

What Effect does the use of an Extension Task have on the Continued Engagement of More Able and Talented Pupils?

Gallwch ychwanegu'ch targedau o'ch aseiniad diwethaf gan ddefnyddio'r tabl isod. /
Please add your targets from the previous assignment using the table below.

	Targed/Target	Yr hyn yr wyf wedi'i wneud yn yr aseiniad hwn. What I have done in this assignment.
Targed/Target 1	Aim to show a greater awareness of different perspectives that may exist in relation to the pedagogical principles.	Through the assignment I explored the pedagogical principles in relation to my research question. With regards to sustained effort, I examined contradictory literature on factors contributing to this.
Targed/Target 2	Explore contradictory information to support a persuasive and sophisticated argument.	When considering the literature on MAT pupils and research methodology, I endeavoured to consider various viewpoints before making conclusions.

Introduction

Rarely considered are the special requirements of more able and talented (MAT) pupils (Diezmann, 2005). There is even a school of thought that suggests such pupils will succeed regardless of the learning environment and the support given to them (Subotnik, 2011). During my time at a town centre primary school I have found this not to be the case and often MAT pupils lack motivation to complete tasks and become bored. One of a teacher's greatest challenges therefore is encouraging MAT pupils to achieve their full potential, whilst also supporting lower ability pupils. Consequently this research will focus on means by which MAT pupils' motivation can be improved throughout the entirety of a lesson.

Research Context

This research was conducted in a year two class at a town centre primary school in South Wales. I had found during previous lessons that ensuring MAT pupils remained engaged during the main activity of a lesson could be challenging, especially when the focus was numeracy. However, when using extension tasks that allowed pupils to practice higher order thinking, I noted MAT pupils often displayed increased levels of engagement with these tasks in comparison to essential curricular activities. After a discussion with my colleague we looked to examine if extension tasks were in turn having an impact on motivation and engagement elsewhere in the lesson. The research question we therefore decided to explore is "What effect does the use of an extension task have on the continued engagement of MAT pupils?" This will involve examining the engagement levels of a small group of MAT pupils throughout a lesson where an extension task is used.

Literature Review

There is still uncertainty surrounding the definition and measure of more able and talented pupils (Gallagher, 1996; Tannanbaum, 1996; Sternberg & Davidson, 1986, in Dai, 1998). The National Association for Gifted Children (2020) define the term as 'those who display ability significantly above the norm for their age' this may be intellectual, creative or leadership. Recently, the definition has adapted to include 'non-cognitive' factors such as motivation and commitment (Philip and Lindsay, 2006 in Cohen et al. 2010). Renzulli's (1978) 'three ring conception of giftedness' outlines three characteristics of 'gifted' pupils which combine to form gifted behaviors. These factors are 'above average ability', 'creativity' and 'task commitment'. In contrast Gagne (1995) and others suggest talent is formed through the development of genetically based aptitudes. These, in turn, are established through external catalysts as well as intrinsic motivation. However these definitions are based on 'inconsistent data and biased assessment' (Cohen et al. 2010).

It is important to recognise that the learning needs of MAT pupils differ within the classroom (Collins 2001 in Diezmann; Montgomery, 2001). Although it is commonly thought that MAT pupils do not require additional help, Collins (2001, in Diezmann 2005) argues that many studies scrutinising motivation and underachievement within this group, disprove this. Collins argues that a lack of challenge within a classroom environment leads to frustration and boredom, which in turn can cause underachievement. Diezmann (2005) also considers this, explaining that MAT pupils are one of the most vulnerable groups within a classroom and are at particular risk of underachieving in these circumstances. Furthermore, Renzulli also endorses the school of thought that MAT pupils require challenges regularly within the learning environment to achieve their potential (Martin, 2002).

Vernon (1977) argues that within the learning environment, there is a trend of teaching the class at the level of a pupil 'three quarters of the way down the list in achievement'. This, he warns, can result in poor engagement and motivation in MAT pupils. Vernon suggests that

because teachers fear lower achieving pupils falling behind, they are more likely to receive individualised help and attention compared to the more able pupils. Motivation, and in particular the importance of sustaining motivation in MAT pupils has been the focus of considerable amounts of literature.

Motivation can be described as one's 'inner energy which pushes someone towards a desirable outcome' (Boekhaerts et al. 2010, in Long et al. 2010). Several studies suggest what a pupil achieves within their school life is heavily dependent on their own levels of motivation (Boekhaerts et al. 2010, in Long et al. 2010). Furthermore, Deci (1988) discusses how intrinsic motivation is driven from a supportive learning environment. Long et al. (2010) links quality and quantity of work to levels of motivation. However, they warn pupil ability will affect this as it can be difficult to determine whether a pupil has low motivation or little knowledge on a topic. This 'obstacle' is easily remedied when teachers know their pupils. Interestingly Atkinson's model (Paquette, 2017) argues a pupils' motivation will be at its highest when tasked with intermediate difficulty.

Within the literature, there is a lack of research that addresses teaching MAT pupils. Subotnik places the responsibility for this on the belief that gifted pupils will succeed regardless of academic environmental conditions and support (Subotnik, 2011). They suggest that this may be due to familial education and affluence. However, several areas of research agree that in order to prevent underachievement, there is a need for rich learning opportunities and strategies. These are provided by the engagement of MAT pupils in challenging tasks (Diezmann, 2005).

Diezmann (2005) explains how there is a need for a balance between learning and practising tasks within the classroom. He highlights the importance of working within the zone of proximal development; practising skills that pupils need assistance to perform and cannot yet achieve independently (Long et al. 2010). Montgomery (2001) emphasises that pupils should not be 'passive learners' but participate in the construction of their own knowledge, thus allowing deeper understanding. Freeman's (1998, in Montgomery, 2001) research into how MAT pupils learn also shows that effective teaching includes problem solving opportunities and higher order thinking skills instead of accelerated content. I have found that the use of an appropriate extension task allows pupils the opportunity to practise such skills.

Methodology

I undertook a lesson study with a colleague over a period of two lessons within year two. Initially I taught the lesson "Introduction to Measurement" whilst my colleague collected data on the engagement of three case study pupils (Lewis et al. 2004). Results from this were then used to refine the second lesson to support further validation of findings. This approach was adopted in order to provide comprehensive and thorough research into our question topic.

Lesson studies are an increasingly popular professional development strategy within education. They involve small groups of teachers working collaboratively to develop a lesson plan, teach and then observe the lesson (Lewis, 2002). This consequently allows the collection of data on a desired topic. This data can then be collaboratively analysed in order to identify improvements in teaching practise, thus leading to positive learning outcomes for pupils (Stepanek, 2007; Stigler and Hiebert, 1999). Furthermore, lesson studies allow teachers the opportunity for continued professional development (Lewis et al. 2006), whilst working in collaboration, thus bringing teachers together through the creation of a "community of practice" (Lewis et al. 2004) .

As part of the lesson study non-participant observation was employed. This is the systematic process of documenting behaviours within an environment (Cohen et al. 2010), and provides the opportunity to gather authentic data as often 'as what people say they do and what people do can differ' (Robson 2002, in Cohen et al. 2010). Non participant observation within lesson

studies is of particular use as it allows the avoidance of biasing factors which may arise in different methods of research whilst providing data which cannot be gathered second hand (Lewis, 2002). In particular this allowed my colleague to obtain pupil's non verbal behaviours, which are especially important when considering levels of motivation (Cohen et al. 2002). Cohen et al. (2002) warns however, that sometimes during observation events may happen too quickly to be noted and consequently key events may go unidentified.

Qualitative data was gathered from the observation and used to conceive a final judgment on the case pupils using an adapted version of Leuven's involvement scales. Brock-Utne (1996, in Cohen et al. 2002) praises the use of qualitative data in such situations as it allows researchers to take a holistic approach. Cohen et al. (2002) however discusses how the reliability of qualitative data is dependent on what the researcher decides to record in comparison to what actually happened. In addition to this, Kvale (1996, cited in Cohen et al. 2002) claims the interpretation of qualitative data is also important when considering validity. Despite this, O'Leary (2004, in Kajornboon 2005) suggests that there is not one best method of data collection and the best method is therefore based on the goal of the research. To overcome some of the limitations of observations triangulation was used in this lesson study, in an attempt to enhance the the validity of findings. Cohen et al. (2002) suggests that triangulation gives a more holistic and rich view of human behaviour. Therefore through the use of observation, in addition to interviews and reflection cross consideration of two or more research methods could be achieved. (Mathison, 1988; Cohen et al. 2002).

A semi-structured focused group interview with the three case study pupils to collect further qualitative data therefore followed the lesson observation. Written notes were taken by the non-participant observer during this. Kajornboon (2005) explains how interviews allow the participants to discuss their views whilst giving the researcher an insight into their opinions (Gray, 2004). It is important however, that the questions used within an interview avoid bias whilst motivating participants to give full answers (Kajornboon, 2005). The use of a semi-structured interview allows the researcher to be flexible with their questioning and probe and ask for clarification when necessary (Gray, 2004 in Kajornboon 2005). However, this advantage is dependent on the experience of the interviewer, and poor questioning technique may lead to important data being missed. Furthermore, semi-structured interviews allow the opportunity to build trust and a relationship with the subjects, which is essential when interviewing children (Cohen et al. 2010). Crucially this type of interview also allows the safeguarding of children.

There are several factors which can affect the validity of the interview process. Validity is a crucial consideration in successful research, and when collecting qualitative data, refers to the honesty, richness and depth of the data collected (Winter, 2000 in Cohen et al. 2010). Cohen et al. (2010) emphasise that researchers should always strive to achieve 100% validity, despite the impossibility of such a task. In relation to interviews, Cohen et al. (2002) argues that interviewers and interviewees will always bring an unconscious bias that may affect validity. Hitchcock and Hughes (1989, in Cohen et al. 2002) suggest the relationship between the participants will also have an effect. Also, Simons (1982; Lewis 1992; Baily 1994, in Cohen et al. 2002) and McCormick (1988) highlight the particular issues that may arise when interviewing children, which include children giving the response which they believe the 'interviewer' will want to hear (Gadd 2004, in Cohen et al. 2002). This is likely to be particularly true when considering the relationship between that of a pupil and teacher. Although group interviews allow researchers to compile multiple interpretations, intentions and values (Arksey and Knight, 1999, in Cohen et al. 2002), Cohen et al. (2002) warns group interviews may affect the validity of the data collected. In such interviews, one participant may dominate conversation, or the emergence of 'group think' may discourage individuals from giving their opinion in the presence of others (Arksey and Knight, 1999 in Cohen et al. 2002).

Finally using the data collected, a reflection was carried out (Appendix L, M). Reflection allows learning, as new insights from experiences can become apparent (Finlay and Gough, 2008). Finlay and Gough (2008) explains how reflection allows teachers to make links to previous personal experiences which in turn can ensure the maximum progression of their pupils. In order to reflect an adapted version of Gibbs (Davies, 2012) and Brookfield's (1995) reflection model was used. This allowed critical reflection on the lesson and further examination of feelings during and after the activity. Dewey (1986) discussed how observation alone is not enough, we have to understand the significance of what we see. The reflection allowed the analysis of the lesson and resulting events before conclusions and recommendations for future practise were formed. Brookfield's (1995) reflection model was especially useful as it allowed alternative views and opinions of the lesson and its results to be considered.

Ethical Considerations_

When carrying out a lesson study there are rigorous ethical considerations which must be adhered to. In the context of research, ethics refers to a set of principles which guide fair practise (Robson 2002). Throughout this research guidelines from the British Education Research Association (2018) have been followed. These guidelines are specific for research conducted in an educational context and ensure minimal ethical risk to all involved. An essential consideration when undertaking this research was gaining pupil's consent to participate (Blackburn, 2015; Alderson, 2004 in Cohen et al. 2002). This was obtained using consent forms sent out to pupils' parents detailing the purpose of the research and what it would entail. These forms were signed and returned prior to any pupils' involvement in the research. Other crucial considerations included anonymity and confidentiality of all participants. To achieve this an ethics form was submitted and accepted prior to the commencement of the research. This outlines how data will be collected and stored following the BERA guideline and details the ways in which consent, anonymity and confidentiality were adhered to.

Lesson Results and Analysis

Lesson 1

Three pupils displaying MAT attributes were chosen to be observed as part of the lesson study in the first lesson "Introduction to Measurement". Pupils with above average results in school reading and numeracy tests were chosen following advice from the class teacher (Cohen et al. 2010). The lesson was to include an extension task that allowed pupils to further understand the topic through the use of estimation. To fully assess pupil engagement throughout the entirety of the lesson, non participant observation was conducted during the introduction, the main body of the lesson and the extension task. The engagement of the pupils was then marked 1-5 on the adapted version of the Leuven Scale (Leavers, 2003)(Appendix C).

The introduction of the lesson involved demonstrating to pupils how to correctly use a ruler, the explanation of the main body of the lesson; measuring small lengths of ribbon up to 20cm, and a description of the extension task. The extension task in this particular lesson asked pupils to choose five objects within the classroom and estimate if these objects were longer or shorter than 30cm. Pupils were then required to confirm their findings using their newly acquired measuring skills. This particular extension task was chosen to allow pupils to practise higher order thinking in order to deepen understanding, whilst also giving pupils further autonomy over their learning (Diezmann, 2005; Freemans, 1998 in Montgomery, 2001).

The qualitative data collected throughout the lesson placed Pupil 1 as a four on the Leuven scale, suggesting 'continuous activity with intense moments'(Appendix C). During the

introduction of the lesson however, Pupil 1 appeared to be 'distracted' and 'played with the ruler' (Appendix A). Freeman (1993 in Montgomery, 2001) attempts to explain this, discussing how MAT pupils become 'vulnerable to boredom' when they are not engaged in a challenging activity. Diezmann (2005) supports this suggesting MAT pupils require challenge as a 'special requirement' within the classroom or may suffer from boredom. In contrast, Cohen et al. (2010) implies that MAT pupils actually have a greater understanding of the classroom environment, and therefore are able to deal well with periods of the lesson that are not as challenging. Preckel et al. (2010) suggests these differences can be explained by sampling inconsistencies. Gallagher et al. (1997 in Dai, 1998) further supports this, describing higher levels of boredom in MAT pupils within mixed ability classrooms.

Pupil 1 efficiently completed the main activity of the lesson and was eager to move onto the extension task. However, qualitative notes from the non-participant observer suggest that in my absence Pupil 1 quickly became distracted by others on the table. Vernon et al. (1977) states that MAT pupils may lack the necessary drive and persistence to achieve when grouped together. Martin (2002) explains that this may be due to pupils experiencing success within the classroom without having to put in high amounts of effort. Nonetheless, Pupil 1 quickly returned to the main activity and showed great willingness to move onto the extension task upon completion. Pupil 1's answers in interview explain this, when asked 'Did you want to do the extension task?' they answered positively and when probed further explained that it sounded "fun" (Appendix D). Pupil 1 also showed high levels of engagement throughout the extension task. They showed great enthusiasm to assess their own work, with observations noting Pupil 1 'showed a willingness to go and check his own work'. Freeman (1998, in Montgomery, 2001) describes how higher order thinking is an essential provision when teaching the MAT pupil, and would explain Pupil 1's motivation in the extension task.

Pupil 2 also finished the main activity of the lesson promptly and to a high standard. They remained largely engaged throughout the lesson and were also scored a four on the Leuven Scale (Leavers 2003)(Appendix C). Pupil 2 displayed an intense moment of engagement during the main body of the activity, answering 'I know, I know!' to a question directed at the group (Appendix B). Fredericks (2014) suggests when pupils display willingness to answer questions this may demonstrate a deeper understanding of the topic, and Pupils 2's competent completion of the main activity would support this theory. However, a judgment of Pupil 2's motivation to complete the task is more challenging. The qualitative data collected through the observation found Pupil 2 to be 'chatting' throughout the lesson. There is conflicting research on the assessment of motivation and engagement, with Fredericks (2014) arguing that even when a pupil appears to be on task, this may not be the case.

Similarly to Pupil 1, Pupil 2 showed high levels of interest in the extension task and the chance to assess their own work. However, upon the completion of the extension task, Pupil 2 was eager to move onto 'free choice', as seen by the question 'Can I go now?' (Appendix B) Montgomery (2001) would suggest Pupil 2's reluctance to continue learning after completion of the task implies that they didn't in fact have any intrinsic motivation to complete the task.

Pupil 3 was placed between a two and a three between 'frequently interrupted activity' and 'mainly continuous activity' on the Leuven scale (Appendix C). As, although Pupil 3 showed high levels of engagement during the introduction of the lesson, they rushed the main activity and completed it incorrectly. Consequently after re-explaining the task, the work was re-done. This behaviour is consistent to that I have identified in previous lessons, where often MAT pupils would rush to complete tasks, placing minimal emphasis on the quality of work completed. Martin (2002) suggests behaviour such as this may be explained by some MAT pupils not wanting to be perceived as 'making an effort', as this can be seen to show weakness to other pupils. Furthermore, Covington (1992) proposes pupils who show less effort are perceived by other pupils as more competent.

Although Pupil 3 reported interest in the main activity and the extension task during the interview, non-participant observation identified frequently interrupted behavior through the main body of the task for example 'swinging on [their] chair', and disinterest in elements of the extension task. Pupil 3 in fact marked their work correctly without ever doing any measurements. This behaviour may be attributed to the pupil's desire to avoid failure. Davis and Rimm (1998, in Martin 2002) argue that MAT pupils may avoid tasks, such as marking work as these may be an opportunity for weaknesses to be discovered. Interestingly, when asked about the extension task in interview Pupil 3 responded to the question 'What did you think of the extension task?' with 'It was a bit easy'. There are several possible explanations to this response. Martin (2002), explains pupils may not want to convey a lack of understanding in front of peers, as there is a belief that showing difficulty demonstrates a lack of ability. Furthermore, as Pupil 3 was unwilling to ask the teacher questions in order to complete the activities correctly, Frederick (2014) suggests this may show a lack of motivation to complete the task to a high standard.

Based on the reflection of lesson one, amendments to the second lesson of the lesson study were made (Appendix L). Following a discussion with my colleague we looked at the use of collaborative learning. Hattie (2009) discusses how through working together pupils problem solving and achievement is improved. The nature of the task also allowed pupils to provide their peers with feedback on their learning. This relates with Donaldson's four core purposes where he discusses how teaching should result in 'enterprising, creative contributors' who can work collaboratively (Donaldson, 2015).

Lesson 2

Lesson 2 involved pupils using the skills acquired in 'Introduction to Measurement' to estimate the length of pictures of polar bears. This allowed pupils to consolidate their understanding, as their skills were tested in a different context. The extension task for this activity, involved pupils working collaboratively to measure one another. This was chosen as collaboration tasks also facilitate extended language use and thinking as well as the development of social skills (Montgomery, 2001; Hattie, 2009). Three further case study pupils were selected to be observed.

During the introduction, Pupil X was observed to be 'quiet' and 'not putting their hand up' to answer questions (Appendix F). Frederick (2014) suggests this may be a manifestation of lack of understanding. Moreover it may demonstrate a further example of MAT pupils avoiding tasks where there is an opportunity for weakness to be discovered especially in front of their peers (Martin 2002; Covington 1992). Whilst showing signs of interrupted engagement during the introduction, by 'looking around the room' (Appendix G), Pupil Y actually showed a high-level interest in the main activity and 'celebrated' at the chance to do the extension task. Furthermore when subsequently asked in the interview 'Did you want to do the extension task?' they answered ' Yes!... it sounded so fun'. Pupil Z showed continued engagement throughout the introduction and was very willing to answer questions (Appendix H), thus suggesting motivation to complete the main activity (Frederick, 2014)

During the main body of the task, Pupil X showed a lack of interest in the activity, with an unwillingness to make guesses. Evidence of this is seen when Pupil X was noted to be copying other pupils' guesses' (Appendix F). McCabe (2005) suggests several reasons why a pupil might feel the need to cheat, for example 'competition and pressure' and 'feelings of inadequacy and unpreparedness'. Furthermore, Pupil X was observed as having 'low energy' and 'only participating when prompted by the teacher'. Following the completion of the main activity, Pupil X asked 'Can we choose now? Can I go play?' (Appendix F). Subsequently, when directed to the extension task they remained distracted requiring 'continuous prompting'. Pupil X was therefore scored a two on the Leuven Scale, demonstrating low involvement (Leavers 2003)(Appendix I). During the reflection reasons for pupil X's lack of motivation were

discussed, with disinterest suggested as a pivotal reason (Appendix M). Martin (2002) highlights the importance of arousing curiosity within a task where possible in helping motivate pupils. Contradictory to the qualitative data collected, Pupil X answered 'fun' frequently during the interview (Appendix J,K). It is possible in this case, Pupil X was trying to please the interviewer by saying what they thought the interviewer would want to hear (Cohen et al. 2002).

Pupil Y showed sustained intense activity in the main activity of the lesson. They displayed the highest energy in the group despite facing difficulty and requiring assistance from the teacher. Frederick (2014) discusses how 'persisting with a task when experiencing difficulty' is an important demonstration of motivation towards a task. In contrast after initially showing high energy and interest during the introduction, Pupil Z displayed a low energy throughout the main task, and rushed to complete the worksheet (Appendix H). However, during the extension task Pupils Y and Z worked collaboratively and remained motivated throughout. They demonstrated intrinsic motivation, practising their skills during free time and helped others complete the task. Froiland and Worrell (2016) discuss how intrinsic motivation is associated with giftedness, reduced anxiety towards work and behavioural engagement. Both pupils were therefore scored as a four; continuous activity with intense moments on the Leuven Scale (Appendix I).

During reflection, it was considered how the lesson could be improved to enhance pupil's learning (Appendix M). A main focus of discussion was adapting the main activity to further interest pupils and capture pupil curiosity, thus increasing intrinsic motivation. A means by which this could be achieved is by using physical objects instead of pictures. This is important as it is widely accepted that intrinsic motivation towards a task within the classroom will lead to enjoyment in learning long after a lesson ends (Martin 2002; Froiland & Oros, 2014). Other ways Cameron and Pierce (1994) suggest intrinsic motivation can be enhanced is through verbal praise and feedback.

Analysis of the data collected suggests half of the case study pupils (Pupils 1, Y and Z) showed high levels of motivation in the main activity of the lesson, when an extension task was introduced. This may be explained through pupils understanding the purpose of the main activity of the lesson in allowing them to be further challenged in the extension task.

Half of the case study pupils however, did not display motivation during the main activity of the lesson. A review of the literature suggests several reasons for this. Lack of understanding and fear of others discovering this may be responsible (Holt, 1964). Martin (2002) suggests that some MAT pupils are able to achieve success without high levels of effort and motivation, and therefore do not see the need to remain motivated throughout the task. This may be the case for Pupil 2 who despite chatting throughout the activity still achieved the lesson objective. Furthermore, Martin (2002) also suggests that some MAT pupils may lack motivation to complete a task as they believe this is a sign of weakness or lack of ability.

Conclusion

The data collected and analysed appears to suggest the use of a challenging extension task resulted in higher levels of motivation among some MAT pupils throughout the main body of the lesson. However the method utilised in the generation of such results should be carefully considered before an assessment of usefulness is made. A lesson study was employed to allow the collection of qualitative data from a non-participant observer. Ruddock (1981 in Cohen et al. 2010) argues that generalisations from qualitative data should not be made because of the influence of bias, whilst Miles and Huberman (1984, in Cohen et al. 2010)

suggest qualitative data can be generalised if multi-site studies are completed. Several factors must therefore be considered in relation to this lesson study.

Although the use of three different case study pupils in lesson two increased sample size, relatively, the total sample size remained small. Also, due to practical restrictions lesson two was unable to be conducted in a different school or class environment. As Deci (1988, in Martin 2002) explains, intrinsic motivation is developed through a consistent, positive and supportive environment created by the class teacher. Consequently as both lessons were conducted in the same class, conclusions regarding the effect of the learning environment on pupils' intrinsic motivation could not be considered. In future, increasing the sample size and repeating the research across a range of classes in different schools would increase both the validity and reliability of the results. Furthermore, as the research was only conducted in a mixed ability group any conclusions made can not be generalised to all MAT pupils. Conducting more research in ability differentiated classes would undoubtedly increase the usefulness of the results.

The selection of pupils may also have affected results. When selecting case study pupils teacher considerations were used. Rohrer (1995) expressed concern that teachers preconceived notions of giftedness could stop pupils with certain personality traits being identified as MAT, and Galton et al. (1999, in Long et al. 2010) warns this may also be the case for higher ability pupils offering continually minimal effort. Results from school reading and numeracy tests were also considered when selecting pupils in an attempt to combat this bias. Volunteer bias must also be considered as only pupils with consent from parents or guardians were included in the research.

Group interviews were effective in considering multiple interpretations. However they may have affected the usefulness of the results. It was noted that 'groupthink' appeared to take place several times during the interviews (Cohen et al. 2002). For multiple questions a pupil's answer would be repeated by the following student (Appendix J,K), this was seen frequently with Pupil X. Matrin (2002) emphasises how 'groupthink' within an interview can lead to individuals holding back their true opinion, thus tarnishing conclusions. Furthermore, as the interviewer had taught the pupil's previously, they may have been seen as an authority figure, the pupils therefore may have tried to give the answer they believed was correct (Simmons 1982, in Cohen et al. 2010; McCormick and James 2018). This limits the generalisations that can be made. To overcome this in the future, steps could be taken to make interviews seen less like 'tests' (Simons 1982). This could be done through introducing interviews into the normal practise of the classroom prior to undertaking the research. This would allow pupils to become familiar with the structure and perceive them as an everyday occurrence.

Non-participant observation provides first hand data, and allows the avoidance of some elements of bias. However the Hawthorne Effect must be examined. It is widely accepted that the presence of an observer alters pupils' behaviour (McCambridge et al. 2014), and this should always be considered when interpreting findings.

Recommendations

This research has allowed me to consider the special requirements MAT pupils may need within the classroom to achieve their potential. Literature suggests MAT pupils require challenge in order to sustain motivation and thus achieve desirable results (Deizmann, 2005). An effective extension task allowing pupils to utilise higher level cognitive skills appears to provide an adequate challenge for MAT pupils, and has been shown in this research to in some cases increase motivation in all parts of the lesson (Freemans, 1998 in Montgomery,

2001). Therefore I would recommend teachers endeavour to include such a task in their teaching practise.

Moving forward, I would pay particular attention to the environment created within the classroom. On reflection it was apparent in the second lesson that pupils were particularly tentative when estimating because of the fear of being incorrect and the consequences of this. I would attempt to create a 'safe and honest' learning environment through communication with pupils that the nature of the work involves making mistakes, and the consequences of this. This is an important consideration for teachers in order to help them support any ability pupil in achieving their potential (Donaldson, 2015).

Additionally in the future, I will make the effort to communicate to my pupils regularly that effort expenditure does not necessarily relate to ability. A strategy to achieve this includes continually placing focus on skill development, improvement and personal bests, as opposed to results and quantity of work produced. This communicates to the student that the process is very much under focus and that outcomes reflect more on the process than on their ability. Importantly, Winebrenner (2001 in Martin, 2002) explains how this can reduce pupils' fear of failure, which the study demonstrated to be a cause of decreased motivation among MAT pupils. This also links to Donaldson's (2015) pedagogical principle which discusses how good teaching and learning includes encouraging pupils to recognise the importance of sustained effort within learning.

Another way I would increase MAT pupils' motivation in the future is through the use of pupil voice within the classroom. This could be done through creating enough choice of tasks for pupils so that they are able to make a decision which interests them (Clinkenbeard, 2002). This is important as Donaldson (2015) explains how good teaching and learning should engage interest, and as the study demonstrated 'disinterest' can be a cause of lack of motivation. Considering the effect of pupil voice on motivation in further research would be advantageous as Donaldson outlines in 'Successful Futures' that the curriculum should take into consideration the view of every pupil (Donaldson 2015).

Reference List

- British Educational Research Association [BERA]., (2018). *Ethical Guidelines for Educational Research, fourth edition*, London. <https://www.bera.ac.uk/researchers-resources/publications/ethicalguidelines-for-educational-research-2018>
- Brookfield, S., (1995). *Becoming a Critically Reflective Teacher*. San Francisco, CA: Jossey-Bass and
- Cameron, J. and Pierce, W.D., (1994). *Reinforcement, reward, and intrinsic motivation: A meta-analysis*. Review of Educational research, pp.363-423.
- Clinkenbeard, P. 2012. *Motivation and gifted students: Implications of theory and research*. *Psychology in the Schools*, 49(7), pp.622-630.
- Cohen, L., Manion, L. and Morrison, K., (2002). *Research methods in education*. Routledge.
- Cohen, L., Manion, L., Morrison, K. and Wyse, D., (2010). *A guide to teaching practice*. Routledge.
- Covington, M.V. (1992). *Making the grade: A self-worth perspective on motivation and school reform*. Cambridge University Press.
- Dai, D., Moon, S. and Feldhusen, J.F., (1998). *Achievement motivation and gifted students: A social cognitive perspective*. Educational Psychologist, pp.45-63.
- Davies, S., (2012). *Embracing reflective practice*. Education for Primary Care, 23(1).
- Dewey, J., (1986), September. *Experience and education*. In The Educational Forum (Vol. 50). Taylor & Francis Group.
- Diezmann, M. (2005) *Challenging Mathematically Gifted Primary Students*. Australasian Journal of Gifted Education 14(1).
- Donaldson, G.,(2019). *Successful Futures*. [PDF] Available at: <http://file:///C:/Users/emmad/Downloads/Donaldson%20Report%20%20Successful%20Futures%20%20Independent%20Review%20of%20Curriculum%20and%20Assessment%20Arrangements%20in%20Wales.pdf> [Accessed 19 Oct. 2019].
- Finlay, L. and Gough, B. eds., (2008). *Reflexivity: A practical guide for researchers in health and social sciences*. John Wiley & Sons.
- Fredricks, A., (2014). 'Myth 1: it's easy to tell who is engaged: What is engagement and how can I assess it in my classroom?', in, Corwin Press, Thousand Oaks, CA, pp. 11-36.

Froiland, J. and Oros, E. (2014). *Intrinsic motivation, perceived competence and classroom engagement as longitudinal predictors of adolescent reading achievement*. Educational Psychology, 34(2).

Froiland, J. and Worrell, C., (2016). *Intrinsic motivation, learning goals, engagement, and achievement in a diverse high school*. Psychology in the Schools, 53(3), pp.321-336.

Gagné, F., (1995). *From giftedness to talent: A developmental model and its impact on the language of the field*. Roeper review, 18(2), pp.103-111.

Gray, E. (2004). *Doing Research in the Real World*. London: SAGE Publications

Hattie, J. (2009). *Visible Learning: A Synthesis of Over 800 Meta-analyses Relating to Achievement*, Routledge.

Holt, C. and Fromme, A., (1964). *How children fail (Vol. 5)*. New York: Pitman.

Kajornboon, A., (2005). *Using interviews as research instruments*. E-journal for Research Teachers, 2(1)

Laevers, F., (2003). *Experiential education: Making care and education more effective through well-being and involvement. Involvement of children and teacher style*. Insights from an international study on experiential education.

Lewis, C., (2002). *Does Lesson Study Have a Future in the United States?*. Nagoya journal of education and human development.

Lewis, C., Perry, R. and Hurd, J., (2004). *A deeper look at lesson study*. Educational leadership, 61(5).

Lewis, C., Perry, R. and Murata, A., (2006). *How should research contribute to instructional improvement? The case of lesson study*. Educational researcher, 35(3).

Long, M., Wood, C., Littleton, K., Passenger, T. and Sheehy, K., (2010). *The psychology of education*. Routledge.

Martin, A., (2002). *Motivating the gifted and talented: Lessons from research and practice*. Australasian Journal of Gifted Education.

Mathison, S. (1988). *Why Triangulate?* Educational Researcher, 17(2), 13-17.

McCabe, D., (2005). *Cheating: Why students do it and how we can help them stop. Guiding students from cheating and plagiarism to honesty and integrity: Strategies for change*.

McCambridge, J. and Witton, J. and Elbourne, D.R., (2014). Systematic review of the Hawthorne effect: new concepts are needed to study research participation effects. *Journal of clinical epidemiology*, 67(3).

McCormick, R. and James, M., (2018). *Curriculum evaluation in schools*. Routledge.

Montgomery, D. (2001) '*Teaching the More Able: An Update*', *Gifted Education International*, 15(3).

National Association for Gifted Children [NAGC.org]., (2020). *What is Giftedness?*. [online] Available at: <https://www.nagc.org/resources-publications/resources/what-giftedness> [Accessed 12 Feb. 2020].

Paquette, J., (2017). *Social purpose and schooling: Alternatives, agendas and issues*. Routledge.

Preckel, F., Götz, T. and Frenzel, A., (2010). *Ability grouping of gifted students: Effects on academic self-concept and boredom*. *British Journal of Educational Psychology*, 80(3).

Renzulli, J., (2005). *The Three-Ring Conception of Giftedness: A Developmental Model for Promoting Creative Productivity*. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness*. Cambridge University Press.

Rohrer, J., (1995). *Primary teacher conceptions of giftedness: Image, evidence, and nonevidence*. *Talents and Gifts*.

Stepanek, J., Snodgrass, A. and Dubowe, M., (2007). *Leading lesson study : a practical guide for teachers and facilitators*.

Stigler, J.W. and Hiebert, J., (2009). *The teaching gap: Best ideas from the world's teachers for improving education in the classroom*. Simon and Schuster.

Subotnik, R., Olszewski-Kubilius, P. and Worrell, F., (2011). *Rethinking giftedness and gifted education: A proposed direction forward based on psychological science*. *Psychological science in the public interest*, 12(1).

Vernon, P., Adamson, G., Vernon, D. (1977). *The Psychology and Education of Gifted Children (Psychology Revivals)*. London: Routledge.