

Design, conduct and critically evaluate a close-to-practice research project (lesson study) focusing on the model of the transformative teacher in developing practice that has a positive impact on the learner.

Research question: 'When working in mixed ability groups, do higher attaining pupils dominate while lower attaining pupils participate less?'

Introduction and Research Context

The purpose of this primary research was to gather primary data, through the medium of “non-participant observation” (Hall, 2008:205). Non-participant observation will be explained in more depth, as this assignment progresses. The research was conducted throughout three lesson studies, involving myself and two research partners, each of us leading one lesson study. Followed by questionnaires which were filled in by focus pupils, therefore the questionnaires will be kept anonymous. The area of focus was discussed as a group, we all equally displayed a high interest with regards to mixed ability grouping. We hoped incorporating this element into our research would provide us with intriguing findings, that we could carry forward.

As a group, we later arrived upon our research question: “When working in mixed ability groups, do higher attaining pupils dominate while lower attaining pupils participate less?”. The aim of this research was to highlight any correlation or difference in pupil contribution towards group work, based on their current attainment at school. For my class, this meant that I was to split them into groups mixing higher, mid and lower attaining pupils together and create a task which would require all groups to work collaboratively. The same format was adopted by my research partners also.

This area in particular interested me as, despite myself never being a higher attainer at school, I have still managed to achieve academically. Communication skills to me, are just as important (if not more), as academic achievement. I was interested to find out how pupils interacted in groups which will have been out of their comfort zone. As well as any findings that may either contradict or strengthen “stereotypes” (Brain, 2000:50) when it comes to higher, mid, and lower attaining pupils. For example: I disagree with the assumption that lower attainers are generally badly behaved and higher attainers are generally well behaved. Although I do not have a source to back this assumption up, through word of mouth whilst on placement, I have noticed that these stereotypes are present today. I believe that personality has a large role to play, with regards to contribution in group work and I was interested to find out more about this when conducting the research.

Literature Review

Our research topic strives to gather qualitative and quantitative data, which will enable us to hopefully determine whether a pupil's ability impacts their level of involvement when working collaboratively in groups. In order to arrive upon such

findings, myself and my research partners decided to split pupils into mixed ability groups. The aim of this was to hopefully spot either a positive or negative correlation between the pupil's ability and their level of contribution towards the group task. In order to carry out non-participant observations as successfully as possible, each of us had chosen specific pupils to focus on within each of our lesson studies. The pupils were unaware who the focus pupils were, however, knew that a lesson study was taking place. There is literature to suggest that ability does impact collaborative contribution both in a positive or negative manner, this literature will be the focus of the literature review in order to evaluate such views, prior to discussing myself and my research partner's findings.

Ireson and Hallam recognise that when pupils are grouped in order to work collaboratively, they rarely work collaboratively and will often remain working individually, despite being told that a group task is taking place (Ireson and Hallam, 2001:11, Galton and Williamson, 1992). This could suggest that pupils have been "conditioned" (Pavlov, 2003:6-10, Collin, 2018:1) to work independently in order to pass exams. McLeod would disagree with this notion as conditioning theory "underestimates uniqueness of human beings" (McLeod, 2014:1). Conditioning theory originated through experiments based around animals, thus it assumes that animal and human brains are alike. Subsequent to this, Ireson and Hallam acknowledge that mixed ability grouping does however provide equal opportunities for all pupils (Ireson and Hallam, 2001). Interestingly, our findings somewhat correlated with what Ireson and Hallam have said, but not in every research lesson carried out. Our findings will be discussed later on.

An interesting point raised by Johnston and Markle was that mixed ability grouping can actually increase pupil motivation, impacting in a higher contribution towards group work (Johnston and Markle, 1983). This is because, teachers of lower ability classes typically harbour lower expectations of their pupils, therefore the pupils are not always pushed to achieve their true potential (Estyn, 2017). This can cause pupil motivation and contribution to fall. In placing pupils in mixed ability groups, the teacher is more likely to motivate all pupils as the higher and lower attaining pupils will be mixed, concluding in a naturally higher expectation from the teacher (Johnston and Markle, 1983). Despite this reference being credible, it is not considered a recent journal as it was written 37 years ago, thus its credibility could be criticised. Despite this, "Maslow's Hierarchy of Needs" (BBC, 2013:1) could be seen to strengthen Johnston and Markle's views as it is a motivational theory, which is widely referred to today. One factor that could be seen to disagree with what Johnston and Markle have said would be the premise of differentiation in the classroom. If pupils are working collaboratively in mixed ability groupings, it may create higher barriers for the teacher to successfully implement differentiation strategies towards individuals (Tomlinson, 2001), consequently causing motivation to fall.

Maslow's Hierarchy of Needs and Bloom's Revised Taxonomy can be used when differentiating in the classroom: Psychologist, Abraham Maslow detected that all humans require five sets of needs, each one prior needed in order to fulfil the next. Once a person has fulfilled one, the desire to fulfil the next will present itself (BBC,

2013). Bloom's Revised Taxonomy, which was originally created by Benjamin Bloom and later on revised by Lorin Anderson. Bloom's Revised Taxonomy features six aspects in which teachers can build their lesson objectives and differentiation around (Amer, 2006, Teachings in Education, 2017). Bloom's Revised Taxonomy presents itself to be the educational version of Maslow's Hierarchy of Needs, in my opinion. Hence, if a lower attaining pupil is digressing in a lesson as they cannot work to the standard of their higher attaining peer, their needs may not be met and this may force them into a "panic zone" (McGill, 2017:13). Alternatively, a higher attaining pupil may feel that they are not making enough progress when working with their lower attaining pupils and therefore could stray from the task at hand, placing them into a "comfort zone" (McGill, 2017:13). As mentioned above, Maslow's Hierarchy of Needs could influence a person's view on whether mixed ability grouping is a successful or unsuccessful strategy in the classroom.

Lev Vygotsky introduced the "Zone of Proximal Development" in the 1920s (Vygotsky, Lloyd and Fernyhough, 1999:1, Rodriguez, 2014:1, Skidmore, 2018:1), Vygotsky's 'ZPD' acknowledges what a pupil can do independently and what a pupil can do with the help of their peers, during group work or with the scaffolding of a more knowledgeable other, such as their teacher (Rodriguez, 2014). Whilst this theory encourages collaborative learning, it assumes that independent learning might not be as successful. Pupils learn differently; therefore, it cannot be said for sure that all pupils will excel from collaborative mixed ability grouping to the same degree. Vygotsky's Zone of Proximal Development may have an impact on the pupils' mindsets. Fixed and growth mindsets were introduced by Carol Dweck. Pupils who already harbour a growth mindset are likely to excel whereas, pupils who already harbour a fixed mindset are not. Despite this, collaborative group work based upon Dweck's beliefs, will present pupils with the opportunity to progress from a fixed mindset into a growth mindset (Dweck, 2006). Contrary to this belief, Dweck revisited her mindset theory in 2015 and discussed the notion that bracketing pupils into either a fixed or growth mindset can hide an "achievement gap" (Dweck, 2015:2) rather than close it. For example: If a pupil is not putting in maximum effort, the teacher might assume that the pupil is harbouring a fixed mindset, when this may not always be the case (Dweck, 2015). The pupil's mindset may fluctuate depending on numerous influences that could be addressed in Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979:21-30). This theory discusses the multiple factors that can influence a pupil in multiple ways.

Lesson Study Design

The methodology of all lesson studies carried out was a form of "action research" (Pelton, 2010:3-13). Action research is a form of primary research. When carried out in the classroom it will require the teacher to harbour an "action research mindset" (Pelton, 2010:3-13), in order to successfully carry out such research. Each researcher would take the lead role of the teacher with their lesson study, this would be considered the 'action' part of action research. The lead, alongside fellow

researchers must then reflect upon findings, in order to progress onto further steps (Pelton, 2010). In this instance, the research that was being actioned was the research question, as mentioned previously.

Focus pupils were chosen based on their current attainment at school, the sample size consisted of three pupils per lesson study, totalling nine focus pupils across three different lesson studies. For example: My class was a year 10 Business class consisting of 19 pupils. I had decided to group my pupils into four groups of four and one group of three. Each focus pupil was in a separate group. I was also mindful that I enabled pupils to work with who they would feel comfortable working with, whilst also remaining on track with the research question. This will have hopefully enabled my fellow researchers to gather findings which are as natural as possible. It is however important to note that whilst my lesson study took place with a year 10 class, the other two lesson studies took place with year 7 classes, the context of all lesson studies will be discussed in more detail later on.

In order to decide upon who our focus pupils would be, we had each selected one higher attainer, one mid attainer and one lower attainer in order to make a direct link towards our research question. It was hoped that this would enable us to spot either a positive or negative correlation between pupil attainment and domination and / or contribution towards a group task. Ergo, in order for our research to collect sufficient findings, focusing on pupils of higher, mid and lower attainment was vital. Each researcher would take the lead role for their class, creating a group task for pupils to complete.

The method used to collect data from focus pupils was a questionnaire, this was to be completed straight after the relevant lesson study. Our reasoning for using questionnaires as a form of data collection was that questionnaires are accessible to every focus pupil as they require "less skill to administer" (Cargan, 2007:116-117). They are also anonymous; therefore, the focus pupils may have felt that they could answer honestly. This will have impacted in our findings being more accurate. Consequently, we did run the risk of responses being limited due to "prearranged questions" (Cargan, 2007:117).

Reflections were captured by an adaptation of the "Leuven scale" (Allen and Gordon, 2011:11-13) for each observer to complete, taking their observational notes into account. The appeal of using the Leuven scale during our lesson study was that it enables us to reflect upon the pupil's interactions and attitude towards learning during the lesson study (Allen and Gordon, 2011), which links directly to our research question. The scale does not take too much time to complete, this enabled more time to be spent observing and less time focusing on writing. Despite this, the Leuven scale does not consider psychological and environmental factors that could be impacting the pupil's involvement (Allen and Gordon, 2011). Such factors may be mentioned on Bronfenbrenner's Ecological Systems Theory or Maslow's Hierarchy of Needs, as mentioned previously. Therefore, we must be mindful when collating our findings and take such possibilities into consideration.

Alongside the use of the Leuven scale as observers, observational notes were also being taken during each lesson study. These notes were considered to be of

qualitative form. Qualitative research methods such as non-participant observation is “central to research in education” (Given, 2008:29), as it is this form of observation that probes the ‘why’ and ‘how’ questions. Observational notetaking enabled us to enrich our research even more so than if observational notetaking was not undertaken (Given, 2008). Observational note taking may result in the observer missing a vital finding during the lesson studies, however this was acknowledged prior to carrying out all lesson studies and researchers were aware to not note take more than they are observing the focus pupils.

In defiance of this, quantitative data could have provided us with more factual and numerically rich data. However quantitative data could be extracted from focus pupil questionnaires, in order to implement an integrated approach (Bamberger, 2000). It was concluded however, that qualitative data was best suited to these lesson studies as the sample sizes and timescale of research was limited. To elaborate, non-participant observation required researchers to sit at the back of the classroom whilst simply, observing pupils. This presented many advantages, as observational notes could be taken, the Leuven scale could be completed, and pupils were not disrupted. In contrast, non-participant observation could have caused an unnatural atmosphere in the classroom as pupils were aware of the observers in each lesson study (Brain, 2000).

Ethical Considerations

As the research carried out has included “personal data” (Welsh Government, 2018:8) and “sensitive personal data” (Welsh Government, 2018:8), ethical procedures have taken place in order to comply with GDPR standards, meaning that any data gathered must not be breached or shared with anybody who is not part of our research. An ethics form was completed by myself and my research partners, ensuring that the “BERA 2018: Ethical Guidelines for Educational Research” (BERA, 2020:1) had been adhered to. Myself and my research partners were all aware that our research subjects (focus pupils), were minors and that we needed to provide them with a consent form for both themselves and their parents or carers to sign. An information sheet was also provided which was transparent to our intentions for the research study. We did not focus on any pupils who did not complete and return the given consent forms, all pupils were told that they did not have to be a part of the research study if they did not want to be.

Lesson Study Results and Analysis

First lesson Study

The first lesson study was a year 7 Geography class, consisting of 32 pupils. For the sake of our research question, pupils were split into four groups of five and two groups of six, all of which were mixed ability and mixed gender. The group task for this lesson was for pupils to write a letter to their local councillor, communicating

their view on plans for a new village development, in the Cardiff area. This task required pupils to evaluate the benefits and drawbacks to the proposed development and as a group, decide whether they were for or against the development plans. The writing of the letter also required a contribution from all pupils and presented the focus pupils with the opportunity to display domination, positive contribution or neither, in the context of group work.

All groups achieved the lesson objectives as they worked collaboratively to produce a letter to their local councillor, about plans for a new village development in the Cardiff area, whilst also weighing up the benefits and drawbacks to said development. Some groups participated in whole class teaching more than others, for example: reading their letter to the whole class. The majority of pupils were engaged and on-task for the majority of the lesson, however some did stray from the task. Interestingly, the lower attaining focus pupil strayed from the task, whilst also distracting the higher attaining focus pupil. Meanwhile, the mid attaining focus pupil maintained a high work ethic.

One suggestion to improve this lesson for the future would be for the teacher to provide more individual support and scaffolding towards pupils (Rosenshine, 2012). The higher attaining focus pupil ended up being the only male in his group, due to a peer being absent. This pupil was highly withdrawn throughout the task however when questioned, displayed a great knowledge of the task. Had the teacher provided more individual support, the pupil may have benefitted from the task more (Rosenshine, 2012). It would be wrong to assume this pupil was withdrawn because he was the only male in his group, yet upon reading his completed questionnaire, the only changes he said he would make to the lesson would be to choose who he worked with.

Findings from this lesson were beneficial to the research question at hand and will be discussed later on. Nevertheless, we must be mindful that this was a year 7 class working in groups they had not chosen themselves. This in itself could have produced an unnatural atmosphere as some pupils may work more productively or contribute more confidently when working with peers of their choice (Knott and Dunlop, 2003, Brain, 2000).

Second Lesson Study

The second lesson study was a year 7 Math class, consisting of 26 pupils. For the sake of our research question, the pupils were split into two groups of five and three groups of four. All of which were mixed ability and mixed gender. The group task for this lesson was for pupils to construct a paper aeroplane from given templates. There was scope for pupils to change the length of certain components for the aeroplane. One person from each group then tested the aeroplane to see if it could fly, adjustments were made accordingly if needed. This task required all pupils to work collaboratively and contribute towards the constructing of their paper aeroplane. Similarly, to the first lesson study, having one person test the paper

aeroplane presented focus pupils with the opportunity to display domination, positive contribution or neither.

All groups except for one group struggled to remain on task for the duration of the lesson. My assumption for this was, because the lesson was highly practical and given the age of the pupils, they may have been overly excited. The one group that remained on task did not include any of the focus pupils. That being said, this is not to say that all pupils strayed from the task. There were still a subsequent number of pupils contributing throughout the lesson. There was a high level of attempt to construct an aeroplane that would fly, from the majority of groups as the lesson progressed. Interestingly enough, the higher attaining pupil did not dominate at all. This pupil did vocalise that certain group members were taking over the task. Thus, displaying a 'want' to learn and contribute, however may have felt uncomfortable with the peers they were working with. The mid attaining pupil did provide a high contribution towards their group work, whilst welcoming contributions from their group members also. The lower attaining pupil displayed involvement towards the task at the beginning of the lesson however became increasingly 'off-task' as the lesson progressed.

This lesson study provoked intriguing thought with regards to our research question, especially on the topic of 'stereotyping' with regards to pupil behaviour based on ability. This will be discussed later on. One suggestion to improve this lesson for the future would be to ensure the teacher provides all pupils with tasks to complete, while their group members were testing the paper aeroplanes. This is tricky to achieve given the nature of the task however, I feel more pupils would have remained on task rather than occupying themselves while they were waiting for their peer to return (Kyriacou, 1997). In contrast to the first lesson study, pupil behaviour appeared to be more natural and relaxed, considering pupils were placed into groups they had not chosen.

Third Lesson Study

The third lesson study was a year 10 BTEC Business lesson, consisting of 19 pupils. For the sake of our research question pupils were split into four groups of four and one group of three, all of which were mixed ability however due to the gender ratio, not all groups were mixed gender. The group task for this lesson was for pupils to choose a business start-up idea, based on given examples and then exercise the 'four Ps of marketing' (product, price, place and promotion) for their chosen start-up. To conclude, groups were then given the chance to pitch their idea to the teacher and the teacher chose which business they would 'invest' in and why. Like the other two lesson studies, the business pitch provided focus pupils with the opportunity to display their domination, positive contribution or neither.

Obscurely, as the lesson progressed, pupil focus progressed. To begin with, pupils displayed a negative attitude towards working with peers they would not necessarily choose to work with, however once groups were settled, all pupils were on-task. This reaction could be because of "conditioning" (Pavlov, 2003:6-10, Collin, 2018:1) as

year 10 pupils are preparing for exams, group work may not be a regular occurrence of theirs. This class in particular had not undertaken group work in a Business lesson before. Some pupils did stray from the task, however still contributed. Interestingly, mixed gender groups did not work as well together as same gender groups. In comparison to the other lesson studies, this lesson study both conflicted 'stereotypes' that can arise based on pupil attainment but also strengthened some 'stereotypes' that can arise, also based on pupil attainment. The higher attaining focus pupil did not dominate however made highly intelligent contributions towards the task. The mid attainer somewhat contributed towards the task however, appeared to go out of their way to remain off-task. The lower attaining pupil demonstrated a positive attitude towards the task, contributing and interacting with their group members.

This lesson study produced very interesting findings for our research question, that will be discussed later on. It is important to note the difference in behaviour, with both year 7 and year 10, when group work is taking place. Year 10 were more reluctant to work in groups to begin with however, did progress with the task. Year 7 demonstrated a more positive attitude towards working in groups however it could be argued that their attention for the task regressed as the lesson progressed. One suggestion to improve teaching this lesson in the future would be to contingency plan, as "contingency plans are helpful to a beginning teacher" (Conserva and Dewees, 2003:5). Some pupils were absent, this caused a 'fuss' with regards to making changes to groups at the beginning of the lesson, had this been planned for, time wasting could have been avoided.

Discussion of Research Finding

Findings across the two lesson studies of year 7 classes have correlated the notion that neither higher nor lower attaining focus pupils dominated in a group task. Findings did show that the mid attainer contributed the most across both lesson studies, however, did not dominate. Findings were different for the lesson study which took place in a year 10 class. The higher attainer, contributed but did not dominate, in fact a pupil who was not a focus pupil but still a higher attainer did in fact appear to dominate instead. The lower attainer contributed extensively both with their group and towards the whole class, again not dominating but displaying confidence that had not been present in previous lessons. The mid attainer, dominated somewhat in their group however did not contribute too much and in fact distracted peers around them. The mid attainers across every lesson study displayed an effort to contribute however, lost focus and strayed from the group tasks, at some point. I believe that this cannot be frowned upon as secondary school pupils can easily stray from tasks for endless reasons. In a general lesson, it should be the teacher's responsibility to find out why a pupil is straying from the task. All findings appear to propose the question; Does personality, even more so than attainment, affect contribution and / or domination with regards to group work?

As discussed by Johnston and Markle, teacher expectations can impact a pupil's motivation (Johnston and Markle, 1983), accordingly, if the lower attaining pupils are

aware that they lower attaining this may be detrimental to their contribution towards group tasks. Alternatively, if higher attaining pupils know they are higher attainers, they may dominate the group task, leaving little room for others to benefit from the task. Thus, group tasks harbour the power for pupils to either progress into a “growth mindset” (Dweck, 2006:3-9) or digress into a “fixed mindset” (Dweck, 2006:3-9) even if only for the duration of that specific lesson.

Conducting non-participant observations for our research did harbour limitations. It could promote a “social desirability bias” (Hall, 2008:205), meaning that pupils could act in a “socially desirable manner” (Hall, 2008:205) due to being observed, thus corrupting findings and potentially causing research results to be inaccurate, as pupil behaviour in the lesson studies may not be an accurate representation of their natural behaviour. Despite this, non-participant observation did provide us with satisfying findings with regards to our research question. As mentioned above, I cannot help but ponder the impact personality has on a pupil’s involvement when it comes to group work, regardless of their current attainment. I would go as far to say that our findings definitely concluded the notion that, whether a pupil is a higher, mid or lower attainer at school, their contribution towards a group task can be determined by who they are working in a group with. Again, this brings me back to Bronfenbrenner’s Ecological Systems Theory and Maslow’s Hierarchy of Needs. In relation to both of these theories, if the pupil feels comfortable in their surroundings and are grouped with peers of their choice, could contribution to group work increase? In my opinion, it would be solely down to the personality of the pupil.

Conclusion

I believe that it is simply impossible to arrive upon one conclusion to the research question at hand. That being said, I do believe that conclusions around the research method and research findings can be made. I believe that the research method could be reliable however if it was conducted across a larger sample size, including a wider age range of pupils, it would produce more accurate findings. It is difficult to interpret whether findings would correlate across a widespread of pupils, considering they are based around only nine pupils, during three lessons. Despite this, the lesson studies were conducted across three different subjects which would suggest a natural variance in attitude towards learning. This factor alone may have helped gather realistic findings. Given the references explored with regards to the research method: Non-participant observation, and an adapted version of the Leuvan Scale, they can be deemed reliable in my opinion. Widley used methods will always harbour criticisms and limitations, which I have examined. For example: both participant and non-participant observations bring strengths as well as limitations.

The findings collated have enabled me to view mixed ability grouping in a more in-depth manner prior to the research carried out. Originally, I thought we would see that stereotypes cannot be made in alignment with pupil attainment. Whilst findings did support this notion, our findings also suggested that attainment is not the only factor that can cause a pupil to dominate, positively contribute or not contribute at all, towards group work in a mixed ability setting. Granted, it could be criticised that I had

pre-conceived expectations of what our research would find, yet, had I not possessed pre-conceived expectations surely it would suggest that I did not care for the research question. I would say that the findings cannot be generalised, as mentioned throughout this essay I do believe personality and external factors impact a pupil's attitude towards learning. Ergo, our findings could be highly 'case-by-case'. If the question at hand was researched in a different country at a different school, I do not believe the findings would be the same. I am happy to share that our findings did demonstrate that stereotyping with regards to a pupil's attainment is not always applicable.

In my next placement, I will encourage my pupils to believe that group work in a mixed ability setting can be a positive task. It is not to say that the best learning takes place individually, whilst exams are sat individually, learning from each other can also benefit us in many ways. Encouraging pupils to work with peers who they would not necessarily choose to work with, helps pupils prepare for 'the real world', as they will not always be able to choose who they work with. This would enforce Professor Donaldson's four purposes of the curriculum (Donaldson, 2015). Mixed ability group work has the potential to enable pupils to learn more than the subject they are studying at school, impacting in pupils' learning a variance of valuable life skills, one of which being communication for arguments sake.

This research project will enable me to have more of an open mind when teaching, going forward. Through conducting both primary research and researching around secondary sources of information, I have learnt to always consider the many influences that a pupil will endure and how these influences can impact their contribution towards both group work and individual work. Pupil mindsets can fluctuate by the day. Although this research project focused on pupil domination and contribution towards group work, based around their ability, I have somewhat arrived upon my own personal conclusion that as a teacher, I must do far more than simply teach my subject. I will have a large influence on my pupils in the future, thus it is highly important that I am always aware of this.

Recommendations

If I was to take part in a lesson study again, I would conduct it involving a larger sample size. I would also want to collect more data from the focus pupils. For example: I would want to involve a larger number of focus pupils with varied demographics, in order to gather findings that are as realistic as possible. I would also want to introduce a different form of data collection such as focus groups or individual interviews, along with a questionnaire. As I joined my research group late, I was not part of the deciding of the data collection method, otherwise I would have voiced my opinion. I feel that the importance of the data gathered from the focus pupils may have been overlooked slightly. The reason being for this is that whilst as observers, we gathered findings on our research question, it is hard to determine whether we possessed an unintentional bias as observers. I am not saying we did; I am simply examining the action research. Nonetheless, it is important to consider

that time was of the essence and we did have a limited time to conduct our research and collate our findings.

The findings that may be taken forward in order to inform further research would be the notion of stereotyping not being aligned with attainment, as well as the impact personality has on a pupil's attitude towards learning. Completing an ethics form was something I had never done before; this is something that will be useful to me if conducting research in the future. I would recommend further reading into Carol Dweck's mindset theory with regards to a pupil's attitude towards learning as well as Bronfenbrenner's Ecological Systems Theory and Maslow's Hierarchy of Needs. These theories have proved to be highly insightful during my research.

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