

How can having specific roles in collaborative learning groups improve pupil engagement and participation?

Aims, focus and purpose of the research

During my professional teaching experience (PTE) I taught in a year 6 class. Within my placement school, assessment for learning techniques were considered important tools and I would often incorporate these techniques into my lessons, for example, peer assessment, self assessment, group discussion and collaborative learning groups. After using collaborative learning groups, I was interested to investigate this technique further and luckily my partner was also interested in researching this area. My partner had used these groups both with assigning roles and not assigning roles and found that having defined roles within collaborative learning groups was more effective. I had used collaborative learning groups within a Science lesson, instead of assigning roles to the group members, I placed a list of jobs on the whiteboard and the pupils within those groups had to decide who would carry out which role, which worked well. After having discussions with my partner, we decided upon the research question, 'How can having specific roles in collaborative learning groups improve pupil engagement?' From both my partners and my own PTE experience we thought that if each child has a specific role within a collaborative group it would significantly increase engagement levels within the group situation because we believed that it would give each child ownership of the task and a motivation to succeed. However, we also wanted to research if increased engagement would only last whilst that child had an active role or would this change if their role did not require constant participation. For example, if they were the builder would they have the same level of engagement during the introduction or design stage as they would during the building stage? Would it be more likely that levels of engagement and participation would have peaks and troughs depending on how active the child's role was?

Research Context

The research project would be carried out in two classes in two different schools. The first lesson would be a year 4 class of 30 pupils in a large junior school in a town setting. It is a designated Communities First area with approximately 28% of pupils eligible for free school

meals and 35% of pupils with additional learning needs (Estyn, 2017). The second lesson would take place in a year 6 class of 30 pupils in a medium size primary school in a semi-rural location. The school is located in an area of social and economic deprivation. Approximately 39% of pupils are entitled to free school meals and 29% of pupils have additional learning needs (Estyn, 2012).

Short Overview of Relevant Literature

To research the topic of collaborative learning groups, a number of books, scholarly articles, government documents and online literature has been examined. Research suggests that collaborative learning groups promote a wide range of valuable skills, which are recognised as essential skills for pupils to learn. For example, oracy skills through discussion, team work/collaboration skills, critical thinking skills, problem solving skills and personal and social development, in addition to deepening understanding of a subject (Cornell University, 2018; Stewart, 2014; WAG, 2010; DfES, 2004). All of these skills are highly valued both by employers, the Welsh and British Governments and higher education establishments who want our young people to develop these skills (Donaldson, 2015; Stewart 2014; WAG, 2010). Donaldson (2015) highlights that around the world there seems to be a shift from traditional subject disciplines towards 'the framing of purposes in terms of key competences, key skills, life skills, capabilities or capacities' (Donaldson, 2015). The new curriculum being developed in Wales puts these skills at the centre of the curriculum and are embedded within the four core purposes (Donaldson, 2015).

It has long been recognised by scholars such as Darwin, Vygotsky and Dewey that we learn more effectively through collaboration (Grigg, 2015; Stewart, 2014). Social constructivist theories on collaboration and group work have shaped the modern-day curriculum, including Vygotsky's theory that it is more effective when learners sit with someone of a higher ability, through the use of peer tutors or mixed ability groups (Grigg, 2015). Dewey also believed that it was important for children to work within groups in school to learn valuable skills, such as socially acceptable behaviours and more importantly the skills needed to work in a group situation (Dewey, 1940, 1966 cited in Gillies and Ashman, 2003: 1). However, one limitation to collaborative learning groups is that whilst children may often sit in groups, they may not

often work as a group (Blatchford *et al.*, 2005; Richardson, 1999; Galton *et al.*, 1980). Working effectively in collaborative groups is not something that children can just do immediately, children need to learn to communicate effectively within a group by listening to others and by explaining and sharing ideas (Gillies, 2003a; Blatchford *et al.*, 2007).

The SPRinG study, carried out by Cambridge University and the University of London, researched group work and found that most children experienced some kind of group work in school; that children do not often work productively in groups and that teachers are not confident in establishing and supporting group work (Blatchford *et al.*, 2007). This project also set out to improve the quality of group work with schools by embedding it across the school and curriculum. With the goal of integrating communication skills with trust and respect, which will help children plan, organise and evaluate their work within a group (Blatchford *et al.*, 2007). The results of this study show that collaborative learning increases pupil progress, increases thinking skills and has a positive effect on pupil behaviour (Blatchford *et al.*, 2007). The study happened over five years and nearly 200 teachers and classes participated in the project (Blatchford *et al.*, 2007). Stewart (2015), Primary Professional Development Service (no date), Reed (2014), Burke (2011) all agree with the findings of SPRinG and believe that collaborative learning is important in the classroom with many positive benefits, but it must be implemented correctly to be effective. When collaborative learning groups are not implemented correctly, pupils and some teachers come to dislike group work (Stewart, 2015; Reed 2014; Burke, 2011; McWhaw *et al.*, 2003). Beebe and Masterson (2003 cited in Burke 2011: 2) point out that there are some disadvantages to group work, for example, peer pressure to go along with the majority opinion, that individuals dominate the group discussion, that some group members rely on other members to do all the work and that it takes longer to complete a task in a group situation.

Overall scholars seem to agree that even though there are some limitations and disadvantages to collaborative learning groups the positives outweigh the negatives. The SPRinG project results showed that if collaborative learning groups are implemented correctly within a class, then it can have a significant positive effect on pupil attainment, behaviour, engagement and reasoning skills (Blatchford *et al.*, 2007). However, other research projects have only shown modest gains in pupil attainment and attitudes to schooling, conversely,

these studies have been criticised by Galton, *et al.* (1999 cited in Blatchford, *et al.* 2005: 2) and Kutnick, *et al.* (2002 cited in Blatchford, *et al.*, 2005: 2) because the research was not always undertaken in authentic classroom settings and that a variety of tasks and different grouping arrangements were not used (Blatchford, *et al.*, 2005). Stewart (2014) contends that the research from SPRinG and Stevens and Slavin (1995) shows that collaborative learning can close the gap in performance between girls and boys, increase attainment for the lower attaining pupils, whilst stretching and improving the results for the more able and talented pupils. Stewart (2014) argues that for collaborative learning groups to be successful, pupils must be given clear structures within which to work, constantly re-enforce the ground rules, take into account class dynamics when setting up a group situation and have clearly defined roles for each group member. Other scholars also agree with this assessment for effective collaborative group work, for example, Reed (2014), Burke (2011), WAG (2010) and Blatchford *et al.* (2007).

After examining this research, the researchers decided to slightly refine the research question to, 'How can having specific roles in collaborative learning groups improve pupil engagement and participation?'

Methodology

The method the researchers decided to use to carry out this research project was the Lesson Study method, which is a form of Action Research. The Lesson Study method has been developed by Peter Dudley in the UK for the last fourteen years and is used all over the world, but has its roots in Japan (Dudley, 2015). The Lesson Study method is a simple method that involves a group of teachers working together to improve a specific aspect of their pupils' learning and to develop their own teaching practice to help their pupils achieve this (Dudley, 2015). It takes place in the teacher's own classroom and allows teachers to work collaboratively to problem solve issues or challenges and share their own teaching practices with each other. With the ultimate goal of teachers learning from each other (Dudley, 2015). The group of teachers will collectively plan a series of (usually three) lessons together that address the research question they have. While the lesson is taught the other teachers observe and gather data from their observations (DfE, 2018; Dudley, 2015; Lewis *et al.*, 2006).

After each lesson is taught the teachers reflect and have discussions about the lesson, such as what went well, what could be improved, what are they going to change in the next lesson (DfE, 2018; Dudley, 2015; Lewis *et al.*, 2006). At the end of the research the group of teachers get together to agree their overall findings. Dudley (2015) contends that this research method works because it allows teachers to collaborate and share their collective knowledge and experience that is normally inaccessible and most of importantly it allows teachers to learn from each other to improve their teaching practices. However, Dudley (2015) also points out that there are limitations to this research method which stem from its simplicity. He believes that some teachers are so often encouraged to be innovative, just so that they are seen to be doing something new, that the Lesson Study method can be adapted and corrupted easily and there is also the risk that teachers do not apply proper levels of clinical discipline (Dudley, 2015).

With this in mind, the researchers decided that they would gather data from participant and nonparticipant observers. A participant observer is an observer who is actively involved within the lesson (Papatheodorou *et al.*, 2012; Basit, 2010; Denscombe, 2010) and Basit (2010) points out that participant observers need to be wary that their preconceived ideas do not bias their observation and that they remain objective observers. A nonparticipant observer sits unobtrusively in the classroom observing the pupils without interacting with them, to not influence the pupils' behaviour in any way (Papatheodorou *et al.*, 2012; Basit, 2010). It should be noted that there will always be an observer effect on the pupils being observed because the observer, just by being in the classroom, will have an effect on the pupils (Papatheodorou *et al.*, 2012).

The participant researcher in this project taught the lesson and was involved in the lesson and the children's learning and reflected upon the lesson afterwards. The other researcher in the group was a non-participant observer who collected data by observing the pupils' learning through the use of Dudley's (2015, 2016) observation template that they adapted. The researchers also used a combined Leuvan Scale of involvement and engagement to rate the engagement and participation of groups of pupils. The Leuvan Scale of involvement and the Leuvan Scale of engagement are very similar and rate the children's participation and engagement from 1, which is Extremely Low to 5 which is Extremely High (Papatheodorou *et*

al., 2012; Lavers, 2008). Pupils were rated using the scale during different stages of the lesson to see if engagement and participation increased or decreased at various points during the lesson or remained the same throughout. The researchers used a similar observation template to that of Dudley (2014, 2015) because this template allowed the researchers to first predict how they thought the pupils would respond at different points in the lesson and then rate their engagement/participation at different points during the lesson (see Appendix 1). Dudley (2015) believes that predictions are an important part in research lessons. There are many other observation methods that could be used, for example, time sampling, target child observations, event sampling and narrative observations (Papatheodorou *et al.*, 2012). The researchers considered all the other types of observation methods but concluded that the method chosen would be best suited to their data collection and analysis methods. The Leuvan Scale was chosen because the researchers felt it was the most efficient and accurate way to assess observed levels of engagement and participation because it provides a quantifiable way of analysing the data and comparing levels of observed participants (see Appendix 1). However, it should be noted that there are limitations to this method because although observed pupils are rated using a scale and pre-set criteria, there is still an element of subjective 'best fit' judgement. During the lesson the non-participant observer observed 8 pupils in two groups that were chosen randomly.

After the lesson the researchers invited three of the pupils from the lesson to participate in a focus group to gain feedback on the lesson. The focus group pupils were chosen from the 8 that were observed during the lesson. Due to the limited number of pupils that took part in the focus group, the participants were selected on the basis that they were happy to provide honest feedback. Pupils were also selected with a range of ability levels, to try to gain a representative sample of the class. Assent was also gained from all participants. The focus group were asked prepared questions and the pupils' responses were recorded. Focus groups are a type of semi-interview, they are not formal and more of a group discussion (Basil, 2010; Denscombe, 2010). The aim of the focus group in being less formal is that the children do not feel intimidated or pressured and that they give honest feedback (Breen, 2006). The nonparticipant observer initiated the discussion and started by asking about the pupils to put them at ease. The researchers decided that the nonparticipant observer would ask the questions to reduce the possibility of any bias because the pupils were unknown to the

nonparticipant observer. The researchers were aware that if the participant observer initiated the focus group discussion they may want to tell this researcher what they want to hear instead of their true feelings, and the researchers wanted to try to limit this potential bias from occurring. Denscombe (2010) argues that ideally focus groups should consist of between six-nine people but for small-scale projects smaller focus groups of three-four people are often used. The limitation of this method is the size of the focus group, a larger number of pupils would have been a more representative sample of the class.

Reflection is an important part of the Lesson Study process and is part of discussing and analysing the research lesson. We used the Assisted Reflective Conclusions Model (ARC) to reflect upon the lessons. The researchers chose the ARC model because they were already familiar with this reflection model and felt that it would help the researchers to provide honest accurate reflections. Schön (1987 cited in WAG, 2015) calls this type of reflection 'reflection on action', which is reflection after the lesson. This reflection model has been created by the University of Wales Trinity Saint David for its student teachers and is widely regarded by the University as an effective reflective model. Reflective practice would be a critical part after each lesson, however, the reflection after the first lesson will help the researchers adapt the lesson if necessary, in order to make it more effective for the second lesson. The reflection after the second lesson can then help to refine the lesson further and provide evidence to help draw conclusions and recommendations for this research project.

The data collected from both participant and nonparticipant observation and the focus group interview is mostly qualitative data. Qualitative data usually takes the form of words and images, unlike quantitative data, which is more numerically based (Baumfield *et al.*, 2013; Denscombe, 2010; Blaxter *et al.*, 2006). The strength of qualitative data is that it provides in depth contextual detail about people beliefs and opinions. It is also valuable in identifying intangible factors that would not be immediately obvious (Mack *et al.*, 2005). Participant observation and focus groups are both methods commonly used in gathering qualitative data (Mack *et al.*, 2005).

Ethical Considerations

Before the research project was undertaken ethical considerations were carefully considered and implemented ensuring that the BERA (2011) Revised Ethical Guidelines for Educational Research, UWTSD (2017) Research Ethics and Integrity Code of Practice, and EWC (2017) Code of Professional Conduct and Practice, were followed at all times. Parental consent was obtained for all participants, and assent was gained from all the children who participated. This is in line with guidance that states that children under 18 cannot give informed consent but can provide informed assent and that is important that children's voices are heard (UWTSD, 2017; BERA, 2011; David *et al.*, 2001). Pupil assent was gained by the pupils writing their names on a piece of paper, it was explained to the pupils that they did not have to participate and that if they did choose to participate they could withdraw from the process at any time (UWTSD, 2017; BERA, 2011; David *et al.*, 2001). Additionally, assent was gained from the three focus group children who were interviewed at the end of the lesson, involving a signature from pupils to show their assent in participating. No incentives were given to any participants as this may bias the results, and some children then may feel pressured to participating in the research (BERA, 2011). Wales is a signatory to the United Nations Rights of the Child, two articles are particularly relevant to this research, article 3 'everyone who works with children should always do what is best for each child' and article 12 'our right to say what you think should happen and be listened to' were also given consideration and followed (The Children's Commissioner For Wales, unknown date).

Lesson Study 1 Analysis

Lesson Study 1 was carried out with the year 4 class of 30 pupils in a large junior school in a town setting. The focus of the lesson study was collaborative learning and so the pupils were placed into mixed ability groups of five-six pupils. With collaborative learning groups it is important to carefully consider the grouping of pupils and it was decided that mixed ability groups would be used so that the higher attaining pupils could support the lower attaining pupils (Stewart, 2014; Gillies, 2003b; Hallam *et al.*, 2002).

The researchers predicted that by pupils being assigned specific roles, levels of engagement and participation would increase within collaborative learning groups (see Appendix 2). The

researchers were also aware that levels of engagement and participation would vary between pupils as well as during different parts of the lesson. Generally, pupils' performance matched the predicted levels of engagement and participation during the task. The data from the nonparticipant observation shows that pupil engagement and participation was mostly not linear, having peaks and troughs, possibly depending on how involved the assigned task was, pupil interest in the assigned task and engagement/interest in different parts of the lesson (see Appendix 2). Pupils' personalities also need to be taken into account because some pupils will naturally step back and let others lead, whilst others will naturally come forward and take over the collaborative groups. This was observed within Lesson Study 1. In Group 1 Pupil A, the Builder in this group, was a quiet pupil and was quite happy to take a step back and let the more dominant members of the group take charge, even during the building stage of the lesson. This pupil had been predicted to have a Low-Moderate engagement and participation level and during the lesson, overall engagement was observed to be Moderate. Whereas, the Organiser of Group 1 was a much more dominant personality and wanted to be actively involved within the design and build stages of the task. This was when this pupil's engagement and participation was at its highest and observed to be Extremely High. Gillies (2003b) argues that to combat this each child is required to complete their part of the work and that all group members need to ensure that everyone plays a part within the group. Gillies (2003b) names this 'positive interdependence' and believes it is the most important part of group work and to achieve this, pupils need to be trained to work collaboratively.

Some pupils were not initially very happy with the role that they had been assigned, wanting different roles which initially effected engagement and participation levels. However, most of the pupils got past this disappointment, becoming more engaged with their roles by the end of the lesson. For example, Pupil G in Group 2 was initially not happy with the role that they had been given, and engagement and participation was observed as initially Moderate. However, during the design and building stage of the project this pupil had more fully engaged with their role and their engagement was observed to be Extremely High. Pupil H in Group 2 was also unsure of their role within the group, they had the Artist role and engagement/participation was observed to be Moderate at first including during the design stage. However, after encouragement they became more engaged with the lesson and during the building stage and plenary their engagement increased to High. There are several possible

reasons for this, such as they were not happy with, or not interested in, the role that they had. It is possible that this pupil was just naturally more interested in the building stage.

This class was used to working in collaborative learning groups and having assigned roles. However, it was still necessary for the participant observer to remind pupils of the roles and success criteria when working with collaborative groups at numerous intervals during the lesson. Nevertheless, overall, the majority of the groups did manage to work collaboratively, except for one group that really struggled, possibly due to the mix of personalities within the group. Stewart (2014) contends that getting group dynamics correct is crucial to stop any potential conflict that may interfere with learning or the completion of the task. The feedback from the focus group was very positive, the three pupils involved in the focus group had really enjoyed working collaboratively in groups and all three agreed that having roles within group work made it more interesting/engaging. Overall, the nonparticipant observation scores show that the pupils were engaged and participated in the task. The range of engagement and participation were between Low to High/Extremely High. The mean overall engagement and participation was 3.56, which is between Moderate (3) and High (4).

After reflecting upon the lesson (see Appendix 3) the researchers decided that the collaborative learning might be more effective in smaller groups that consisted of 4 pupils because there would be more tasks to increase engagement and participation levels of pupils. Having smaller group sizes may also help the groups to make decisions quicker as there are less group members to negotiate with and would therefore make decision making easier for pupils. It may also encourage quieter members of the groups to share ideas within the group. The researchers also decided for Lesson Study 2 to allow the pupils to choose their own roles within the group. The reason for this amendment was because this lesson was with a year 6 class who are used to working in collaborative groups. The researchers felt that by giving these pupils a little more choice and freedom to choose roles, this might give the pupils more ownership of their role and therefore increasing engagement and participation within the collaborative learning groups. The researchers also hoped it would negate any detrimental effect on engagement and participation seen in Lesson Study 1 from pupils not being happy with their chosen role. However, the researchers also noted that not all pupils may get their preferred role. Stewart (2014) believes that the decision about whether or not to allocate

roles should be down to the teacher because they know their class best. Stewart (2014) does note however, if pupils are always allowed to choose their own roles that pupils might play safe, always choosing the role they are most comfortable with. He believes that this can be combatted through role rotation (Stewart, 2014), which the researchers note in their reflection after Lesson Study 1 (see Appendix 3).

Lesson Study 2 Analysis

Lesson Study 2 took place in a year 6 class of 30 pupils in a medium size primary school in a semi-rural location. The lesson was very similar to that in Lesson Study 1, with collaborative learning the main learning objective (see Appendix 4), with a few amendments outlined in the previous section.

Before the Lesson Study, the researchers again predicted engagement and participation levels for the observed nine pupils (2 whole groups). The researchers predicted that a pupil's engagement and participation level would be highest during their particular task. They also took into account the personalities of the pupils' and that some pupils would be naturally more engaged than others. Overall, the range of levels of engagement and participation were between Moderate and Extremely High with the mean engagement/participation at High (4). The engagement and participation levels were not always observed to be highest when a pupil was carrying their own task, but they were observed to be engaged and participating during these stages. All pupils were observed to have an Extremely High engagement level at the testing/plenary point in the lesson (see Appendix 5).

The majority of the groups collaborated really well except for two groups, which interestingly were the only groups with five pupils. These groups failed to work as collaboratively as the other groups, possibly because they had either one or more dominant personalities within the group and as a result they struggled to communicate effectively within the group and therefore collaborate. The class, as in Lesson Study 1, was given success criteria to working collaboratively and the roles were explained in the introduction. Despite this, the same theme was observed in Lesson Study 2 as in Lesson Study 1, in that within some groups a dominant personality would take over the group, whilst others stood back and let others do

the work. For example, in Group 1, one of the pupils told the others what roles they were all going to have, however Group 2 had a discussion and decided instead of having individual roles they would share the roles to fully collaborate with each other and this group was very successful in collaborating together by using discussion and negotiation. In Group 1, there was one pupil who did not really contribute any ideas or help during the design and build stage but was extremely engaged with the role of timekeeper/photographer.

The focus group data shows that overall the pupils enjoyed the lesson and they felt that having a role within the group made collaborative learning and the lesson more interesting. For two of the pupils in the focus group they did not enjoy the group they were in because of some of the other personalities within the group. If the researchers were to do this lesson again they would more carefully choose the groupings of pupils because this seems to be a major factor in the enjoyment and success of collaborative learning. The researchers would also take more time explaining the rules and success criteria of collaborative learning to ensure that all pupils understood the skills and what was required of them in order to work collaboratively. They would also take a little more time explaining the nature of the roles and that it is everyone's responsibility within the group to take part, as well as listen to other pupils' ideas. Hopefully this may help to solve the issue of dominant pupils taking over the group, whilst encouraging other pupils to join in more within the collaborative group.

As a researcher I have learnt a great deal from this experience and if I was to carry out another Lesson Study research project, I would do more research before the Lesson Study. I would also have more discussion and reflection time at the end of the lesson with my Lesson Study partner, so we could more fully explore the topic, our findings and improvements going forward. I believe the method of data collection we used was appropriate. However, it might have been more usefully to have more pupils within the focus group, so that there could have been more of a discussion and more opinions could have been explored.

Discussion

The results from this small scale Lesson Study project seem to show that the majority of pupils within the two Lesson Studies enjoyed collaborative group work and overall had high

engagement and participation levels. There appear to be three main factors that affected the engagement and participation within the collaborative group work, which were, the personalities of the pupils', the grouping, and the role that pupils had during the task. Pupils from both Lesson Study focus groups said that they liked to have a role and that it made collaborative group work more interesting. Research from various sources seems to show that giving pupils roles within collaborative group work is important (Stewart, 2014; Primary Professional Development Service, no date). In Lesson Study 1, roles were assigned to each member of the group and as a result some were happy with their role, whilst others were not. This may have affected the engagement and participation levels of these group members initially. This is reflected in the non-participants observation schedule (see Appendix 2). As a result of this observed effect on pupil engagement and participation levels, the researchers decided to adapt the lesson slightly to let pupils choose from a list of roles. Two pupils from the focus group commented that they would have rather been assigned roles because a dominant personality within their groups told every member of their group what role they would have with no negotiation. Whilst the other member of the focus group was very happy with the role because their group had been more democratic in choosing roles for members. Beebe and Masterson (2003 cited in Burke 2011: 2) point out that this is one of the disadvantages to group work. To try to combat this, pupils perhaps need further training and guidance when it comes to this aspect of group work.

The two classes that took part in the Lesson Study were used to working in collaborative learning groups. However, in line with research the pupils were given rules to follow, a clear structure with learning objective, success criteria and roles. Nevertheless, some pupils were observed to struggle with collaborative group work. Stewart (2014) argues that for collaborative learning groups to be successful, pupils must be given clear structures within which to work and have the ground rules constantly reinforced. It is also important to take the class dynamics into account when setting up a group situation and have clearly defined roles for each group member. Other scholars also agree with this assessment for example, Reed (2014), Burke (2011), WAG (2010) and Blatchford *et al.* (2007). Working collaboratively is a difficult skill for children and research shows that pupils need to be trained to work collaboratively and given frequent opportunities to practise these skills (Stewart, 2014; Blatchford *et al.*, 2007; Gillies, 2003a).

Research shows that getting the grouping correct is essential for group work. If the group cannot work collaboratively together because of disagreements, then no learning will take place and students can come to dislike collaborative working (Stewart, 2014; Reed, 2014; Burke, 2011). The two Lesson Study lessons that were carried out during this project appear to concur with this because the groups that did not get on as well as the others due to disagreements and clashes of personality, were far less productive than the groups that worked well collaboratively. This was observed by both the non-participant and participant observers and is also reflected in the pupils' comments in the focus group. Two pupils from Lesson Study 2 commented that the only thing that they would change about the lesson was the groups that they were in due to a clash of personality and as a result did not enjoy the lesson quite as much as they might have in different groups.

Conclusions

Overall this small scale Lesson Study research project appears successful in determining that by having roles within collaborative learning groups, pupils' engagement and participation was high. However, one flaw within the methodology of this research project is that there is no baseline data to compare it to, and as a result I do not know what the engagement and participation levels of the pupils would be without assigned roles. So, whilst I can determine that overall engagement and participation was high with assigned roles, I cannot determine whether engagement and participation levels have improved because pupils had assigned roles.

The Lesson Study method is an accepted form of research being used internationally (Dudley, 2015). Dudley (2015) argues that this approach never fails to stimulate depth of learning and help teachers to understand how children learn in classrooms. I followed the Lesson Study format as suggested by Dudley (2015), joint planning of the lessons; teach and observe; interview pupils and post lesson discussions. I also believe I jointly planned an effective collaborative learning lesson, that appeared to engage the pupils. I followed the research in having a clear lesson structure where the learning objective and success criteria were explored with the class and the rules and roles for collaborative learning groups were made

clear. However, the methodology I used could be improved on by having more pupils in the focus group discussion to better represent the feelings and opinions of the class. I also could have improved upon their reflection after the lesson by having more in-depth discussions, next time I would follow Dudley's (2015) discussion structure to ensure we had a more structured discussion.

I believe that the observation schedule that we used was effective in collecting data about engagement and participation. It was based upon Dudley's research lesson observation template with an adapted Leuvan Scale to rate engagement and participation. It also enabled us to predict the engagement and participation levels of observed pupils before the lesson. Dudley (2015) believes that these predictions are an important part of Lesson Study. One limitation in the data is that despite having a rating scale and pre-set criteria, there is still an element of subjective 'best fit' judgement. However, I was aware of this limitation and tried to remain as objective as possible when I was the non-participant observer. I therefore believe that the method we used to collect data was appropriate and reliable.

If I were to do this lesson again, I would spend more time emphasising the rules of collaborative learning and the roles that each pupil would have. To try to counteract the issue of a dominant personality taking over the group, I would also more carefully consider the groupings and try to keep pupils that do not work well together in different groups to try to get all groups working collaboratively. In an ideal situation I would also like to have more time for this lesson because I felt that an hour was not enough time for the pupils to properly design and build a structure. I would also ensure that I had baseline data to compare my Lesson Study data to, so that I could determine whether there has been a positive or negative effect.

Going forward into PTE2 I would definitely like to continue to use collaborative learning groups and I believe that now that I am aware of the strengths and limitations of this approach I can use them more effectively. I would also like to use collaborative learning groups in other subject areas, not just design technology and science. The new curriculum coming in Wales highlights the importance in key skills such as critical thinking and problem solving skills and using these skills in real life situations. As a result, I think collaborative learning will play a key

part in helping pupils to learn and use these skills. Research also shows the many positive benefits of collaborative learning, for example, improving oracy skills through discussion, team work/collaboration skills, critical thinking skills, problem solving skills and personal and social development, in addition to deepening understanding of subject areas (Cornell University, 2018; Stewart, 2014; WAG, 2010; DfES, 2004). As a result of this, I believe that collaborative learning should be an important tool to help pupils master these essential skills.

Recommendations

This research project has helped me to develop my teaching practise and helped me to see both the benefits of collaborative learning groups and its limitations. I will continue to use collaborative learning groups in the future because I believe it helps pupils to develop a range of essential life skills. When setting up a collaborative learning group in the future I will consider the following:

- For collaborative learning groups to be effective they need to be a part of the learning culture within the class/school. Collaborative learning is a difficult skill for pupils to grasp and it requires frequent practise. If collaborative learning is only used occasionally it will not be effective because pupils will have forgotten and have not been given a chance to practise the necessary skills.
- Pupils need to be given clear rules and guidelines to follow. Pupils don't understand how to work collaboratively and need to be taught how. Pupils also need to understand the skills needed to work collaboratively as well as the success criteria. This is particularly important for dominant personalities within a group, it will hopefully help them to understand how to work more collaboratively with others and not to dominate the group.
- Ensure that there are roles for each member of the group so that all have a chance to participate and are encouraged to participate. A teacher can either allocate the roles, let the pupils choose for themselves, or a mixture of the two.
- It is essential to get the pupil grouping correct. If pupils do not get on it can ruin the collaborative learning experience of the group and no learning will take place. Carefully consider group sizes, larger group sizes may encourage more discussion and

negotiation, however some pupils may not be as engaged because there are less tasks for everyone, or they may feel intimidated and not able to share ideas in a larger group. Smaller groups possibly make it easier for pupils to collaborate and increase engagement and participation, but there may be less discussion and negotiation. As such, the optimal group size depends on the learning objective and what outcome the teacher wants from the lesson.

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Appendix 1- Observation template

<u>Research Lesson Study Observation Schedule</u>							
<u>How can having specific roles in collaborative learning groups improve pupil engagement and participation?</u>							
	Focus Pupil A – role:		Focus Pupil B – role:		Focus Pupil C – role:		Patterns / Issues
	Level of Engagement / Participation in lesson (see guide below)		Level of Engagement / Participation in lesson (see guide below)		Level of Engagement / Participation in lesson (see guide below)		
Stage of lesson sequence	How you predict focus pupil A will respond	<i>How they are observed to respond</i>	How you predict focus pupil B will respond	<i>How they are observed to respond</i>	How you predict focus pupil C will respond	<i>How they are observed to respond</i>	
Lesson introduction/ allocation of roles (10 mins)							
Ideas & Design stage (15 mins)							
Build Stage (15-20 mins)							
Testing & Plenary stage (15 mins)							
Overall level of Engagement / Participation							
General Observations							

Adapted Leuven Scale of pupil engagement & participation		
Level	Engagement / Participation	Examples
1	Extremely low: <i>the pupil shows hardly any activity and does not participate or interact with the group even after encouragement from other group members.</i>	• Does not contribute any ideas to the group, even after encouragement. • Does not show any signs of engaging with responsibilities of specific role given. • No concentration: staring, daydreaming. • An absent, passive attitude. • No signs of exploration and interest. • Not taking anything in, no mental activity.
2	Low: <i>the pupil shows some degree of activity and participates and interacts to some extent with the group after encouragement from other group members.</i>	• Contributes few ideas to the group, needs encouragement. • Shows some signs of engaging with responsibilities of specific role given. • Limited concentration: looks away during activity, fiddles, dreams. • Is easily distracted. • Few signs of exploration and interest.
3	Moderate: <i>the pupil is busy the whole time, but without real concentration. The pupil generally participates and interacts with the group but still needs some encouragement from other group members.</i>	• Contributes ideas to the group, still needs some encouragement. • Generally shows signs of engaging with responsibilities of specific role given although is not absorbed in the role or activity. • Limited motivation, no real dedication, does not feel challenged. • Pupil does not gain deep level experience. • The activity does not address the child's imagination.
4	High: <i>There are clear signs of engagement, participation and interaction with the group, but these are not always present to their full extent. The pupil will encourage others to participate at times.</i>	• Contributes ideas to the group and encourages others at times to contribute. • Engaged with responsibilities of specific role given and mostly there is real concentration, albeit during some brief moments the attention is more superficial. • The pupil feels challenged, there is a certain degree of motivation. • The pupil's imagination to a certain extent is addressed in the activity.
5	Extremely High: <i>during the observation, the pupil is continually engaged in the activity and their specific role. They contribute and encourage others to contribute to the group. They are completely absorbed in the activity and their specific role in the group.</i>	• Readily contributes ideas to the group and encourages others to contribute. • Fully engaged with responsibilities of specific role given and there is real focus and concentration without interruption. • The pupil is highly motivated and feels strongly appealed by the activity and their specific role. • The pupil's imagination and mental capacity are in top gear. • Obviously enjoys being engrossed in the activity and the responsibility of their role.

Appendix 2 – Completed lesson observation for Lesson Study 1

<u>Research Lesson Study Observation Schedule</u>						
<u>How can having specific roles in collaborative learning groups improve pupil engagement and participation?</u>						
Focus Pupil B – role: Builder Level of Engagement / Participation in lesson (see guide below)	Focus Pupil A – role: Builder Level of Engagement / Participation in lesson (see guide below)		Focus Pupil B – role: Organiser Level of Engagement / Participation in lesson (see guide below)		Focus Pupil C – role: Timekeeper Level of Engagement / Participation in lesson (see guide below)	
Stage of lesson sequence	How you predict focus pupil A will respond	<i>How they are observed to respond</i>	How you predict focus pupil B will respond	<i>How they are observed to respond</i>	How you predict focus pupil C will respond	<i>How they are observed to respond</i>
Lesson introduction/ allocation of roles (10 mins)	2	3	3	4	4	3
Ideas & Design stage (15 mins)	2	3	4	5	4	4
Build Stage (15-20 mins)	3	3	4	5	4	5
Testing & Plenary stage (15 mins)	3	3	4	4	5	4
Overall level of Engagement / Participation	2/3	3	4	4/5	4	4
General Observations Whole group (both groups)	All pupils fully engaged and focussed during egg juggling 'hook'. Group needed some prompting to stay in roles at times but generally worked very well together and were mainly on task and focussed as a group.					
General Observations	Although allocated role of builder, stronger members of the group took over at build stage resulting in level of participation going down.		Very focussed through each stage and fully in role of organiser. Tendency to dominate over other quieter members of the group.		Involved and engaged during each stage but particularly during the build stage.	

Research Lesson Study Observation Schedule <u>How can having specific roles in collaborative learning groups improve pupil engagement and participation?</u>						
	Focus Pupil D – role: Artist Level of Engagement / Participation in lesson (see guide below)		Focus Pupil E – role: Rules / Volume Level of Engagement / Participation in lesson (see guide below)		Group 2 Focus Pupil F – role: Organiser Level of Engagement / Participation in lesson (see guide below)	
Stage of lesson sequence	How you predict focus pupil A will respond	<i>How they are observed to respond</i>	How you predict focus pupil B will respond	<i>How they are observed to respond</i>	How you predict focus pupil C will respond	<i>How they are observed to respond</i>
Lesson introduction/ allocation of roles (10 mins)	4	3	3	2	4	3
Ideas & Design stage (15 mins)	4	3	3	2	5	4
Build Stage (15-20 mins)	3	2	3	2	4	4
Testing & Plenary stage (15 mins)	4	3	3	3	5	5
Overall level of Engagement / Participation	4	3	3	2	4/5	4
General Observations	Quiet member of the group. Listens to others' ideas well, not overly confident in putting own ideas forward.		Quiet member of the group. Roughly the same level of engagement and participation throughout. Not overly confident in putting own ideas forward.		Fully engaged and participated well throughout. Good explanation at the end of the process the team went through.	

Research Lesson Study Observation Schedule <u>How can having specific roles in collaborative learning groups improve pupil engagement and participation?</u>						
	Group 2 Focus Pupil G – role: Timekeeper Level of Engagement / Participation in lesson (see guide below)		Group 2 Focus Pupil H – role: Artist Level of Engagement / Participation in lesson (see guide below)			
Stage of lesson sequence	How you predict focus pupil A will respond	<i>How they are observed to respond</i>	How you predict focus pupil B will respond	<i>How they are observed to respond</i>		
Lesson introduction/ allocation of roles (10 mins)	4	3	4	3		
Ideas & Design stage (15 mins)	5	5	4	3		
Build Stage (15-20 mins)	5	5	4	4		
Testing & Plenary stage (15 mins)	5	4	4	4		
Overall level of Engagement / Participation	5	4/5	4	3/4		
General Observations	Initially not happy with role of timekeeper but soon became fully engaged and participated well during the design and build stage.		A bit unsure with role of artist initially – group needed prompting to make sure that their ideas were conveyed clearly to the artist. Fully engaged after this especially during build stage.			

Appendix 3 – Reflection of Lesson Study 1

Assisted Reflective Conclusions (ARC) Model

Date: 27th March 2018

Critical incident (focus): Design and technology collaborative learning lesson with allocation of group roles.

<i>Experience</i>	
<i>Feelings</i> “What are your feelings regarding the experience?”	Overall positive. Most pupils engaged and participated well in their groups. A minority of pupils not engaged at all times with some low-level fussing.
<i>Remember and Understand</i> “Can you list the aspects of the learning experience that went well?” “What were the elements of the learning experience that were disappointing?”	Majority of pupils were on task and participated well in groups. Engagement was relatively good overall. Good hook to get the children’s attention at the start of the lesson. Lesson timings were planned well and all groups completed the task within the timeframes. Most pupils engaged with the responsibility of their roles. Minority of pupils did not work well in their groups and some pupils did not engage with the specific role they were given. In some instances, stronger members of the group dominated the activity resulting in quieter members not being given enough scope to put forward their ideas.
<i>Evaluate and analyse</i> “What will you keep the same to ensure effective teaching and learning in the future?” “What was the cause of the most important disappointing element?”	Use of effective hook to engage children at the start of the lesson. Use of specific time limits for tasks in order to keep the lesson on track and moving at a defined pace. Having specific roles within the collaborative learning groups works well albeit see below for further reflection with regards to this point. Not all pupils participated fully. This could have been caused by the size of the group being too large. Some pupils were not engaged fully with their specific role and would have preferred another role instead.
<i>Conclusions and actions</i> “What are your possible solutions to the disappointing issues identified?” “What will you do next?”	On reflection, I would consider having smaller groups. In this lesson there were groups of 5 and one group of 6. Whilst more interactions are possible in larger groups and so a greater depth of contributions, more support is required in order to support the pupils in their learning and the more skillful the pupils must be in terms of turn taking etc. (Primary Professional Development Services, 2013). Also, not all pupils were given the chance to participate as fully as intended. In smaller groups, there could be potentially more opportunity for all pupils to be fully engaged. I would consider role rotation and also letting the pupils choose their own roles or having a discussion within the group as to how to allocate specific roles based on the strengths of the pupils within the collaborative learning group. This could be an additional task. It may be that the ‘organiser’ is pre-chosen and they have to facilitate the discussions within the group but this is definitely an option that I would consider introducing in a future similar lesson. This is discussed in further detail in http://www.belb.org.uk. For next lesson 2 in Year 6 – allow groups to choose roles; have groups of 4.
<i>Transformed experience</i>	

Appendix 4 – Lesson plan

Canolfan Addysg Athrawon De-Orllewin Cymru  The South West Wales Centre of Teacher Education		1B	
Session Plan – Key Stage 2			
Name of trainee: Elizabeth Dunning		Session ref: 3 28/03/18 1:00-2:00	
Personal target(s) in relation to QTS: N/A			
Year group: 6	No. of learners: 30	ALN: 1	
Additional Adults: 1			
Learning objective(s): To co-operate within a group to design and build a product.		Success criteria: • Can I listen and respond to others' ideas? • Can I share my own ideas within the group? • Can I carry out my own role within the group? • Can we complete the task within the time frame?	
Links to previous learning: The class are used to problem solving activities.			
Curriculum coverage (range, skills): Design Technology (Skills): Develop a simple specification/recipe for their products indicating their intentions and approach. Demonstrate their creative thinking when considering and recording solutions to problems that arise during their designing and making, <i>e.g. realise that it would be quicker and easier to use ready-made materials, components and ingredients rather than make their own.</i> Work to their specification/recipe to make products. Choose appropriate materials, ingredients, equipment, tools/utensils and techniques, from a range made available to them. Measure, mark out, cut, shape, join, weigh and mix a range of materials and ingredients, using appropriate tools/utensils, equipment and techniques. (Range) Tasks in which they design and make products, focusing on different contexts and materials. They should be given opportunities to: • be creative • be innovative • work independently and in groups.			
<i>Literacy(LNF):</i> Express issues and ideas clearly, using specialist vocabulary and examples. Contribute purposefully to group discussion to achieve agreed outcomes. Follow up points in group discussions, showing agreement or disagreement giving reasons. Respond to others with questions and comments which focus on reasons, implications and next steps.		<i>Numeracy (LNF):</i> Identify the appropriate steps and information needed to complete the task or reach a solution. Select appropriate mathematics and techniques to use. Select and use suitable instruments and units of measurement.	
DCF	<i>Thinking</i> Build upon existing skills, knowledge and understanding. Pupils plan the process and method to be used.	ESDGC	YCC
Key vocabulary(English/Welsh): Collaborative group work			

Time	Session activities, organisation and management	Key questions & Assessment for Learning opportunities
10-15 mins	Introduction • Introduction of colleague and that they will be observing some of the pupils during the lesson. • We will explain to the pupils that they do not have to be included in the observation group if they do not want to be. • Gain assent from pupils by asking them to write their names on a piece of paper on their desk. • Explain it is almost Easter and so we will be working with eggs today, juggle eggs and drop them on the floor. Oh	Assessment for learning: - Collaborative groups - Group discussion

	no, what happened? How can we stop the eggs from breaking if they are dropped? • Power Point presentation – which will explain the rules, groupings, roles and time limits. • Share the roles with the pupils and get them to decided who will do which roles based on each group members skills and abilities – write roles on white board. • Explain strict time limits for the task.
35 mins	Main activities 15 mins – ideas and design stage. Groups to share ideas and start to design a structure to stop the egg from cracking or breaking when dropped from approximately 3m. 15-20 mins – building stage. Groups start to build their designs using the materials provided.
10-15 mins	Plenary Testing the designs by dropping the structures and eggs to see if the designs are successful in stopping the egg from cracking. www. EBI. Linking back to success criteria – verbal discuss in group and feed back in discussion.

Appendix 5 – Completed observation schedule for Lesson Study 2

<u>Research Lesson Study Observation Schedule</u>							
<u>How can having specific roles in collaborative learning groups improve pupil engagement and participation?</u>							
	Focus Pupil A – role: Designer Level of Engagement / Participation in lesson (see guide below)		Focus Pupil B – role: Builder Level of Engagement / Participation in lesson (see guide below)		Focus Pupil C – role: Organiser Level of Engagement / Participation in lesson (see guide below)		Patterns / Issues
Stage of lesson sequence	How you predict focus pupil A will respond	<i>How they are observed to respond</i>	How you predict focus pupil B will respond	<i>How they are observed to respond</i>	How you predict focus pupil C will respond	<i>How they are observed to respond</i>	
Lesson introduction/ allocation of roles (10 mins)	3	3	3	4	2	3	
Choosing Roles	3	3	4	3	3	3	
Ideas & Design stage (15 mins)	5	4	4	4	4	4	
Build Stage (15-20 mins)	4	4	5	4/5	4	4	
Testing & Plenary stage (15 mins)	5	5	5	5	4	5	
Overall level of Engagement / Participation	4	3/4	4	4	4	3/4	
General Observations	Contributed ideas at design stage – level of engagement went down during the build stage. Not co-operative in group at first but then became engaged again.		Engaged during the design and build stage.		Pupil was positioned on the end of the group, maybe this combined to less involvement and engagement at times. Engaged during build stage.		

Research Lesson Study Observation Schedule How can having specific roles in collaborative learning groups improve pupil engagement and participation?							
	Focus Pupil D – role: Designer Level of Engagement / Participation in lesson (see guide below)		Focus Pupil E – role: Timekeeper/photographer Level of Engagement / Participation in lesson (see guide below)		Focus Pupil F – role: Shared Roles Level of Engagement / Participation in lesson (see guide below)		Patterns / Issues
Stage of lesson sequence	How you predict focus pupil A will respond	<i>How they are observed to respond</i>	How you predict focus pupil B will respond	<i>How they are observed to respond</i>	How you predict focus pupil C will respond	<i>How they are observed to respond</i>	
Lesson introduction/ allocation of roles (10 mins)	3	4	2	3	3	4	
Choosing Roles	4	3	2	4	5	4	
Ideas & Design stage (15 mins)	5	4	2	3	4	4	
Build Stage (15-20 mins)	4	4	2	4	4	5	
Testing & Plenary stage (15 mins)	4	5	3	5	5	5	
Overall level of Engagement / Participation	4	4	2	3/4	4/5	4	
General Observations	Asked other members of the team for their ideas at the design stage.		Didn't really contribute to the task (ideas or help build) but was really engaged and focused with their own role.				

Research Lesson Study Observation Schedule <u>How can having specific roles in collaborative learning groups improve pupil engagement and participation?</u>							
	Focus Pupil G – role: Shared Roles Level of Engagement / Participation in lesson (see guide below)		Focus Pupil H – role: Shared Roles Level of Engagement / Participation in lesson (see guide below)		Focus Pupil I – role: Shared Roles Level of Engagement / Participation in lesson (see guide below)		Patterns / Issues
Stage of lesson sequence	How you predict focus pupil A will respond	<i>How they are observed to respond</i>	How you predict focus pupil B will respond	<i>How they are observed to respond</i>	How you predict focus pupil B will respond	<i>How they are observed to respond</i>	
Lesson introduction/ allocation of roles (10 mins)	2	3	3	4	3	3	
Choosing Roles	2	4	3	4	3	4	
Ideas & Design stage (15 mins)	3	4	4	4	4	4	
Build Stage (15-20 mins)	4	4	4	5	4	5	
Testing & Plenary stage (15 mins)	4	5	5	5	4	5	
Overall level of Engagement / Participation	3	5	3/4	4/5	4	5	
General Observations	Became distracted at times during the build stage. Not as engaged as other members of the team but still participated well.		Engaged, good discussion with the team.		Engaged with the task, lots of positive ideas and discussion during the design stage.		