the data shown in these tables was interpreted using content analysis, described by Bell (2010) as useful in examining trends and patterns.

Results

Further analysis of the qualitative data asked participants their views on lessons with boys presented clear evidence of the negative effect on participant's self-efficacy. One example is of a year 7 non-active participant who describes how they *"…laugh if you lose and never pass,"* compared to an active year 7 participant who states they *"…can be distracting but it's funny if you beat them."* However there is concern shown by some of the active participants as one explains, *"'I don't like it because they make you feel you're not as good as them."* It is shown through the quantitative data collected how 80% of year 9 non-active participants strongly agree that lessons with boys are a negative factor for participation, a 40% rise from year 7.

A concern amongst 100% of non-active year 9 participants is looking silly whilst taking part. Whilst acknowledging the qualitative data presents a variety of reasons behind this, such as concerns with the kit, it is logical to suggest that the prospect of being poor at a sport is likely to make oneself feel 'silly'. This can affect individual's belief in their ability to succeed. A non-active year 7 pupil explained how they dislike PE due to *"…looking silly if you lose."*

The clearest difference between active and non-active participants in both years is how competition is viewed. 100% either agreed or strongly agreed that the competitiveness of

lessons is a factor in not wanting to take part in PE lessons. Slightly more strongly agreed in year 9, but in comparison nearly all of the active participants disagreed or strongly disagreed to competition being a problem. The Biddle Study in 2005 credited this with an increase in anxiety levels due to them demonstrating little belief in their own ability. The qualitative data present in this report supports these findings as with this pupil's feeling toward competition demonstrates, *"I don't like it as I'm never going to win".*

By year 9 active participants all possess a similar characteristic of enjoying the prospect of competition. It seems they recognise the positive feeling which comes from winning and actively embrace competition. Importantly, one active year 9 participant describes how she is *"..very competitive and like to beat other people more than others."*

Conclusion

The confident attitudes displayed by active participants links yet again to the different perception of personal sporting ability that is displayed by active and non-active participants and it is possible to relate this to Banduras (1993) 'perceived self-efficacy theory'. The high self-efficacy displayed by the active groups allows them to compete at their best without fear; whilst the fear of losing and 'looking bad' inhibits the non-active group. Physical Education has to look at improving the self-efficacy of female participants through its teaching practices. One trial by Dishman et al (2004) claimed to be the first study testing school-based interventions devised from social cognitive theory. It showed results that physical activity outcomes were increased when teaching methods aimed at increasing self-efficacy were applied.

The results of this study demonstrate that a high proportion of those who do not engage in PE at KS3 identify competitiveness as a significant factor against willing participation. It is also slightly stronger in the higher age range of non-active participants, with the increased possibly attributed to the deterioration in self-efficacy caused by the anxiousness of competing against peers deemed better than them. There is a strong case for further research into the competitive aspect of PE. After the success of the Olympics public opinion along with sections of media are calling for the structure of PE lessons to become more competitive. Whilst it is advantageous for PE to embrace the euphoria that has been created, it is also important to take a step back to ensure that the legacy of the games is not to just increase the chances of elite athletes but to encourage all school children to take part in physical activity, to drive down obesity levels and take account of the other documented benefits of an active lifestyle.

The worry is that the government are pushing through a return to 'traditional PE' that focuses on competition, as PM David Cameron announced on 11th August 2012,

> *"The new national curriculum in the autumn will have competitive sports at its heart."*

He added,

> *"The two hours laid down is often met through Indian dancing classes, that's not really sport"*

The key for PE is to deliver a diverse range of competitive and non-competitive activities so PE does not destroy the self-efficacy of some pupils especially those who develop a negative view towards physical activity. Research should examine the potential benefits of increasing competitiveness at KS1 and 2 because the aspect of competition does not receive consideration, so adjustments in learning how to cope with losing haven't been achieved (DfE, 2011).

It is possible that data collected from this study could help to shed light on why statistical figures, presented by Townsend et al (2012) for example, sees a decreases in physical activity during the KS3 period and why active members of physical activity may become non-active through the K3 phase of school. Fears were raised by active year 7 pupils that lessons with boys reduced their confidence to perform at their best, whilst acknowledging there are various reasons why individuals reduce physical activity. The data gives warning of the effect perceived self-efficacy can have to successful long term physical activity outcomes.

It is also important to acknowledge that this is a study on a small scale; a longer study should follow the progress of individuals over the KS3 phase which would yield stronger results.

References

Bailey, R. Wellard, I. and Dismore, H. (2004) *Girls' participation in physical activities and sports: benefits, patterns, influences and ways forward.* Technical report for the World Health Organisation.

Bell, J. (2010) *Doing your research project: A guide for first-time researchers in education, health and social science* (5th ed.). Maidenhead: Open University Press.

Biddle, S., Coalter, F., O'Donovan, T., MacBeth, J., Nevill, M. and Whitehead, S. (2005) Increasing demand for physical activity by girls. Research Report No.100 for Sport Scotland.

Cameron, D. (2012) Competitive sport for children at the heart of Olympics Legacy. Available at https://www.gov.uk/government/news/competitive-sport-for-children-at-the-heart-of-olympics-legacy Accessed on 11/08/12

Chomitz, V. R. (2009) Is there a relationship between physical fitness and academic achievement? Positive results from public school children in the north-eastern United States. *Journal of School Health*,*79*, p30–37.

Department for Education. (2011) *Physical education (PE): Key Stage 2*.

Dzewaltowski, D.A., Geller, K.S., Rosenkranz, R.R., and Karteroliotis, K. (2010) Children's self-efficacy and proxy efficacy for after-school physical activity*. Psychology of Sport and Exercise,11*, p100-106.

Greetham, B. (2009) *How to write your undergraduate dissertation*. East Kilbride: Palgrave Macmillan.

Hu, L., Motl, R.W., McAuley, E. and Konopack, J.F. (2007) Effects of self-efficacy on physical activity enjoyment in college-aged women international. *Journal of Behavioral Medicine*, *14*, 2, p92–96.

Kjonniksen, L.; Fjortoft, I. and Wold, B. (2009) Attitude to physical education and participation in organised youth sports during adolescence. *European Physical Education Review*,*15*, 2, p139-154.

Laws, S., Harper, C. and Marcus, R. (2003) *Research for development: A practical guide*. London: Sage Publications.

Malina, R. and Bouchard, C. (1991) *Growth, maturation and physical activity*. Champaign, US: Human Kinetics.

Micklewright, J. (2002) Social exclusion and children: a European view for US debate. *Innocenti Working Papers No.9.* Florence, IT: UNICEF Innocenti Research Centre.

Motl, R.W., Dishman, R.K., Saunders, R., Dowda, M., Felton, G., & Pate, R.R. (2001).Measuring enjoyment of physical activity in adolescent girls. *American Journal of Preventive Medicine*, *21*, p10–117.

Robson, C. (2007) *How to do a research project: A guide for undergraduate students*. Oxford: Blackwell Publishing.

Rugg, G. and Petre, M. (2007) *A gentle guide to research methods*. Maidenhead: Open University Press.

Sallis, J. (1993) Epidemiology of physical activity and fitness in children and adolescents. *Critical Reviews in Food Science and Nutrition*, *33*, 4-5, p403-408.

Thomas, G. (2009) *How to do your research project*. London: Sage.

Townsend, N., Bhatnagar, P., Wickramasinghe, K., Scarborough, P., Foster, C. and Rayner, M. (2012). *Physical activity statistics 2012*. British Heart Foundation: London.

The 'Educational Underclass': Exploring its meaning and origins, and seeking solutions

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Introduction

In August 2011 there was widespread arson, rioting and looting in some major cities across England. Over half of those who were brought before the courts were young people aged twenty-one and under (BBC, 2011). This prompted the Secretary of State for Education, Michael Gove, to suggest that a lack of 'structure', 'values' and 'educational opportunities' led to such young people being associated with 'Educational Underclass'.

This statement could be interpreted in several ways. It might suggest a lack of 'structure', 'values' and 'educational opportunities' provided *by society*. It could mean a lack of 'structure', 'values' and 'educational *opportunities' in education*, or of course both society and education. This raises two issues; firstly, there is a lack of understanding of the term and secondly, there is a lack of clarity as to whether it is society or education which is the source of the lack of 'structure', 'values' or 'educational outcomes'.

The conclusions address these issues, summarising points that contribute to the use of the term 'Educational Underclass'. In addition they challenge the effectiveness of interventions and policies that initially seek to reach those at risk. The conclusions are drawn based on the review of literature which, will be presented as follows; a review of the concepts of 'Underclass' and 'Educational Underclass', how these may be identified and their links to the broader concept of exclusion, an examination of causes of exclusion from societal and educational perspectives and an examination of intervention strategies with a focus on early intervention.

Literature was reviewed by using key words to search journals, books and web pages. The literature was then analysed and where relevant, was used to support or dispute the concept of 'Educational Underclass'. Relevant work of key authors in this field was also considered. This included the work of; Bourdieu, Bowlby, Giddens and Willis. The focus is primarily on sources that relate to England, however, publications that identify the 'Educational Underclass' internationally have not been dismissed but used to consider if the concept may also be a global issue. By adopting a scope from 1980 onwards, this study seeks to discover whether the issue is long-standing or contemporary.

Definitions

The term 'Underclass' was originally coined by the US right wing sociologist Charles Murray. When Murray visited Britain in 1989 he used the term in a piece which blamed the poor for the situation they found themselves in. Michael Gove chose to use the word 'educational' in respect of an underclass, suggesting that the blame could be pushed towards society's 'ills' as well as the failing of teachers. This perpetuates this issue

that, ultimately, there is little understanding of what the 'Educational Underclass' is and how we may identify young people associated with it. McMillan and Chavis (1986) believe that when there is little clarity of definition given to words or terms, a hypothetical construction of definitions is useful and appropriate; defining a concept (like 'Educational Underclass') through defining other related concepts (like 'Underclass'). In doing so, it is anticipated that over-time definitions like these build frameworks of agreed concepts.

Research suggests that the term 'Underclass' does not have one definitive meaning. Its meaning is vague and there are many different ways of thinking about what it might mean. The concept of 'Underclass' entails several observable characteristics like; chronic poverty, low social status, poor behaviours and deprived well-being (Haitsma, 1989 and Reed and Adolph, 1991). More recent literature confirms similar interpretations, suggesting that the concept of 'Underclass' is long standing. Cohen (2005) asserted for example, that the 'Underclass' is a group typically cut-off by mainstream society because of intellectual impoverishment. Barrett (2011) presents the following succinct summary;

> *"The Underclass, have poverty of ambition, a poverty of discipline and a poverty of soul." (p1)*

However, the theories put forward do not address the boundary between being or not being, associated with the 'Underclass'. An individual or group of individuals, may at some stage in their lifetime, experience one or more of the common characteristics (such as poverty), but not others. Because of the lack of understanding given to this 'boundary', questions may be raised as to whether it is right to consider 'Underclass' as a defined group.

Nevertheless, developing the definition in the context of 'Educational Underclass' suggests that it would encompass young people who; experience poverty, exhibit poor behaviours or deviance in educational institutions, are intellectually impoverished, maintain adverse attitudes and opinions opposed to those desired in schools and are therefore cut-off or marginalized by peers, within education. Does therefore, the phrase 'Educational Underclass' simply represent another way of describing an already identified cycle of poverty, deprivation, underachievement or the cycle of poor behaviours experienced by some groups in society? Evidence relating to some of the key features identified will be examined, in particular indicators of poverty and educational achievement, with a focus on the city of Liverpool, North-West England.

In 2010, the Child and Family Poverty Needs Assessment recorded 35.6% of children, under the age of 16 in Liverpool as living in poverty. This means that nearly 10% of children who live in poverty in the whole of the North-West are based in the city of Liverpool. In terms of educational achievement, Liverpool is ranked the eighteenth most deprived amongst England's three hundred and twenty-six districts (Liverpool City Council, 2010). 36.5% of 16 to 18 year olds living in Liverpool are not in education, employment or training (NEET), (Learning and Skills Council, 2011). At first glance these statistics suggest a possible interrelationship between poverty in the early stages of life, educational outcomes and employment and

training opportunities in later life. The assumption that there is a clear link between lack of life chances and success in adulthood is illustrated by the concept of 'Cultural Capital'.

Pierre Bourdieu (1979) developed the idea of 'Cultural Capital'. He addressed why, when individuals invest time into acquiring certain cultural habits and dispositions, a positive impact can be had on their life and school success. These cultural habits and dispositions include, acquiring a network of contacts (Social Capital), material goods (Economic Capital), a good reputation (Symbolic Capital) and appreciating the arts (Cultural Capital). Bourdieu argued that acquiring all or several forms of capital generates 'profits' and exclusive advantages. For instance, those who gain Cultural Capital (and appreciate the arts) are exposed to a greater network of contacts and therefore have greater access to Social Capital. However, as society is characterised by certain social structures and systems, it could be argued that Cultural Capital is favourable to children from a particular class or classes.

It is claimed that social systems are generally constructed by the upper classes, to their 'standard of living'. Those in lower classes do not always have access to this standard of living. For instance, those children who are faced with poverty have no access to Economic Capital therefore, little access to leisure pursuits that aid educational outcomes (Cultural Capital). These individuals may as a result have little access to positive interaction with others (Social Capital) and ultimately, minimal opportunity for employment and training opportunities in later life. With little opportunity to acquire forms of capital, a child or young person may be forced to lower class positions, a seeming characteristic of 'Educational Underclass'.

Whilst there are many people in society who experience these limitations in relation to life chances, it is possible that they are externally labelled as a group or category in ways that may not be appropriate. This is what Rabbie and Horwitz (2006) terms as 'external categorisation'. It might therefore be argued that 'Educational Underclass' is an external categorisation.

The following conclusions can be drawn; the term 'Educational Underclass' is not widely documented, thus it is unclear what exactly it is and how long-standing the issue is. On the contrary, there is much literature available with regards to 'Underclass'. It is clear that naming a group of people an 'Underclass' may put them 'outside' mainstream society, it 'others' them, separates them from 'us' and perpetuates a sense of apportioning blame to 'them'. Using language like 'Educational Underclass' does things with words, it helps to shape how we think about things and it provides an insight into how prevailing ideologies are communicated and reinforced. Ultimately, it might be argued that the term 'Underclass' is loaded with meanings, many of which are negative. Many have provided evidence that suggests where the roots of the features of 'Educational Underclass' may be located.

This evidence comes in the form of both quantitative – large scale statistical studies and qualitative – small scale, detailed 'soft-data' studies of people's views/perceptions. To use accounts of each offers a broader understanding,

though both forms of research have limitations. Burton and Bartlett (2005) discussed some of the most common criticisms. Some quantitative studies are criticised for having samples that are too small, giving results that lack precision. Qualitative studies are often criticised as, when their data is examined post interviews, questionnaires or observations, researcher ideas and philosophies can influence interpretation of the results. Even if the researcher did not impose their own opinions, there may be a risk of participants performing in a certain way, so as to portray themselves in a different, often better light. Finally small scale studies can make it difficult to generalise.

Social Causes

Charles Murray (1996) associates the term 'Underclass' with those distinguished by their undesirable behaviour, crime, illegitimacy and failure to hold down a job. Such characteristics are society based however, with no reference to an education, or 'Educational Underclass'. Does therefore, a Social Underclass cause or influence an Underclass within education? The following seeks to consider possible social causes of 'Educational Underclass', the following will be examined; the nature-nurture debate, attachment theory and other parental influences and the impact of poverty.

The nature-nurture debate is long-standing. Supporters of the influence of 'nurture', like Judith Harris (2006) suggest that external behaviours from parents and families, impact on the development and behaviours of children. Others contend that child development and behaviour is adopted from innateness or nature alone (Donald Hebb, 1985) or from a mix of both innateness and external influences (Pinker, 2004). To investigate the influence of 'nature' on child development raises ethical issues however, and to gain an accurate measure of nature or hereditary/genetic influences, parents and their children would need to be monitored under controlled environment conditions. There is however, much evidence to suggest that external behaviours (nurture) play a huge role in child development. The concept of 'operant conditioning' is one of these theories.

Bretherton (1992) reviewed Skinner's 'operant conditioning' research which suggests permanent change in behaviour and development is a result of societal experiences; through reinforcement. Skinner's research has been criticised as it was undertaken on animals initially and later related to humans. However, Bretherton (1992) suggests that regardless of their capacities, both animals and humans have learned helplessness; absence of control over how they are being nurtured. The process of Operant Conditioning can be applied to the concept of 'weak parent-child attachments'. The following study by Howard et al (2011), claims that parents who have weak attachments condition their children into negative early development and ultimately, the 'Educational Underclass' with little Cultural Capital.

Howard et al (2011) sampled 2080 families in the UK; 50% of families had a child under the age of six months, 25% over six months and 25% soon to be born. Observations were made of the children and families in their homes. From the observations, Howard et al made assessments, identifying whether the parents and children had strong or weak attachments. They focused on those with weak attachments to establish how this

may impact the child. Their results demonstrated that those children were often distressed, prone to negativity and aggression (due to the lack of parental attention), had behaviour problems and had cognitive and language development difficulties (due to the lack of stimulation and communication). In addition, these children often had a fractured security and confidence causing them to be marginalized from others. A critique of the study may be that the researchers did not provide an understanding of where the boundary lay between those with 'strong' or 'weak' attachments. Furthermore, suggesting that the early months and years of a child's life affect them permanently and there is 'no way back', suggests that there is little that schools can do about this. Educationalists, would argue otherwise however, believing that schools can encourage positive life experiences despite a less than ideal start, out of school, in the early years of their life. Nevertheless, this study does demonstrate that where parents or families foster weak attachments with their children, a negative impact can be had on their child's early development.

Having considered some of the ways in which parenting can have an impact on early life chances the wider issue of social exclusion, in particular poverty, will now be considered. Poverty is defined by Her Majesty's Revenue and Customs (2010) as

> "...*the proportion of children living in families in receipt of out of work benefits or in receipt of tax credits where their reported income is less than 60% of median income." (p1)*

Within their literature review, Raffo et al (2009) claimed, that poverty impacts in two ways; it reduces the opportunity for individuals to partake in leisure pursuits. Secondly, it limits the opportunity for parents and families to acquire resources. Lack of such resources like books, CDs, writing materials or outdoor play equipment is detrimental, according to Raffo et al, for the early learning of; hand-eye co-ordination, fine-motor skills, (for example, holding a pencil) and physical and gross motor skills (through the use of outdoor play equipment where they have control over their body). Raffo et al concluded that children in a situation like this would typically adopt self-directed behaviour when using the resources 'new' to them within school, often which would be adverse to the norm.

Raffo et al's review draws on qualitative research previously conducted. When writing their review they may have imposed their own thoughts and opinions thus distorting its validity (Burton and Bartlett, 2005). In addition, Raffo et al (2006) may have had 'source bias' where they utilised primary sources that interested them most, disregarding others that may be as equally useful to their research. Despite this, their findings were in fact useful in that the poverty implications they discovered, correlate well with the characteristics thought to be associated with 'Educational Underclass'.

Furthermore, as Raffo et al (2006) examined the situation from two perspectives, poverty 'before' a child has commenced formal education and poverty 'after' or once the child has begun formal education, a key point emerged. Although the roots of poverty are within society, its effects impact on a child in schooling. In other words,

‘Underclass’ begins out of school in society and is transferred into school to become ‘Educational Underclass’. Therefore it could be argued that ‘Educational Underclass’ begins as an ‘Underclass’ or a ‘Social Underclass’. The concept of ‘Social Underclass’ to ‘Educational Underclass’ is arguably supported by the following research study.

The Literacy Trust (2010) conducted a major review of eighty-one journals focusing on how the lack of parent-child interactions can impact language development. The Literacy Trust (2010) discovered that impact occurs when parents do not; prioritise child-adult communication, understand the benefits of communication fully or, are embarrassed or concerned about their own reading or listening skills. Children in these situations were found to experience social and behavioural problems; because their vocabulary was minimal, they were unable to communicate with peers and to initiate conversations and were therefore often rejected. Also those children often exhibited withdrawn behaviour and had a low self-esteem. When in school, children who were not ‘talked to’ typically had learning difficulties and were poor at comprehension, had early language and reading impairments, were unable to access the curriculum with ease and therefore, had continued academic difficulties in the later years of their school life. Thus, when families do not ‘talk to their children’, effectively, their children risk becoming intellectually impoverished, rejected or marginalized by peers all of which are characteristics associated with ‘Educational Underclass’.

The EYFS statutory framework (Department for Education and Skills, 2008) also supports the view of Social Underclass to Educational Underclass, stating, that home learning is the basis for school learning. Such views are, however, assumptions given the fact that there is limited literature that discusses the concept of ‘Educational Underclass’. Therefore it could be concluded, that when a child grows up in poverty or in circumstances which lead to social exclusion, like poor attachments, they may be externally categorised with the ‘Educational Underclass’. The children and young people who experience these features become vulnerable and have little opportunity to gain forms of capital for betterment. This means that they have limited opportunity to develop the characteristics required to achieve well in schools and in effect, their educational journey is vulnerable.

Educational Causes

Given that many children may enter formal schooling with limited cultural capital, this section will explore whether formal schooling has an additional negative impact on such children. It will explore, whether it is the features within education that shape ‘Underclass’ experiences for children and young people, as Michael Gove (BBC, 2011) suggests.

The following will now be considered; ability streaming, the use of discipline techniques, Special Educational Needs programmes and the curriculum. Streaming, separating pupils according to academic ability (Ireson and Hallam, 2003), is a technique widely used by teachers. Many researchers condemn the use of it, suggesting that it is riddled with challenges. Research conducted in Hong Kong by Kemp and

Watkins (1996) reviewed several of the challenges that ability streaming had on 132 males and 148 females in their final year at primary school. Their results of a self-description questionnaire showed that ability streaming has had an overall impact on a child's self-esteem. The majority of pupils in the study had a negative evaluation of themselves, focusing on the fact that they were considered 'not as good' as other pupils. These pupils were considered as having 'low self-esteem'. Giddens (2006) suggested, that where there is 'low self-esteem', one is likely to feel marginalized from peers and, as marginalization is thought to be a characteristic of 'Educational Underclass' it could be argued, that ability streaming may contribute to the development of 'Educational Underclass' for some.

However, this research was only conducted in schools that used ability streaming. If they had conducted research within some schools that used a mixed-ability approach and others that used the ability streaming approach, they may have been able to draw more in-depth conclusions, identifying the differences in achievements and feelings (Hallam et al, 2004).

Hallam et al (2004) conducted two studies across six primary schools; three schools with mixed ability classes and three schools that made use of ability streaming. Their results demonstrated that there was a greater degree of satisfaction, for instance pupils were more confident, when ability streaming was not used. Those in streamed classes were more dissatisfied with their ability-group-position and in protest, often resisted rules. Those placed in higher academic groupings were also troubled, often failing to cope with pressures, becoming easily distracted and also exhibiting rule-averse behaviours. They did not present raw data however, so it is therefore impossible to judge how selective Hallam et al (2004) might have been in reporting results. Nevertheless, their research does indicate that the negative impact of streaming (marginalization, adverse attitudes and behaviours) correlate well with the characteristics thought to be associated with 'Educational Underclass'. The following, with regard to teacher's leadership, also supports this. Mehmel and Ismail (2010) believe that teacher leadership has a great impact on the academic and social growth of students. If students' learning needs and interactions are not best suited by the teacher's leadership, a negative effect may be had on the student.

Ratcliff et al (2011) conducted a study in ten schools; some where the teachers were considered as having 'strong leadership' and the others, where the teachers were considered as 'needing improvement'. Ratcliff et al (2011) observed the teachers, recording the number and type of student-teacher interactions and how the teachers tried to modify poor behaviour. Their results suggested that children whose teachers 'needed improvement', had a negative persona and promoted a negative learning environment. Discipline techniques, such as classroom arrangement or sanction charts were generally less effective in cases, where the teacher had a negative persona. Pupils in these classrooms were affected, in that they began to demonstrate consistently poor behaviour and attitudes thus were more likely to fall behind, lose engagement with their education and therefore become marginalized from their peers (Ratcliff et al, 2011). Ratcliff et al only conducted their research on 2nd

and 3rd grade students in America however. Had they conducted research across all grades there may have been a different and broader picture of how discipline techniques may change or be adapted as school ages change.

The above suggests that where discipline techniques are poor or ineffective, a child's achievement may become impaired, leading to already vulnerable pupils falling under the external categorization of 'Educational Underclass'. What remains unclear however is where the disruptive and poor behaviours are learned and nurtured in the first place. Some, like Harris (2006) would believe that they are learned in society, in response to parental attachments. Others like Ratcliff et al (2011) have found evidence that suggests that poor behaviours occur in response to things in education like negative teacher persona. This suggests that 'Educational Underclass' characteristics may come from either society or education; in addition they can be exhibited in education but were learned within society initially. This suggests that both sources play a part in creating or reproducing the 'Educational Underclass'. Some justifications for this view are now explored.

Research conducted by Messiou (2002) discovered, that the use of reward systems, gifted and talented systems and Individual Education Plans can make some pupils feel marginalized. A study conducted by McCroskey (2010) discovered that pupils with a communication apprehension (otherwise known as 'quiet children') were typically rewarded much less for their actions, than those who had little communication apprehension. These children typically began to think that their ideas were not satisfactory and as a result, they became shy and marginalized from peers. Furthermore, a longitudinal study conducted by Miles and Singal (2010) discovered considerable obstacles to full inclusion, including, the differentiation given to those with 'Special Education Needs'. Because these pupils work in response to Individual Education Plans, they can be excluded from mainstream education programmes. Others categorised them as 'different' and as a result, they were often pushed to the margins of their schooling experience. Those who were identified as having a 'Special Educational Need' were typically envious, according to Miles and Singal (2010); of those who were 'Gifted and Talented' perceiving themselves as 'not as good'. In addition Giroux (1983) noted that those in the 'Gifted and Talented' group are often from the upper classes, as it is those classes who nurture the forms of capital, language codes and support systems that typify gifted and talented groups. Those in the lower classes, who do not have these family support networks, are as a result often forced to the margins. A pattern of marginalization seemingly emerges, where Individual Education Plans, reward systems and gifted and talented programmes are present.

Class inequalities, like those in gifted and talented systems, are thought to be reproduced within many other areas of the education system. Bourdieu's theory of 'Cultural Reproduction', according to Giddens (2006) suggested that those who set the educational, examination and curriculum standards for schools are of a higher class position. These individuals have also acquired a substantial amount of Cultural Capital something that those in a lower class position typically have not. The system they create, and

the curriculum or examinations they impose are thought to encapsulate certain codes of language that those of the lower classes, or with little Cultural Capital, cannot comprehend. Those in lower classes become oppressed and their opportunity for educational achievement becomes much less, than those in higher class positions with a higher Cultural Capital. Willis (1977) conducted a field-work study in a school in Birmingham where he sought to establish how lower class students were affected by cultural reproduction through curriculum and examination standards. Although the study was conducted several decades ago it remains a classic sociological investigation (Giddens, 2006). Willis discovered a culture clash between lower class students and their teachers. He suggested that lower class students were unable to engage with a curriculum that was not suited to their social needs and that they were unable to engage with their teachers. Willis discovered that when this occurred, lower class students often retaliated in frustration, accepted inferiority and moved on with limited prospects and intellectual impoverishment. In addition, these pupils were found to manipulate the education system to their own ends exhibiting adverse behaviours and attitudes, whilst resisting rules.

This section suggests that education may make a major contribution to the development of 'Educational Underclass'. It also suggests that when 'Educational Underclass' features are established within society, there is an impact on a child's educational outcomes. However, as each side of the argument produced evidence that suggested the roots of 'Educational Underclass' may lie within either society or education, it could be argued that the debate becomes balanced; the 'Educational Underclass' can have its roots in both society and education. Whether society or education is the most prevalent cause of an individual being in the 'Educational Underclass' may depend ultimately, on the obstacles that the individual faces; for instance poor attachments or poverty from society or, streaming or discipline techniques from education. Formal schooling does appear to have a negative impact on those who enter education with little cultural capital. Societal influences also have a negative impact on those who have little cultural capital. In conclusion, it could be argued that both society and education create obstacles that can lead to individuals, or groups of individuals being externally categorised as the 'Educational Underclass'.

Early Intervention

When Michael Gove initially delivered his speech, he was concerned that those associated with 'Educational Underclass' had a lack of 'structure', 'values' and 'educational opportunities' in their lives. It is these young people that Michael Gove suggested as needing support, through for instance, early intervention. In receiving additional support young people at risk have the opportunity for betterment and a good quality life experience - a basic human right (United Nations Educational Scientific and Cultural Organisation, 2010). The following section will explore further the concept of early intervention, looking at ways in which acts, policies and strategies have sought to help those at risk. In addition, it will examine some of the issues relating to early intervention programmes.

Early intervention initiatives and policies, according to Bronfenbrenner (2008), apply to

children and families at risk of developing a condition that may affect their development, like social exclusion. Bronfenbrenner considered early intervention in two forms; remedial (intended as a remedy or cure) and preventative (intended to stop the condition occurring). It is intended that both remedial and preventative intervention provide the support and assistance required for families to encourage their child's development and to maximise the child's benefit to society. Intervention may be the means through which some children and families gain social mobility and escape from the 'Educational Underclass'. It could be argued however, that when the roots of the condition are deep, and the 'damage is already done' then intervention may be ineffective (Bronfenbrenner, 2008). This may be the case in Liverpool with regards to Child Poverty (at a rate of 35.6%). Children and their families, to whom this is applicable, may become trapped in a cycle of poverty. The following seeks to explore this hypothesis further.

Much of the intervention available targets poverty specifically. According to Giddens (2006), Pierre Bourdieu suggested that when individuals have no Economic Capital (so are in poverty) the opportunity to obtain other forms of capital, for betterment of life chances, is minimal. Therefore if poverty is targeted initially 'doors may be opened' to other forms of capital thereafter. The 'Foundation Years: Preventing poor children becoming poor adults' report, by Frank Field (2010), provides justification for the suggestion that when poverty is targeted, life amenities (like the home environment and parenting) become positive.

In addition, Graham Allen suggested, in a recent review (Department for Education, 2011), that during the first three years of a child's life, many foundations are laid. Allen recognised that many of these foundations may be negative, like those described earlier. Like others, Allen reported on poverty, and highlighted it as a key issue to target. Tackling poverty also provides the opportunity for children and families to acquire resources or partake in day trips. Such things provide stimulation and brain activity and, as research by Raffo et al (2006) suggests, positive emotional and behavioural bedrock for children. Therefore targeting poverty so as to improve social and emotional competencies, removes children from the external categorization of 'Educational Underclass'. The Child Poverty Strategy (Department for Education, 2010) seeks to promote social and emotional competencies through targeting the families of children who are in extreme poverty.

The Child Poverty Strategy (Department for Education, 2010), seeks to help the 1.9 million children who grow up in the UK in homes where no one works. The ultimate aim is to eradicate child poverty by 2020. It seeks to do this by rewarding parents who find and take work and by supporting parents, whose vulnerability is an obstacle to their children's life chances. It focuses on personal responsibility, considering the previous government strategy of cash handouts to be a disincentive to work. It therefore supports parents into work, guides them into financial independence and offers advice on how to manage money. It introduced the 'universal credit' which provides a basic income for those out of work and a basic personal income depending on earnings. As earnings rise, the

universal credit will be withdrawn. It foresees that families will be provided with the means required to work their own way out of poverty and ultimately, that a child's life chances and social and emotional competencies will be improved. However, recent changes to social welfare funding may have a negative impact on these plans.

Despite efforts research evidence has suggested that the last government failed to reach stage one of its target – to halve child poverty by 2010 which suggests that the government was also not on target for reaching its overall goal; eradicating child poverty by 2020 (Unwin, 2010). This demonstrates that eradicating child poverty is a more complex task than anticipated. The intergenerational cycle of poverty (or the 'Educational Underclass') may therefore be perpetuated.

By drawing on evidence from the Child Poverty Act 2010, the remedial initiative, 'Families and Schools Together', encourages schools to support parents to improve their parenting skills. Schools are given guidance by the Act, to encourage parents to purchase resources, partake in leisure activities, make use of additional services and create a home environment that encourages learning (Save the Children, 2010). However, resources, leisure activities and additional services all come at a cost, which poor individuals are denied access to (Spicker, 1993).

Therefore, the primary aim of Families and School Together may be difficult to achieve and the intergenerational cycle of poverty may continue, and social exclusion may be re-enforced. In addition it could be questioned why this initiative is an educational responsibility when ultimately, poverty is a social issue. Percy-Smith (2000) noted, that by the time children enter school, the damage is already done, therefore 'early intervention' in this instance, is not 'early' enough. It may be more appropriate to integrate this initiative into pre-school centres, when a greater impact could be had.

The Sure Start initiative initially sought to do this, by helping the bottom 30% of families with pre-school age children living in poverty, by getting money into the areas where the poorest people lived (directgov, 2012). Their services were free and therefore accessible to these people. The Sure Start initiative sought by 2010, to have at least one Children's Centre in every area, making it available to all families and children regardless of their economic background (Department for Children, Schools and Families, 2008). It might be argued therefore, that this promoted equal opportunities and maximised all children's benefits to society. In particular, it may also have given the poorest families and children the opportunity to access services, advice and resources that they may have not been able to otherwise access due to social exclusion or poverty. However, since being in power, the coalition government have closed hundreds of Centres, (e.g. in Liverpool just four of the original twenty-six remain). This appears to contradict stated intentions to bring together support services for families and children (directgov, 2012).

All of the intervention, initiatives and acts identified highlight the importance of parental involvement in the early stages of a child's life.

Some authors claim however, that there are times when parental involvement would not be possible, despite efforts to intervene. Gettinger and Stoiber (2007) suggest that intervention is a form of instruction that literate individuals have access to. There are however, 16% or 5.2 million adults in England who are described as 'functionally illiterate' (below levels of those expected of 11 year olds), according to the Literacy Trust (2012). Gettinger and Stoiber (2007) argue that illiterate parents cannot access or comprehend the intervention that targets them. They are therefore unable to provide the means required for betterment of their children (for instance how resources or leisure pursuits provide stimulation). This again suggests an intergenerational cycle of deprivation; many children may therefore remain associated with 'Educational Underclass' because they cannot escape the social obstacles they encounter on a daily basis, despite intervention.

It is therefore evident from this very brief overview that there are many acts, initiatives and policies available that intervene in families and their children's lives in an attempt to support them in the transition from poor to good life chances. Despite efforts however, many people face additional obstacles that these forms of intervention simply cannot shift, including being in a state of extreme poverty. This will contribute to young people facing an on-going, intergenerational cycle of poverty, deprivation or poor behaviours which are characteristics thought to be associated with 'Educational Underclass'.

Conclusion

This literature review had three aims; firstly, to establish what the term 'Educational Underclass' actually means and therefore, how we may identify young people associated with it, secondly, to discover where the roots of 'Educational Underclass' are located, whether it be society or education and, finally, to explore the interventions and policies designed to reach those at risk. Literature was utilised to support or dispute the specified aims and, as a result, there have been several significant findings.

Much of the research reviewed established that features in both society and education, have an impact on an individual's development and future behaviour. Some of the research reviewed demonstrated how societal features, like parental influences and poverty, can be the cause of Educational-Underclass-like behaviours which included; behavioural problems, cognitive and language difficulties, intellectual impoverishment, withdrawn behaviour, self-directed behaviour, social segregation and marginalisation. Raffo et al (2006) further noted that many of these characteristics which occur before formal schooling are then taken into the school environment. This therefore created the argument that before 'Educational Underclass' is established, 'Social Underclass' can occur.

Many other researchers discovered however, that features of formal education can also contribute to the establishment of 'Educational Underclass' characteristics. The educational features that caused these behaviours included ability streaming, discipline technique, special educational needs programmes and, class reproduction through the curriculum.

It was also discovered that many of the characteristics, thought to be associated with

'Educational Underclass' are perpetuated when early intervention is less effective. It was discovered that early intervention would be particularly less effective where poverty is so evident, learning in the home-environment cannot be supported, where the damage is already done, where children's centres have been closed or where families are functionally illiterate.

It was therefore suggested throughout this report, that the term 'Educational Underclass' may be another way of describing negative social cycles, for instance a cycle of poverty, deprivation or poor behaviours particularly where early intervention is ineffective or, where social and educational obstacles are insurmountable. It may therefore be concluded that the term 'Educational Underclass' is just another way of describing these cycles. In addition it could be argued, that the context in which Michael Gove used the term initially was as an umbrella term that encompassed or over-arched these cycles. If this is the case it is clear that 'Educational Underclass' is not something new, rather, it is 'new' term applied to concepts, or social cycles, that have been long-standing. Furthermore it could be argued that, 'Educational Underclass' is a very emotive term (as is 'Underclass') and its use to externally categorise people may lead to very negative perceptions of groups who are already disadvantaged.

By naming the rioters as an 'Educational Underclass', Michael Gove conveniently absolves himself and the coalition government of responsibility in respect of these young people. If we look at statistics of whom the rioters are and where they lived predominantly (the poor and the disenfranchised - Harkin, 2011), it might be argued that responsibility for this lies with politicians. The fact that there was little literature available regarding 'Educational Underclass' however, meant that examining where its roots were located was complex. As a result, it involved some assumptions for instance by correlating the impacts of certain features (like poor attachments in society or ability streaming in education) with the characteristics thought to be associated with 'Educational Underclass'. It is hoped that this research can add to the, currently small, body of literature relating to the concept of 'Educational Underclass'.

Another way to approach this study might have been to use discourse analysis, which studies language beyond the sentence boundary. Therefore, a discourse analysis may study and analyse in depth Michael Gove's language when he referred to 'Educational Underclass'. This may be an appropriate recommendation for further research. A second area for consideration might be to examine the contexts in which the term is used. This would involve an examination of the potential motivations for its use. A third recommendation for further research may be with regards to the use of the term, for instance to provide a greater understanding of whether the term is explicit or whether in fact, it is just another way of describing cycles.

Taking all of these findings into consideration, a succinct conclusion can be established. The roots of 'Educational Underclass' can be located in both society and education. 'Educational Underclass' may also be perpetuated by ineffective early intervention. On the other hand, the characteristics of it can be diminished where early intervention is effective. Ultimately, it might

be concluded that the term 'Educational Underclass' is another way of describing social cycles, for instance the cycle of poverty or deprivation, which impact on the life chances of children.

References

Barrett, M. (2011) *Michael Gove warns of an 'educational underclass' of 'lost souls', 'ill-prepared for school' and lacking discipline and male role models.*
Available from:
http://conservativehome.blogs.com/thetorydiary/2011/09/goveeducationalunderclass.html.
Accessed on 06/01/2012.

BBC (2011) *London Rioters: Poorer, Younger, Less Educated.*
Available from http://www.bbc.co.uk/news/uk-15426720.
Accessed on 09/02/2012.

Bourdieu, P. (1979) *Classes and Classification: A Social Critique of the Judgement of Taste.* United States: Harvard University Press.

Bretherton, I. (1992) The Origins of Attachment Theory: John Bowlby and Mary Ainsworth. *Developmental Psychology, 28*, 2, p759-775.

Bronfenbrenner, U. (2008) Is early intervention effective? *Early Childhood Education, 2*, 2, p14-18.

Burton, D. and Bartlett, S. (2005) *Practitioner Research for Teachers.* London: SAGE Publications.

Child and Family Poverty Needs Assessment (2010) *Liverpool City Region.*
Available from
http://www.liverpoolcitystrategyces.org.uk/wp-content/uploads/2011/03/Child-and-Family-Poverty-Needs-Assessment.pdf.
Accessed on 20/01/2012.

Cohen, N. (2005) Britain's rich kids do better than ever. *New Statesman*, *134*, 4732, 31-32.

Department for Children, Schools and Families (DCSF). (2008) *Sure Start Children's Centres: good for your child and good for you.* Annesley: Department for Children, Schools and Families Publications.

Department for Education (DfE). (2010) *A New Approach to Child Poverty: Tackling the Causes of Disadvantages and Transforming Families Lives.* HMSO.

Department for Education (DfE). (2011) *Early Intervention: The Next Steps.* HMSO.

Department for Education and Skills (DfES). (2008) *Statutory Framework for EYFS.* Nottingham: DfES Publications.

Directgov (2012) *Sure Start Children's Centres.*
Available from
http://www.direct.gov.uk/en/Parents/PreschooldevelopmentandlearningNurseriesPlaygroupsReceptionClasses/DG_173054
Accessed on 28/02/2012.

Field, F. (2010) *Preventing poor children becoming poor adults.* London: Crown Copyright.

Gettinger, M. and Stoiber, K. (2007) Applying a response to intervention model for early literacy development in low income children. *Topics in Early Childhood Special Education, 27*, 4, p198-213.

Giddens, A. (2006) *Sociology.* 5th ed. Cambridge: Polity Press.

Giroux, H. (1983) *Theory and Resistance in Education: A pedagogy for the opposition.* South Hadley: Bergin and Garvey.

Haitsma, M. V. (1989) *A Contextual Definition of the Underclass.*
Available from
http://www.irp.wisc.edu/publications/focus/pdfs/foc121d.
Accessed on 08/12/2011.

Harkin, J. (2011) *Who are the rioters? Young men from poor areas ... but that's not the full story.*
Available from
http://www.guardian.co.uk/uk/2011/aug/09/london-riots-who-took-part.
Accessed on 25/09/2012.

Harris, J. H. (2006) *No two alike: Human nature and Human Individuality.* New York: W.W.Norton.

Hebb, D. (1985) *Father of Cognitive Psychology.*
Available from
http://cogprints.org/1652/1/hebb.html
Accessed on 23/1/2012.

Her Majesty's Revenue and Customs (2010) *Technical Information for NI116.* Available from: http://www.hmrc.gov.uk/stats/personal-tax-credits/ni116-tech-note.pdf. Accessed on: 4/12/2012.

HMSO. (2010) Child Poverty Act. Available from: http://www.legislation.gov.uk/ukpga/2010/9/pdfs/ukpga_20100009_en.pdf. Accessed on: 12/03/2012.

Howard, K., Martin, A., Berlin, L. J. and Brooks-Gunn, J. (2011) Early Mother-Child Separation, Parenting and Child Well-being in Early Head Start Families. *Attachment and Human Development, 13*, 1, p5-26.

Ireson, J. and Hallam, S. (2003) *Ability grouping in education.* London: Paul Chapman Publishing.

Kemp, S. and Watkins, D. (1996) "Self-esteem and academic streaming in Hong Kong". *The Journal of Social Psychology, 136,* 5, p651-653.

Learning and Skills Council (2011) *Analysis of 14-19 education and training.*
Available from
http://readingroom.lsc.gov.uk/lsc/NorthWest/Liverpool_2009.pdf.
Accessed on 20/01/2012.

Literacy Trust (2010) *Talk to your baby's face to face research project.*
Available from
http://www.literacytrust.org.uk/talk_to_your_baby/policy_research/1737_research_talk_to_your_babys_face_to_face_research_project
Accessed on 12/02/2012.

Literacy Trust (2012) *FAQ's.* Available from: http://www.literacytrust.org.uk/about/faqs#q284. Accessed on: 18/2/2012.

Liverpool City Council (2010) *The Index of Multiple Deprivation 2010. A Liverpool Analysis.* Available from: http://liverpool.gov.uk/Images/2%20IMD%202010%20final%20document%20compressed%20with%20links.pdf. Accessed on: 25/1/2012.

McCroskey, J. C. (2011) *Quiet children in the classroom.* Available from http://www.jamescmccroskey.com/publications/92.htm. Accessed on 14/01/2012.

McMillan, D. W. and Chavis, D. M. (1986) Sense of Community: A definition and theory. *Journal of Community Psychology, 14*, 4.

Mehmel, E. and Ismail, Y. (2010) Classroom Management and Classroom Discipline Problems, Reasons and Solutions. *Education: Theory and Practise, 10*, 2, p881-891.

Messiou, K. (2002) Marginalization in Primary Schools: Listening to children's voices. *Support for learning, 17,* 3, p117-121.

Miles, S. and Singal, N. (2010) The Education for All and inclusive education debate: conflict, contradiction or opportunity? *International journal of Inclusive Education, 14*, 1, p1-15.

Murray, C. (1996) Charles Murray and the Underclass: The Developing Debate. *Choice in Welfare*, *33*.

Percy-Smith, J. (2000) *Policy Responses to Social Exclusion. Towards Inclusion?* Buckingham: Open University Press.

Pinker, S. (2004) *Why Nature and Nurture won't go away.* Available from http://pinker.wjh.harvard.edu/articles/papers/nature_nurture.pdf. Accessed on 21/1/2012.

Rabbie, J. M. and Horwitz, M. (2006) Categories versus groups as explanatory concepts in intergroup relations. *European Journal of Social Psychology, 18*, 2, p117-123.

Raffo, C., Dyson, A., Gunter, H., Hall, D., Jones, L. and Kalambouka, A. (2009) Education and Poverty: Mapping the terrain and making the links to educational policy. *International Journal of Inclusive Education, 13*, 4, 341-358.

Ratcliff, N. J., Jones, C. R., Costner, R. H., Savage-David, E. and Hunt, G. H. (2011) The impact of misbehaviour on classroom climate. *Education Digest, 77*, 2, p16-20.

Reed, J. and Adolph, L. (1991) The Underclass Myth. *Progressive, 55*, 8, p50-52.

Save the Children (2011) *FAST – Families and Schools Together.* Available from http://www.savethechildren.org.uk/en/fast.htm Accessed on 18/04/2011.

Spicker, P. (1993) *Poverty and Social Security: Concepts and Principles.* London: Routledge.

Unwin, J. (2010) *Can we still eradicate child poverty by 2020?*

Available from http://www.jrf.org.uk/blog/2010/01/can-we-eradicate-child-poverty.
Accessed on 17/02/2012.

Willis, P. (1977) *Learning to Labour: How working class kids get working class jobs.* London: Saxon House.

An exploration of the educational experiences of two students who entered the educational system in different decades

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Introduction

Compulsory education provision has undergone many radical political changes and government initiatives throughout history which continues to impact upon education through to the present day. The changes that have been implemented have shaped and dictated individual's educational experiences which largely went uncontested. This article will endeavour to explore the educational experiences of two mature students who, although entered the educational system in different decades, faced continuous disruption and uncertainty within both family and school life. Upon reflection of both Karen and Leanne's school provision, stark similarities can be identified through their personal accounts of their childhood educational experiences. Both Karen and Leanne faced continuous barriers, disruptions and upheaval they recognise that have exceeded the expectations which society imposed upon them.

Infant education

Karen was born in the summer of 1964 when Harold Wilson was the Prime Minister for the Labour Party. There was ample employment for everybody and the country was seen as being in affluent commodity (Gillard, 2011). Karen attended play school aged four in 1968 in Scotland, which provided a holistic approach to pre-school education provision. Karen continued into the local primary school aged five which was the compulsory age for attending school in Scotland (Education Act in Scotland, 1962). The educational structure in place focused on the development of phonetic language and reading, delivered in a reinforced style. The school was Church of England and the day began with an assembly consisting of traditional biblical hymn, prayer and moral message, which aimed to deliver an understanding of values thought to become a moral citizen. This was part of the Religious Education provision laid out in the Scottish Primary Memorandum (SED, 1965). In England, the 1944 Education Act recommended that religious education should be a compulsory requirement within the curriculum to be delivered regardless of school status (Basini, 1999).

In 1970 Karen's father was assigned to Osnabruck, Germany with the British Army. Karen was very excited at the prospect of meeting new friends at school however; the compulsory age for children to commence their education in Germany was six years (Fort, 2006 and World Data on Education, 2006/2007), therefore Karen was too young to attend school. However, Karen recalls that this was more a holiday of cultural awareness

of other countries which she now realises and acknowledges the relevance of this experience in terms of present curricular Early Years education values.

On Karen's return to the UK she attended infant school in Hampshire as her father had another assignment within the British Army. Karen experienced a constant upheaval within her family life and education. Despite not having a national curriculum the main focus on Karen's education was based on the importance of reading, writing and arithmetic using a variety of methods to complement learning and understanding. The different educational philosophies adopted in Scotland, Germany and England ultimately conflicted with each other which impacted upon Karen's education.

The SED (1965) was introduced ahead of the Plowden Report in which the main ethos highlights that, "At the heart of the educational process lies the child" (1967:7). The Plowden Report (1967) developed policies with a view to changing the way education was provided towards a progressive style of education. The influences of educational theorists such as Piaget, Bruner and Dewey provided an insight into how children could learn from their environment cognitively as opposed to the rigidity and controlled authoritative methods of teaching (Oyler & Becker, 1997). It was becoming more relevant that England was recognising the works of Piaget and his theory of cognitive development in education with regards to age and stage of the child (Plowden, 1967). The Plowden report was introduced by the Labour Government before the re-election in which the Conservatives gained power. However; the Conservatives scrutinised the report and saw education as being the basis of benefiting the country (Bates et al, 2011).

Leanne was born in Sheffield in 1984 when the economic climate at the time was in decline. In 1989 at the age of five Leanne commenced her education however; as the economy impacted upon her family circumstances, the knock on effect saw that she attended four different schools by the age of seven. Additionally, there were changes in legislation being made within education. Previously the Department for Education and Science (DES) had published a White Paper (Better Schools, 1985) which laid the foundations for the introduction of the National Curriculum by outlining the need to raise standards for everyone. These factors ultimately culminated in the introduction of the National Curriculum as proposed in the Educational Reform Act 1988 and as Wakeling (2010) indicates, it was to be implemented in all state schools. For the first time in British education, as discussed by Basini (1999), it became a statutory requirement to introduce a curriculum for education. Martin (2008) highlights that, when the national curriculum was initially introduced, all pupils from state schools aged five years to sixteen years would be taught curricula content in line with the requirements of the National Curriculum. Core subjects were English, Mathematics and Science (ibid) which can be argued reflect the back to basics ideology and step away from progressive teaching methods (Lawton, 1994).

The frequent upheavals that Leanne encountered necessitated in her having to start at a new school and having to make new friends each time her family relocated. Leanne found the constant

disruption to her education and family life difficult and she struggled to settle in the different schools. She faced taunts from other children regarding her first name at that time (Toni is her first name by birth) being a 'boys' name. This continued despite attempts from her parents to resolve the matter, by 1992, attending her third school, Leanne decided that she wanted everyone to call her by her middle name, Leanne. She then managed to avoid any possible taunts and settled in more rapidly. In 1993 Leanne changed schools yet again however, this time, it was a natural progression from infant school to junior school and she moved up with friends.

Karen and Leanne both encountered multiple disruptions to their infant education. Karen's experience centred on a military family life, whilst Leanne's educational experience was influenced by changes in the economic climate forcing her family to relocate. The different philosophies surrounding education in Scotland, Germany and England ultimately conflicted with each other which, in particular, resulted in Karen missing out on her infant education. In comparison, Leanne remained within the English educational system that provided her with a stable education despite the upheavals of moving schools.

Junior education

In 1971 Karen commenced junior school however; due to policies in place regarding the intake of pupils, Karen was unable to attend school until the next intake. This resulted in Karen having more time out of school. There have been many suggestions surrounding the intake of summer born pupils with regards to discrimination (Bell and Daniels, 1990). Once again Karen's education was disrupted through changes in British education policy and legislation. Karen's junior educational experience had an emphasis on discipline which was seen to be of high importance through the administration of corporal punishment. Karen remembers that the class was structured in rows of desks with inkwells and being forced to write with a fountain pen in a cursive style (Bearling, 1972). Many of her friends were left handed and would be forced to write with their right hand whilst their left hand was tied behind their back; if they refused or got caught they would receive a rap on the knuckles or a visit to the Head teacher for the cane (Lambert, 2010). It could be argued, discipline provided pupils with a moral standing for future citizenship and acceptance of norms in society (DFES, 1996). Discipline was seen as normal both at home and school for many children at this time (Walsh, 2004).

In 1972 Karen moved back to Germany due to her father's army career and attended the BAOR School which was allocated for child dependents of officers in the British Army provided by the Ministry of Defence (SCISS). The British Families Education Service (BFES) (2012) was set up to support the education provision for children overseas and followed the same educational provision to that being followed in the United Kingdom. In England Harold Wilson became the Labour Prime Minister in 1974 and education policies became locally controlled whereas previously they were centrally controlled by the government (Gillard, 2011). In this year Karen moved back to England and returned to her previous junior school. Upon Karen's return her friends welcomed her back however; it took time to readjust to the English method of schooling, which included weekly spelling tests.

1979 saw the Conservative Party re-elected with Margaret Thatcher as Prime Minister and, as indicated by Martin (2008), it was felt by those who supported the views of the New Right that the 'progressive' views on education were detrimental to society and education required the re-instatement of core values, structure and discipline. Ultimately the demise in 'moral standards' was attributed to the role that education played (Lawton, 1994: 49).

Despite Leanne's infant education being disrupted it was only by Year 3 that it became more settled and led to a natural progression into junior education in 1992. It is here that Leanne recalls studying the Egyptians and with hindsight she realises that she was following the National Curriculum. The Department for Education (DfE) (2011) suggests that as part of history in Key Stage two, a study of world history is to be undertaken and that Ancient Egypt is a recommended topic. Leanne recognises that the introduction of the national curriculum was a significant piece of legislation that influenced and shaped her learning throughout compulsory school years. Ball (2011) indicates that the national curriculum established a process whereby children would be subjected to assessments at four stages, known as 'Key Stages' which required them to assess against ten levels of accomplishment. As discussed by Murphy et al (2009), Standard Assessment Tasks (SAT) would occur at ages seven, eleven and fourteen years old which, despite Leanne's recollections of only sitting her SAT at fourteen, legislation would dictate that she had sat them at seven and eleven also.

For Karen her junior education was fraught with yet more changes of schools both in the United Kingdom and in Germany. Whilst Karen's education in Germany followed the same education system to that being provided in the United Kingdom, it could be argued that the biggest barrier in her junior education was encountered upon returning to the United Kingdom. Changes in policy at the time deemed Karen unable to attend school until the next intake, therefore, rendering Karen without any education for some time. In contrast to Karen's constantly interrupted education it was whilst Leanne was in junior school that her education became more stable.

Secondary education

Karen attended high school in 1975 and it was a fairly new building due to the Newsom Report (1963) that condemned the standards of secondary schools. Karen's time here was one of panic due to the upheaval of moving around to different classrooms with different teachers and she began to dislike Physical Education. Karen recalls that all pupils were made to shower after the lesson and it was like a conveyer belt of pupils rushing through as quickly as possible. It was here that Karen was first introduced to school bullies reflecting the importance of status between girls and she found it difficult to 'fit in'.

Karen's attendance at this school was once again short-lived as her father had left the British Army which came as a big relief to her and gave her hope that she could now stay put in one school. Unfortunately this was not the case as another move to Wirral caused her more upheaval. The government had given control to LEA's to be responsible for providing secondary education as

they saw fit (DES, 1970). By doing this education was incorporated with provision for pupils in elementary, middle and secondary modern schooling. It was deemed to be cost effective for Local Authorities to keep pupils at school until they were aged eleven. Due to Karen's birth date and policies regarding admission protocol, she would leave middle school at the age of 12 and then attend her local secondary modern school. Due to the implementation of middle schools, Karen was held back a year and her time at middle school was not a happy memory. The teachers were of an older generation and still believed in corporal punishment which gave Karen the incentive to keep going despite her time being unhappy and unsettled. The work was similar to what she had already started in her previous school and she lacked the motivation to do her best to achieve.

In 1974 in Wirral, whilst Karen was in her middle school, the 11+ exam was (and is still widely) available and at this time the norm was seen for those in middle and upper class seen to be of 'high intelligence' to be put forward only. This could be suggested as an apparent disparity of class organisation at this period and the understanding that lower social class children were not seen fit to pass (Bourdieu & Passeron, 1990). In hindsight Karen believes that if she had been fortunate enough to receive a stable education, sitting the 11+ would have been an option available to her. It is probable that her previous educational background and the inconveniences of moving from school to school impacted on her ability to succeed (Robertson, 2008).

Upon return to secondary education, Karen attended a high school for girls in 1976 which was a secondary modern establishment within her catchment area. Core subjects offered here were; Mathematics, English Literature, English Language, Art, Geography, History, Religious Education, Physics, Chemistry, Biology, French, Home Economics and Physical Education with different teachers for each subject. Karen found teaching styles and methods played a big part in her enjoyment of the subjects. Streamlined ability classes that consisted of top, middle, bottom and remedial were obvious and were reinforced through teacher comments and peer pressure (Beck and Earl, 2003). Karen was in the middle classes for the majority of her lessons and bottom for Mathematics which was probably her worst subject area due to the constant rote method of learning time tables each week, a style she found challenging even with extra support from her parents.

Previously in 1965 the Certificate of Secondary Education (CSE) was introduced to ensure that each pupil would attain a qualification that was linked to lower academic ability (Abraham, 1995). However, for those deemed more able, they took General Certificate of Education (GCE) examinations (Marples, 1999). Karen was entered to sit CSE's and chose to study; Child Development, Human Biology, Art, and French, as her options alongside compulsory subjects; English Language, English Literature and Mathematics (DES, 1977). On completion of Karen's examinations it was compulsory at this time to be still in school until you reached the age of sixteen due to the 1976 Education Act. Karen was not allowed to leave school until the last two

weeks of July in 1980 despite the fact that most of her friends had left.

Whitty (1989) observes that the government facilitated a shift in control through the introduction of the Education Act (2) (1986) by increasing the role and responsibilities of parents which is further accommodated through the marketisation of schools. As discussed by Whitty (1989) and Lawton (1994), it was believed by some that education and schooling should mirror the requirements of industry. Therefore, as indicated by Ball et al (1996), parents are now encouraged to view themselves as 'consumers' (pg. 89) which necessitates in providing enough information to enable parents to make informed choices. The Parents' Charter (1991) enabled parents to access information concerning school performance rates and the information obtained from the SAT examinations, which in 1992 was produced in to league tables (Ball, 2011). Despite the government's attempt to provide parents with enough information to enable them to make an informed decision, the community that Leanne lived in was restricted in choice of educational provision, as she lived in a rural community in which there was only one junior school and one secondary school that had a large catchment area to encompass the surrounding villages. There did not appear to be any competition between schools for pupils due to the vast catchment area and it was viewed that it was a natural process that was widely accepted.

Leanne recalls feeling under pressure from her teachers to be successful and achieve high grades through the constant reminders that the outcome would determine how she would be set for the lessons in Year 9, which in turn would affect the General Certificate of Secondary Education (GCSE) grades that she could achieve. Upon commencement of year ten in 1999, Leanne suddenly found herself being allocated to a particular class based on ability. As she recalls, this occurred for Mathematics and Science which she found to be frustrating and not a particularly pleasant experience. Mathematics has never been a subject that Leanne has excelled in but she has always maintained a steady progress. Therefore, when she was set in the lowest ability class, Leanne was made aware immediately that she would be unable to achieve a grade any higher than a 'D'. As Jerome (2010) identifies, the setting of pupils can have "severe effects" owing to GCSE examination papers being tiered based on ability (pg. 180). In hindsight, Leanne was fortunate in Year 11 to have been moved to the intermediate group which enabled her to have the opportunity to achieve a higher grade.

Kenneth Clarke in a speech addressing the North of England Conference in 1991, outlined that it was compulsory for all pupils to undertake GCSEs in English, Mathematics and Science, the core subjects (Maclure, 1992). In addition, Technology and a Modern Foreign Language were made compulsory alongside either History or Geography (ibid). As formerly discussed, religious education was the only compulsory subject identified in the 1944 Education Act as discussed by Basini (1999), however it continues to prevail in subsequent legislation, for example in the 1988 Education Reform Act (Bartlett et al, 2002). Although Religious Education was compulsory it was subject to local agreement and not regulated by central government (ibid). In light of the above discussion regarding GCSE subjects, the legislation is evident through the

subjects Leanne studied. She achieved GCSEs in the core subjects and, upon reflection, the subjects that she did not choose to continue to study at fourteen such as religious education was incorporated in to a subject called Expressive Arts.

Karen recalls that it was not until she was choosing her options that her family life became more stable and permanent through her father leaving the army. Through the system of streamlining pupils, Karen was entered for her CSEs to ensure that she gained recognised qualifications. Leanne in contrast was entered for GCSEs upon the results of her SATs taken at the end of Key Stage 3. Despite being placed in the lower ability class for mathematics she was able to move sets to the intermediate class.

Conclusion

Policies surrounding education are mainly determined by who is in government at the time and there are still concerns regarding education provision today. It would appear that education is a continuous learning experience which both Karen and Leanne have been fortunate enough to have survived despite intermittent upheavals. The majority of both Karen and Leanne's education can be described as experiencing major uncertainty and disruptions. Both can relate to their distress in building relationships with peers and settling into the numerous school environments. Karen's education can be identified as being based upon the three R's whereas Leanne's was grounded upon the implementation of the national curriculum.

Trowler (2003) would suggest that the curriculum became weighed down with the amount of content and teaching professionals found themselves being constrained with bureaucracy, which later prompted the Dearing Report (1994), where measures were put in place to reduce testing (Basini, 1999). Testing and assessments of children's progress was however present in the elementary schools through the Revised Code 1862 (Bartlett et al, 2002). Children were assessed in the three 'R's; reading, writing and arithmetic in which the outcome would ultimately reflect and impact upon the pay and funding the school would receive (ibid). Ball (2011) states that the correlation between performance and pay is evident in New Labour governments through their recognition of success and 'reward' (pg. 144). The national curriculum continues to be put under review to the present day. As Blunkett, a former Secretary of State for Education reflects, amendments to the national curriculum whilst in office were minor however, he agreed with Thatcher in the necessity of requiring a national curriculum which 'prepares the nation for our future' (2012: 44).

The National Curriculum was, however, met with resistance within the conservative party itself, with parliamentary opposition, with educationalists and those within the teaching profession fearing that it questioned their professionalism (Kassem and Garratt, 2009). Controversially the resistance within the conservative party was directed by ideology that schools would function more like businesses and combine the philosophy of industry and the introduction of market forces within education (Murphy, et al, 2009; Lawton, 1994). Despite obstacles she faced each time she attended a different school it could be argued that the National Curriculum provided Leanne with a stable education. Despite her family circumstances her attend four different schools by

the age of seven. Leanne found making new friends difficult each time her family was relocated, resulting in a struggle to settle into different schools. The national curriculum is currently under review with an objective to create a new curriculum that 'best meets the needs of … pupils' (DfE, 2012).

References

Abraham, J. (1995) *Divide and school: gender and class dynamics in comprehensive education*. London: Falmer Press.

Ball, S.J. (2011) *The Education Debate*. Great Britain: Policy Press.

Bartlett, S., Burton, D. and Peim, N. (2002) *Introduction to Education Studies*. Great Britain: Paul Chapman Publishing.

Basini, A. (1999) The National Curriculum: Foundation Subjects. In: Docking, J. (ed.) *National School Policy: Major Issues in Education Policy for Schools in England and Wales, 1979 Onwards*. Great Britain, David Fulton Publishers.

Bates J., Lewis, S. and Pickard, A. (2011) *Education Policy, Practice and the Professional,* London: Continuum.

Bell, J. and Daniels, S. (1990) Are Summer-born Children Disadvantaged? The Birthdate Effect in Education. *Oxford Review of Education, 16*, 1, p67-80.

Bourdieu, P. and Boltanski, L. (1981) The education and the economy: titles and jobs, In: C. Lemert (Ed.) *Rupture and Renewal Since 1968*. New York: Cambridge University Press.

British Families Education Service (BFES) (2012) *DC/BFE British Families Education Service / Service Children's Education Association*. London: Institute of Education,

Department for Education (DfE) (1996), *Evaluation of Circular 10/98 on the use of force to control or restrain pupils*. London: Crown.

Department for Education (DfE) (2011) *History: Key Stage 2.*
Available from
http://www.education.gov.uk/schools/teachingandlearning/curriculum/primary/b00199012/history/ks2
Accessed on 10/03/2012.

Department for Education and Science (DES). (1985) *White Paper: Better Schools*. London, HMSO.

Department of Education and Science (DES). (1977) *Education in Schools: A Consultative Document*. London: HMSO.

Fort, M. (2006) *Educational Reforms Across Europe: A Toolbox for Empirical Research*.

Gillard, D. (1987), Plowden and the primary curriculum: twenty years on.
Available at
http://www.educationengland.org.uk
Accessed on 15/03/2012

Heath, A. and Jacobs, S. (1999) Comprehensive Reform in Britain. *CREST, no. 42*

Lawton, D. (1994) The Tory Mind on Education 1979-94. Great Britain, The Falmer Press.

Marples, R. (1999) 14-19. In: Docking, J. (ed.) *National School Policy: Major Issues in Education Policy for Schools in England and Wales, 1979 Onwards*. Great Britain, David Fulton Publishers.

Martin, G.A. (2008) A Brief History of State Intervention in British Schooling. In Matheson, D. (ed.) *An Introduction to the Study of Education (3rd Edition*). Great Britain: Routledge.

Murray, W. (1966) *The Ladybird Key Words Reading Scheme.* Loughborough: Wills and Hepworth Limited.

Oyler, C. and Becker, J. (1997) *Teaching Beyond the Progressive-Traditional Dichotomy: Sharing Authority and Sharing Vulnerability*. Oxford: Blackwell.

Pickering, K.T. and Owen, L.A. (1997) *An Introduction to Global Environmental Issues (2nd Edition)*. United States of America, Routledge.

Richards, C. (1997) *Individuality, equality and diversity*. TES.

The Plowden Report. (1967) *Children and their Primary Schools: A Report of the Central Advisory Council for Education (England*). London: HMSO.

Walsh, T. (2004) *When Two are One*. CECDE.

The effectiveness of pedagogical approaches in Mathematics

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Mathematics is a core subject of the National Curriculum crucial to education and compulsory from the ages of five to sixteen. According to Gates (2001) those in possession of high mathematics qualifications gain access to enhanced opportunities. Influential theorists such as Piaget (1971) and Vygotsky (1978) have provided several theoretical positions to both teaching and learning, which have been implemented within the classroom with a significant impact upon education. In spite of the approaches designed to create a positive learning environment in which mathematics is celebrated and appreciated, it is clear there are still inadequacies. Much controversy surrounds how children are taught mathematics in schools. Skemp (1971) alludes to the failure of educationalists in the teaching of mathematics generating a distinct dislike to the subject. Almost twenty five years later the same beliefs still permeate the educational field. Gates (2001) refers to the decline in the enjoyment of mathematics from the ages of eleven to sixteen, ultimately failing individuals in society. The Williams Review (2008) provides a government publication designed to establish concepts to guide educators to achieving mathematical success. Additionally, Williams (2008) discusses the trend in the United Kingdom in which it seems socially acceptable to possess the inability to achieve within certain subjects. As a result this social trend can obscure children's views in regards to certain subjects, consequently having a detrimental outcome on educational achievement. The research discussed in this article aimed to evaluate the effectiveness of pedagogical approaches in mathematics such mark making and language and the use of resources to enhance learning. Theoretical positions will also be analysed in terms of social class and the home / school divide as well as reflecting upon visits from educationalists who deliver mathematics on a daily basis.

Initial structured experiences with number are delivered through the Early Years Foundation Stage (2007) (EYFS). The Williams Review (2008:34) asserts that the promotion of a child's 'natural interest' in numeracy is fundamental to effective pedagogy. Piaget (1971) stipulates that throughout the pre-operational stage the mind processes of young children are egocentric, lacking the ability to perceive the opinions of others and consequently perusing their own interests. Yet Donaldson (1978:17) suggests the issue lies with a practitioner's inability to de-centre and observe classroom experiences 'imaginatively' from a young child's perspective, failing to acknowledge and explore early mathematical mark making. Carruthers and Worthington (2005:5) highlight further the inadequacies of Early Years educators to appreciate children's 'mathematical graphics', which ultimately leads to a lack of reinforcement in children's' 'natural interests', as proposed by the William's Review (2008:34). Selleck (1997) criticised practitioners' use of the word 'scribble' in regards to early mark making referring to this as a derogatory term, whilst Matthews (1999:19)

additionally contends that children's markings should not be considered 'haphazard actions'. Further assumptions by Matthews (1999) refer to children's representations portrayed through mark making, allowing individuals to express themselves and granting a practitioner access to children's understanding.

The William's Review (2008) identifies that mark making can be observed within role-play when children imitate the actions of practitioners, for example composing a letter or list. However, it should not go unnoticed that imitation can also occur within the home as parents are also influential role models. The process of imitation is a key concept of social learning, a theory originating from Bandura (1977) who upholds the belief that prominent figures within a child's life are likely to be imitated. Bandura's (1977) theoretical perspective can be transferred into both the classroom and home to promote effective pedagogy, as observations can be made by the child from various role models enhancing their mathematical understanding. The Rose Review (2009:17) discovered that 'children benefit most when their home and school lives establish similar values'. Additionally, The Williams Review (2008) acknowledges the importance of encouraging initial mathematical mark making within early years, in order to extend children's abilities in mathematical thinking. Although implemented under the previous Labour Government the Primary National Framework for Mathematics (DfES, 2006:103) insists practitioners within the EYFS (2007) should combine activities to 'develop skills and understanding across several areas of learning'. Ash (2012) referred to workshops available for parents at his school in order to utilise the same learning strategies applied within the classroom at home. Yet, it could be argued that, the varying levels of understanding in pedagogy between professionals and amateurs could cause issues when encouraging learning within the home.

Despite the promotion of mathematical approaches and influence of practitioners, the William's Review (2008) places a considerable emphasis on parental input into learning to enhance understanding. Desforges and Abouchaar (2003) conducted a study that revealed that, regardless of socio-economic background, the most influential factor within a child's life is their parents. Although the study was conducted nine years ago, parental input into education is now considered a more dominant factor than ever. The Williams Review (2008) provides evidence that when Mathematics is taught within a context that the child can relate to through real life experiences, learning is more likely to be considered fun. An example of using real money, as opposed to plastic coins when shopping, provides the child with an insight into how maths is used within real life contexts (Ash, 2012). Implementing real life connections into education constitutes as expression of cultural capital, a term coined by Bourdeiu (1973), however Neaum (2010) implies that differences in cultural capital can place children from a lower socio-economic background at a disadvantage. Values and interests of those from a lower socio-economic background are not necessarily emulated within the curriculum therefore children may find it difficult to connect experiences within their society to education (Neaum, 2010). A study conducted by The Social Exclusion Task Force (2008) revealed the absence of social capital in deprived communities; as a result

children and young people lack access to inspiration and role models. Therefore, it could be argued that for pedagogy to be effective the backgrounds of children must be considered in order for them to relate to education accordingly. However research from the Effective Provision of Pre-School Education Project (2004:5) states that 'what parents do with their children is more important than who parents are'. Yet it must be taken into account that the research was conducted over eight years ago and may be now considered irrelevant by some professionals.

Clear disparities between the home and school environment have been identified however it should be acknowledged that both settings contribute to learning. The school environment is enriched with resources and the Williams Review (2008) notes the significance of mathematical understanding being underpinned by practical resources. Ash (2012) exemplifies how the school he is based in aims to provide continuous and extended support to pupils outside of the classroom. Parents are encouraged to purchase resources used within the classroom and are trained on how to implement them at home to reinforce learning (Ash, 2012). Yet it should be highlighted that the school is situated within an area of higher economic status and therefore parents are able to easily purchase resources and promote learning within the home. Neaum (2010) proposes that children from a lower socio-economic background are not as fortunate and lower household income leads to the inability to access resources such as books and computers from home. Montessori (1983) expresses the value of implementing practical resources into activities to allow children to gain life skills which can be replicated into the real world. However, it could be argued that parents from a disadvantaged background can implement everyday objects from their environment to encourage learning at home.

Resources can be used as an aid to accompany learning and enhance children's progress within the zone of proximal development (originating from Vygotsky, 1978). The Vygotskian theory promotes the potential increase that can be achieved in development when children are supported. The increase can be accomplished through teachers implementing purposeful resources. Vygotsky's zone of proximal development has been criticised by Noss and Hoyles (1996) who articulate that the term zone denotes a specific area of development reliant upon educational experiences facilitated by the teacher. However, the zone of proximal development has not been universally accepted and an adaptation has been produced by Noss and Hoyles (1996) who devised the concept of 'webbing'. Hansen (2005) suggests this pedagogical approach to mathematical problem solving allows the learner to be at the centre of the 'web' acknowledging both their internal understanding of the problem alongside the input of teachers and resources. Although the use of resources has been deemed successful in promoting understanding in mathematics, Ash (2012) maintains from experience that the over use of resources can result in children becoming dependant. The theoretical concept of scaffolding coined by Bruner (1988) attempted to clarify Vygotsky's (1978:89) statement that only 'good learning' can enhance development. Bruner (1988) questions Vygotsky's (1978:89) meaning, claiming that until children are able to fully comprehend actions 'good learning' will be unable

to occur, inhibiting development. According to Bruner (1988), the purpose of the adult or resource within the process of scaffolding is to act as a 'vicarious form of consciousness' to the child. Bruner (1988:89) proposes that support and guidance to learning should remain in place until the child can independently achieve the task, through their 'own consciousness and control'. Scaffolding enables the use of resources to be implemented to gain an understanding of a mathematical concept, once the child has the ability to 'internalise external knowledge' resources and adult guidance can then be withdrawn (Vygotsky, 1978:89).

In addition to the previously outlined disjunctions between the school and home environment, a prominent mathematical misconception is the accountability of language used to convey pedagogy effectively. Theoretical underpinning from Piaget (1971) states one of the most significant acquirements of the concrete operational stage is that of conversation and the ability to comprehend hierarchies of classification. The Cambridge Primary Review (2010:283) claims that dialogue is 'an important means to develop intellectual capacities' and consequently promotes its importance to ensure effective pedagogy. The experiments of Piaget (1971) have been explored by Robson (2006) who determines that, although children were questioned on numerous occasions, the language was slightly altered each time promoting a fear that the child's initial answer was incorrect. Piaget's choice of words to construct questions included within his research have been criticised by Keenan and Evans (2010) who consider the terms abstract and have failed to be presented within a meaningful context to a child. Donaldson (1978) cites an experiment conducted by McGarrigle (1974) in which the linguistic terms in questions were simplified to assess Piaget's (1971) research, results concluded that the principle of class inclusion which infiltrates Piaget's (1971) work had been diminished. An additional critique of Piaget's methodological foundations have been provided by Smith et al (2003) who propose the difficulties of replicating Piaget's interviews and the fact most of his studies were conducted on his own children or those of other university professionals possibly resulting in a bias sample.

Gates (2001) claims that initial experiences of language are shaped through the context of family, resulting in variation in the understanding of mathematical terms. Students from a higher socio-economic background, according to Gates (2001:44), posses 'rich experiences' in mathematics and are able to deconstruct the appropriate meaning of teachers statements, whereas children from a lower-socio economic background are positioned at a disadvantage as mathematical terms are less likely to be used in every day conversation (Gates, 2001). The Williams Review (2008) points out that mathematics can be perceived as a language in itself with a unique and unfamiliar vocabulary to young children, rarely spoken at home. Misconceptions in mathematical language have been documented by Zevenbergen (2001) who considers the extensive range of words used within Mathematics that have different meanings when applied in certain contexts. Zevenbergen (2001:44) uses the example of using the words 'whole' and 'hole' in a fractions lesson, although it is clear to some that these two words have completely different meanings and that pupils can

easily be misled by the use of these terms. It has been proposed by the Williams Review (2008:34) that staff should be provided with exemplary material including 'models of open questions and discussions' and a 'mathematical language list' to enable effective mathematical teaching.

Although not explicitly referred to, theoretical positions have been implied throughout many government publications aiming to highlight pedagogical approaches to promote mathematics. An influential statement from Skemp (1971) suggests that success in mathematics can only be achieved through pedagogical approaches which stimulate children's minds intellectually as opposed to rote learning.

Despite the Cambridge Review (2010) documenting a reserved improvement in primary mathematics since 1995, a national angst remains in society in regards to educational achievement in Mathematics. To avoid the social trend exposed within the Williams Review (2008) the Coalition government are keen to promote successful mathematical role models such as Carol Voderman. However, Carol Voderman's achievement of a third degree classification flies in the face of the Coalition's argument in their demand for better qualified teachers. With the current National Curriculum Review underway it is clear that the Coalition have a lot to consider. Previously established theoretical positions and pedagogical approaches have provided a robust foundation to be built upon. Yet, it should be acknowledge that the William's Review (2008) was commissioned by the previous Labour Government and therefore some aspects may be disregarded.

REFERENCES

Alexander, R. (2010) (Ed.) *Children, their World, their Education: Final Report and Recommendations of the Cambridge Primary Review.* London: Routledge.

Ash, A (2012) *Lecture to students at Liverpool John Moores University*, 1st March 2012.

Bandura, A. (1977) *Social Learning Theory.* General Learning Press: New York.

Bourdieu, P. (1973) Cultural Reproduction and Social Reproduction, In: Brown, R, (1973) (Ed.) *Knowledge, Education and Cultural Change: Papers in the Sociology of Education*. London: Taylor & Francis (p72-112)

Bruner, J.S. (1988) Vygotsky: A Historical and Conceptual Perspective. In: Mercer, N. (Ed.) *Language and Literacy from an Educational Perspective*. Milton Keynes: Open University Press.

Carruthers, E. & Worthington, M. (2005) Making Sense of Mathematical Graphics: The Development of Understanding Abstract Symbolism*. European Early Childhood Education Research Journal, 13,1*.

Desforges, C. & Abouchaar, A. (2003) *The Impact of Parental Involvement, Parental Support and Family Education on Pupil Achievements and Adjustment: A Literature Review.* London: DfES.

Department for Education and Skills. (2007) *The Early Years Foundation Stage.* London: DFES.

Department for Education and Skills. (2006) *The Primary Framework for Literacy and Mathematics*, London: DFES.

Donaldson, M. (1978) *Children's Minds*. London: Fontana Press

Gates, P. (2001) *Issues in Mathematics Teaching*. London: Routledge Falmer.

Hansen, A. (2005) *Children's Errors in Mathematics*. Exeter: Learning Matters.

Keenan,T. & Evans,S. (2010) *An Introduction to Child Development.* London: Sage.

Matthews, J. (1999) *The Art of Childhood and Adolescent*. London: Falmer Press.

McGarrigle, J. & Donaldson, M. (1974) Conversation Accidents. *Cognition*, 3, p341-350.

Montossori, M. (1983) *The Secret of Childhood.* London: Sangam Books.

Neaum, S. (2010) *Child Development for Early Childhood Studies*. Exeter: Learning Matters.

Noss, R. & Hoyles, C. (1996) *Windows on Mathematical Meanings*. London: Kluwer Academic Publishers.

Piaget, J. (1971) *Biology and Knowledge.* Chicago: University of Chicago Press.

Robson, S. (2006) *Developing Thinking and Understanding in Young Children: An Introduction for Students.* London: Routledge.

Rose, J. (2009) *Independent Review of the Primary Curriculum: The Final Report*. London: DCSF

Selleck, D. (1997) Baby art: art is me. In: P. Gura (ed.) *Reflections on Early Education and Care.* London: British Association for Early Childhood Education.

Skemp, R. (1971) *The Psychology of Learning Mathematics*. Oxford: Blackwell.

Social Exclusion Task Force (SETF) (2008). In: DCSF (2009) *Deprivation and Education*. London: DCSF.

Smith, P.K., Cowie, H. & Blades, M. (2003) (2nd Edition) *Understating Children's Development.* Oxford: Blackwell.

Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I. & Taggart, B. (2004) *The Effective Provision of Pre-School Education (EPPE) Project: Final Report.* London: DfES.

Vygotksy, L.S. (1978) *Mind in Society: The Development of Higher Psychological Processes.* Cambridge MA: Harvard University Press.

Williams, P. (2008) *Independent Review of Mathematics Teaching in Early Years*. London: DCFS.

Zevenburgen, R. (2001) Language, Class and Underachievement. In: Gates, P. (2001) *Issues in Mathematics Teaching*. London: Routledge Falmer.

Numeracy and the outdoor Early Years environment

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Graduate of Early Childhood Studies

Introduction

An increasing problem recognised in education in England is the under attainment in Mathematics. The Independent Review of Mathematics Teaching in Early Years Settings and Primary Schools released figures in 2008 that found around 30,000 young people fail to attain a level 2 in Mathematics when leaving primary school (Williams, 2008). Although much has been done to improve this problem young people are still failing to achieve (Thompson, 2009; National Numeracy, 2012). Outdoor education is currently being emphasised within early years and while much recent research has been carried out highlighting the benefits of outdoor education, not only to development and achievement, but also social and emotional well-being (Eaton, 2000; EYFS 2007; Ofsted 2008; Pound & Lee, 2011). However, very little research combines the two to test the effect that the outdoors might have on Mathematics attainment.

It has been found that if a child struggles with basic number sense then it will lead to Mathematical implications throughout education and leading into adult life. It is said that interventions in the early years that focus on number sense potentially improve mathematics attainment (Cross et al, 2009).

Having volunteered in Early Years settings, a personal interest developed around the learning that takes place outside of the classroom and how most children enjoy being outside compared to in the classroom. Following this, from being aware of the current numeracy problems young people in England are facing and identifying a gap in the literature, this study was designed in order to investigate whether the outdoor environment can benefit children who are disengaged in numeracy.

The action research project used both qualitative and quantitative methods for data collection. Outdoor activities were designed for the chosen child participants who were disengaged in numeracy, which took place every week for 4 weeks. Checklists were completed at the beginning of the study, which included age appropriate expectations according to the EYFS, and then again at the end to check their progress. The children were also observed throughout the activities. A second sample was also included to find the perceptions and current practice regarding outdoor learning and numeracy to bring further evidence for the support or rejection of the hypothesis.

To summarise, the hypothesis of this study was

> To investigate whether the outdoor learning environment can benefit pre-school children who are disengaged in numeracy?

With an additional research aim

> To find the perceptions and current practice within the setting regarding outdoor learning and numeracy.

Literature Review

According to the Independent Review of Mathematics Teaching in Early Years Settings and Primary Schools (2008) around 30,000-50,000 young people fail to attain a Level 2 in Mathematics by the time they leave primary school. From the evidence reviewed in this report it has been concluded that there is not a dominant cause for the under-attainment in numeracy however there have been suggestions as to which areas should be improved, the overall quality of classroom teaching being one of them. The report says that in order for effective mathematical learning to take place in the Early Years it is essential to develop children's natural interest in numeracy, problem solving and reasoning. By doing this children should develop confidence in themselves while solving problems and asking questions, and be given the opportunity to explore, enjoy and learn, both indoors and outdoors. It is vital that children's mathematical experiences are fun and meaningful as good quality mathematical learning will endorse positive attitudes and fundamental learning (Williams 2008).

The National Numeracy Project was launched in 1997 in selected cities throughout England to improve numeracy within primary schools. It was an extremely detailed curriculum which specified the type of activities that should take place on a year to year basis and how long the activities should last for. After it was introduced it showed promising results and became implemented in most primary schools between 1999 and 2000. It placed emphasis on mental calculation and combined not only content and scheduling of teaching but also the pedagogy and lesson structure. A major issue with teaching this way is that the education system has become driven by national targets and norms. Most schools, most of the time, have become dependent on schemes that set the curriculum, however teachers should be encouraged to develop their expertise and have a sense of freedom within lessons. This current practice for teaching Mathematics in primary schools is said to be a direct link to the increasing failure (Thompson, 2009; DfEE, 1998).

Although the majority of research provided on mathematical attainment has been based in primary schools or higher, it has been found that a weakness in number sense causes implications for Mathematics education and more specifically interventions in the early years that focus on number sense have the potential to improve children's mathematics outcomes (Cross et al, 2009). Authors such as Griffin et al (1994) and Miller (1992) have identified early number competencies as being the foundations for learning in Mathematics. If a child struggles with the concept of number this can then prevent them benefitting from formal mathematics when entering school regardless of their social class (Baroody & Rosu 2006; Griffin 2007). Gersten et al (2005) suggested that engaging young children in number activities and simple games are extremely important in building on and strengthening number knowledge in the early years. It has been found that if this numeracy weakness is not addressed then it is more than likely going to hinder the mathematical performance of a child throughout the school years and beyond. By intervening in the early years it is said to help "shape the course of their mathematical journey" (Griffin. 2007: 392) and with the urgent need to improve the teaching and learning of Mathematics in England exciting ways

of exploring mathematical ideas are worth considering (Boaler 2009).

Piaget believes that children are “little scientists” and are always experimenting in order to find their own understanding of the world around them. This idea is thought to be his most recognised and is known as constructivism. Constructivism is said to have been greatly influential on educational practices (Levine & Munsch, 2010) and in 2005 Kami et al examined the effectiveness of it. Students with low socioeconomic status who were under achieving in first grade were given mathematics-related activities to explore, such as picking up sticks. When tested at the end of the year they scored significantly higher on logical reasoning and mental arithmetic than similar students who had received more traditional, teacher-directed maths tasks (Kami et al 2005). Piaget’s ideas are highly recognised when looking at children’s development and he also believes that children in the preoperational stage, between 4 and 5 years old, had developed the capacity for symbolic thought but did not yet have the capability to solve problems logically. In other words by using an object to symbolise a word, for example a counter as a number, children can use the symbols to solve problems without yet fully understanding its meaning (Sigelman & Rider 2009). It is clear from this that children benefit from constructivism however the current curriculum goes against this by enforcing much more ridged learning described in the previous paragraph.

Whilst the Primary National Strategy has contributed to improving Mathematics in primary schools weaknesses still continue in vital areas such as being numerate in real-life situations. The ‘Mathematics performance in primary schools’ (2009) have looked to good examples such as the Netherlands and Latvia in order to make mathematics fun and enjoyable for pupils, to improve mathematical attainment (House of Commons Public Accounts Committee, 2009). There is no specific curriculum in the Netherlands and they have a sense of freedom within education. Within the English curriculum is an increasing emphasis on outdoor learning which could be viewed as a sense of freedom. Whether it takes place indoors or outdoors all learning is important, however Waite and Rea (2007) suggest that outdoor education can be a more stimulating environment to learn than the indoors. It promotes personal, social and cognitive development of the children to add value to the school curriculum. Similarly Brady et al (2008) also found outdoor learning to be important for a variety of different reasons. These included opportunities to explore the natural environment and the changing weather conditions as well as there being more space to be able to engage in activities that would not always be relevant in the classroom such as running and cycling.

Eaton (2000) found that outdoor learning experiences were more effective for developing cognitive skills than classroom based learning. While there is little literature about theories of learning in outdoor education (Rickinson et al. 2004), a report which evaluated the impact of learning outside the classroom in schools across England found that outdoor activities helped to; make subjects more interesting, enhance understanding, helped to tackle under-achievement, and contributed significantly to personal, social and emotional development of the pupils (Ofsted, 2008). Nevertheless Moffett (2010) conducted a partnership project in which

student teachers worked alongside classroom teachers to create outdoor activities in primary Mathematics as well as examining the views and attitudes of everyone involved. It was found that the most common response to the benefits of outdoor learning in Mathematics was the children's increased motivation and enthusiasm towards the subject. One student teacher stated that "…*it motivated and pleased the children to do maths outdoor rather than a boring worksheet,*" with one 5 year old child commenting *"…beats the classroom anyhow"* (Moffett 2010, p284).

However, one topic that was not discussed within the project was whether the children's mathematical ability actually improved or not, yet Kennard (2007) presents the thought that

> *"...from such happy first-hand experiences and an imaginative approach that young children will build a firm foundation for knowledge and understanding of mathematics and the world around them."* (p18)

It is important to recognise that individuals learn in different ways, a concept that psychologists and teaching experts such as Montessori, Stillman and Fernald attempted to address with the Learning Styles Model. Three main learning styles were identified; visual which involves seeing and reading, auditory which involves listening and speaking, and kinaesthetic which involves touching and doing. The VAK theory, although developed in the 1920s, continues to appear in teaching and education today (Mackay, 2007). Therefore in attempt to use the outdoors to provide children with these 'exciting' and 'positive experiences' with hope of improving their engagement in numeracy, it could be found to be more successful with some children than others depending on their learning styles. Following this, authors such as Pound and Lee (2011) recognise that being outdoors makes it possible for children to make more noise, more mess and be able to work on a larger scale than indoors, offering greater potential for mathematical learning. Like Brady et al, they highlight that the outdoors also offers activities that can only be done outdoors. The space that the outdoor environment offers provides a lot of potential for creative Mathematics, an approach that should not be underestimated. This is supported by the Manifesto for Learning Outside the Classroom which states that

> *"The potential for learning is maximised if we use the powerful combination of physical, visual and naturalistic ways of learning as well as our linguistic and mathematical intelligence"* (DfES, 2006: p2-3)

The implementation of the manifesto by schools and teachers is said to determine the success. One of the key factors underpinning the manifesto is teacher confidence as it has been found that teachers who were more likely to be involved in providing outdoor activities had higher levels of training and felt more confident (O'Donnell et al, 2006).

The statutory Early Years curriculum in England, the Early Years Foundation Stage (EYFS), also recognises the importance of outdoor learning for children, however instead of being referred to as 'Mathematics' it is currently referred prior to revision as 'problem solving, reasoning and numeracy' as an area of Learning and Development. The EYFS lists many reasons why

outdoor learning may be important; supporting the development of healthy and active lifestyles, providing opportunities for developing relationships through negotiation and supporting children's developing creativity and problem-solving skills being among them. As part of problem solving, reasoning and numeracy the framework claims that the outdoors is a place where children are able to develop an understanding of mathematical language and concepts for real life situations, for example, *"…for children to discover things about shape, distance and measures through physical activity*" (EYFS, 2007: 42). Whilst most Early Years practitioners recognise that the statutory curriculum does support children's learning and development from 0-5 years, it has been said that some expectations for children's achievements are set too high and offer no flexibility for children who may not develop as quickly (Dowling 2010). Other problems with the EYFS expectations have also been found by Bradbury (2011) stating that they are used in order to place children into 'levels', with results often made up in order to produce results that they believe the Local Authorities will deem as being acceptable, for example to show a range of abilities within the setting. Regardless of these implications, however, the EYFS recognises that all children learn and develop at different rates and it states,

> *"By the end of the EYFS, some children will have exceeded the goals, while others will be working towards some or all of them" (EYFS, 2008: 11).*

Furthermore, despite these widely recognised benefits of outdoor learning, Waite (2010) found a decline in the use of the outdoors between the Foundation Stage, early years of schooling, Years 1 and 2 and Key Stage 2. Previous to this she conducted research in 2009 in order to

> *"...examine attitudes, practice and aspirations of practitioners and children in educational and care settings for children between 2-11 years within a rural county of England*" (Waite, 2009: 1).

In the research a number of barriers which prevented outdoor learning were raised. The most commonly mentioned barrier was the lack of funding needed in order to develop the outdoor learning environment. The second most common barrier was people's attitudes with one school commenting on money, time, lack of motivation, too much paperwork and health and safety restrictions. Other barriers included were the outdoor space that was available to them, external forces such as the weather and the safety of the space available. The study also recognised a major tension between inside (formal) and outside (informal) learning for the practitioners who participated (Waite 2009) even though their interrelationship has been proved (Malcom et al, 2003). However Ofsted (2008), through evaluation of schools and colleges, found that it is possible to overcome many of these barriers in order to provide high-quality learning activities in the outdoor environment. It is also important to note that this study was carried out within one rural County in England and if the study were to be carried out again in a more urban County or in a County with a forest school, the aspirations and attitudes may be different.

Methodology

Paradigm:

Action research was used in order to carry out this study. Action research has been referred to

by Reason (1994) as participatory action research and has been defined by Koshy (2005) as a process in which the researcher gains knowledge from planning, evaluating, refining and learning from the experience. It is a process which is carried out in real world settings, is participatory, constructs theory from practice and aims to gain understanding from the experience (Greig et al 2006). Blaxter et al (2006) stated that action research is increasingly popular among small-scale projects, particularly for research in professional areas such as education, and relies on direct involvement from those whom it is designed to benefit.

Sampling and Methods

Two samples were used in this study, the first participants (n=3 aged 4 years old) were selected from the pre-school using free observation. From watching the children's behaviour during a morning counting activity, and observing how well they counted, I approached the key workers and received advice about the children I had chosen to take part in the study. All three children were boys and were chosen because of their lack of engagement with number in the group activities.

Checklists were completed for all three boys before the start of the study based on the numeracy expectations of the Early Years Foundation Stage at this age and then again at the end of the study (EYFS 2008). A blank observation checklist can be seen here:

F = Fully Met P = Partly Met N = Not Met

Expectation According to the EYFS	Rating	
	25-01-12	29-02-12
Recognise some numbers of personal significance		
Begin to count beyond 10		
Begin to represent numbers using fingers		
Recognise numerals 1-10		
Count an irregular arrangement of up to ten objects		
Estimate how many objects they can see and check by counting them		
Count up to six objects from a larger group		
Count aloud in ones, twos, fives or tens		
Know that numbers identify how many objects are in a set		
Can add by "counting all"		

Numeracy activities which focussed on the children's weaknesses were then planned for the outdoor environment using the National Numeracy Strategy (DfES, 2000), the theory behind the activities (Sangster & Catterall, 2009), the advice from the practitioners and my own knowledge of what the children enjoyed doing. Written observations were used in order to record the behaviour of the participants

The second group of participants (n=6) were selected from the staff who work within the Pre-School at the Children's Centre and were given questionnaires regarding two main topics, their perception on outdoor play and their current practice for learning numeracy outdoors. Staff questionnaires were used to triangulate data gathered from child observations, a method that is said to add depth to the quantitative findings and increase the validity of the study (Jick, 1979; Creswell, 2003).

Results

In this section the results of the study are presented in both graphical format, for quantitative data, and written format, for qualitative data, allowing interpretation and analysis to be made in order to be reviewed in the discussion section.

Evaluation Checklists

Firstly the results from each child's evaluation checklists have been put into a table to compare their individual progress from the beginning of the study to the end of the study.

Evaluation Checklist Results						
	25-01-2012			29-02-2012		
	Child 1	Child 2	Child 3	Child 1	Child 2	Child 3
Not Met	4	3	2	2	0	0
Partly Met	4	5	5	5	3	4
Fully Met	2	2	3	3	7	6

The table above shows that the child who improved the most was Child 2. At the end of the five weeks this child was either meeting or partly meeting all of the numeracy expectations, with the biggest increase being in the number of expectations that are being fully met. Although all participants improved throughout the course of the study, Child 1 improved significantly less than the other two children.

Observations

During week one of the activities Child 1 counted 6 blocks correctly, however after stacking 4 they lost concentration and went to play with the other children. In week two they rushed counting 1-10 resulting in missing numbers in the sequence. When asked to slow down and point at the bottles as they counted, they did so correctly. When identifying individual numbers separately Child 1 repeatedly said, "*I can't,"* but when asked to concentrate the numbers were identified correctly. Interestingly it was also observed that when singing the song the child joined in until it got to identifying the number, which they missed out then carried on. In week three of the activities, on the child's first turn, they only knocked 3 bottles down and instead of counting them they ran up and kicked them all over. On their second turn they counted really fast to 11 even though only 8 had been knocked down out of the 10 bottles.

During week four Child 1 showed progress in recognising individual numbers and named them all correctly however became disengaged with the activity very quickly and stopped joining in.

Child 2 in week one counted 20 blocks correctly however whilst building the tower did not count any of the blocks and still identified there were 20. In week two the child confidently counted 1-10 but struggled when identifying individual numbers and used their fingers when counting the numbers in the song. In week three they were able to correctly count all the bottles that had been knocked down and the ones still left standing, but in order to count them the child needed to place their hands on the bottles. During the activity in week four Child 2 showed progress from week two and was able to identify individual numbers. However when collecting the objects the child picked up an insignificant number of the particular object rather than the correct number, yet correctly counted the amount of objects they had collected.

During week 1, Child 3 counted 10 blocks correctly and after stacking 7 of them lost concentration. The child identified numbers by counting up on their fingers how many more were needed however still proceeded to collect 5 more blocks. In week two child 3 confidently identified individual numbers however needed to count the number of bottles that were left on the wall each time in order to carry on with the song. In week three, like Child 2, they had to put their hand on the bottles in order to count them correctly. Similarly, like Child 2 again, in the fourth week they could recognise individual numbers even when a handful of objects were collected they could count them when asked.

Child 2 and child 3 showed similar knowledge throughout the activities with child 1 displaying less developed numeracy understanding and a lack of interest in the tasks.

Participant Questionnaire

The results from the questionnaires completed by the staff at the Children's Centre found that the most recognised benefits of learning outdoors

were the opportunities for developing social skills, the chance to explore and the consideration of weather changes. One support assistant claimed that it *"…can bring learning to life,"* with other participants stating they believe fresh air, the use of outdoor equipment and a sense of space and understanding of the environment to be the most beneficial.

When asked whether the children have all-day access to the outdoors every day, 67% of participants said that they were, with 16% saying most of the day and 17% saying some of the day.

The results also highlighted that there is currently no planned numeracy activities in the setting that focus purely on the outdoors, however the majority of participants say that there is a balance between the number of numeracy activities that are planned for the indoors and the outdoors. 67% of the participant, when asked, believed that the outdoor environment can improve numeracy with 33% believing it cannot. Following this 67% also believed that there are barriers to outdoor learning with a further 33% saying there is not.

When the participants were asked in the closing question if they had any other comments regarding what they had seen in the questionnaire one of the participants commented that she believed outdoor learning works better with boys. Another stated that children will learn more about numeracy in small group time indoors as there are fewer distractions, which was supported by another participant believing equal time should be spent indoors and outdoors as some children have poor concentration.

Discussion

In the observations, Child 1 used phrases such as *"I can't,"* missed out saying the number on the 10 Green Bottles song and, instead of counting the bottles during Skittles, kicked them all down. According to Erikson this child may be experiencing inferiority, a sense of failure that causes individuals to avoid opportunities to succeed (Erikson 1968). Erikson believed that each individual developed psychologically in stages and would be confronted with an age related, unique crisis that they would have to overcome in order to progress onto the next stage. It is said that each stage is unique and will lead to the acquisition of new abilities and skills (Erikson 1963). The industry, pleasure of success, versus inferiority stage is believed to begin around the time that children go to school (Erikson 1968), which fits the description of Child 1. From observing the behaviour of Child 1 it was noted that he could successfully completed the tasks when prompted however he believed that he could not. It could also be suggested that when all the skittles were kicked down this was avoidance as he no longer had to complete the difficult part of counting. As previously highlighted in the literature children should not be punished for showing undesirable behaviour in education as there may be an underlying problem which needs support in order to help them tackle the problem (McNamara & Moreton 1995). As Child 1 improved the least out of all three children it could therefore be suggested that this is not because of the lack of ability on numeracy, however could be down to his personality as an underlying problem and in particular his sense of identity.

It was also found through the observations that Child 1 counted extremely fast on more than one occasion showing that he did not fully understand the true meaning of number. Piaget supports this suggesting that young children's counting is evidence of children using words without understanding their meaning. He argued that children learn the sequence and even how to apply it, yet do not understand what the sequence means for many more years. From his well-known conservation study Piaget was convinced that children do not understand correspondence in pre-school therefore have no understanding of numbers in a set, or 'cardinality' (Goswami, 2011). However Gelman and Baillargeon (1983) argue that children grasp essential principles in counting right from the start. They proposed the idea that children must grasp five main principles in order to understand the concept of counting and it is believed that, even though they make many mistakes, children as young as 2 and 3 years have this understanding (Smith, 1996). Both Child 1 and Child 3 show incompetency with being able to understand number, however Child 1 more. Where Piaget suggests that this is normal development for children of their age Gelman and Baillargeon (1983) would argue that Child 1 is cognitively 'less developed'.

Through observation it was seen that all three children displayed characteristics of what has been described by Piaget as symbolism which has already been touched on in the review of literature. Symbolism is said to be a major feature in the preoperational stage, which in Piaget's model characteristics the development of children between the age of 2 and 7 years. The idea of it is that children can now begin to use symbolic representations when thinking and can therefore carry out tasks mentally (Keenan & Evans, 2009). It is believed that symbols are used in children's thinking at this age in order to ratify more flexibility and planning whilst problem solving (Martin & Fabes 200 9). The three children display characteristics of symbolism throughout the activities by using objects as symbols for numbers, for example having to count the bottles by placing their hand on them.

According to Piaget's model all three children are developmentally 'on track', however according to the EYFS they are under-achieving by not meeting the expectations put forward for their age. In addition to this Piaget has often been criticised for overestimating young children's abilities whilst underestimating abilities of older children. Many of the tasks carried out in his research have been said to be too demanding and confusing for preschool children. Gelman and Baillargeon (1983) simplified Piaget's tasks in order to investigate whether the children perform the simpler tasks the same way they perform the difficult ones. Implications arose if children showed higher ability levels in problem solving on the simplified tasks which then questions Piaget's earlier model (Martin & Fabes, 2009).

Another important issue raised by the study came from the questionnaires about staff attitudes towards not just outdoor numeracy, but outdoor learning in general. One participant stated that a benefit of the outdoors is that it *"…can bring learning to life."* Many benefits were identified in the literature, some of which were raised by the participants. However with regards to this statement Beard and Wilson (2002) argue that indoor learning does not necessarily mean that it is less stimulating than outdoor learning. They pose the idea that the indoor environment can take many forms; real, virtual or imaginary, and

while the indoor environment is widely considered as being 'unnatural', a cave that has a roof and walls in a sense is an indoor space. In addition to this they suggest that

> *"…the outdoors can be brought indoors through simulation, when people create the outdoors through fantasy.*" (Beard & Wilson, 2002: 93)

The fact that this participant believes that children need to be outdoors for the learning to be 'brought to life' raises the question of whether or not practitioners fully understand the benefits of outdoor learning or whether they put it into practice because they have to. On the other hand Waite et al (2006) states the changing weather seasons not only educate but keeps children's senses alert, something she believes to be an important benefit of being outdoors. This then questions the statement from Beard and Wilson as this cannot be experienced indoors, therefore putting the indoor environment at a disadvantage as some things can only be experienced outdoors.

In the questionnaire staff were asked whether the children have all-day access to the outdoors everyday. All the participants were from the same setting and worked in the same area so the fact that different answers have been given could suggest the use of socially desirable answers (Frederick 2005). One of the key issues when evaluating action research according to Padgett (1998) is 'trustworthiness' which she identifies three threats for. Despite this the majority of the participants said that the children do have access to the outdoors all day every day which contradicts Waite's (2010) findings in the literature that there is a decline in the use of the outdoors. However it should be remembered that this is only looking at one setting and may be difficult to generalise the results.

The questionnaire results showed that in the majority of numeracy planning done by the practitioners there is a balance between indoor and outdoor activities. While the EYFS puts a strong emphasis on planned activities both indoors and outdoors (Anning et al, 2009) in the setting, apart from the activities carried out as part of the research, only one planned activity was witnessed and that did not focus on numeracy. However only one day a week was spent in the setting so planned numeracy activities may have taken place on other days that were not seen. On the other hand it could be argued here again that for this question participants have given socially desirable answers. One of the practitioners added to these findings by commenting on the children's increased interest in numeracy since the beginning of the outdoor activities. It was highlighted in the literature the importance of developing children's natural interest in numeracy and making mathematical experiences fun in order to endorse positive attitudes and fundamental learning (Williams, 2008). However, when asked to describe activities she had done with them with regards to this interest, they were all indoors. This could then suggest that to improve the study further the practice and attitudes of the staff would need to be focussed on more intensely.

Interestingly it was found that 33% of participants believe that the outdoor environment cannot improve numeracy with the same percentage of participants believing there are barriers to outdoor learning. The most common barrier to outdoor learning mentioned in the literature (Waite 2009)

was the lack of funding to develop the outdoor area, an issue that was not raised by the participants in this study. However weather and attitudes of staff were common barriers between the two, barriers that some may argue can be overcome (Lockie et al, 2001; Ofsted, 2008).

In the closing question one of the participants made the statement, *"Outdoor learning works better with boys."* Stephenson (1999) found in her research on young children's outdoor experiences in one childcare centre that the outdoors is deemed to be particularly important to 4 year olds, especially boys. Similar findings have been cited in Harper and Sanders (1975), Tizard et al (1976) and Lott (1978). Estyon (2011) also found that practitioners feel boys gain the most from outdoor learning due to their active learning styles, however this is assuming that all boys have the same learning style.

Research was carried out in order to provide information about the reasons for gender differences in attainment in schools. One quarter of the interviewees in the research raised learning and teaching styles as being an issue, believing that boys and girls tend to have different learning styles. They believed that boys tended to prefer shorter tasks that were more engaging compared to the girls diligent approach (Tinklin et al 2001). However Bricheno and Younger (2004) have found that from the analysis of the VAK questionnaire carried out on children from two secondary schools in the West Midlands and two of their feeder primary schools, that there was no significant difference between gender and preferred learning styles. Individual boys did not necessarily prefer a kinaesthetic learning style out of the three and the proportions of boys and girls preferring a kinaesthetic learning style were extremely similar. Bearing this in mind, and as previously highlighted in the literature, it is very difficult to generalise the statement that 'outdoor learning works better with boys' if the learning styles have not been assessed.

VAK learning styles have often been criticised with Sharp, Bowker and Byrne (2008) being concerned about the casual acceptance and promotion of it and the belief that labelling children as a particular type of learner could be damaging. There is also a concern that the application of different learning styles does not seem to take into consideration the complexity of teaching and learning Coffield et al (2004). On the other hand it provides careful consideration in providing more variety in lessons in order to cater for the needs of a range of pupils (Frost, 2010).

Conclusion and Recommendations

As highlighted in the results of this study, it was clear that over the course of the research that the numeracy skills of all three children improved, suggesting that the hypothesis of the study is correct, that outdoor learning can benefit pre-school children who are disengaged with numeracy. However there are other important issues that have been raised.

The hypothesis was found by completing checklists on all three children at the beginning and at the end of the study in accordance to the age appropriate numeracy expectations given by the EYFS. The checklists were then compared and it was evident that the children's numeracy skills had improved. However it is important to note that a very small sample size was used from just one setting in the North West of England using all boys of the same age. Although difficult to generalise the results of the study it may be

useful to people working in the Early Years or hoping to carry out similar research.

From the observations carried out on each child during each activity, and from evaluating these it was found that there are other factors to take into consideration such as personality (Erickson, 1968) and learning styles (Mackay, 2007).

One of the aims within the research was also to find out the perceptions of the staff in the pre-school towards outdoor play and their current practice for learning numeracy outdoors. The results found that although the staff raised issues supported by external research and theory, some also made very broad statements that have been criticised within the discussion (Beard & Wilson, 2002; Waite, 2010) which could suggest that they are not fully aware of the underlying potential benefits that the outdoors can bring to children's learning. Also the barriers to outdoor learning that were raised by staff are arguably easily overcome (Lockie et al, 2001; Ofsted, 2008). Therefore a recommendation for improving this study is that the staff receive more systematic training in order to make sure they are fully aware of the problems England are facing to do with Mathematics, the importance of learning numeracy at a young age in order to improve this, and furthermore the benefits that learning engaging in numeracy activities outdoors can bring.

A limitation of this study was the time-frame in which the research had to be completed. Even though the results showed positive for all three children it could be recommended that it is extended into a longitudinal study instead of a 5 week period with activities only lasting around half an hour. This would provide an opportunity for bringing in all aspects of Mathematics, give time to effectively educate the staff and work on any problems that may arise throughout the rest of the research.

Though this study is only small scale, the results show that the outdoor environment can improve the numeracy skills for children who are disengaged in numeracy, however there are many other factors that need to be taken into consideration when evaluating this statement.

References

Anning, A., Cullen, J. and Fleer, M. (2009) *Early Childhood Education: Society & Culture.* (2nd Edition). SAGE Publications Ltd: London.

Baroody, A.J. and Rosu, L. (2006) *Adaptive Expertise with Basic Addition and Subtraction Combinations: The Number Sense View*. Paper presented at the American Educational Research Association. San Francisco.

Beard, C.M. and Wilson, J.P. (2002) *The Power of Experiential Learning: a handbook for trainers and educators*. Kogan Page Limited: London.

Blaxter, L. Hughes, C. and Tight, M. (2006) *How to Research (3rd Edition)*. Open University Press: Berkshire.

Boaler, J. (2009) *The Elephant in the Classroom.* Souvenir Press Ltd: London.

Bradbury, A. (2011) Rethinking assessment and inequality: the production of disparities in attainment in Early Years education. *Journal of Education Policy, 26*, 5, p655-676.

Brady, L.M., Gibb, J., Henshall, A. and Lewis, J. (2008) *Play and Exercise in Early Years: Physically active play in early childhood provision.*

National Children's Bureau/Department for Culture, Media and Sport: London.

Bricheno, P and Younger, M. (2004) *Some unexpected results of a learning styles intervention?* Paper presented at the BERA Conference. Manchester.

Coffield, F., Moseley, D., Hall, E. and Ecclestone, K. (2004) *Learning styles and pedagogy in post 16 learning: A systematic and critical review.* Learning and Skills Research Centre: London.

Creswell, J.W. (2003) *Research Design: Quantitative, Qualitative, and Mixed Methods Approaches*. SAGE Publications Ltd: London.

Cross, C.T., Woods, T.A. and Schweingruber, H. (2009) *Mathematics Learning in Early Childhood: Paths Toward Excellence and Equity*. National Academies Press: Washington.

Department for Education and Employment. (1998) *The Implementation of the National Numeracy Strategy: The final report of the Numeracy Task Force*. DfEE: London.

Department for Education and Skills. (2000) *The National Numeracy Strategy: Mathematical Activities for the Foundation Stage Nurser*y. DfES Publications: Nottingham.

Department for Education and Skills. (2006) *Learning Outside the Classroom Manifesto*. DfES Publications: Nottingham.

Dowling, M. (2010) *Young Children's Personal, Social & Emotional Development (3rd Edition)*. SAGE Publications Ltd: London.

Early Years Foundation Stage (2007) *Effective practice: Outdoor Learning*. DCSF Publications: Nottingham..

Early Years Foundation Stage. (2008) *Practice Guidance for the Early Years Foundation Stage.* DCSF Publications: Nottingham.

Eaton, D. (2000) Cognitive and affective learning in outdoor education. Dissertation Abstracts International-Section A. *Humanities and Social Sciences, 60,*10-A, p3595.

Erikson, E.H. (1963) *Childhood and Society (2nd Edition)*. Norton: New York.

Erikson, E.H. (1968) *Identity: youth and crisis.* Norton: New York.

Estyon, E. (2011) *Outdoor Learning: and evaluation of learning in the outdoors* for children under five in the Foundation Phase. Estyon Publications: Cardiff.

Frederick, J.T. (2005) *Mastering Voir Dire and Jury Selection: Gain an Edge in Questioning and Selecting Your Jury* (*2nd Edition).* American Association: Chicago.

Frost, J. (2010) *Learning to Teach Science in the Secondary School (3rd Edition*). Routledge: Oxon.

Gelman, R. and Baillargeon, R. (1983) A review of some Piagetian concepts. In: *Mussen, P. Handbook of child psychology (Vol.3*). John Wiley & Sons: New York.

Gersten, R. Jordan, N.C. and Flojo, J.R. (2005) Early identification and interventions for students with mathematics difficulties. *Journal of Learning Disabilities 38*, 4, p293-304.

Goswami, U. (2011) *The Wiley-Blackwell Handbook of Childhood Cognitive Development. (2nd Edition).* Blackwell Publishing Ltd: Chichester.

Greig, A., Taylor, J. and MacKay, T. (2006) *Doing Research with Children (2nd Edition).* SAGE Publications Ltd: London.

Griffin, S. (2007) Early intervention for children at risk of developing mathematical learning difficulties. *In: Berch, D.B. and Mazzocco, M.M. Why Is Math So Hard for Some Children? The Nature and Origins of Mathematical Learning Difficulties and Disabilities.* Paul H. Brookes: Baltimore. Pg. 373-396.

Griffin, S., Case, R. and Siegler, R.S. (1994) Classroom lessons: Integrating cognitive theory and classroom practice*. In: McGilly, K. Rightstart: Providing the Central Conceptual Prerequisites for First Formal Learning of Arithmetic to Students at Risk for School Failure*. MIT Press: Cambridge.

Harper, L.V and Sanders, K.M. (1975) Preschool children's use of space: Sex differences in outdoor play*. Developmental Psychology,11*,1,p119.

House of Commons Public Accounts Committee. (2009) Mathematics performance in primary schools: getting the best results. *Twenty-third Report of Session 2008-09*. The Stationery Office: London.

Jick, T.D. (1979) Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly, 24*, p602-611.

Kamii, C., Rummelsburg, J. and Kari, A. (2005) Teaching arithmetic to low-performing, low-SES first graders. *Journal of Mathematical Behaviour, 24*, 1, 39-50.

Keenan, T. and Evans, S. (2009) *An Introduction to Child Development (2nd Edition)*. SAGE Publications Ltd: London.

Kennard, J. (2007) Outdoor mathematics. *Mathematics Teaching Incorporating Micromath, 201*, p16-18.

Koshy, V, (2005) *Action Research for Improving Practice*. SAGE Publications Ltd: London.

Levine, L.E. and Munsch, J. (2010) *Child Development: An Active Learning Approach*. SAGE Publications: London.

Lockie, C. and Wright, J. (2001) *The Golden Kiwi Childhood – Is It A Lottery? Culture informs Learning*. Christchurch: NZARE.

Lott, B. (1978) Behavioral concordance with sex role ideology related to play areas, creativity, and parental sex typing of children. *Journal of Personality and Social Psychology, 36*, 10, p1087-1100.

Mackay, A. (2007) *Motivation, Ability and Confidence Building in People*. Butterworth-Heinemann: Oxford.

Malcom, J. Hodkinson, P. and Colley, H. (2003) The interrelationships between informal and formal learning. *Journal of Workplace Learning,15* (7/8), p313-318.

Martin, C.L. and Fabes, R. (2009) *Discovering Child Development (2nd Edition).* Houghton Mifflin Company: Boston.

McNamara, S. and Moreton, G. (1995) *Changing Behaviour: Teaching children with emotional and behavioural difficulties in primary and secondary classrooms*. David Fulton: London.

Miller, K.F. (1992) What a number is: Mathematical foundations and developing number concepts. In: *Campbell, J.I.D*. *The Nature and*

Origin of Mathematical Skills. Elsevier Science. New York.

Moffett, P.V. (2010) Outdoor mathematics trails: an evaluation of one training partnership. Education 3-13: *International Journal of Primary, Elementary and Early Years Education, 39*, 3, p277-287.

National Numeracy (2012) *Why Is Numeracy Important?*
Available from http://www.nationalnumeracy.org.uk/why-is-numeracy-important/index.html.
Accessed on 15/08/2012

O'Donnell, L. Morris, M. And Wilson, R. (2006) *Education outside the classroom: An assessment of activity and practice in schools and local authorities*. DfES: Nottingham.

Ofsted (2008*) Learning Outside the Classroom: How far should you go?* Ofsted: London.

Padgett, D.K. (1998) *Qualitative Methods in Social Work Research: Challenges and Rewards*. SAGE Publications Ltd: London.

Pound, L. and Lee, T. (2011) *Teaching Mathematics Creatively.* Routledge: Oxon.

Reason, P. (1994) *Participation in Human Enquiry.* SAGE Publications Ltd: London.

Rickinson, M., Dillon, J., Teamey, K., Morris, M., Choi, M., Sanders, D. and Benefield, P. (2004) *A review of research on outdoor learning: Research summary.*
Available from http://www.nfer.ac.uk/research-areas/pims-data/summaries/fsr-a-research-review-of-outdoor-learning.cfm.
Accessed: 05/03/2012

Sangster, M. and Catterall, R. (2009) Early Numeracy: *Mathematics Activities for 3-5 Year Olds.* Continuum International Publishing Group Ltd: London.

Sharp, J.G., Bowker, R. and Byrne, J. (2008) VAK or VAK-ous? Towards the trivialization of learning and the death of scholarship. *Research Papers in Education, 23,* 3, p 293-314.

Sigelman, C.K. and Rider, E.A. (2009) *Life-Span Human Development.* Wadsworth Cengage Learning: Belmont.

Smith, L. (1996) *Critical Readings on Piaget.* Routledgee: London.

Stephenson, A.M. (1999) *Opening Up the Outdoors. A case study of children's outdoor experiences in one childcare centre*. Institute for Early Childhood Studies: Wellington.

Thompson, I. (2009) *Issues in teaching numeracy in primary schools*. Open University Press: Berkshire.

Tinklin, T., Croxford, L., Ducklin, A. and Frame, B. (2001) *Gender and Pupil Performance in Scotland's Schools*. Centre for Educational Sociology: Edinburgh.

Tizard, B. Philps, J. and Plewis, I. (1976) Play in pre-school centres -II. Effects on play of the child's social class and of the educational orientation of the centre*. Journal of Child Psychology and Psychiatry,17*, p265-274.

Waite, S. (2009) *Outdoor learning for children aged 2-11: perceived barriers, potential solutions*. Paper presented at the Fourth International Outdoor Education Research Conference, La Trobe University, Beechworth, Victoria, Australia, 15-18 April 2009.

Waite, S. (2010) Losing our way? The downward path for outdoor learning for children aged 2-11 years. *Journal of Adventure Education & Outdoor Learning, 10*, 2, p111-126.

Waite, S. And Rea, T. (2007) Enjoying teaching outside the classroom. In: *Hayes, D. Joyful teaching and learning in the primary school*. Continuum. Exeter.

Waite, S. Davis, B. and Brown, K. (2006) *Five Stories of Outdoor Learning from Settings for 2-11 Year Olds in Devon.* Consultation Report. University of Plymouth.

Williams, P. (2008) *The Independent Review of Mathematics Teaching in Early Years Settings and Primary Schools.* DCSF Publications: Nottingham.

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