

What is the effect of varying AFL (Assessment for Learning) techniques on learner's classroom engagement?

Please add your targets from the previous assignment using the table below.

	Targed/Target	Yr hyn yr wyf wedi'i wneud yn yr aseiniad hwn. What I have done in this assignment.
Targed/Target 1	Consider developing counter arguments when critically evaluating the impact of your own practice. Engage with other documents such as LNF and DCF in more detail to support your future practice. Offer more detailed reflection on your teaching.	I have tried to add counter arguments as to why I believe a certain practice might have worked better than others and give informed reasons as to why this might have occurred.
Targed/Target 2		
Targed/Target 3		

What is the effect of varying AFL (Assessment for Learning) techniques on learners' classroom engagement?

Aims

In the undertaking of this lesson study myself and two of my fellow student teachers aimed to evaluate the effect of varying Assessment for Learning (AFL) techniques on a learners classroom engagement. We selected 3 AFL techniques that will then be researched in a classroom setting to reach a conclusion on the effectiveness on these techniques and their impact on learners in a classroom setting. This will then be used to inform both my research partner's and my own practice and the way we assess learners in future placements and activities, and collaboratively share best practice in the use of these Assessment for Learning techniques with other practitioners.

Research context

In line with BERA guidelines (BERA, 2018) I will not refer to the school that the research will take part in by name. As such the school will hence be known as 'School W' throughout the rest of this report. School W is an English Medium comprehensive school in South Wales, with around 1100 pupils attending annually. The school's placement on the edges of three catchment areas means that a wide variety of pupils from numerous backgrounds and abilities attend the school, with around 40% of the school's pupils having additional learning needs. However, the school still maintains good standards in Estyn inspections and pupil attainment.

Short overview of literature

There have been numerous works written by researchers on the topic of Assessment for Learning and its impacts on pupil engagement. Work by authors by such as Black, in his book 'Assessment for Learning', (Black et al. 2003) and inside the black box (Black et al. 1998) have long talked about the effects of AFL on pupil attainment and engagement in the classroom. In his work, Black states that truly effective learning takes place when a pupil is actively involved in their own learning which is a key point of all AFL techniques. However, some feel that the use of AFL currently is too limited in scope (Torrance 2012) and that the spirit of AFL (Marshall et al. 2006) would be more useful than following the theory to the letter in the classroom, if it is to be a useful tool to prepare pupils for future learning.

According to (Black 2003); based on the results of prior research by other individuals, the positive effects of using AFL in the classroom are more pronounced and visible in pupils of apparently lower attainment. And that the use of AFL as an exercise in reflection on learning works better with pupils who have more need for support in retaining and advancing in their own learning. This allows teachers to be more fluid with their lesson plans, so that they can adapt to pupil needs (Cizek 2010) based on the information brought to light using AFL techniques, (Green 2019).

However, there are problems that teachers face in implementing AFL and formative assessment set out by (Green 2019), which is a concern for every teacher and practitioner. Time constraints on how long teachers can spend on a singular topic and the length of a lesson are a large part of this (Green, 2019). Teachers are expected to make time for

struggling pupils or areas in need of further clarification in a high paced curriculum. As such AFL techniques must be able to thread into common practice as seamlessly as possible, (Tharby, 2015).

Another article which engages with the use of Formative assessment, states that AFL can be used as an indicator of a pupils current learning status, (Nicolette van Halem, et al. 2016) which is a valuable tool for teachers to test the effectiveness of their own practice upon and the level of engagement that their pupils are experiencing in their lessons, as well as their learning potential, (H.P. Ginsberg, 2009).

This differs from the more traditional use of assessments in teaching, where a summative assessment is generally at the end of a topic to test the pupil's knowledge retainment over the course of weeks or months (Crisan, 2017). The use of Formative assessment can be used by the teacher and the pupils to reflect upon prior learning in line with Donaldson's four key principles, (G. Donaldson, 2015), to create ambitious, capable learners. Although the article by Crisan focuses mainly on higher education, many of the points raised in the article can be seen reflected in Secondary Education as well. Such as pupils seeming to engage with learning more effectively at certain periods of the school year or over the course of a single lesson, with knowledge retainment at other times being minimal due to a lack of pupil motivation to engage with the material presented to them. As such AFL and formative assessment; in which a pupil's needs and ability are recorded in a informal manner: are a method that practitioners can use to try and mitigate this trend. With practitioners being encouraged to now become 'adaptive experts', (Ian Clark, 2012) in the use of AFL in the classroom.

Although there are multiple ways that AFL can be included into a classroom setting, the use of 'questioning techniques', 'self- assessment' and 'peer assessment', (Volante, 2011) seem to be the main techniques that seem to be having the biggest effect on pupil engagement and attainment. The way that this can be carried out though are numerous, and each has a differing impact on pupil learning, the work of (P, Brown et al. 2014) suggests that the use of questioning techniques thorough the medium of quizzes as an activity during lessons has a greater impact on a pupil's ability to activate and reflect upon prior knowledge and apply it in a different setting, and states that is a better way of engaging pupils in AFL than to use questioning techniques such as open ended questioning in a class discussion. This agrees with the interpretation by (Black et al. 2003) that pupils are more engaged when actively involved in a task.

Another point of AFL techniques, is to open up a dialogue of effective feedback between the teacher and pupils (David Carless, 2015), that works both ways. Pupils can communicate with the teacher what went well with the lesson and what didn't work in aiding their learning and the teacher can take note of this. In fact, most AFL techniques revolve around this dialogue, such as the use of 'traffic lights' (Tharby, 2015 and Torrance 2012) for pupils to indicate their understanding of tasks and key subject knowledge.

Explanation of lesson study design

When undertaking this research, we were careful to consider the literature about both the use of lesson studies and of Assessment for Learning and its use in classroom settings. One such piece of literature was by (Chassels et al. 2009) which focuses on the use of lesson studies as a part of research and it use in countries outside of Japan in differing education systems.

The use of (Chassels et al. 2009) is in that it focuses on the usefulness of lesson studies as a research technique in informing the practice of student teachers and their engagement in research while training. This piece focuses mainly on the usefulness of the technique and the building of 'professional learning communities' and 'reflective practice' that links into the new curriculum by Donaldson (G Donaldson, 2015) and pedagogy that is being implemented in Wales in the coming years. Although lesson studies have only started to become popular within the last few years in western countries, the practice has been used in Japan since the late 1970's (Peter Dudley, 2014).

The method of lesson study is lauded for bringing research into the classroom by researchers and teachers alike as it allows for researchers and practitioners alike to see the pupils reactions and how that differs from the theories and hypotheses set out at the start of the research, (Peter Dudley, 2014). In previous works (Dudley et al. 2001) he outlined that the use of lesson studies in schools to study the way pupils react and engage in the classroom help raise the results of the pupils taught in these schools as it allowed teachers to identify areas and pupils that needed a different approach to understand and engage with learning in a classroom environment,

Other works, (Ángel I. Pérez 2010) agree with this standpoint in that teachers now need to be able to bring the theoretical into the classroom and be able to evaluate their usefulness in the classroom. He emphasises teachers engaging with research, observation, reflection and cooperation to restructure practice. (Torrance 2012) agrees with this viewpoint and that student teachers now need the embedded ethos of continuous professional development to meet the changing standards of teaching pedagogy.

The way we went about our lesson study didn't vary differently from the format set out in the Japanese version of the technique (Stigler and Hiebert 1999). One of our research group took a lesson while the other two student teachers engaged with this research project would watch and make notes on how the lesson went in regard to the focus of the research. We would then come together after the lesson and reflect as a group on how we thought the lesson went, engaging in reflecting as is suggested in texts by Lewis (2002), and Cizek (2010).

As such we went about creating our lesson study based loosely on the works of Gibbs (1988) reflection cycle, whose model of reflection is used in our research to a certain degree, as we intended to use and adapt our use of the three AFL techniques chosen for this study; mini white-boards, lollipop sticks and traffic lights; to see which method of using these techniques had the most impact on the pupils. We would change our usage of the three techniques based on the observations of the previous lesson studied in the process of this research, (Dudley, 2014). This falls in line with our usage of Gibbs reflective cycle as we will gather evidence, reflect in the lesson, afterwards and then test our new hypothesis in the next stage of the research, which will influence how we structure and design (Tharby, 2015) our next observed lesson within the Research Project.

Of the three AFL techniques chosen, Lollipop sticks, traffic lights and whiteboards, the literature supports that those activities that promote either informal peer-feedback or teacher support, (Gamlem and Smith 2013). But the works of (DeLuca et al. 2018) suggest that differing techniques work better with each differing age group. According to this, (DeLuca et al. 2018) within our chosen age group we should see group wide AFL techniques such as traffic lights and white board activities that promote peer-assessment and activities to be perceived as more useful and engaging than teacher feedback or individual feedback such as with the use of the lollipops. Whether our results will echo this research is a point to consider in analysis.

In this research we have also considered the thoughts and opinions of the students that will be taking part in this research. To do this we used a mid-band year 8 of mixed ability to test out our hypothesis, as this class has a wide range of ability and attainment, meaning that we can see the effects of the AFL techniques on pupils from high, mid and low attainment in the same session. To this end to gain feedback on the use of the three AFL techniques being tested in this research we will have a focus group of pupils that we will use to gain the students perspectives on the techniques used. The group will be made up of three students, (Dudley 2014), each from one of the three attainment levels stated previously. To gain an insight into how pupils of differing attainment levels viewed the application and effectiveness of the AFL techniques chosen, (Carless 2015).

Via a short discussion at the end of the three lessons that will take up the practical portion of this research, the focus group will be asked to stay behind at the end of the lesson and give their thoughts on what they think of each of the AFL techniques and their usage in lessons. This data that will be gathered alongside the observations from the research partners during the lesson observations where they will measure the engagement of the pupils present via the use of a Leuven scale, (Laevers,1994) of engagement, that will make up the majority of the raw data used in the research project, and the evidence to back up the claims made and whether the reality of the use of the AFL techniques compares to the literature of the subject, and how it affects students engagement in a classroom setting. The Leuven Scale has a set criterion that pupils can be evaluated against to show their engagement with a class or activity on a scale of 1 to 5, with 1 being low to zero engagement in an activity and 5 being highly motivated and focused on the task at hand. This scale focuses solely on a pupil's reactions to tasks and doesn't take into consideration other factors such as attendance or the pupils learning environment, which can have an effect on an engagement and well-being (Harbaugh et al. 2012). As such the Leuven scale to rate the effectiveness of AFL techniques in this context is appropriate as it ignores all outside factors and only focuses on the resulting reactions of the pupils.

Ethical considerations

During this research project we have had to be aware and considerate of the Ethical implications during, and after the research is complete. To do this we endeavoured to follow the research guidelines set out by Bera (2018). None of the students that take part in the focus group or lessons study will be referred to by name in the data collected nor in the write up of the research results. In managing the data collected during the research, we used the UWTSD data management guidelines, UWTSD, (2018) set out by the university to outline how we would handle the use and storage of the research. All of the data collected has been held on the University's OneDrive, and is as secure as we can make the data at this time, as only the researchers engaged in the project have been able to view and interact with it, all pupil names are not included in the data, as is the same with the focus group. All data will be securely disposed of at the end of the research assignment and not stored in the university drives for public viewing within the university.

Lesson study

The lesson studies themselves went on over the course of 3 days during a single week at School W. Each of the lessons was observed by the class teacher and at least one of the student teachers involved in the Research project. The first of the lesson studies was on a Wednesday lesson 1, the year 8 class chosen for the research arrived in small groups with some low-level disruption going on throughout the class, it took a long time for the class to arrive and settle.

The lesson itself was a stand-alone lesson on Christopher Columbus and his discovery of America. The pupils were to discuss the historical information presented to them and decide whether they believed 'Columbus was a villain or a hero.' This reason for this topic was chosen was due to the class being involved in an assessment on 'Elizabeth I and imagery' at the time of the research, and it was decided that a new unrelated topic should be devised and used instead of interfering with a controlled assessment. The pupils in the focus group liked the idea of the lesson but also commented on the fact they liked the topic, but the lower ability level child commented on the difficulty of the lesson due to the amount of literacy and reading skills required in the activities planned. Using this we determined that the rest of the lessons within the study would be less literacy based with more group focused tasks, that would suit the class better and improve their engagement.

In the first of the lesson of the research, the student teacher used the 'traffic lights' as a gauge for pupil understanding throughout the lesson. The pupils were made aware of them from the start and were given the option of using them as an indication of whether they needed help or advice as the lesson went on. The choice was left up to the pupils themselves to use the traffic lights as to involve them in the technique on their own terms. There was however minimal usage of the traffic light as a resource overall, with only a few individuals engaging with them at all, and none were from the focus group. The last of the focus group from the lower ability end of the class spoke about 'wanting to use them (traffic lights)' but didn't know if they should. While this seems to be in contention with the research by DeLuca et al. (2018), perhaps the usage of the traffic lights being so new to the pupils caused the reluctance to engage with this resource, as before DeLuca (2018) and Tharby (2015) stated that is through repetition and the formation of habit in the use of AFL that the benefits of the techniques is truly seen.

During the first lesson study the teacher used the lollipop sticks to ask pupils at random questions about the lesson so far. There was some low level disruption when this technique was used throughout the lesson as many pupils didn't like being picked on when they didn't know the answer or on the other end of the spectrum as indicated by the focus group they knew but their stick wasn't picked by the teacher, this could have been due to the newness of the technique and it's differentiation from the normal questioning techniques used with the class, and was a point of consideration going into the second lesson of the study.

On the other hand, from the feedback from the focus group the use of whiteboards was by far the most popular technique used in the lesson. All three of the children in the focus group praised the use of the whiteboards, and it seemed to work for all of their ability levels in terms of engagement and enjoyability. The class were at their most responsive when they were using the whiteboards. The focus group reported that they liked being able to share and work out their ideas on the whiteboard with their group mates. They liked being able write down their answers instead of being called upon to speak out loud, as was the case with the lollipop sticks, this supports the theories in the literature that quizzes and group activities that use AFL are the most engaging, Tharby (2015), Black (2014), and Carless, (2015).

Taking on board this feedback, the next lesson study was devised to try and use these techniques in a different way based on pupil feedback, using both our own reflections on the pupil's engagement, (Gibbs 1988 and Clark 2012).

The following lesson that took into regard these observations occurred the following day, lesson 5 just after lunch and the last lesson of the day. Pupils were more animated entering the room and were quick as a group to settle down. The lesson itself was a short practical on series and parallel circuits that drew mainly on prior knowledge from previous lessons.

Considering the findings from the previous lesson, the student teacher taking this lesson subsequently changed the way they used the three techniques, (Clark 2015). The use of whiteboards was emphasised in this lesson, with questioning done via the whiteboards as was testing of prior knowledge, (Black et al. 2014). The focus group commented that they liked the regular use of the whiteboards throughout the lesson, which the student teacher had them write out their ideas out onto as a pair or group. This also reflects in the observations made that the class was more focused on learning during these activities.

The lollipops were used as well, the class seemed to be less excited by the appearance of the lollipop sticks this time around and there was less low-level disruption occurring during their use, as was suggested by Tharby (2015) that repetition and exposure helps pupils acclimatise to new techniques. However, the focus groups opinions on the lollipops had not changed much from the previous lesson, they commented that they were rather ambivalent about them now that the novelty of their usage had worn off. This supports DeLuca et al. (2018).

Yet the greatest change in the implementation of the techniques chosen for this study was the use of the 'traffic lights'. In this phase of the research we gave the students the cards at the start of the lesson the same as in the first. In this case though the teacher taking the lesson would ask the class at various points throughout the lesson to pick out and hold up the card that best represented their own understanding about each task that that they had just done or the information they had just gone over, Nicolette van Halem, et al. (2016). Whether this is the best usage of the traffic lights within a lesson is an area to be looked into, though the strength of using the cards in this way seems to be in opening a non-verbal dialogue between pupil and teachers, Torrance (2012) that the pupils seem more inclined to use now that they have been clearly instructed to so, rather than the decision being their own. As such the reactions from the focus group, mainly from the two of middle and lower band attainment were more positive about the use of the cards in this format though the pupil chosen of higher attainment was still neutral about the use of the cards.

The final lesson in the study was a German lesson on giving and receiving simple opinions, the lesson topic was not new to the pupils and as such the lesson was based around reinforcing and adding on to a previously established knowledge base.

By this point in time all the pupils both in and out of the focus group were well acquainted with the AFL techniques being used in the research so were not surprised or distracted from the main lesson aims, Tharby (2015). Though when the lollipop sticks made their appearance during the lesson itself there were audible groans and noises of discontent coming from some of the pupils. They were rather reluctant to engage with them in the final lesson, some refusing or unenthusiastic to answer in front of the class, while others whispered the answers under their breath.

The traffic lights were used throughout the lesson as the class, used in the same way as lesson study 2 were the teacher asked the pupils to hold up the card that best represented their level of understanding at the end of each task. There were a few reds and oranges that cropped up that the teacher did not immediately notice in the course of the lesson. But the pupils and the focus group seemed to be more willing to show when they had a problem or needed a point clarified with this method in this lesson study compared to their first exposure to it in lesson study 1.

The pupils used the whiteboards during this lesson to show their workings and some of the sentences they had made using the vocab taught during the lesson. The teacher then used this as an activity for peer assessment by taking a model answer from one of the pupils

themselves as an example of a mistake for the pupils to make changes to their own work using.

Discussion of research findings

From the literature available, one of the key points raised was that Assessment for Learning should be interactive and involve the pupil in their own learning as much as possible, (Paul Black et al, 2010). From the lesson studies carried out over the course of this research it has become apparent that some of the AFL techniques used had a larger positive effect on pupil engagement than others.

The pupils of the focus group showed a strong inclination to being more willing to engage with the whiteboards as a way to assess their own learning (Brown 2014), as it was a more hands on and social activity then the other two methods included in this trial. As such coincides with the literature (P. Brown 2013) which points to pupils being able to activate their own previously taught knowledge through activities such as quizzes more than through a simple and rather uninvolved class discussion, as seen in lesson study 2 where pupils were able to recall more information when the assessment was done as a short informal 'quick-time' quiz at the start of the lesson.

This theory also seems to have precedence in the way pupils reacted to the lollipop sticks, which the focus group were rather indifferent to, causing this AFL technique to rank low on the Leuven Scale (Laevers, 1994) and is the least engaging AFL technique of the three tested. Further research into how this technique could be successfully used in a classroom setting is an area of possible further research and testing in future. If according to (DeLuca 2018) the process of individual teacher to pupil questioning and feedback, (Ginsberg 2013) is more successful with older pupils, a future test could be to use the lollipops in 2 classes, one of a KS3 class and the other a GCSE class, and record the differences in engagement levels between the two.

The traffic lights that were used in this research were meant to open a line of communication between teacher and pupil, (Ginsberg 2013) with this theory in mind. However, in practice it seemed that those that were struggling in the class, were reluctant to show that they needed extra support from the teacher on their own initiative. The focus group indicated that there was indecision on the pupils end on whether they felt they should use the tool or not. Carless (2015) argues the point that effective feedback is another key point to consider when using in the classroom effectively. In our scenario we were focusing on pupil engagement, though all teachers know that pupils are engaged more with a task when they can understand; at least in some way; what is being asked of them. Though throughout the lesson study the pupils began to interact with the cards more often and with more confidence, showing that repeated exposure to the technique, (Tharby 2015). Yet in this research the use of the white boards for general quizzing and asking was the most effective in engaging pupils in terms of formative assessments and activities to indicate knowledge and understanding, (Van Halem et al, 2016).

Limitations of research

The first of limitations that was noticeable in this research is the sample size of the focus group. Although with a smaller group of pupils to gather data from the depth of the data gained is greater than if we had to spend time questioning a larger group. However, this means we were limited on the amount of certainty we can apply to our results and how the techniques tested work upon a larger variety of pupils, with different educational needs and

whether the variation in engagement with the AFL techniques we considered in this study can be universally applied, if not how they need to be adapted as (Clark, 2012) suggests from class to class.

The second limitation noted is in the variety of AFL techniques used within the research itself; the amount of AFL techniques tested was limited due to this time constraint, which is a problem noted by (Green 2019) with an hour for each lesson. There wasn't enough time set aside for our research to investigate other AFL techniques. This means that there could have been some AFL techniques not included in the lesson study that might have produced a larger level of engagement from the pupils or might have helped pinpoint the techniques that work the best on the sample group, which then could be researched further. This will need to consider further research into the literature present on the subject,

The third limitation that was highlighted in this research is the skill in the observers taking part in the lesson study in (Dudley 2014), he states that in Japan there would be a large group of teachers that would observe the lesson being done as part of the study. However, in this case there was only one or two observers in each lesson that took place. As such not every detail can be feasibly be noted by the observer and the picture, we can gather of the effect of AFL on the engagement of pupils might not be as clear was initially intended. Yet this might also not be the case, as hope that the number of observers while be enough to gather the information necessary without having a whole contingent of teachers watching the pupils from the sides of the classroom which might distract the pupils from the lesson being taught.

Conclusion

In Conclusion, the lesson studies that were undertaken during the course of this research, have shown that Assessment for Learning can have a large positive effect on pupil engagement. Yet it seems that the results favour the literature of (Brown, 2013) and (Black et al, 2003) that Assessment for Learning works best when pupils can be actively involved in the task, such as with the use of whiteboards, and other forms of peer assessment that allows pupils to makes changes and self-correct their work and their own learning.

Of the three techniques that we used to gauge how Assessment for Learning effects pupil engagement in the classroom; lollipop sticks for random questioning, traffic lights to show current understanding and whiteboards to a tool for peer and self-assessment and activation of prior learning; the whiteboards seemed to have the greatest impact on pupil engagement. The focus group gave overwhelmingly positive feedback on their usage and seemed to be engaged with this technique the most throughout the research from start to finish. Whether this is due to the familiarity of using the items in other classes outside of AFL tasks, or due to another factor is a point that I would like to investigate further in the future and further reading into child psychology as well as works by educational researchers.

Recommendations

With the limitations of this study and the conclusion, comes also naturally the recommendations that would be useful to consider going forward based on the experiences and results from this research. While (Dudley 2014) suggests that a focus group of 3 pupils is the recommended size, I still feel that this limits the amount of data that can be extracted from a group of pupils.

If I were to do this again, I would consider increasing the size of the focus group that I based my results and theories upon. This could also be extended to include the classes used as well, if only to see if there is a variation in the results if the research was repeated with a

different class of a similar ability range (DeLuca et al. 2018).

In this research we used a middle-band year 8 class of lower ability and took our focus group from the variations of level within that class, in another research on the same topic I would be tempted to expand this to having a lesson study with 3 or 4 classes participating in the research each with their own focus group but exposed to the same Assessment for Learning techniques, to see if as (DeLuca et al. 2018) suggested the same techniques had a varying impact depending on the age range of the pupils, though both (DeLuca et al. 2018) and (Gamlem et al. 2013) theories and results mirror that of our own, that techniques that promote informal feedback and allow for active student participation, (Tharby 2015) are most effective.

I would also enlarge the number of lessons undertaken in the study, so that it might last over a topic of work instead of just a few lessons, showing how engagement varies over time and exposure the different techniques. Time constraints on this research was also a concern that we; the researchers; had to deal with as we were only student-teachers and the amount of time we can devote to the lesson study itself is quite small as this research took place over the course of three days, while fitting in with the topics that the pupils class teachers were teaching at this time. All of these are key changes that would make our research and lesson studies more cohesive, and easier to gather data from in any future attempts at investigating this research topic.

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