

A critical evaluation and the identification of next teaching and learning steps focusing on a case study of an individual learner or a group of learners, based on an observed critical incident.

Introduction

Focusing on an observed critical incident, this paper critically evaluates research that underpins the holistic development of students, in relation to ensuring pupil progress. The critical incident is further linked to the developing curriculum in Wales and finally reflected upon with regards to identifying next teaching and learning steps.

The use of critical incidents in the context of reflective practice in teaching is endorsed by several academics such as Tripp (1993), Wilson (2001), and Halquist and Musanti (2010). A critical incident is a very common place event that is made critical by questioning why the incident is seen as an example of typical practice, in a wider, usually social, context (Tripp, 1993). One must critically evaluate the incident, by firstly asking what happened, and secondly what caused it to happen. This calls on deeper structures of teaching and learning to be considered, and *“serves as a form of reflective inquiry and a sense of both professional and self-awareness”* (Joshi, 2018).

Tripp (1993) believes that most good teachers use perfected, tailored routines, and refined techniques, but these alone do not ensure continuously effective teaching. It is the critical reflection and analysis of these teaching routines and techniques that help develop the *“equally necessary skills of informed professional judgement”* (Tripp, 1993, p.152). Not only knowing what to do, but why you are doing it, is the foundation of honourable teaching according to Pui-Lan et al. (2005). Through reflecting on the critical incident and similar themes in other observations, next teaching and learning steps will be identified.

Observation

School and Class Context

Following BERA (2018) guidelines, the details of the school and its individuals will remain anonymous for confidentiality. For the purpose of this study, the observed school will be termed 'School X'.

School X is an English-medium school in the Vale of Glamorgan, with currently around 1,521 pupils on roll aged between 11 and 18 (Estyn, 2019). The number of pupils eligible for free school meals is considerably lower than the national average at 4%. The number of pupils with a special educational need is also below the national average at 8%. Most pupils are from a white British background with only 2% speaking English as an additional language.

School X was judged 'Excellent' across all five inspection areas by Estyn in 2019. The Inspectorate described School X in an applaudable light, stating that *"strong, assured leadership, careful curriculum planning and consistently effective teaching to educate and inspire young people have been successful in securing exceptionally high levels of pupil attainment and wellbeing"*.

Regarding the National School Categorisation system, School X is in the 'Green' support category, representing that the school requires the least support from the Consortium. School X is also rated Improvement Capacity 'A' which is given to schools that *"show the greatest capacity to improve along with the ability to support other schools"* (Welsh Government, 2019).

Furthermore, School X is a respectful community where pupils show enthusiasm towards their learning. The critical incident observed occurred in a year nine high-ability Science lesson, where these qualities were evident.

Methodology

Critical incident methodology is a “set of procedures for making direct observations of human behaviour that are complete enough to enable the researcher to make inferences and prediction” (Krishnaswamy, Sivakumar & Mathirajan, 2009 p.174).

A case study, a more detailed form of critical incident methodology, was used to study the critical incident as it is ‘a *prototypical instance of mixed methods research; they can explain, describe, illustrate, and enlighten*’ (Yin, 2009, p.19-20) and are authentic (Adelman et al. 1980). The case study approach also allowed unanticipated events and uncontrolled variables of an unfolding investigation to be embraced (Hitchcock and Hughes, 1995).

Sturman (1999, p.103) believes that a “*distinguishing feature of case studies is that humans... have a wholeness... to them, necessitating in-depth investigation*”, ideal for studying the holistic nature of critical incident theory.

One presumed drawback of case studies is their difficulty to generalise findings. This is not applicable for this study however, as researching a critical incident implies that the study’s findings should be easy to generalise. Dyer (1995) also notes that one must be conscious that selection takes place when using a case study. Furthermore, Nisbets and Watt (1984) also remark that case studies might be biased and so are difficult to cross-check. They may also be open to misinterpretation.

A close, inactive and known observation method, also known as a ‘non-participant observation method’ was used in the study. A close observation method was used over a remote observation method as it was important to engage with the “*full authenticity of the setting*” (Newby, 2014, p.351) which might hold the key to understanding the critical incident. An inactive role was used rather than an active role as there was no time to gain the trust of those being studied which is essential to getting reliable data if the researcher is to participate with those being studied. As the setting was small-scale it was only possible for the researcher to be known to the class. In this case, the Hawthorn Effect may have played a part in the observation, as “*we cannot get away from the fact that just by being there, even if we are not actively involved, we can affect*” what happened, and behaviour may have been “*situationally specific*” (Newby, 2014, p.385). Bias is a second concern during observations as patterns that support hunches may well be undeservedly accentuated (Newby, 2014).

As coding took place the same time as observations were made, structured observation sheets with prompts were used to ensure recordings were structured and accurate.

Observations were recorded by touch-type method on a laptop, thus recordings could still be taken while the researcher observed events. Video recordings would have been more reliable and useful for a more objective reflection as it would have been a more accurate recording of events. This was unsuitable because of the set-up time, and ethical concerns.

Four official observations were carried out, which can be found in Appendix A-D, however this study concentrated on one critical incident in one observation. The critical incidents were then reflected upon using ARC sheets which can be found in Appendix E-H.

Critical Incident and Donaldson's Purposes

The critical incident discussed in this study occurred in a Year 9 Biology lesson. The observation sheet with additional information is found in Appendix A.

The lesson concentrated on answering exam questions effectively. To demonstrate the meaning of the command word 'compare', the teacher had the class to compare two pupils, whilst he advised improvements to the class' comparisons. This incident was chosen for critical evaluation as it can be argued that it may have occurred for several reasons.

The teacher may have used this technique as a way of formative assessment; to engage the class and manage behaviour; to instil confidence in the pupils; as a concrete example of an abstract concept; or as a method of modelling. Nevertheless, this study will primarily focus on 'modelling' as the cause of the critical incident.

The Review 'Successful Futures' proposes that there should be four purposes to the new curriculum.

"All our children and young people will be:

Ambitious, capable learners who are ready to learn throughout their lives.

Enterprising, creative contributors who are ready to play a full part in life and work.

Ethical, informed citizens who are ready to be citizens of Wales and the world.

Healthy, confident individuals who are ready to lead fulfilling lives as valued members of society." (Donaldson, 2018)

The critical incident can be linked to two Purposes; to create *“ambitious, capable learners”*, and *“enterprising, creative contributors”*.

Firstly, the critical incident helped to create *“ambitious, capable learners”* as it emulated several of the key characteristics associated with the purpose. Pupils were *“enjoying the challenge”* and *“setting themselves high standards”* by perfecting an answer to a question that they were not to be examined on for two years. Pupils were actively *“building up a body of knowledge and ... the skills to connect and apply that knowledge in different contexts”* by transferring their knowledge of the science question to a real-life concept in their classroom. As they were comparing, it can be argued that the pupils were *“critically evaluating”* the two pupils while being encouraged to *“communicate effectively”* and *“explain their ideas”*.

Secondly, the critical incident linked to the Purpose of creating *“enterprising, creative contributors”* as it also used key characteristics of the purpose. By contributing to the lesson, pupils were able to *“play a full part”* with pupils *“playing different roles”*. It was important for the class to *behave “effectively and responsibly”* in order to be respectful to those being compared. By having the class *“express their ideas”*, the critical incident also allowed pupils to *“give their skills so that other people will benefit”* as the class discussion allowed pupils to share ideas they might not have had alone.

Literature Review

This literature review will discuss three methods of modelling: using worked examples including scaffolding; concrete examples; and dual coding. The focus will be on modelling using worked examples, as it is the method most closely linked to the critical incident.

Potentially the greatest constraint on learning is the severe cognitive restriction on the amount of information that can be processed at a time. Research on working memory (Baddeley, 2000, 2003) has provided evidence that individuals are only capable of keeping a handful of units of information active simultaneously and are able to actively function even fewer. Furthermore, in the absence of active rehearsal, information tends to remain active for only a few seconds before it is forgotten.

Piaget's theory of constructivism claims that new learning is built on existing knowledge (1959), and for deep learning and understanding to occur, learners must be able to present the new information in terms of another concept. When an individual has limited cognitive capacity, they have fewer opportunities to make connections to existing knowledge, hindering their ability to remember the new information in the future. The principles of constructivism are increasingly influential in schools, and the modelling techniques discussed are suggested ways of reducing the impact of working memory limits.

Modelling is defined as demonstrating a desired skill or behaviour while simultaneously describing the actions and decisions being made throughout the process (Archer & Hughes, 2011) to prompt an imitative response. Many academics believe that when teachers model examples, they reduce student confusion by limiting unnecessary demands placed on their cognitive processing, enhancing understanding (Sandholtz, 2011), (Renkl and Atkinson, 2010).

Several studies have reported superior learning, and decreases in student error after students had been shown several worked examples versus problem solving on their own (Renkle, 2005), (Renkl and Atkinson, 2010), (van de Weghe, 2006) particularly regarding lower-knowledge learners (Kalyuga et al. 2012).

According to Methe & Hintze (2003), Scott et al (2012) and Harbour et al (2015) teacher modelling also positively affects the perceived importance of a task, and in one study modelling positively increased students on-task behaviour by nearly three standard deviations above baseline control conditions (Methe and Hintze, 2003). Further research indicates that modelling also promotes increased student engagement and academic performance, resulting in collateral benefits such as enhanced responses to higher order thinking questions and tasks (Housand and Reis, 2008).

Archer and Hughes (2011) and Harbour et al. (2015) agree that effective modelling comprises directing students' focus to the significant features of the desired skills and behaviours. Harbour et al also suggest that modelling should be demonstrated with numerous repetitions. It is noteworthy that the teacher modelling the worked example in the critical incident applied these procedures, having the learners participate by suggesting numerous comparisons of the two pupils until he was satisfied the concept was learned.

It has been suggested that to enhance the effectiveness of modelling, teachers should 'think aloud' to demonstrate their internal thought process, explicitly stating connections throughout the instruction, enabling novices to witness the expert thinking that would otherwise be hidden (Sandholtz, 2011; Scott et al. 2012; Van De Weghe, 2006). Similar studies by Fisher, Frey and Lapp (2011) and Silven and Vaurus (1992) indicated that teacher modelling with think-alouds had positive influences on students, particularly when students were encouraged to participate rather than just listen in the think-aloud process. It has been suggested by theorists such as Vygotsky (1962), that learning is vastly socially constructed, which implies that processes such as think-alouds and discussions related to learning should be encouraged (Beyer, 1985).

Scaffolding helps learners with *"those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon ... those elements that are within his range of competence"* (Bruner, Wood and Ross, 1976, p. 90). This is consistent with Vygotsky's ideas of cognitive development, and his belief that learners need a 'more knowledgeable other' to help guide them through their learning. Scaffolding by prompting students to ask better questions in class discussions (Quigley, 2018) and suggesting key points for learners in extended writing tasks can be beneficial to learning.

Unfortunately, worked examples and scaffolding have become associated with "tools of low expectation" (Didau, 2014). They have also been accused of prioritising procedural knowledge over propositional knowledge (Caviglioli, 2019), and only covering information that students already know, therefore stopping students from using their own initiative.

Furthermore, universities have accused secondary school teachers of helping pupils too much. It is claimed that six in ten universities have provided additional classes to undergraduates who require additional tuition in independent study and basic literacy skills (Paton, 2012). This has been a frequent topic of journalists over the past decade, namely Telegraph journalist, Paton (2010, 2012), and TES reporters Hazell (2018) and Spalding (2017). Researchers such as Dehler and Welsh (2014) and Al-Saadi (2011) have discussed pupils' over-reliance on the teacher and suggest a *"gradual handover of some of the roles traditionally held by teachers to the students"* (Al-Saadhi, 2011, p.95).

However, research by Van de Pol et al (2015), Rosenshine and Meister (1992, 1994), and Harbour et al. (2015) has discovered that modelling can increase self-regulated learning. So long as teachers gradually fade their modelling, and provide independent practice, students are able to progress by performing tasks themselves.

Didau (2019) also believes that if students lack confidence in their work, they are going to struggle to think independently later on, so helping students with modelling in the short-term will reap long-term benefits. I believe that for scaffolding to be effective, teachers must know their students well enough to know their Zone of Proximal Development, so they can ensure their scaffolding is targeted efficiently to individuals.

Using concrete examples is a second form of modelling that may be associated to the critical incident. Constructivism proposes that we understand new information by relating it to information we already know, which is mostly concrete. The *“human memory is designed to remember concrete information better than abstract information”* (Weinstein and Smith, 2019), thus exposing students to abstractions in many different concrete forms is the *“surest way to help students understand”* (Whittingham, 2009, p.67). Beginning with students' own concrete experiences and then applying them to the abstract helps define concepts and ensures high confidence and participation (Powell, 1997). Gurung et al. (2005, 2010), Weinstein et al. (2013) and Whittingham (2009) also believe that as our minds always assume that new knowledge is linked to existing knowledge, it is safer for teachers to provide concrete examples of the new information to stop learners linking inaccurately.

Students may also be under the illusion that they understand information if they are able to recall the exact words from a textbook or teacher. Shallow knowledge like this may mean that the information is forever bound to the analogy provided and cannot be transferred.

Example generation may help students monitor to what degree they understand a given concept (van Loon et al, 2013), and improve information retention (Love, 2017).

Furthermore, research by Rawson et al advocates that example generation for students is more effective than restudy alone (2015, 2016).

Despite the research discussed, using concrete examples to aid learning has also come under scrutiny. Dornisch et al (2011) and Hamilton (1999, 2004) disclosed that generating concrete examples made no difference to test scores. However, these findings may be called into question as their research was based on immediate tests, and it has been found that benefits of some learning techniques are not apparent immediately and often emerge on future tests (Chan, 2009; Kornell et al. 2011; Rawson, 2012).

It appears that the effectiveness of using concrete examples to help explain abstract ideas is dependent on the quality of the concrete example. Too much information impairs the

transfer, and some examples may be too specific and too tightly bound for students to apply their knowledge in a suitable way elsewhere (Day and Goldstone, 2012). Work has shown that it is best when students create their own concrete example (Hamilton, 1990), but only when the example is verified by the teacher. It might also be worth considering that it might not be the concrete example itself that is beneficial, but the fact that learners are spending time considering the idea for longer if it is expanded upon.

Dual coding theory is another method of modelling that may be associated to the critical incident. Dual coding also focusses on cognitive load theory by reducing the impact of working memory limits. Paivio (1986) and Caviglioni claim that while the visual channel and the verbal channel are *“independent of each other, there is a mechanism that ensures they can work in tandem”*, doubling the amount of information that can be absorbed (Caviglioni, 2019). Moreover, the channels trigger connections with each other. This theory suggests that labelled diagrams, such as those that show relational structures and sequencing, are beneficial because it reduces cognitive demands by simplifying the information to be processed (Catrambone, 1996, 1998).

Imagery can help visually depict processes, patterns and similarities that are not noticed by novices, only by experts (Bransford et al., 1999; Amasiatu, 2013). Love (2017) agrees with this by believing that showing images and common patterns *“bring learning to life”* and *“create more access points for memory retrieval”*. Many academics support this theory such as Mayer (2004), Clark and Paivio (1991) and Sweller, Ayres and Kalyuga (2011).

On the other hand, some research claims that a poor choice of visual or one that has too much information at once diminishes the impact of dual coding (Vekiri, 2004; Cairo, 2013; Moreno, 2006). Other academics do not believe that dual coding benefits all learners. Veikiri's research argues that the effectiveness of graphical displays on learners is dependent on individual learners' *“visuospatial ability and content knowledge”* (2004, p.280).

Significantly, several academics have discovered that cognitive load theory is most applicable when information is new to pupils (Sweller, van Merriënboer & Paas, 2019), and so much modelling can be called into question. As a pupil's learning increases, the positive effects of instruction designed for novices disappear or even reverse (Sweller, van Merriënboer & Paas, 2019), as information becomes an unnecessary distraction.

This would suggest that the modelling observed in the critical incident may well have been useful as the students were novices to answering the exam question comprehensively as the terminology was relatively new to learners. As the class were all concentrating on one question, the implication of too much information for the modelling to work does not seem applicable either.

It is worth noting that one of the champions of dual coding, Caviglioni (2019), has highlighted that memory is reconstructive. Each time a memory is retrieved, it may be altered, as imaginations and other memories may distort the original. It can therefore be argued that critical incident may be easily reconstructed in the minds of the pupils contributing to the class discussion, making the whole modelling event ineffective.

Reflection and Evaluation

Reflective thinking refers to the procedure of assessing the consequences of decisions in order to deepen our understanding and use our insights to effect change (Taggart & Wilson, 2005) (Cottrell, 2005). It is important to critically reflect on our own practice and the practice of others because it is easy to get caught up in routine and forget the reasons we act and think as we do (Cottrell, 2005).

The ARC model was used in Appendix E for immediate reflection, however Rolfe et al.'s (2001) model is used to reflect further, as I felt that the ARC model was tailored towards the teacher of the observed class too much in this case. Rolfe et al.'s reflection model is based on three questions: What? So what? Now what?.

What

As described in Appendix A, the critical incident observed involved pupils of a class comparing two peers for the teacher to suggest improvements to their comparisons. This task was intended to improve the class' answers to an exam question which asked the students to 'compare' two scientific items, as their previous attempts to answer the question could be improved.

The teacher monitored and drove the learning, as pupils called out their comparisons. Pupils responded with confidence at being chosen to be compared by their peers. The remaining learners all seemed engaged with the change in pace of the lesson. Whilst observing, the task seemed an unusually personal method to adopt in a classroom environment. On reflection, the teacher knew the class well enough for the incident to create a friendly environment where pupils were actively complimenting their peers, raising engagement and morale. Furthermore, the teacher created a classroom environment where it was encouraged for pupils to attempt answers and expect to receive constructive amendments to their answers. Afterwards, as the class completed the question comparing two scientific items, the teacher circulated around the class to check pupils' answers, appearing content that the critical incident task had improved their answers.

For this reason, the lesson appeared very effective, and it is only on reflection that I became aware that there was no success criteria before pupils began suggesting comparisons. Furthermore, there was no noticeable differentiation for individual learners, however, the learners were of similar ability, and this could have been done inconspicuously.

So What?

On reflection, the critical incident may have been a worked example. It seemed the teacher believed the class were capable of excellence, and was not satisfied with imperfect answers when he believed that the class were capable of excellence. The importance of answering each low mark question comprehensively, and not only concentrating on the extended higher-mark questions was repeated several times in the lesson. The behaviour of the class towards their learning implied that they were happy to be pushed, and content only when achieving full marks. I believe this may be the reason the teacher chose to detour the lesson to explain the intricacies of the command word of the question.

According to academics in the literature review, such as Kalyuga, Rikers and Paas (2012), worked examples and scaffolding are typically favoured in lower-ability lessons, where the path to success is not clear. However, the critical incident illustrated that these techniques can be used effectively in higher ability lessons too which I had previously not thought of as a productive technique. In my opinion, academics may be prejudiced against scaffolding due to its reputation from further education lecturers and journalists who do not use these techniques regularly.

The success of the lesson may have been caused by the engagement of the whole class in the activity, with pupils suggesting answers they are not sure are correct, in order to get feedback from the teacher to improve their original answers. It is debatable whether all classes would be as complimentary as those in School X when comparing two peers, and some students may be content with dropping few marks on exam questions.

What Next

The next steps that I shall take will be linked to the Professional Teaching Standards (Welsh Government, 2019). The Standard for Innovation will be worked towards by applying new techniques to suit the purpose of the learning, such as adapting and developing modelling methods to work in my geography lessons. Dual coding may be used in geography using cartograms where the original size of a country is mapped proportional to the variable being mapped, as statistics are difficult to visualise. The Standard for Pedagogy will be worked towards by using real-life authentic contexts for the worked examples, as was observed in the science lesson. The Standard for Collaboration will be worked towards by actively seeking advice and support from colleagues to improve my performance of new techniques I will attempt. Weekly evaluation meetings with colleagues to reflect on and improve my pedagogy will help towards reaching these Standards.

Adapting the critical incident technique to my own practice would hopefully help students understand and become more thorough with their answers. For this technique to be successful, I suggest a success criteria for pupils that need additional scaffolding.

Conclusion

This paper has critically reflected on a worked example observed in a science lesson, by using a critical incident case study methodology. From the literature review we can see that evidence on modelling is contradictory, making it difficult to draw conclusions. Scaffolding has been found to decrease student error by helping them see the path to success, but nevertheless it has become associated with beliefs of low expectations and over-reliance of students on their teacher. Using concrete examples to help explain abstract ideas has advantages linked to constructivism, and it helps students move from rote learning to deep understanding. However, concrete example generation has many critics that dispute their effectiveness, claiming they bind analogies too tightly. Dual coding attempts to simplify information to be processed, however, it is debated whether dual coding helps all learners, and is largely dependent on the choice of visual used.

Three next steps have been identified that link to the Innovation, Pedagogy, and Collaboration Professional Teaching Standards. By modifying the worked-example method using authentic contexts to suit my classes, building on my knowledge and application of Cognitive Load Theory, and seeking to collaborate with my colleagues for support, I will move towards improving my professional practice. In conclusion, by critically reflecting on a small incident an experienced teacher created, I have been able to discover development opportunities to support my professional development as a teacher.

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Appendix A**APPENDIX A - OBSERVATION / FIELD NOTES**

(Questions adapted from Fletcher Wood (2016))

Date: 26.09.19
Lesson details: Biology - Lesson 4 - Class Size: 32 No ALN pupils. Mostly MAT pupils. No seating plan.
Classroom culture All pupils were focused on learning throughout the lesson and were happy to raise their hands to answer questions. Pupils were equally happy to suggest answers to questions when a peer nominated them to answer. Further work always given to those who finished tasks, so no one was left not working. All pupils seemed to want to challenge themselves and each other and work to the highest standard possible. Several pupils seemed fascinated by the topic being taught and asked thought-provoking questions to the teacher regarding the new topic. The teacher constantly gave high praise and encouragement to pupils, promoting a positive classroom culture.
Objectives There was a clear purpose to the lesson. The objectives for the lesson were not stated at the beginning of the lesson but referred to orally throughout the lesson instead. The starter activity was a QER (quality of extended response question) to improve pupils' literacy skills. The importance of literacy was explained to the class (marks will be deducted in some GCSE exam questions for poor literacy). The second task involved microscopy, an important part of the syllabus.
Direction All pupils were clear about the tasks. There were no questions enquiring what the task was or how to do it well. Prompts were written on the board to help direct the pupils towards key points in their written work, although these were erased while the class completed the task. If the teacher noticed that he was able to help with one area of a question, he would announce the tip to the whole class instead of an individual pupil to help direct the whole class.
Access and challenge All pupils accessed and completed the same tasks. There did not seem to be much differentiation in the class, although this might have been done skilfully without me noticing. The teacher appreciated the high ability of the class and set GCSE question tasks for the class two years before the respective exam. All pupils appeared to be in the 'zone of challenge', rather than the zones of comfort or confusion.
Assessment The teacher assessed the class' understanding of the previous lesson by using a question and answer session to find out their closed answers to the homework task. Pupils raised their hands to answer the questions and the teacher asked whether anyone had an alternative answer. Some answers were called out in unison by the class. During the lesson the teacher circulated around the class to check on pupils' work and used a question and answer session again. This time, after the first volunteer answered the question, the pupil had to nominate a peer on a different table to answer the next question, and so on. Unfortunately, I was not present to establish how the teacher assessed the pupil's understanding at the end of the lesson.
Specifics / Critical Incidents 1 - Questioning / engagement - Teacher picked a pupil to answer the first question, but pupils then chose the next pupil to answer. It would be interesting and helpful to critically evaluate how this affected pupil engagement in lessons, or how this helped the teacher assess understanding in the lesson. 2 - Modelling - In order to clarify what is meant by the command word 'compare' the teacher asked the class for two volunteers to be compared by the other pupils in the class. This allowed the teacher to model an abstract idea with a concrete example. It would be interesting to critically discuss the effectiveness this method.

Appendix B

Yr Athrofa
Addysg a'r Dyniaethau
Education and Humanities

APPENDIX B - OBSERVATION / FIELD NOTES

(Questions adapted from Fletcher Wood (2016))

Date: 26.09.19
Lesson details: Lesson 2 English Year 9 - High ability 22 pupils. Boy/girl seating plan
Classroom culture All students appeared totally focused on learning. The class had to be engaged to watch and listen to the teacher for most of the lesson, as there was very little time spent writing in their books or looking at the board. This made for a very interactive lesson where pupils did not get the opportunity to disengage from learning.
Objectives At the beginning of the lesson the teacher stated the lesson objective - 'how to answer 'how' questions in exams'. This was the clear theme of the first task. However, the teacher quickly realised his original lesson plan was not going to be worthwhile and added supplementary objectives to the lesson that were expressed clearly. These extra objectives were useful towards the original objective, and the teacher moved back to the original objective once assured his class understood the supplementary work.
Direction As previously noted, the class were not confident with the original direction given for the task, but it can be argued that this was because they lacked enough previous knowledge. Once given additional teaching by the teacher, the class had <u>were</u> clear of the work needed to complete the task to a high standard.
Access and challenge All pupils completed the same tasks, but the tasks were still differentiated somewhat. Students were able to challenge themselves to whichever degree they wished, as each student chose parts from the extracts that they wished to analyse to complete the tasks.
Assessment The teacher assessed student understanding of the starter task with an extensive question and answer session that included numerous open-ended questions. Through this dialogue with the class, the teacher assessed that the knowledge of the pupils was inadequate to complete the planned task confidently. The teacher then announced that he was happy to deviate from his original lesson plan to help build the class' familiarity with another aspect of the English language. Once the teacher was satisfied the class had understood, he continued with his original lesson plan. As the lesson had taken a detour, the class task was not finished in lesson time, and so set as homework to complete. The teacher proclaimed he would mark the work by taking in the class's books the following lesson to assess understanding of the lesson.
Specifics / Critical Incidents 1 - A large part of the lesson was oral. There was extremely little written in the exercise books or on the board. It would be interesting to contemplate whether this was to engage the class. 2 - Students were able to choose on their own the sentence that they wished to analyse. It would be interesting to discuss why sentences were not set for individual pupils so differentiate the task on the teacher's own terms.

Appendix C

Yr Athrofa
Addysg a'r Dyniaethau
Education and Humanities

APPENDIX C - OBSERVATION / FIELD NOTES

(Questions adapted from Fletcher Wood (2016))

Date: 25.09.19
Lesson details: Maths - Lesson 2 Year 7 - No seating plan
Classroom culture All students except one were focused on learning. The focused class volunteered to answer questions and completed the tasks with minimal encouragement needed. One pupil complained to the teacher that he could not read the board but refused to move closer to it and seemed more focussed on getting the teacher's attention than doing the work throughout the lesson. Even when the teacher printed off the work off the board, the pupil still asked the teacher for guidance and assurance for his work. This particular pupil tried to distract those around him but was not successful.
Objectives There was a clear purpose to the lesson. Lesson focussed on one feature (negative numbers) the entire time, for pupils to build up a confidence in their understanding of the different rules regarding negative numbers. Pupils were taught the key rules and told to highlight them in their exercise books to emphasise their importance.
Direction Direction was clear and all students knew the task. Most pupils needed no further direction to complete the work, but a few needed to be reminded of the mathematical guidelines to answer the questions.
Access and challenge It was difficult to determine whether all pupils were challenged in the lesson. There appeared to be a high difference in ability in the class. As all the pupils were given the same questions, some raced through all the questions, whereas others had only completed the first few before the answers were gone through as a class. I was not present for the second half of the lesson to see whether tasks were differentiated further.
Assessment The teacher assessed student understanding by constantly circulating the class while the pupils were working. The teacher went through the answers on the board as soon as the first pupil completed all the questions. Using a question and answer session pupils raised their hands for the teacher to choose a pupil to answer a question. Almost all pupils gave one answer as the teacher made sure not to choose the same pupil twice, ensuring most pupils understood the learning objective. Unfortunately, I was not present at the end of the lesson to see how the teacher assessed learning at the end of the lesson.
Specifics / Critical Incidents One pupil raised her hand to answer a question but was told it was the wrong answer. Instead of asking someone else for the correct answer the teacher allowed the pupil to think about the answer and told her that she would ask her again in a few minutes. The pupil gave another incorrect answer on her second attempt. The teacher said that she would come and see the pupil individually later in the lesson. It would be helpful to discuss why the teacher moved on with the whole class when it was evident that at least one pupil did not understand the previous work.

Appendix D



APPENDIX D - OBSERVATION / FIELD NOTES

(Questions adapted from Fletcher Wood (2016))

Date: 26.09.19
Lesson details: Subject: Geography - Lesson 1 Class size: 33 Year 9 Mixed Ability. Seating plan
Classroom culture Mixed engagement throughout the lesson. Some completely focussed on the task, while others not focussed much. Some became distracted when they began to struggle. One pupil appeared to not be engaged by lying on the table, but then answered a question which showed they were still listening and engaged. 10 ALN pupils which could explain this also. A lot of low-level disruption by some pupils was observed.
Objectives ~~Objectives~~ Objectives communicated orally, and clear purpose to the lesson. The class began with a GCSE question to recap last lesson. Next, there was a clear introduction to the new topic, and pupils then drew a diagram to summarise the key points of the new topic. The teacher repeated the importance of the tasks to the curriculum throughout the lesson.
Direction Instructions to both tasks given orally by the teacher. For the first task, the exam question that the task was referring to was also displayed on the board. For both tasks all students were clear what to do, but some required further direction to complete the tasks to the high standard that was asked of them. Higher ability pupils needed no clarification or help to complete; however, others required the teacher to repeat several times how best to complete the tasks. The teacher gave this additional direction to the pupils individually.
Access and challenge All pupils were set a challenging GCSE question to begin the lesson. All pupils were able to engage in this question with further direction from the teacher. Differentiation was performed by the teacher helping some pupils more than others. 'Stretch' and 'Challenge' questions were displayed on the board for pupils to complete if they finished the directed tasks. So that no pupils missed out, the teacher then briefly went over the questions with the whole class afterwards.
Assessment The teacher assessed understanding before the lesson by marking the pupils' exercise books. Understanding and memory of the previous lesson was assessed through the first task where pupils improved an example of a typical GCSE answer related to the previous lesson's work. The teacher assessed understanding during the lesson with a question and answer session. Pupils raised their hands to answer the questions. Teacher always asked a further expansion question to those pupils who had answered the first question. The teacher also circulated during the second task to ensure all pupils were understanding. Pupils would let the teacher know if they required further direction by raising their hand. The teacher would then go to pupils individually to help by answering questions. The teacher assessed understanding after the lesson by taking in the class' exercise books to mark once again.
Specifics / Critical Incidents The teacher allowed some low-level disruption to take place. It would be interesting to consider why the teacher did this.

Appendix E



APPENDIX E - Model Beirniad Wedi Adfyfyrio (BWA) Assisted Reflective Conclusions (ARC) Model

Dyddiad/Date: 26.06.19

Digwyddiad critigol (Ffocws)/Critical incident (focus): Modelling - In order to clarify what is meant by the command word 'compare' the teacher asked the class to compare 2 pupils in the class so that the teacher could help improve their answers to an exam question in which they had to compare 2 scientific items.



<u>Profiad/ Experience/</u>	
<u>Teimladau/ Feelings</u> <u>Beth wyf eich teimladau ynghylch y profiad?</u> <i>"What are your feelings regarding the experience?"</i>	- I felt slightly uncomfortable whilst the class were comparing the two pupils, as I thought it was only a matter of time before someone offended someone else. However, quite soon, I realized that a friendly atmosphere had been created in the class, where students were happily complimenting each other which raised morale of the class.
<u>Cofio a Deall/ Remember and Understand</u> <u>"Can you list the aspects of the learning experience that went well?"</u> <u>"What were the elements of the learning experience that were disappointing?"</u>	- Class learned how to improve their exam answers by being more thorough in their detail. - Class were engaged and a positive atmosphere was created where pupils felt able to suggest answers that they knew would be corrected by the teacher (They didn't just want praise.) - Disappointing element – Not all pupils participated in the comparing of the two pupils
<u>Gwerthuso a dadansoddi/ Evaluate and analyse</u> <u>"What will you keep the same to ensure effective teaching and learning in the future?"</u> <u>Beth oedd achos yr elfen siomedig bwysigaf?</u> <i>"What was the cause of the most important disappointing element?"</i>	- I thought it was very engaging and innovative to use pupils in the modelling worked example, compared with another two scientific examples that pupils might easily forget. - Plenty of praise was given to all those that participated. - The teacher decided that enough examples were given that the concept was learned
<u>Casgliadau a chamau gweithredu/ Conclusions and actions</u> <u>Beth wyf eich atebion posibl i'r materion siomedig a nodwyd?</u> <i>"What are your possible solutions to the disappointing issues identified?"</i> <u>Beth wyf eich yr wydd i'w wneud nesaf?</u> <i>"What will you do next?"</i>	- Possible solutions – Have a second worked example to go through so more pupils can participate to ensure that everyone understands. - Have a success criteria in place before the task <u>begins</u>. - <u>Next</u> I will find a way of adapting the modelling worked example that I observed into my geography lesson, and collaborate with members of the department to ask for suggestions.
<u>Y profiad newydd / Transformed experience</u>	

Appendix F



APPENDIX F - Model Beirniad Wedi Adfyfyrio (BWA) Assisted Reflective Conclusions (ARC) Model

Dyddiad/Date: 26.09.19

Digwyddiad critigol (Ffocws)/Critical incident (focus): Most of the lesson was oral, with very little written in exercise books. Why was this?



Profiad/ Experience	
<u>Teimladau/ Feelings</u> Beth yw eich teimladau ynghylch y profiad? "What are your feelings regarding the experience?"	- I felt intrigued as to why pupils were not allowed to take notes during the class discussion, as I would have struggled to remember all the points if I were in the class, but the teacher may have been building this as a skill in itself.
<u>Cofio a Deall/ Remember and Understand</u> Allwch chi restru'r agweddau o'r profiad dysgu a oeth yn dda? "Can you list the aspects of the learning experience that went well?" Pa elfennau o'r profiad dysgu oedd yn siomedig? "What were the elements of the learning experience that were disappointing?"	- What went well - All students appeared interested and engaged in the lesson's content. - Disappointing element - Not all students participated in the oral part of the lesson. The teacher did not ask everyone for their opinions so it would be interesting to find out why some students were completely understanding. - Allowing some <u>note-taking</u> may have been useful to some pupils.
<u>Gwerthuso a dadansoddi/ Evaluate and analyse</u> "What will you keep the same to ensure effective teaching and learning in the future?" Beth oedd achos yr elfen siomedig bwysigaf? "What was the cause of the most important disappointing element?"	- I will ensure I praise pupils that volunteer their ideas during class discussions to encourage more pupils to participate as the class teacher did. - I am unsure as to why not all pupils participated in the class discussion, but it could have been that they were unsure, or just nervous surrounded by louder students.
<u>Casgliadau a chamau gweithredu/ Conclusions and actions</u> "What are your possible solutions to the disappointing issues identified?" Beth ydych chi mynd i'w wneud nesaf? "What will you do next?"	- I will provide scaffolding or a <u>success criteria</u> to help pupils participate and develop their answers. - I will allow some <u>note-taking</u> to ensure that everything covered in the discussion is recorded.
Y profiad newydd / Transformed experience	

Appendix G



Appendix G - Model Beirniad Wedi Adfyfyrio (BWA) Assisted Reflective Conclusions (ARC) Model

Dyddiad/Date: 25.09.19

Digwyddiad critigol (Ffocws)/Critical incident (focus): One pupil raised her hand to answer a question but was told it was the wrong answer. Instead of asking someone else for the correct answer the teacher allowed the pupil to think about the answer and told her that she would ask her again in a few minutes. The pupil gave another incorrect answer on her second attempt. The teacher said that she would come and see the pupil individually later in the lesson.

<u>Profiad/ Experience</u>	
<u>Teimladau/ Feelings</u> "What are your feelings regarding the experience?"	- I was intrigued as to why pupil volunteered to answer the <u>maths</u> question in front of the class since she had the question vastly incorrect. - I was pleased to see the teacher offer another chance for the pupil to answer as it gave the pupil an opportunity to build their confidence back up.
<u>Cofio a Deall/ Remember and Understand</u> "Can you list the aspects of the learning experience that went well?" "What were the elements of the learning experience that were disappointing?"	- The pupil was not disheartened by suggesting an incorrect answer, as a culture where effort was praised had been created in the lesson. - Disappointing element – the pupil did not get the answer correct on their second attempt either, even after they had had time to reassess.
<u>Gwerthuso a dadansoddi/ Evaluate and analyse</u> "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?"	- I would still allow a pupil to attempt the question again after they had time to recalculate their answer as I thought that was excellent practice. - The student who volunteered an incorrect answer was one of few pupils who sat alone in the class. This meant that they did not have any peers easily available to help explain the concept, or to compare answers with if they were struggling.
<u>Casgliadau a chamau gweithredu/ Conclusions and actions</u> "What are your possible solutions to the disappointing issues identified?" "What will you do next?"	- In my practice I will use formative assessment by using mini whiteboards before the pupils began the task by themselves to ensure that every pupil understood the mathematical rules.
<u>Y profiad newydd / Transformed experience</u>	

Appendix H



Appendix H - Model Beirniad Wedi Adfyfyrio (BWA) Assisted Reflective Conclusions (ARC) Model

Dyddiad/Date: 26.09.19

Digwyddiad critigol (Ffocws)/Critical incident (focus): The teacher allowed some low-level disruption to take place.



<u>Profiad/ Experience</u>	
<u>Teimladau/ Feelings</u> <i>"What are your feelings regarding the experience?"</i>	- I was unsure as to why the low-level disruption was allowed in class whilst most pupils were concentrating quietly. I believed there must have been some reason that I wasn't aware of as I was a new observer of the class.
<u>Cofio a Deall/ Remember and Understand</u> <i>"Can you list the aspects of the learning experience that went well?"</i> <i>"What were the elements of the learning experience that were disappointing?"</i>	- Most pupils were concentrating on the work set, and not disgruntled by the pupils that weren't. - Most work set was completed during the lesson, as the work was clearly explained before the task was set. - Disappointing element – Those pupils that were not concentrating wholly on the task were not separated from those that were.
<u>Gwerthuso a dadansoddi/ Evaluate and analyse</u> <i>"What will you keep the same to ensure effective teaching and learning in the future?"</i> <i>"What was the cause of the most important disappointing element?"</i>	- Work set met the needs of most pupils as scaffolding and a modelled answer was shown before the <u>task</u> so pupils had few excuses to not get on with the work. - I believe that maybe the disruptive pupils were sat with the pupils who were concentrating, because there was a seating plan, and the teacher hoped that the concentrating pupils would be a positive influence on those that were disruptive.
<u>Casgliadau a chamau gweithredu/ Conclusions and actions</u> <i>"What are your possible solutions to the disappointing issues identified?"</i> <u>Beth ydych chi mynd i'w wneud nesaf?/ What will you do next?</u>	- I would find out why the pupils were trying to disrupt the learning of others, maybe by taking them outside one by one quietly, so it is not obvious that they are getting attention by acting up. Something outside the lesson may have happened beyond our control for the pupils to not be in the correct state of mind. - I will use the teacher's manner as an example and stay calm towards those that insist that they do not want to engage in the work, as it can be argued that reacting towards trouble-makers is disruptive towards learners too.
<u>Y profiad newydd / Transformed experience</u>	