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Academic honesty referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

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Contents

Aims, Focus and Purpose of Research	3
Research Context	3
Overview of Literature	4
Lesson Study Design	7
Observations	8
Interviews	9
Reflections	9
Ethical Considerations	10
Lesson Study 1	11
Lesson Study 2	13
Collective Results and Analysis	15
Discussion	16
Conclusion	17
Recommendations	19
References	20

Appendices	<i>Consult other submission</i>
<i>Appendix A</i>	1
<i>Appendix B</i>	2
<i>Appendix C</i>	3
<i>Appendix D</i>	4
<i>Appendix E</i>	5
<i>Appendix F</i>	8
<i>Appendix G</i>	9

Aims, Focus and Purpose of Research

The purpose of the following research was to understand the impact that working in mixed ability groups has on children's motivation to engage with their learning on a deeper level. This topic was decided on because it is a hot topic within education with practitioners siding with either mixed ability or straight ability grouping. Francis *et al.*'s (2017) seminal article acts as a foundation and inspiration to this topic of research. It provides further support on why this topic is an influential area to explore and the findings from the paper were instrumental in creating the specific question of this research paper. Throughout early parts of PTE 1 and discussions with fellow teachers, this topic came up often with strong opinions from both sides. The first class that I was in used ability grouping and labelled as high, middle and lower ability children. There were many reasons given as to why the class were grouped by ability but there were also questions and challenges to the approach. The second class I was in used mixed ability grouping and were set through cooperative learning. In my personal opinion, and one of that the class teacher agreed with, it works much better for all children if they work alongside peers of different abilities. These will be discussed in detail throughout the writing.

Research Context

The schools in which I conducted my mini research project were two small Yr Athrofa partnership schools. School 1 was a year two class with eighteen pupils and School 2 contained twenty two pupils in a year three class. That particular class had Seven children that are identified as having ALN with a majority EAL, some S&L and one BSDE learner. The research took place during a science and literacy lesson respectively. These lessons were chosen as it was a strong representation of the difference in ability levels and had a clear purpose of children helping their partner. In my year three class in particular, the ability gap was noticeable with a fair split of higher and lower. The lack of middle ground meant that the research question fitted really well with the context of my class and learners. The usual setup of cooperative learning groups was introduced on day three of my placement with the groups set up by the class teacher. For this lesson, they were put into new partners by myself

based on their usual standards in literacy. The final question was refined to read '*Does grouping lower ability children with higher ability children influence the lower learners' motivation to engage with their learning?*'. This was informed by Francis *et al.*'s (2017) paper and chosen due to its best fit to the demographic of learners. With the new curriculum imminent, Donaldson (2015) places collaboration at the heart of the new curriculum to help develop four key purposes. Therefore, this area is crucial to explore as we begin a move towards for peer collaboration. The fair split of higher and lower ability would align and, if the research returned our predictions, the impact on learners in this class could be substantial.

Overview of Literature

Francis *et al.*'s (2017) critical paper on the exploration of ability grouping and its impact on learners returned shocking results. There were seven critical takeaways from the paper but most relevant to this study were the impact on teacher expectations, student engagement and acceptance of poorer outcomes. Most schools adopt an ability approach to grouping children that has been founded on multiple sources of previous data (Ireson & Hallam, 2001). Commonly ability sets are found in secondary schools whereas it looks slightly different in primary schools. In the primary setting, ability tables are often used with differentiation playing more of a role in learners attainment.

Through synthesising of current literature, there is a whole wealth of research into benefits of mixed ability groupings, with most of that research being completed within the last decade. Prior to this exponential rise in the research topic, the general consensus was to side with homogeneous groupings as this was deemed best practice (Slavin, 1990; Chen-Lin. C., & Kulik, J. A., 1982; Kerchkov, 1986). Something that all of these researchers found was an overwhelming support for the positive impact homogeneous grouping has on higher ability children. Conversely to the higher ability children, their counterparts who were classified as lower ability learners dwindled with limited progress and at the conclusion of their education, left with a huge disadvantage. Although at the time there were no arguments against the

benefits ability grouping had on more able learners, the improvements were eventually found to be negligible where as the negative impact on the lower learners were also small (Burris & Welner 2005; Higgins *et al.* 2015). This more recent research has challenged the more mature literature and practitioners views and belittled their findings. Considering the most recent proposals, the argument must be made against ability grouping as the educational impact is not substantial enough to negate other negative effects. Poor self-confidence, unhappiness and excessive pressure amongst children were three critical factors found to be attributed to ability grouping (Boaler, *et al.* 2000; Bartholomew 2000).

A focus for the Department for Education's is the closing of the attainment gap for disadvantaged and lower ability learners. This is where the issues in earlier research and advocations of homogeneous settings arise (Cullen *et al.* 2018). Attainment gaps are not going to be closed if children were grouped by ability as the identified learners would not make rapid enough progress. Additionally, most primary settings do not have the scope to set by ability and have to cater for the continuum of learners in one classroom. As Francis *et al.* (2017) discovered, despite the host of criticisms against homogeneous grouping, there is still a reluctance to transfer to heterogeneous approaches. The pressure of attainment levels, funding and practical implications are all possible attributable factors. However, emerging research from McGillicuddy & Devine (2018) found that even having ability tables within the primary classroom has particular impacts on lower ability children. Decrease of independence mean they become too dependent on others, were too controlled and they had much lower expectations from the teacher. So even within a classroom, ability grouping has many implications for the learners involved. Contrary to this, Taylor *et al.* (2017) found that schools who have moved to mixed ability groupings have reported benefits of pupils' increased confidence, unlocked potential and mutual support with teachers. This healthy relationship between pupil and teacher can only increase learning and attainment (Hansen, 2016). Hallam and Ireson (2007) recognised that pupil wellbeing was increased when they were placed into mixed ability groupings. Counter to the argument of mixed groupings having little impact on the whole spectrum of learners, Meijnen and Guldemand (2002) found that there

were in fact benefits for lower learners whilst opposing earlier discussions of having no impact on higher learners. Saleh *et al.* (2005, p. 117) provides concrete support to the argument that mixed ability grouping has on lower ability learners. “The main results indicate that low-ability students achieve more and are more motivated to learn in heterogeneous groups. Average-ability students perform better in homogeneous groups whereas high-ability students show equally strong learning outcomes in homogeneous and heterogeneous groups”. This study has provided critical support and reasoning for mixed ability grouping with the author going on to discuss how the results can be used to best group and support all ability learners in a single class. Further effects were found by Smith & Sutherland (2003) with two key findings being the increase in learners motivation and the benefit of peer support. The peer support is crucial to lower learners and has benefits for both groups of students. This higher order thinking that the more able children have to engage with, promotes their understanding and explanations of information. Lyle (1999) supports this by suggesting that exchanging different experiences and standpoints allows facilitation of cognitive and social development. Ireson & Hallam (2003) further supported the impact mixed groupings have on children’s motivation and social skills which, in turn, improved the ambiance of the learning environment. The increased levels of pupil wellbeing and motivation is an incentive to encourage teachers to engage in trialling mixed ability groupings to see the impacts in their classroom.

Of course, there are opposals of mixed ability grouping within the literature. For teachers, Smith *et al.* (2003) found an inability to adequately cater for everyone in the class as a major barrier to introducing this approach. Identified problems with mixed ability groupings also include the challenge to higher and lower pupils, with work being pitched at the middle level with no thought of those working above or below the expected average (Smith & Sutherland, 2003). Further arguments state that the increase in class sizes test the viability of mixed ability groupings as well as the defining factor being the socio-economic status of schools and teacher organisation (Reay, 1998; Benn & Chitty, 1997; Ireson & Hallam, 2003). However, with peer collaboration the argument can be made against the organisational difficulties within the classroom. Peer collaboration frees the teacher up for focused

interventions, decreases anxiety and increases social skills in the classroom. Whilst there is not a lot of research on the motivation that mixed groupings has on pupils, increasing aforementioned skills will contribute partly to higher levels of motivation.

Conclusively, the overwhelming scathing of ability groupings further challenges the proposals of ability grouping. To balance out, Loveless (1998) concluded that all of the research was inconclusive as it was all very context specific with learners and teaching approaches very different to identify a correct approach. The uncertainty and reluctance to go forth with mixed ability groupings was a key driving force for this research project. If, even if in only one setting, there was support for the benefits that mixed ability grouping has on lower ability children then that would suffice. This would in hope encourage other teachers and schools to engage with experiments around this topic to find what works best for their school and learners within. There are many options for trials with a personal endorsement and recommendation of cooperative learning groups. Cooperative learning provides integration of all learners together and promotes inclusivity and independence in a supportive and safe environment. In addition to cooperative learning, there is an array of ways to group children care must be taken to negate any social labels or detriments on the children. Instead, teachers must create an environment that encourages peer work, purposeful social interactions and a safe place that exacerbates wellbeing. This, in order, should return increased levels of motivation as children will be happy and engaged in work. Whilst working with their peers will encourage lower children to really participate and engage further in their work.

Lesson Study Design

Lesson study is a form of action research introduced at the start of the millenium and is an ever increasing form of observing educational practice. The research approach is a linear sequence of actions that are based upon a shared research question that is tested in action, before observers then discuss and analyse the findings (Buchard 7 Martin, 2017; Hart *et al.* 2011). A lesson study approach was decided upon for its ease of implementability and the ability to focus on something specific within the

classroom environment. This particular research progressed through three key steps: Refine a research focus and creation of a lesson plan, action research and finally a reflection on the research. This would return three primary sources of data for us to discuss and analyse in later stages: reflections, observations and views of the learners. The ethics form laid the fundamentals needed to conduct the research and the lesson plans were tailored to meet the intended outcome. The action research phase then comprised of various data collection methods: non-participant observations and a focus group interview. The class were made aware of the observer and their job role as it would have been deemed unethical to not acknowledge them and what they would be doing. It was agreed that the best form of observation in the field was to sit in the room but not in a prominent position. This was to keep the feel of the lesson relaxed and as normal as possible. The observer was permitted to walk around and check with focus pupils, although these pupils were not singled out as being a focus. The observer was not given any information about the child prior to the start of the observation. This was to encourage an approach of non-bias so not to harm the validity of the research. The consistent methodology also ensured that the research was viewed through a non-judgemental and unassuming manner. Post-interviews, the reflection stage was conducted privately between both researchers away from the field of study.

Observations

During the observational process, a template was used with four boxes to fill in via a handwritten method (see Appendix A). These four key indicators were: body language, collaboration, work ethic and quality of work. Through synthesis and advice taken from current literature, these were the four key descriptors agreed upon. The first two were comment based boxes that allowed the observer to provide written observations of what the children were doing. This qualitative approach allowed for a narrative of detail and accurate notes regarding specific actions by the children (Merriam & Grenier, 2019). The latter two indicators were likert scales of 1-5, with 1 being low and 5 being very high (Likert, 1932). A likert scale was used as the information did not require any justification or detailed information, but instead focused on their experience and subjective judgements, a real strength in its use

(Huang *et al.*, 2010). These two boxes were completed by both researchers to increase validity of the data. An additional notes box was provided on the template as a way of scribing any interesting occurrences that fell outside of the specific research remit. Upon reflection, there are possible discrepancies within the information collected through this written method. In a busy environment such as the location of this research, there are potential problems with mishearing participants and distractions in note taking which could in turn lead unintentional assumptions on behalf of the observer. The observational method is also argued as being too subjective, too structured and is more time consuming for both researchers (Katz-Buonincontro & Anderson, 2018).

Interviews

Interviews were held around 15 minutes after the end of the research lesson. Ideally they would've been conducted immediately after the lesson but due to unforeseen circumstances, this was not able to happen. The interviews were structured with pre-planned questions and lasted no longer than five minutes each (see Appendix B). Interviews were short and kept informal in an attempt to keep pupil wellbeing at a satisfactory level. Interviews were conducted in an open area that had high volumes of foot traffic, this was to keep in line with the ethical guidance and further contributed to the calm and informal approach to an otherwise formal process. There were six questions that were asked to three focus participants. The three identified focus participants were chosen based on those who satisfied the criteria triad: estimated relation to the research topic, consent/assent and oral ability. In lesson 1, the sample was comprised of two females and one male, all aged seven at the time of the study. In lesson two the sample continued to be mixed with two females and one male all aged six. Participants had the option to opt out at any point by showing the interviewer a thumbs down, this was made clear at the start of the interview to keep in line with ethics and wellbeing. Interviewers also had the freedom to not ask questions if they feel the child has already provided an answer.

Reflections

The reflections were completed by both researchers post-interview and away from the location of the research. The chosen method of reflection was Brookfield's (2005) Four Lenses. This was chosen as the best form of reflection for the study because it considers the views of four key instruments of research - primary observer, colleague, students and literature. As the research focused heavily on the student, it was vital for us to choose a reflection that mirrored the intended outcome and took on the view of the most important person. Reflections were handwritten directly onto the observation template designed and created pre the research start date. There was no drafting or initial thoughts on scrap paper, raw thoughts and feelings were written immediately on the reflection pro-forma (see Appendix C).

Ethical Considerations

Before conducting this research project, there were many ethical considerations that were explored. Firstly, the purpose of the research was outlined with reasoning as to why this was a chosen topic to research. Following this, the research methods were produced and had a clear procedure that would be followed during the field research. The ethics form for the research was sent off for external verification and it was accepted with no amendments required. Throughout the whole research procedure, schools and pupils involved were kept anonymous and data kept within accordance of three ethical guidelines provided by the university (BERA, 2018; UWTSD Research Ethics & Integrity Code of Practice 2017-2020; EWC). Schools were known as 1 and 2, and participants were identified throughout as Child A, B or C. Whilst all information was kept confidential and locked away in a secure cabinet, children were not anonymous as they were known to the researcher. Only the researchers had access to the collected data and possessed full control and responsibility for it. This was all underpinned by reference to the UWTSD's Research Data Management Strategy policy. The final research report will be made available to the university and the headteachers of the research schools upon request.

Research contexts were stated with only brief descriptions used to keep the research schools anonymous. Crucially, all potential risks were identified and discussed as to

the severity of the potential impact and what will be done to try and negate any harm from occurring. However, throughout the research project, the three critical ethical guideline documents were consistently referred to. After submission and approval of the ethics form, all children in the class were sent home with consent letters that needed to be signed by their parents/guardians. Children were asked for assent at the start of the lesson via a thumbs up or thumbs down method. Children were notified that at any point they wanted to stop or not partake any further, they had to show a thumbs down to one of the two researchers. In School 1, eighteen pupils gave assent at the start of the lesson whilst in School 2, nineteen pupils gave their assent.

Lesson Study 1

The first research study was based at School 2 in a year three class of twenty two children in which nineteen gave assent and three did not. The context was a literacy lesson where the children had to draft a persuasive advert for their created smoothies (see Appendix D). This was the last lesson in a two week smoothie project. Children were separated from their usual cooperative learning groups and placed into designated mixed ability pairs. The pairings were chosen before the lesson and each child was given a card as they entered the classroom. Their first job was to find the person who possessed the opposite to their card, i.e. hot/cold, hard/soft etc, then settle in a workspace with their book and pen. This was a more engaging way to pair the children and gave the lesson an active start. This method also gave children the chance to have a little chat and spend all of their excitement before the lesson officially started. The lesson starter asked the children to recap on the eight features of persuasive adverts, a list that had been referred to throughout the project and they know very well. In pairs, they were forced to recall previous knowledge with the end challenge of seeing which pair could recall the most features. One pair who thought they had all eight were then asked to relay them to the class. This moment provided real engagement from other students as they anticipated whether or not this one pair had all of the features. This also helped the remaining children in the class to recall previous knowledge, which, in turn, sparked

new answers in their minds. The pair didn't get all eight, but as a class they were able to get seven. The oral recall from the one pair triggered previous knowledge in other children and were able to then work as a whole class to decipher most. During discussion times, the observer noted two out of three participants instantly disengage with the lesson and not talk to their partner. This provided an interesting viewpoint which will be discussed later in the report.

As the teacher, one modelled a gold standard response using the children's thoughts and ideas. A checklist was left on the side of the board and as we co-created the persuasive advert, children were asked to keep an eye on the list and tick off any features that we used. There was no correct structure for integrating the eight features so the checklist really helped get into a flow of writing. The purpose was more for the children to keep referring to the guideline so that when they write their own, they know they must use the reference guide to help them. We used my product name and strapline as the children were familiar with it. It was used in the morning lesson so my product was fresh in their mind. Children had plenty of discussion time in their pairs to think of the next sentence with permission to look at a previous persuasive advert they had written three weeks prior. This enthused the children's ideas and really added some quality to the example piece. As the reference piece was drafted, corrected and finalised, it allowed the children to share their ideas and help translate them to a smoothie context. If I was to repeat this lesson, I perhaps would've had two pairs discussing and brainstorming ideas on one of the eight features. This could've improved the quality of the writing from the off as there would have been more ideas to choose from. However, if pairs struggled with conjuring up examples of their designated feature, then the lesson would stall and lose momentum. It was noted by the observer that two out of three participants struggled to discuss the lesson content and that social friendships veered conversations towards off topic content during the input. However, the main task was completed with real detail by all and this was reflected in the likert scale results.

The lesson provided ample opportunities for pair work and really reflected the research aim. As well as working within their pairings, children had the opportunity to

discuss as a whole class. They were encouraged throughout to magpie ideas if they liked them. I feel as though the high volumes of social interaction that this lesson allowed, provided the researchers with a wealth of information and observation. I feel as though the observation schedule was sufficient in recording the required information. However, upon reflection, the boxes were too small so limited the amount of information that could be recorded. Whilst there was the additional notes box for extra writing space, the smaller box did inhibit the amount of information that could be recorded. Opposingly, some would argue that a limited space forces the writer to strongly consider their recordings, increasing the quality and accuracy of information. However, if the observer lacks literary skills, the small boxes could cause problems in prioritising information and potentially vital information being missed. Whilst the observational template could not be amended as it would distort the following lesson study, certain changes were made to ensure the second study lesson ran smoothly. A major focus was having all three focus participants on one table. This had many benefits to the observer as their attention was directed to one place of the classroom. Eliminating distractions in a busy classroom, particularly as lesson study 2 was in a small foundation phase classroom. As well as an increase in the observer's attention and focus, it has a benefit to the participant's wellbeing and reduces anxiety levels.

Lesson Study 2

The second research lesson happened at School 1 in a year two class with nineteen pupils, where eighteen gave assent and one abstaining. The context was a science lesson where the children were writing their report on a newspaper bridge experiment they had done two weeks prior. The children spent the first twenty minutes on the carpet reflecting and discussing the experiment. This recall in previous knowledge really allowed the children to engage with class discussions. This showed as some children were eager to offer answers at any opportunity and could accurately recall key information. Focus participants were sat away from each other and not next to their partners. This hindered the social interactions and meant that there could not be much noted on how the higher children helped the lower

with their learning. However, focus children were asked plenty of questions by the student teacher which gave the observer an interesting insight into some key indicators. Their body language was the primary assessment tool and was a focus during the input. All three children demonstrated varying levels of interest during the input with two out of three become distracted or disengaged relatively soon. Children became slumped or found furniture to lean on, found bits of paper on the carpet to fiddle with or resorted to looking at the display boards. The lack of social interaction and partner attributed to this and if they were sat in pairs, discussions would've provided valuable social learning and brain breaks.

During the main task, the three focus participants were sat together on one table and adjacent to their more able partner. This allowed for the observer to have a sole focus in the classroom, eliminating across the classroom distractions. The task was very structured with the layout of the writing on the board to guide them. Children were encouraged to discuss with each other but the student teacher didn't allow too much independence. Often checking what they want write and where to write it before allowing them to put pencil to paper. Despite this, the lowers' engagement with their partners was mixed. Child A and their partner worked very well together, often bouncing ideas off of each other and checking the structure is correct in both pieces of work. The strong teaming meant that they both worked very hard and produced quality pieces of work. It was here that there was a clear enjoyment of working together and thus, improving work ethic and motivation to produce a piece of high quality work. Child B made no attempt to initiate engagement with their partner and even when prompted by the student teacher, conversations were short and empty. This child however was content to work independently, proposing the argument that working with a partner of any ability, has no impact on this specific person. Child C worked well with her partner due to a good social friendship. The learning relationship was calm but the more able child led all of the discussion and work. Often allowing her partner to copy with no evidence of help or scaffolding. Ambiguity arises around whether Child C's motivation was higher than usual because they were with a good friend and not the impact that the higher could have on increasing motivation and engagement with learning. All children achieved the

learning intention and this was evident in their work. At the conclusion of the lesson there were three very well presented and detailed experiment reports. Children could also orally demonstrate their understanding of the task and the prior knowledge needed to inform today's tasks.

An area for improvement that will increase validity of the study is to really keep the research aim in focus and tailor lessons that will return meaningful information. The tasks for the lesson didn't include much peer talk and therefore it was hard to gauge how much the children were really gaining from each other. For future, it would be beneficial to the study to include frequent partner talks, especially during the input. This would allow the observer to make relationships between partner engagement and motivation. Despite this, the main task did allow for more partner talk to occur and the results derived from the observer were meaningful. The information that was gathered was further enhanced by the grouping of the focus participants onto one table, something that had been tweaked from the previous lesson study.

Collective Results and Analysis

Upon analysis of the results, there were clear factors contributing to the importance children place upon social friendships. Figure 1. presents a synthesis of information collected from the interview. From this, it is clear to see that good friendships help children with their work on many levels. Helping each other, ease of partnership and friendships are the key messages derived from the interviews. Whilst this wasn't the primary focus of the research, a following study on the effects of friendships would prove beneficial as a standalone and supporting piece of research. Such a research study could intertwine with studies of this nature to determine key motivational factors in children's attitudes to learning. This would build upon current research that advocates partnering children with good friends for a variety of purposes (Cowie *et al.*, 1994; MacDonald *et al.* 2002; Kutnick & Kington, 2010; Dinet & Vivian, 2012). See Appendix E, F and G for full data collection.

	School 1			School 2		
Questions	Child A	Child B	Child C	Child A	Child B	Child C
Q1	Really easy	Good - don't normally work together	Good - patient with me	Fun - she's my friend	Good - helped	Enjoyed it
Q2	Yes - easy to work with	Yes - easy to work with	Yes - she's my friend	Yes - easy to work with	Yes - helped me	Yes - helped me but prefer usual partner
Q3	So easy, helping each other	Really easy, helping each other	Easy, helping each other	Really easy, helping each other	Really easy, helping each other	Really easy
Q4	9	9	9	8	5	10
Q5	Participant didn't understand Q	Nothing	More help than usual	More help than usual	Usual partner annoys me	Nothing
Q6	Writing	Writing	Writing	Helped me remember key bits	Helped me remember key bits	Helped me remember key bits
Key takeaways						
Q1	Good - patience, friendships, different					
Q2	Yes - easy to work with, helped me and friendships					
Q3	Really easy - helping each other					
Q4	8					
Q5	More help than usual					
Q6	Helped me remember, writing					
*Information shortened for purpose of synthesis.						

Figure 1. Synthesis table of interview responses.

Discussion

A key message emerging from the research in two totally different environments is the importance of social friendships on children's attitude to learning. Whilst there is no concrete evidence of mixed ability groupings having a direct impact on motivation, there is an argument to be made for the positive impact on productivity. Five out of the six participants mentioned friendship at some point during the study which shows the value placed upon this in the classroom. These results add to the overwhelming support of increases in pupils' wellbeing, confidence and willingness to learn (Taylor *et al.*, 2017; Hallam & Ireson, 2007). Through the likert scale readings, there was an evident relationship between work ethic and quality of work. This quantitative data showed that the higher the work ethic, usually the higher the quality of work. On the single occasion of the mismatch, the reason for the quality of the work being higher than the work ethic is evidenced through the qualitative recordings of collaboration. The observer's notes stated that the focus child, Child C in School 1, copied their more able partner's work instead of working together and discussing things to create a combination answer. With relation to the research aim, this child didn't satisfy or provide any insight into the impacts on motivation or willingness to engage with their learning. This standalone result also provides an almost counteractive argument to Smith & Sutherland's (2003) findings of the benefits on work that social friendships have. It would be argued that Child C from School 1 was not motivated but instead distracted by her more able partner whom is also a good friend. Countering this, the productivity of the lower ability child was exceptional and the quality was above

average when compared to normal lesson outputs. Despite the increase in quality of work, it must be argued that the lower ability child had no independence and an over-reliance on the partner. This reliance is no difference to a same ability grouping that is consistently helped by the teacher, adding support to McGillicuddy & Devine's (2018) worry about children's over reliance on others. With relation to independence Child B from School 2 also posed headstrong independence with limited interactions with their partner.

The impact of social interaction is evident from observations and interviews with the most paramount and repeated phrases reading along the lines of "he/she is my friend who helps me". These friendships brought out clear cause and effects on both sets of children. Helping each other, waiting before moving on, supporting certain aspects of work, encouragement and keeping on track were key messages emerging from the interviews. Interestingly, all responses to the question "On a scale of 1-10, how motivated were you?" fell in the upper quarter of the scale. This is the most telling result from the whole study. It coincides with Ireson & Hallam (2003) proposals of increased motivation in lower ability students and thus achieving more with their learning (Saleh *et al.* 2005). By collating this data a relationship can be made between motivation and friendship, but crucially not motivation and ability grouping. As a teacher conducting this research project, one must strongly oppose those views of inadequately catering for all in the class with differentiation addressing this issue whilst simultaneously challenging all pupils (Smith *et al.*, 2003; Smith & Sutherland, 2003).

For my class, the results have added concrete evidence that mixed ability grouping improves productivity and social skills for three children. If this research was to be repeated, it would be worth investigating if this approach satisfies most learners in the class. We know it works for three so one must predict that this might be an approach to learning that will benefit all learners. The new cooperative learning groups should incorporate social friendships as this has been found to have multiple benefits to all learners, no more so than those of lower ability. However, caution must be taken to consider how the children interact with each other and that the

friendship will not be a distraction to their learning. To successfully trial the research in an alternative setting, some alterations would need to be made. These were extensively outlined in both Lesson Study sections situated earlier in the report. Critically, the focus children must sit in the same vicinity of the classroom in order to help the observer gather undistracted, accurate and relevant information. This will ensure that the succinct and purposeful observation schedule is completed with enough precise information that can then be analysed.

Conclusion

The research study returned precise information relevant data that could be further analysed within the scope of the research aim. The observation schedule that was used was varied with each section providing alternative evidence of motivation. The mix of qualitative and quantitative observations gave the observer breadth and depth of understanding. Using both methods also addresses the issues that arise when using just one method and the triangulation approach coincides with the adopted process of reflection - looking at views from multiple sources (Jick, 1979). In action, it was acknowledged after Lesson study 1 that the focus participants needed to be sat in the same vicinity to avoid observer distraction and increase accuracy of collected data. However, there were worries that there could still be observer errors in the data collection due to the element of human errors and using a written approach. Noble & Smith (2015) suggested that no research is ever universally accepted as there are always issues of reliability when conducting any type of research. Therefore, any conclusions from this research must be treated with a critical and interpretive approach.

Although the data has been collected, interpreted with reference to literature and analysed with suggestions for future research, the specific question hasn't provided much scope for discussions. This could've been avoided if pilot studies had been conducted as the practice run would have given the researchers a sense of the possible outcomes. Consequently, alterations could have been made to observations and interviews in order to increase the output of information directly relevant to

motivation. It is for this reason that the future research considers wider implications that mixed ability grouping has on other aspects of children's learning and teaching experiences. Although the aim was to find out the impact on motivation, the process has also given information that allows for a new research branch to be explored. The observational method requires personal approaches and interpretations so the lack of factual information means that the reader must be aware of the highly inferential nature of this report. Despite this, the report returned interesting discussions when read through the eyes of older research. It did contest the older standpoints of mixed ability groupings and added support to more recent research that advocates mixed ability groupings. It must also be acknowledged that despite the structured observation process, the research was not stringent or restrictive in allowing secondary research to emerge. The importance of social friendships was not a considered area of the research but the results have provided an emergent theme that must be explored. Whether this is explored as a separate construct or intertwined with motivation, this would not have been possible if the observer was narrowly focused. Encouragements have been made to teachers to trial their own action research to explore the impacts on their own classroom. This report simply provides support for mixed ability grouping in this specific context of children and school. The contemporary research along with this report should alert practitioners to the many positive benefits, particularly with pupil wellbeing.

During future practice, it would be beneficial to conduct short trials similar to this research project to determine the impact it would have on my new class. Various methods of grouping could be used as outlined previously but personally, a real interest would be the cooperative learning method. Due to experience on PTE1 of this and seeing the benefits on all learners, it would be interesting to see whether this method could be adopted and implemented in a variety of school settings. A key recommendation would be to trial this over an extended period of time as opposed to a one off lesson. In the context of lesson study 1, the class behaviour was abnormal as the excitement of new partners and working with close friends overtook usual behavioural expectations. This made the lesson singular and was not true to the usual standards of the classroom.

Recommendations

The results of this research study has demonstrated the impact that social friendships has on productivity in the primary classroom. There was no overwhelming support to say specifically that working with a higher ability partner increased lowers' motivation to work. However, with specificity to the year group in School 2, a recommendation would be made to use mixed ability grouping. Continuation of cooperative learning groups would be beneficial to all pupils in the class, particularly the lowers. The potential increase in their productivity, self-esteem and wellbeing will provide access to finer quality work from the children. The change in learning environment will also make school a place where children want to come and work hard. In this context, it is important that the cooperative learning groups include social friendships to better enhance the peer learning within the class. For teachers, the social element is a key signifier as it will allow those children who are perhaps too afraid to ask an adult for help. Instead of sitting there not knowing what to do, sitting near a friend will help nullify dead time and ensure that all children are clear on the task in hand. During the research in School 2, this resulted in the teacher being free to help those who require specific attention. The delegation of simple questions and help to their more able counterpart also contributes towards a calm and more relaxed learning environment. Going forward as a professional, I have been taken aback by the impact that mixed ability grouping has had in the research school. Through the means of cooperative learning, the children have been happier in their work and have really enjoyed working together. It has resulted in the lower children wanting to do more and has allowed the more able to nurture, guide and inspire. Whilst there is no empirical evidence to suggest mixed ability grouping works, specifically to School 2 and myself, it has worked really well. This research paper should act as a motivation for teachers to explore mixed ability grouping in their setting and assess the impact it has on not only low ability learners, but to all within the class.

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