

The effect of active learning strategies and student engagement in a Foundation Phase classroom

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Aim:

The purpose of this research is to conduct a small-scale study focusing on whether active learning strategies have an impact on student engagement in a Foundation Phase classroom. Active learning is defined as an instructional method that engages students in the learning process (Prince, 2014). Active learning strategies is a broad term to use in which there are numerous active learning strategies available, therefore this research focuses on three strategies: think, pair, share (TPS), puzzle and odd one out. Upon reflection of my teaching throughout the first half of the placement, one of my targets was to, at times, move away from teacher led learning and put more focus into student led learning. Therefore, to improve my teaching and achieve my targets, I have developed a strong interest in active learning strategies and trying out new ways for the children to learn and become interested in the lessons. Thus, I wanted to research whether active learning strategies have an impact on student engagement.

Research Context:

The research took place in an English medium school situated in the east of Swansea (Estyn, 2014) with 411 pupils in which the pupil teacher ratio is 22.9 (Welsh Government, 2018). Both myself and my partner were placed in the same school. I was in a Reception class with 29 pupils whereas he was in a mixed class of Reception and Year 1 with 31 pupils. This meant the ages of the children in this study ranged from 4 to 6 years old. In accordance to BERA (2018) ethical guidelines, the school and children in this study will be kept anonymous, in which the children will be referred to as Child A, B and C.

In the new Welsh curriculum, there is a strong emphasis of students being actively involve in their learning. Donaldson (2015) states that progression can only be made through effective teaching that engages children and their curiosity. Therefore, in a discussion with my partner, we decided that it would be interesting to conduct a study on the use of active learning strategies to see if there were any effects, positive or negative, in their engagement because we thought this would be a relevant study in regard to the changes that are going to be made to the curriculum.

Literature Review

Active learning, as defined by Bonwell and Eison (1991), is a way of teaching which “involves students doing things and thinking about the things they are doing” (Bonwell & Eison, 1991, p.2) which suggests active learning promotes children’s thinking and the relevance of what they are learning by increasing their engagement in the learning. This approach has become increasingly important to schools due to current criticisms of the lack of relevancy within the classroom (Heriot et al, 2008). This is highlighted by Donaldson (2015) in *Successful Futures* in which he states how children require stimulating environments to explore ideas and collaborate actively with peers in order to make connections and construct meaning.

Active learning is a model that involves learner-centeredness in which students engage in higher order thinking (Bonwell & Eison, 1991). Through active learning, students become engaged with the ideas being communicated among themselves in which active learning promotes the integration of new knowledge with their prior knowledge. This enables them to retain the knowledge and transfer the learning to new situations (D’Silva, 2010).

Furthermore, Bonwell and Eison (1991) stated that during active learning there is less focus placed on the delivery of information and more on allowing students to develop their thinking skills. These skills are highlighted in the active learning strategies we are going to use in our research. The skills involved in TPS, puzzle and odd one out are: thinking, decision making, problem solving and working with others (Northern Ireland Curriculum, 2007). These skills aim to develop children’s metacognition in a learning experience which is relevant, enjoyable and engaging rather than information being passed passively from teacher to student.

The foundations of active learning are based on Constructivist theory (Stephens et al, 2010; Engidaw, 2014; Sawyer et al, 2017; Krulatz, 2016; Demirci, 2017; Leach & Moon, 2008; Selley, 1999). Constructivists believe that children learn when they are engaged in activities which in turn help them understand the content and skill. This allows their knowledge to be constructed through discussion, in which the students will have a voice in the learning process (Stephens et al, 2010).

The first contemporary constructivists to develop the idea that constructivism can be applied to children development and classrooms were John Dewey and Jean Piaget (Leach &

Moon, 2008). Dewey saw education as a continuous process of growth and reconstruction of experiences (Leach & Moon, 2008) in which there is a relation between education and the process of actual experience (Demirci, 2017) whereby effort needs to be made to engage students in active learning. Thus, there has been an emphasis on active learning and students being engaged in their learning.

On the other hand, Piaget was influential on childhood psychological development and the thinking process a child goes through while learning (Leach & Moon, 2008). Piaget argued that at the heart of children's learning is discovery and understanding which is built up through the learners' active involvement. He believed that problem solving, and activity is at the heart of learning. Both Dewey and Piaget's work highlighted the need for students to participate in learning activities that are relevant and that engage them (Leach and Moon, 2008). Donaldson (2015) further suggests that within the new Welsh curriculum children will be 'encouraged to engage directly in shaping their own learning' (Donaldson, 2015, p. 88)

Furthermore, Lev Vygotsky saw learning as a 'socio-cultural process' (Leach & Moon, 2008, p. 60), whereby meaningful learning occurred when individuals are engaged in social activities. He specifically focused on how learners developed their communicative skills and how important this is (Vygotsky, 1978). Active learning strategies promote engagement and promotes key skills, such as, problem solving and working together. These skills involve children communicating with one another. Therefore, it is clear how constructivist and social constructivist pedagogical theory has influenced active learning strategies and the promotion of engagement.

There are numerous advantages of using active learning strategies within a classroom. For example, Hattie (2009) argues that guided active instruction is more effective than facilitated instruction which is unguided (Hattie, 2009). This is further argued by Berhanu Engidaw (2014) who states that the lecture method is passive in the transfer of knowledge and that students can learn more when they are engaged through methods that involve active learning. Another advantage is that active learning allows meaningful and more engaged learning (Halsall & Cocket, 1998) as well as encouraging learners to participate. The results of Abdi-Rizak Mohamed's study which focused on the effects of active learning on student performances, suggest that active learning enhances student learning, but traditional

lecturing does not. The results showed that students were spending more time critically thinking and problem solving during active learning (Mohamed, 2008). This suggests that due to the students spending more time critically thinking, they were more engaged in the activity. Furthermore, the students within the case study, positively commented about the active learning strategies and that they preferred the learning process as opposed to lecture-based learning.

Another advantage of active learning strategies is that they can be used in and out of classroom (D'Silva, 2010). This means teachers can change the learner's environment and still be able to use the strategies. It is therefore tempting to think that in classrooms with limited resources, active learning cannot take place, however, active learning can be accessible to all by using pair work, brainstorming, puzzles and group work (Močinić, 2012).

Along with advantages, active learning also has its disadvantages. For example, developing active learning strategies can be perceived as challenging because it requires a change in the way a teacher teaches, supports and views their role (Stephen et al, 2010). Some active learning strategies also requires the teacher to be well prepared but also open to the idea of spontaneity as ideas develop (Olsson, 2009). However, Stephen et al (2010) put forward the idea that active learning strategies can decrease spontaneity and can start to become teacher led. This is because in wanting to include active learning in their lesson, the activities are carefully planned and timetabled which suggests that scheduling imposes limitations on active learning. This in turn becomes teacher led rather than student led.

Gonzalez (2016) also opposes the use of active learning. His article: *For some active learning can be a nightmare*, provides an interesting insight into the difficulties that a student with learning difficulties might encounter with active learning strategies. He highlights that students with learning difficulties take longer to process the lesson and without taking their time to make enough notes, he believes that students would not be in a position to participate in an activity that related to the lesson. He believes that there needs to be more research on how to make active learning inclusive to those with learning disabilities (Gonzalez, 2016). Furthermore, in addition to this, although active learning strategies can have an impact on student engagement, this approach is not beneficial for all school

learning. For example, some factual learning may need to be taught directly whereby active learning may not be beneficial, such as in learning the rules of punctuation (Selley, 1999).

Therefore, in conclusion, active learning is a student-centred approach to learning which focuses on student engagement in higher order thinking in which the pedagogical theories of constructivism and social constructivism can be seen as laying the foundations for active learning. Although, there are some negative views associated with active learning strategies, the studies and research shows that active learning can be a positive approach to learning which students have enjoyed and have engaged with.

Lesson Study Methodology

In this research, the methodology used is Lesson Study. Lesson Study involves groups of teachers working together to plan, teach and observe specific research lessons. This method has been used in Japan since 1870 and is a form of active research which focuses on a teacher's professional development and reflections in the classroom (Dudley, 2015). Active research is associated with small scale, 'hands-on' research projects in which it is particularly useful for professionals who want to use the research to improve their effectiveness (Denscombe, 2014). Lesson Study is a bottom-up approach to teacher development (Buchard & Martin, 2017) built on the understanding that the way to improve teaching is to get teachers to study teaching processes together. Clivaz (2018) highlights that teaching is complex and can be stressful resulting in a teacher being unable to identify techniques that need to be taught differently. Through Lesson Study, observations can be made on the lesson. However, rather than the teacher and their teaching being observed, there is more focus on the pupils and how they respond to specific classroom techniques (Department for Education, 2009).

Therefore, Lesson Study is a professional learning process that focuses on the learning made by children when teachers develop specific techniques to try and improve learning (Department for Education, 2009). Regarding this research project, myself and my partner were both keen to increase our use of active learning strategies and wanted to know whether these strategies influence student engagement.

Focus groups:

For our Lesson Study, we decided to choose 3 children to be the focus group in each class. The sampling method used to identify the children to take part in the study was random stratified sampling. Random stratified sampling is when the sample is categorised into groups, in this case academic ability, and then the sample is randomly chosen from within those categorised groups (Acharya et al, 2013). Each class differentiated the children into three ability groups. One child per ability will be chosen from each class which will form our focus groups. However, the randomly chosen child from the ability groups must be a child whose parent has returned our consent from which could potentially narrow our sample size. By choosing a child from each ability group we wanted to have a representative sample of the learners in the class within the focus group, to observe whether active learning strategies had an effect on their engagement.

Observation:

Observation is a study method in which behaviour is observed and the researcher does not attempt to impact the behaviour (McBurney, 1994). Due to observation being a qualitative method, it focuses on the interpretation and meaning of events. Whereas, quantitative methods focus on numerical data (Wragg, 1994). During our Lesson Study, non-participant observation will be used. This means that, while we will be in the classroom making observational notes, we will not be partaking in the lesson (Williams, 2008).

In this study, we have created an observation schedule in which we adapted Leuven's scale of well-being and involvement (Laevers, 2003) to reflect children's engagement with active learning strategies. An observation schedule (Appendix 1) focuses not only on what is being observed but they also specify how the observations are going to be measured (Denscombe, 2014). Therefore, by having a scale on our observation schedule, it enables us to identify levels of engagement. This will allow us to draw conclusions on whether active learning strategies effected their engagement and if the strategies had different levels of engagement.

Interview:

Once the lesson is complete, the focus group will take part in a semi-structured interview. In a semi-structured interview, the interviewer has a list of questions they want to be addressed (Appendix 1). However, where a semi structured interview differs from a structured interview is that the interviewer is prepared to be flexible, to delve deeper into the interviewees answers and to allow the interviewee to develop their ideas more (Denscombe, 2014).

Reflection:

The practice of good teachers is a result of careful reflection (Ofsted, 2004). Reflection notes will be used to analyse what was taught and through evaluations, suggestions can be made on how the technique can be refined and improved. A reflective practitioner is one who strives for self-development through a critique of their practices (Schlon, 1991). Whereas an action researcher is a reflective practitioner who uses research techniques to guide their reflection (Denscomb, 2014). Therefore, we have adapted Brookfield's reflective model which portrays four lenses. The four lenses are: self, students, peer and consideration of literature (Brookfield, 2017).

Ethical Considerations

To comply with safeguarding policies within both the university regulations and the school's policy, ethical considerations, as seen in the ethics form (Appendix 2), need to be made. In accordance to BERA (2018) guidelines, this research will ensure confidentiality by excluding the names of the focus children, instead they will be referred to as Child A, B and C (BERA, 2018). The school's name will also not be mentioned. By keeping these aspects confidential, this will ensure anonymity. In addition to this, in accordance with the General Data Protection Regulation (GDPR) any data collected will be anonymised (Gov.uk, 2018) and stored on an encrypted memory stick. This is also in accordance to UWSTD data management policy (UWTSD, 2017).

Another ethical consideration when conducting research in a classroom, is consent. Seeking informed consent is paramount when conducting research (Joffe, 2001) and because the participant will be under 18, consent will be sought from their guardian in which a consent

form (Appendix 3) will be sent home to the whole class. Aiming to gain consent from the majority of the class, will allow us to choose a different focus child should the original child be absent from school. Not only do we need consent from the child's guardian, we also need consent from the child themselves. An information sheet (Appendix 4) will be read to the children explaining the study and that they have a right not to participate in the study and can withdraw at any time. Also, as mentioned on the ethics form, it is important not to cause any children emotional distress because some children may feel left out if not included in the focus group. In order to minimise this, we are going to allow all the children to take part in the activities and they will also be encouraged to voice their opinion about the activities. However, only the thoughts and opinions of the focus children will be audio recorded.

When conducting research, it is also important to minimise any risks to the investigator. Therefore, the interviews will take place in an area which can be easily supervised by a member of staff. This will either be in a school communal area within the Foundation Phase area or in a classroom with the door open. Furthermore, the school and classroom teachers will be made aware of the research and interview dates in advance. Also, to ensure that the children will not miss any opportunities whilst we are carrying out our research, we will converse with the class teachers to make sure the lessons and interviews take place at a suitable point in the day.

Lesson Study 1 Analysis

This next section will discuss and analyse the results from the observations and interviews. The first observational lesson was taught Wednesday 20th February in the second lesson of the day and the second observational lesson was taught on Thursday 21st February, also in the second lesson of the day. In each lesson we used three active learning strategies and used them at the same point of the lesson. TPS was used in the introduction, the puzzle technique was used as the main activity and odd one out was used in the plenary. Lesson plans are listed as Appendix 5 and Appendix 6.

The first lesson was designed to encourage children to use predictions in stories. All three active learning strategies linked in with the main lesson aim and focused on key skills such as

thinking, decision-making and working with others. In the introduction, the children used TPS to activate their prior knowledge from their previous lesson and discuss the clues that were left. For this active learning strategy there were varying levels of engagement as shown by the observation notes (Appendix 7). Child A put their hand up straight away and did not engage with other students. This suggests that Child A was slightly engaged in the lesson because she did initially want to make an input, however, she was not engaged in the TPS activity because she did not want to communicate with other children. Child B had a mid-range level of engagement. She chatted with a small group about her opinion and was engaged in the 'pair' aspect of TPS, however, when the whole class were sharing their ideas, she became distracted and disengaged with the lesson. On the other hand, Child C was very engaged during the TPS activity. He had a long discussion with his partner and was very confident in discussing his ideas in a whole class discussion.

Overall, I think the use of TPS did influence engagement in the Foundation Phase, but only to a certain extent. This is because it depended on the individual child and what part of TPS they wanted to partake in. For example, Child B was more confident in discussing with her partner what she thought before being disengaged whereas Child A was engaged when she had to think for herself but then became uninterested in the rest of the activity.

In comparison to TPS, the main activity which used a puzzle increased the children's engagement in the lesson. Due to the children's ages we adapted the puzzle technique to make it more suitable for their abilities. Throughout the activity all the children were engaged in looking for intruder clues and when completing the puzzle, the children were very engaged. However, their excitement did mean that they talked over one another. Although all the children were engaged, Child A had moderate engagement. This is because, using the adaptation of the Leuven scale we created, even though she was engaged, she did get easily distracted when other students walked by. Whereas both Child B and Child C were highly engaged in the activity, in which the only time Child B got slightly distracted was when another student (not in the focus group) briefly spoke to her. Therefore, using this observation, it can be argued that using puzzles as an active learning strategy had a positive effect on student engagement because all students showed moderate or high engagement.

Odd one out was the final active learning strategy used within the lesson. Out of the three active learning strategies used, this one showed the least amount of engagement. Both Child A and Child B rated as 2 on the engagement scale. This is because they were engaged at times but were easily distracted by what was happening around them. Both put their hand up to contribute the answer, however, when another child was chosen to come up and discuss why they had chosen it, Child A and Child B were disengaged and chatted to others. One potential reason for this was because it was very close to lunch time, and although in our lessons we have been using plenaries to get the children ready for the research lesson, most of the time, once they have tidied up, they line up for lunch. Therefore, it was quite difficult to gather the children back on to the carpet and refocus them for the last five minutes of the lesson. However, some children were engaged, and this is evident in Child C. He was very energetic and wanted to engage in the odd one out activity. Out of the three focus children, he was the one with the highest academic ability and as an individual he constantly wants to learn, which is why I believe he was more focused than the other two children. Therefore, it can be argued that odd one out does have a small effect on engagement. However, I think the students would be more engaged if this activity was not done at the end of the lesson after they had tidied up.

One thing that was particularly interesting was comparing the observational notes with the focus children's answers to the interview questions (Appendix 8). When the children were asked what they enjoyed about the lesson, the children stated the puzzle, which correlates with the notes, however, they also said they really enjoyed the odd one out activity and they would like to do more of this in lessons. This does not correlate with the observation notes that were made during the lesson, in which the odd one out activity had the lowest levels of engagement.

During the interview the children mentioned a couple of ways they would want to improve the lesson. One mentioned that they wanted to do a lesson on odd one out, so they would be all able to have a turn. The children also thought the lesson could be improved by doing a jigsaw hunt for big puzzle pieces, instead of looking for clues and then doing the puzzle afterwards.

Using Brookfield's (2017) reflective model, we created a reflection sheet (Appendix 9) which shows what the self, students and peers thought of this lesson and whether scholarship confirms or contradicts the findings. Overall, after looking at the observational finds, the interview and the reflection sheet, it can be said that this study has shown that these three active learning strategies did have an effect on children's engagement. However, next time this lesson is taught, we will allow the children to go on a hunt to find the jigsaw pieces and allow more time for the odd one out activity to see if the observational outcomes are different.

Lesson Study 2 Analysis

The second lesson in the lesson study took place in a Reception class. For this lesson, we used the first focus group's ideas about how to improve the lesson and as a result of this we hid big puzzle pieces, not clues, and also allowed more time for odd one out.

In the introduction, the children received a letter from the zoo which included descriptive clues about an animal which had escaped from the zoo. They then used the active learning strategy TPS to discuss their ideas. There were varying levels of engagement from the focus students. Both Child A and Child C were very engaged in the activity, they were keen to discuss with their partner their ideas and had a lot of input to the whole class discussion. However, Child B showed low levels of engagement in comparison to the other focus children, showing high levels of engagement. Child B also had to be prompted by myself to encourage him to discuss his ideas with his partner, however, in the whole class discussion he was keener to discuss his ideas. Therefore, he showed engagement in the sharing aspect of TPS.

There is a slight correlation between the levels of engagement in both lesson 1 and lesson 2 in the Lesson Study. Although in lesson 2 there was overall higher levels of engagement, it is evident from both studies that children have a personal preference on what aspect of TPS they want to take part in. On both occasions there were children that were more engaged with the sharing as a class, than discussing with their partner.

As previously mentioned, due to the children's feedback after lesson 1, we amended the puzzle aspect of the lesson, in which the children needed to find pieces of the puzzle rather than clues. The observation notes (Appendix 10) which were made, suggests that there were moderate to high levels of engagement. It is evident from the observation notes that Child A was engaged in the activity. She was constantly making predictions of what the puzzle was going to look like, found most of the puzzle pieces and controlled how the puzzle was being made. However, I believe that sometimes she was so engaged in the activity and wanting to solve the puzzle that she worked more independently rather than as part of a group. Child C also showed high levels of engagement, he made predictions and was involved in the jigsaw hunt. Child B on the other hand, although he was involved in finding the puzzle pieces, he was more orally involved in the building of the puzzle and gave instructions on where he thought pieces should go rather than making the puzzle. My research partner observed that although the children were engaged in the activity, they enjoyed sharing their ideas more with myself than they did with their peers.

Upon reflection of the lesson (Appendix 11), one of the disappointing issues identified was that the puzzle was too hard for some of the children, so it did not meet all the learners needs. This was identified by myself and my research partner. Although the puzzle, consisted of seven pieces, we believed if the pieces were bigger and a reduced number of pieces, the children would have been able to complete the puzzle easier. This would allow for further engagement, because during the puzzle activity I felt that their attention and engagement faded when the puzzle was deemed a struggle

In comparison to the other two active learning strategies, in lesson 2, odd one out showed the children having high to very high levels of engagement. According to the observational notes, all the children were keen to share their ideas on what animal was the odd one out and all the focus children continually had their hands up. There is a clear difference between the engagement levels from the children in lesson 1 during odd one out and the children in lesson 2. I believe this is because there was more time left for the odd one out activity which allowed the children to discuss more in-depth what animal they believed was the odd one out.

However, another potential factor could be that more children in my class had played odd one out before, resulting in them being more engaged in the activity. However, this is an assumption. Next time, before both lessons, we should ask the children how many had played it before. If children have played something before, they are more inclined to be more engaged, because they have a better understanding of the activity. This is evident in my class where Child C was exceptionally engaged and explained to the class what odd one out was, how to play it and put forward many ideas. Whereas, those children that had never played, could potentially be disengaged, because they did not understand the activity.

When we conducted the interview with the focus group, their views of the lesson were similar to the observation and reflection notes. The children thought the lesson was fun and were happy they had managed to find all the puzzle pieces and put the puzzle together. Both Child A and Child B commented that their favourite part of the lesson was the puzzle and they both wanted to do it “a million thousand times more”. Child C commented that his favourite part was the odd one out activity which correlates with his score on the engagement scale for that activity.

One part of the interview that was particularly interesting was their responses to the question which asked them if the activities made them focus in the lesson. All children said the activities made them focus with Child A and Child B, initially stating that they enjoyed being outside of the classroom. However, Child C then commented that he would rather be in the classroom because he was thinking during the activity that he wanted to be near his friends. This prompted Child A and Child B to agree with him. I found this particularly interesting because when we planned for the lessons, we thought it would be best to do the puzzle hunt and the puzzle away from the classroom because we thought the children would be more engaged and less likely to be distracted. However, when discussing this with the focus children, it became evident that they thought their levels of engagement were reduced when outside of the classroom because they wanted to be in the classroom. Therefore, in the future, a possible solution to this would be to plan a class hunt and make a big puzzle altogether. This way the children would be with their friends.

Discussion:

The research findings provided some useful feedback for understanding whether active learning strategies have an effect on the engagement of students in the Foundation Phase. In relation to the literature that has been looked at, active learning encourages children to participate (Halsall & Cocket, 1998) allowing more engaged learning. In both lessons, it is evident that the children were engaged due to the ratings on the observed scale. Also, none of the active learning strategies scored the lowest score of 1 and the three strategies showed moderate to very high levels of engagement, in both lessons, especially within the puzzle activity. Therefore, this correlates with Bonwell and Eison (1991) research that saw active learning as a way of children developing their thinking skills, which was evident in the way the focus group were discussing the activities with each other.

The main similarities from both lessons was the children's positive feedback. During the interviews, both focus groups said they enjoyed the lesson, had fun and thought they were focused. This corresponds with the research Mohamed (2008) carried out. Although his research focused predominately on university students, the positive feedback was similar to that of the children in the Foundation Phase, in which they had enjoyed the active learning environment and felt that it was effective.

One of the disadvantages of active learning previously mentioned was that active learning can decrease spontaneity and can start to become teacher led due to teachers wanting to include active learning in their lessons (Stephen et al, 2010). In our research, we were slightly guilty of this. Due to active learning strategies being our topic for the research, we wanted to make sure we included a variety of strategies, which is why we included puzzles, odd one out and TPS. However, due to the children being in Reception and Year 1, the activities required explaining and the children needed some guidance, resulting in the activity being slightly more teacher led than we had initially wanted. This was particularly evident during the puzzle activity in the second observed lesson whereby the children needed some help because the puzzle was slightly too hard for them.

These findings show that students within our school enjoyed the use of the specific active learning strategies used and would like them to be used more often because they felt that these strategies helped them focus. These findings are especially relevant to Wales, because

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Donaldson (2015) focuses on how children need to learn how to work collaboratively as well as creatively.

Therefore, based on our research, active learning strategies encouraged more creative teaching as well as children engaging and communicating with each other. However, it is important to mention that our research was small scale, focusing on six children and thus is not particularly representative. As well as this, there are many active learning strategies in which we used three. Therefore, a larger study with other active learning strategies needs to be conducted to reflect whether active learning strategies have an impact on student engagement in the Foundation Phase.

Conclusion:

Consequently, even though the findings and research suggest that active learning strategies do have a positive effect on student engagement, there were limitations within the research. Firstly, a Lesson Study is designed to be a lengthy widescale research process (Dudley, 2015). However, in this research it consisted of two one-hour lessons whereby only 6 children were observed. Therefore, if this study was conducted over a longer period and with a larger sample size the results would be more representative.

Another limitation was that in non-participation observation, there is sometimes an 'observer effect'. This is when those that are being observed act differently to how they normally do because someone is watching them (Denscombe, 2014). However, due to this research study being done in the same school, both classes were familiar with us. Therefore, this potentially reduced the observer effect.

Another potential limitation of the study is that measuring engagement can be subjective. To eliminate this, we conducted a pilot study using our adapted version of the Leuven scale. A pilot study is a small study to test research techniques in preparation for a larger study (Hassan, 2006). This allowed us to discuss how we would rate each child in terms of their level of engagement and enabled us to have an equal understanding about each level of engagement and what it entailed. Had we not conducted this pilot study, we could have had

different opinions on what engagement looked like and thus our findings would not be reliable.

Using semi-structured interviews with the focus groups meant that the questions were open. This enabled the students to go into more detail about their answer, which they would not have been able to do if it was a structured interview. Also, by interviewing the children in a focus group, they felt more confident to speak their ideas and could further discuss their opinions with their peers. However, due to the young age of the focus group, we found that a limitation of focus group interviews, was that they were easily influenced by each other's answers, in which most of the time they agreed with what another student said instead of putting forward their own opinion. This limited the validity of the research because we do not know the extent to which their answers are their true beliefs (Denscombe, 2014).

Also, the time when these interviews took place, also limited the research. To keep the research valid, we made sure both interviews took place at the same time and in the same area. However, due to the lesson study being conducted in the lesson before lunch, this meant that the interviews were done after the children's lunch break. Due to the children's ages, by this point in the day, they were tired and there was too much of a gap left between the lesson and the interview that the children could not remember that many elements of the lesson. To prevent this from happening next time, I would suggest that the research is done earlier in the morning and for there to be a smaller gap between the lesson and the interview because this had an impact on the children's responses.

The findings of this research will impact my teaching in the future. The research has highlighted how active learning strategies can positively influence pupil's engagement in the lesson. I have gained useful experience for how I can develop my teaching style, so it is more student-led. To achieve this, I need to design activities around learner outcomes which promote student engagement (Prince, 2004). I believe this practice is key for the future, especially when teaching in Wales, because Donaldson (2015) highlights the importance of developing young people curiosity and making learning a pleasurable activity. Given the opportunity, I would like to do a comparative study to delve deeper into active learning

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strategies and their effects on student engagement in which I would look at comparing lessons that use active learning strategies and lessons that do not.

Recommendations:

Finally, following on from this research I would recommend that schools be encouraged to use active learning strategies within their teaching because it promotes the engagement and creativity recommended within the new curriculum in Wales. Considering the negatives, both sets of focus children said they would have liked to have done the puzzle activity as a class. Therefore, I would suggest that teachers incorporate active learning into whole class activities. Also, the new curriculum in Wales focuses on children being in control of their learning and future (Donaldson, 2015). Thus, I believe that the children should have a voice in choosing what active learning strategies they would like to partake in. Teachers could work with the students to discuss what strategies they would like to use in their lesson. This would develop their pupil voice, which is evident in Article 13 of children's rights (UNICEF, 2010), which highlights the importance of children having an opinion.

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