

Title Page

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Student number: 1903091

Pathway: Secondary Mathematics

Targets from previous assignment:

	Target	What I have done in this assignment?
Target 1	Further synthesis will enhance your cognitive and intellectual development.	I have aimed to synthesize literature in further detail.
Target 2	Ensure all aspects of your work are evidence-based.	I have ensured that all of my views are supported by research and literature.

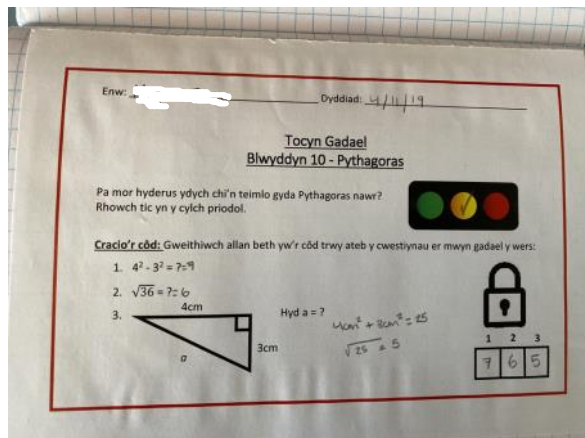
Link to OneNote: https://uowtsd-my.sharepoint.com/:o/g/personal/1903091_student_uwtsd_ac_uk/EuPI248aW2dEvJXL8ltyzHIBBqX8EK8QyjqNz8qkh76wfw?e=GvgI93

Assessment For Learning

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Illustrative Example 1a

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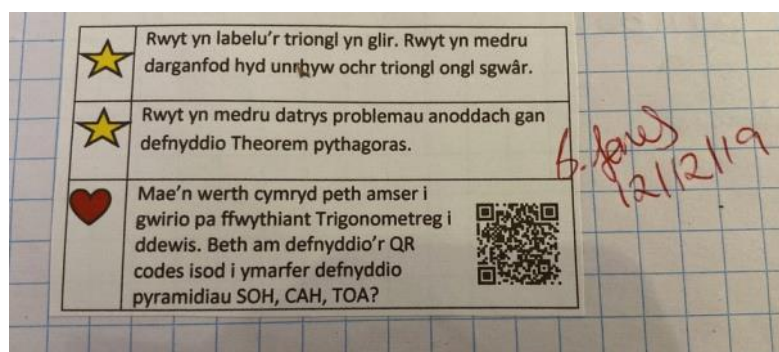
In a Pythagoras lesson for 22 Year 10, set 2 students, I used the above plenary task as a form of Assessment for Learning (AfL). The focus of the lesson was using Pythagoras' Theorem to discover the length of any side in a right-angle triangle. 'Traffic lights' self-assessment as described by Redbridge Networked Learning Communities (RNLC) (2005) is a type of AfL which requires pupils to choose a red, amber or green traffic light, depending on their confidence and understanding of the current topic. They should choose green if they feel confident with all aspects of the work, amber if they understand a lot and also find other part more difficult, or red if they find most of the work difficult. I regularly use this activity in order that my pupils are familiar with it. It is a quick exercise and allows the lesson's information to be recapped.

As seen in the above picture, the task required students to tick a red, yellow or green traffic light depending on their confidence in the topic and then to answer three questions to 'crack the code' in order to leave the lesson. RNLC (2005) describes the 'traffic light' method of AfL as an immediate form of feedback from students informing the teacher of their understanding of a topic. They also state that this method can be used more specifically for individual questions so that the teacher becomes aware of what types of questions their pupils require more help with.

I will continue to use the 'traffic lights' activities to give students the opportunity to self-assess, which in turn allows me to plan accordingly for future lessons. When using this type of plenary in future, I will consider using a comment box after the 'traffic lights' section for students to note what they do, or do not understand. This would allow me to plan future lessons, accordingly, focusing on the students' weaker points.

Illustrative Example 2a

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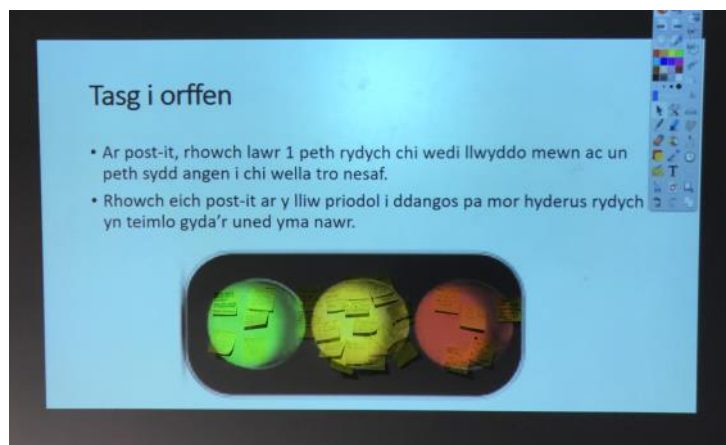


This is one form of AfL that I have used with a Year 9 class, of 32 pupils. This class had finished the module 'Pythagoras and Trigonometry', and I created target sheets for them to respond to within a lesson. The data collected from the tests was used formatively to allow further learning. At the end of each topic, it is important that pupils receive written feedback on what they have succeeded in and what they need to improve on in order to make progress in their learning (Rakoczy et al., 2013). Craven et al. (1991) believe that providing positive feedback as well as a target to work towards to pupils at the end of a module of work, results in pupils making more progress in their learning than if they were to receive no feedback at all. Therefore, I decided to begin using this method of AfL within the classroom.

After marking their end of module tests, I made individual target sheets for the pupils which included two 'stars' and one 'wish' (Wells, 2013) along with a set of practice questions, linked to their individual target. I included QR codes which linked to websites such as BBC (2020) Bitesize and [mathemateg.com](https://www.mathemateg.com) (Ysgol y Creuddyn, 2019) in order for the pupils to gain access to resources which would help them to revise towards their targets. The 'stars' as seen in the attached photo, are short statements explaining what each pupil succeeded in on their tests. This is known to boost confidence and therefore increase motivation to learn. The 'intention' as seen in the same attached photo, is given in the form of a question. Fyfe and Rittle-Johnson (2016) state that pupils are more proactive in their responses compared to when it is given to them as statement of what they did not do so well in.

Illustrative Example 3a

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Here is a plenary task used in a lesson with 32 pupils from a Year 9 set 2 class. The focus of this lesson was calculating a missing angle in a right-angled triangle, using trigonometry. I frequently use this type of AfL, as it allows me to identify each of my pupils' strengths and weaknesses. Black and Harrison (2001) state that this strategy of AfL allows both the student and the teacher to realise where the gaps are in their learning and what needs to be improved on. At the end of this lesson, pupils had to decide where they were going to place a post-it note on a traffic light picture displayed on the whiteboard. Once decided, they were required to write down their reason for where they were going to place it there. I decided to ask them to write their reason down on the post-it in order to overcome the problem I found with using the 'traffic lights' in previous lessons, as discussed in illustrative example 1 of the AfL tab. This allowed me to discover what pupils who chose the 'amber' and 'red' lights did not understand in order to plan future lessons accordingly.

The reasoning for the use of this self-assessment activity is the same as why I used the plenary activity in illustrative example 1. Students react well to this type of plenary, as it is not recorded and is anonymous. Since it is anonymous, I believe that the students are more honest about their knowledge on the topic. It is also time efficient at the end of a lesson and encourages the pupils to consider their understanding.

When using this type of plenary in future, I may need to consider a way to ensure all pupils participate in it. Consideration could be given to asking pupils to complete the task one by one in order to encourage compliance. This would allow me to consider all pupils' abilities within the classroom.

Cross-Curricular Responsibilities

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Illustrative Example 1b – Numeracy

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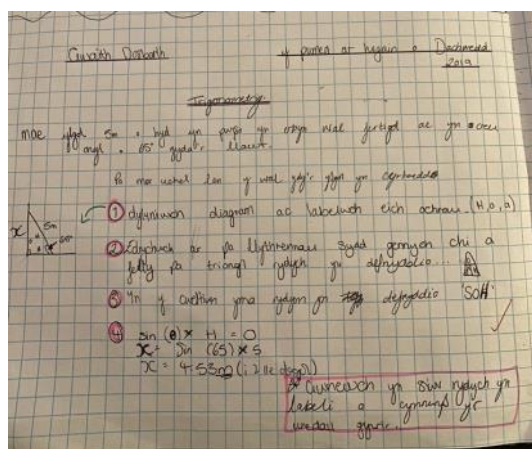


The above activity was used with 14 Year 7 pupils with Additional Learning Needs (ALN). When planning for their lessons, I would consider that some pupils are unable to, or have trouble reading or speaking. There is always a Learning Support Assistant present in the classroom to support the pupils who are unable to read or write independently; which I also consider whilst planning lessons. This particular lesson was taught at the end of a series of lessons on 'Percentages' delivered to the Year 7 class. The pupils had learned to calculate basic percentages of numbers in these previous lessons. This lesson was designed as three carousel activities which utilised the pupils' mathematical skills, acquired in previous lessons.

One of the carousel activities was calculating percentages of money. I decided to print out different pieces of money for the pupils to practice working out their values. As outlined by the Welsh Numeracy Framework (Welsh Government, 2015) pupils must learn to use their mathematical skills to show their awareness of the purpose of money by participating in classroom activities. By participating in this activity, the pupils were practicing deciding what mathematical techniques they needed to use to reach a solution, which allows them to develop independent numeracy skills.

Illustrative Example 2b – Literacy

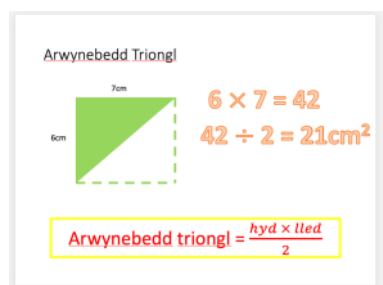
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Here is one example of how I integrate literacy into my mathematics lessons. This was a question given to a Year 10, set 2 class with 22 pupils. They are expected to sit intermediate mathematics and numeracy GCSEs in Year 11. As stated in the Welsh Literacy Framework (Welsh Government, 2015), pupils must be able to explain what a certain piece of text is about and to use a variety of methods to interpret it. In the above example, pupils had to read the text, and create a diagram based upon it. Prior to this question, they were familiar with making meaning from visual features of the text, e.g. diagrams. This is also an element of the literacy framework. However, they now had to comprehend a given text and transform it into their own trigonometry diagram and then discover the length of the missing side. In order to make sense of the text and create their own corresponding diagram, the pupils had to use their prior knowledge of its context and content.

Illustrative Example 3b – Digital Competency

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This example of my provision of digital competency is from a lesson with a Year 8, set 2 class where they were going to learn the formula of the area of a triangle and use it in questions. In the previous lesson, the pupils had learnt and used the formula for the area of a rectangle. As seen in the example, I used animations on my power point, which shows a rectangle being cut in half to form a triangle. I asked the pupils "What has happened to the rectangle in order to form this triangle?". Some pupils answered "halved" with others responding, "cut in half". They did not need any verbal prompting to come to these answers, the visual aid was enough to guide them towards the answer. This links with the Digital Competency Framework (Welsh Government, 2015), as it states that pupils should be able to derive formulas using their logical thinking and explain why this formula is correct. The animations on the power point allowed pupils to use their problem-solving and thinking skills, which will allow them to understand the formula and in turn will give them access to being able to use computers. This was successful, as all pupils noticed the connection between the areas of a rectangle and a triangle and were able to recall the formulae later in the lesson when using them.

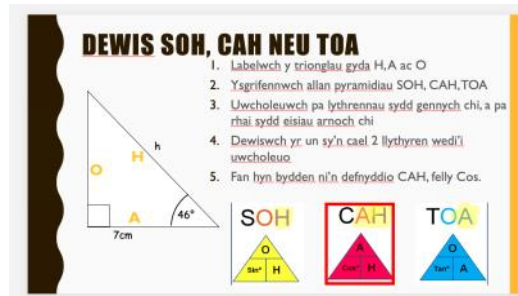
In order to ensure I am implementing digital competency throughout my lessons; I need to consider how I introduce new ideas to my pupils rather than giving them formulae.

Different Methods of Teaching

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Illustrative Example 1c

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Although many innovative teaching methods have been shared over years (Fyfe and Rittle-Johnson, 2016), direct teaching still remains to be effective in certain settings. Valley (2019) believes that direct teaching is best used when a new topic is first introduced to a class, as pupils need to be given some information in order to develop ideas further, as they would not initially have the full ability to derive formulas and ideas themselves. They found that direct instruction in mathematics allows students to improve their math vocabulary, which in turn helps develop understanding in preceding modules.

One example where I have used a direct teaching method is with a Year 9 set 2 class who were learning trigonometry for the first time. They had previously finished the module 'Pythagoras' Theorem' and therefore were familiar with discovering length of the missing side of a right-angled triangle. Since the pupils had never seen trigonometry previously or what functions it utilised, I decided to introduce and teach the module directly by stating what each function 'Sin', 'Cos' and 'Tan' did and how and when to use each one in Trigonometry questions. As Trigonometry is a challenging topic for a set 2 class to learn, it took a whole lesson to deliver its teaching and so pupils had to listen to me for the whole lesson. This made the lesson extremely 'teacher focused' which according to Hou (2018) does not engage students and discourages collaboration, thus causing their communication skills to suffer. However, they also mentioned that it is appropriate and successful in generating knowledge amongst pupils when a new topic is being introduced and generates independent learners.

Illustrative Example 2c

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As my confidence in the classroom has increased, I have been experimenting with different methods of teaching, rather than just direct methods. One of these methods has been problem solving, which I recently used with a Year 10 set 2 class at the end of the module 'Pythagoras' Theorem'. The students had learnt all the relevant information to be able to answer any type of 2D Pythagoras question. At the end of modules, my placement school like to include a revision lesson into the students' timetables before they would have a class test on it. Rather than a regular revision session where students would practice questions repeatedly, I decided to hold a 'relay race' in this lesson where pupils worked in groups to answer questions and present them to me correctly before receiving the next question to attempt. Kid Courses (2018) developed this teaching strategy as a response to students rushing their work and not checking answers. I have also noticed this issue amongst my students and even the more capable ones present me with incorrect answers as a result of them rushing to finish quickly. In this 'relay race', if students presented the wrong answer, I would simply tell them "no", without explaining which part is wrong in order for them to problem solve and thoroughly check their workings out. This emphasised the value of checking their work and taking their time.

The questions which I created for this 'relay race' got progressively harder from questions 1-12, which Carmel (2016) claims to be beneficial in promoting progress amongst pupils, since they do not realise a sudden change in difficulty in the questions. The questions included were problem solving ones, since no guidance was given where in the question to use Pythagoras' Theorem. For example, one question required the students to calculate the length of one side of a square from knowing the area of it, and thus calculating one side of a right-angle triangle which was attached to it. (See above photos).

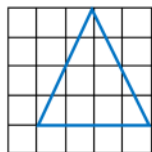
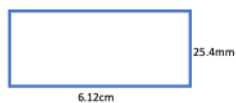
Illustrative Example 3c

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Marcio gwaith
Dyma gwaith Sara. Mae angen i chi marcio ei gwaith gan cywiro unrhyw camgymeriadau mae hi wedi gwneud.

Enw: _____

Cyfrifwch perimedr ac arwynebedd y siapiau isod.



This is one example of my use of critical thinking within the classroom. I gave this activity to a Year 8 set 2 class during the module 'Perimeter and Area'. The worksheet included two questions which had already been answered by Sara, who was a fictional pupil. Students were required to mark the work. There were some correct and some incorrect answers on the worksheet, so that the students could be critical and correct the work where needed.

This type of exercise encourages pupils to thoroughly check their work and to identify common misconceptions within mathematics. For example, one of the answers was numerically correct, but was incorrect because Sara had used the wrong unit of measurement. This emphasises the value of checking answers and methods before handing in work (MacBean et al., 2004).

Critical Reflection

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Introduction

The aim of this assignment is to explore and reflect on my progress made on the planning and implementation of three pedagogical principles outlined by Donaldson (2015) in his New Curriculum, during my recent teaching experiences. The three pedagogical principles I will focus on are Assessment for Learning (AfL), cross curricular responsibilities and different teaching methods. I have chosen these principles, as it is believed that good teaching and learning means employing all three (Donaldson, 2015). During my five weeks of teaching experiences in my placement school, I agreed with my mentor to work on three main targets in order to improve my teaching and professional development. These targets were to increase the information gained from using AfL, integrate more literacy in my lessons, and experiment more with different types of lessons. I have worked on these targets in order to prepare a portfolio and I will critically reflect on the progress I have made.

I have prepared a portfolio to illustrate evidence of the progress made in the use of these principles. Another aim of this assignment is to evaluate literature surrounding the principles. This will enhance my understanding of the principles and enable me to apply that understanding in practice and to reflect on progress made as a result of that application. Any progress achieved will be based on the delivery of the principles as well as progress made by pupils in their learning. When discussing my progress, I will refer to examples in my portfolio of evidence as 'illustrative example 1a' for example, for the first piece of evidence. I will then discuss recommendations to ensure that I continue to make progress throughout my teaching career.

Literature Review

Black and William's (1998) seminal work on AfL initiated researchers to examine its effect on student performances. They highlight that effective teaching and learning involves effective communication, so that teachers are aware of their students' progress and difficulties in order to act upon them (Black and William, 1998). This can be delivered through various AfL methods, including self-assessment. AfL is recognised as an effective strategy in generating learning gains amongst students (Ecclestone, 2012). Kyaruzi et al. (2018) and Pat-El et al. (2013) state that the purpose of AfL is to monitor student progress and consequently prepare scaffolding to enhance their learning. Kyaruzi et al. (2018) recognised self-assessment as a principle AfL strategy. Black and William (1998) also suggest it is an activity which can increase motivation and self-esteem amongst students who engage in it. Panadero (2016) and Lipnevich et al. (2016) raise a concern that self-assessment can sometimes lead to individual biases which can produce ineffective results. However, Dupeyrat et al. (2011) found that these biases are not always harmful. They investigated the impact self-assessment has on secondary school pupils' achievements in mathematics. It was found that pupils who overrated their abilities made progress in their performances, whereas those who under-rated or accurately-rated their abilities made little to no progress. Bennett (2011) had similar findings, concluding that the more positive a pupil's attitude towards their own ability, the more learning gains they will have.

Although Dupeyrat et al. (2011) found that pupils who under or accurately rated their abilities do not make much academic progress, it is still important for them to be aware of work they have difficulty with (Landers and Reinholz, 2015). Therefore, it is also important for pupils to consider what they find challenging when completing the 'traffic lights' self-assessment activity so that they are aware of what they need to improve on to achieve learning gains. I believe that the use of self-assessment in the classroom is an effective AfL strategy.

Under Donaldson's (2015) new curriculum, literacy, numeracy and digital competency will be statutory responsibilities and must be accounted for by schools when designing their curriculums. The National Literacy and Numeracy Framework (LNF) (Welsh Government, 2015b) and the Digital Competence Framework (DCF) (Welsh Government, 2015a) are still available for teachers to create opportunities for their pupils to become competent in these cross-curricular responsibilities.

Although many think otherwise, mathematics and numeracy are distinct subjects. Mathematics is defined by Steen (1988) as a subject which pursues patterns in not only numbers, but in space, science, computers and imagination. Numeracy is described by Hogan (2012) as the application of mathematics in context. Therefore, numeracy is thought of as a part of mathematics by many educators and should focus more on the real-life use of mathematics (Harvey and Averill, 2012).

Roth (1992) found that in order for students to develop, teachers must include real-life situations in the classroom so that they can apply their learning and gain motivation from them.

Although teachers generally tend to separate the two, Wium and Louw (2012) describe mathematics as being a language on its own; agreeing with Cirillo et al. (2010) who state that symbols are used rather than words to represent the language. Aflahah, (2018) also found that literacy is important in understanding mathematics, as stronger literacy skills correlate positively with the ability to comprehend and solve contextual problems. Bishara

(2016) concluded that this also increases motivation and improves learning amongst students in the mathematics classroom. Therefore, it is reasonable to believe that literacy should be a prominent aspect in all mathematics lessons to promote literacy development.

As technology becomes more prevalent in this ever-changing world, it is vital for pupils to understand its importance as well as the limitations of digital technologies. Mathematics and digital competencies are often seen as separate skills, even though mathematics teaching frequently uses various digital tools (Geraniou and Jankvist, 2019). Therefore, teachers should include elements of both competencies to activate them simultaneously. These competencies are complimentary in solving problems, as computer systems have capabilities to overcome some of our mathematics limitations (Hague and Payton, 2011). However, Woods and Leahy (2019) suggest that a limitation of using digital sources in lessons, is that students may become too reliant on them. Geraniou and Jankvist (2019) suggests that a solution for this, is to integrate digital competencies into lessons, whilst reducing students dependency on them.

Research has shown that using different methods of teaching is beneficial in improving pupils' learning, as everyone learns differently (Guardiola et al., 2010). Haggarty (2002) discusses the use of direct teaching, differentiated instruction, and problem-solving in order to meet different pupils' learning needs.

Freudenthal (1971) suggests that mathematics should be taught through 'direct instruction' and that pupils will get more out of their learning if they repeatedly practice what they have been taught. 'Direct instruction' and 'discovery learning' are often portrayed as conflicting teaching methods in Mathematics (Schoenfeld, 2004). 'Direct instruction' can be simplified as explicitly telling pupils facts about mathematics, whereas 'discovery learning' allows students to discover and build on their knowledge through experiences and understanding. This is also known as a constructivist approach to teaching (Piaget 1977).

Trninic (2017) however, argues that the two methods are "intimately integrated" (p.148). This is achieved by the teacher instructing pupils and providing them with activities and opportunities to discover and guiding them to do so. He highlights that the guidance to discover is required, otherwise pupils would also need to discover how to discover. Rittle-Johnson et al. (2016) also believe that when teachers spend longer directly teaching a concept rather than a procedure, pupils will retain more information and thus understand the work better. Therefore, I believe direct instruction is beneficial in mathematics, but should be used alongside other teaching methods, such as discovery learning, in order to be as highly effective as possible.

Chang et al. (2012) discuss ways to use a 'problem-posing system' in the classroom in order to teach mathematics. The problem-solving element of this system is required to be carried out using game-scenarios, as they claim that students will become more engaged in their learning this way. Baxter (2005) and Silver and Cai (2005) are also of the opinion that problem-solving activities involving game-scenarios develop pupils' thinking and allows pupils of all abilities to gain relevant knowledge. It was found that even pupils who do not usually contribute to lessons appear to become involved in these problem-solving activities and develop a more positive attitude to towards their learning.

However, Chang et al. (2012) recognise that pupils have different levels of understanding and prior knowledge and that some may require scaffolding in order to improve their problem-solving skills. I believe therefore, that further research could be undertaken in order to study the value of scaffoldings for problem-solving activities. Nevertheless, this proposition does not detract from the advantages of the teaching method discussed.

It is evident that the use of the problem-solving teaching method is beneficial in developing pupils' learning and should be implemented throughout the teaching of the curriculum.

Conclusion Regarding Progress

As Llewellyn (2016) emphasises in her article, it is expected of teachers to continually make progress as they go through their careers. She also states that student-teachers are almost certainly going to struggle with constantly making this progress due to pressure from peers and a drastic increase in workload. However, we are reminded that it is necessary for us to make mistakes in order to progress further. Therefore, in order for my teaching career to function, it is vital that I strive for professional development. I will now be discussing the progress I have made in order to achieve this professional development, following the implementation of teaching techniques previously discussed.

As explained in illustrative example 1a of my OneNote document, I have used the 'traffic lights' activity as a form of AfL since the start of my teaching experiences. However, my use of this method evolved over those five weeks. In illustrative example 1a, I asked pupils to tick a colour on the traffic lights based on their confidence and understanding of Pythagoras' Theorem. After reviewing their responses, the majority of the pupils had ticked the 'yellow light'. I therefore knew I had to spend longer on this topic, as most of the pupils did not feel confident in most of the subject. However, I had no indication as to which aspect of the subject they were unsure of, thus prohibiting my ability to plan for subsequent lessons.

I therefore began using the 'two stars and a wish' feedback method as show in illustrative example 2a. This method

allowed me to praise pupils on what they had already achieved and to support them in the areas that needed to be improved. They reacted well to this form of AfL, and it increased their self-esteem. Bishara (2016) believes that this increase in self-esteem will boost pupils' motivation to learn and therefore allow them to progress.

In subsequent scenarios when I used the 'traffic light' activities, I began to ask pupils to write down a reason why they were choosing that specific colour traffic light. This is seen in illustrative example 3a. This increased my understanding as to why pupils were on 'yellow' or 'red lights' and enabled me to better plan future lessons.

My provision of AfL has progressed because of the steps that I have taken to increase the information received from it. My initial use of the 'traffic lights' activity did not provide me with sufficient information to properly analyse pupils' need. The strategies that I subsequently implemented allowed me to fully utilise its benefits. My mentor has stated that my use of AfL has become more effective as my knowledge of it has evolved. She has also stated that the learning gains of my pupils were evident from their use of this self-assessment. This allows me to plan opportunities for pupils to learn which is the core purpose of AfL. Looking back, I am pleased with the progress I have made, as I have noticed a difference in my use of AfL over only five weeks of teaching.

As a requirement under Donaldson's New Curriculum, teachers in Wales must plan opportunities for their pupils to progress their literacy, numeracy and digital competency skills. Developing strong literacy and numeracy skills in school is invaluable for pupils to gain employment and also to continue developing in them (Bynner, 2002). As digital technology has developed over the years, there is a growing need for pupils to improve their competence in it (Ala-Mutka et al., 2008). Embedding all three of these skills into the curriculum is the most efficient and lasting strategy for pupils to reap their benefits (Wells, 2013).

At the start of my teaching experience, I believed that numeracy skills would be achieved through my knowledge of mathematics. However, since researching literature surrounding numeracy, I have realised that the two subjects are distinct and therefore require separate attention in order to be taught. I decided to begin using real-life contexts within lessons, as Anusha and Nasreen (2018) believe that pupils who practice their mathematical skills in real life situations, such as handling money, are likely to have a long-term understanding of the topic, compared with learning the work without context. Woods and Leahy (2019) found that this works particularly well for students with Additional Learning Needs (ALN), as they might struggle to create links between schoolwork and real-life. I used real-life examples with a Year 7 class, where all pupils have ALN. This can be seen in illustrative example 1b.

My mentor has encouraged me to introduce real-life context in my lessons. I believe that this has enhanced my ability to improve the numeracy skills of my pupils.

At the beginning of my teaching experience, I found it difficult to integrate literacy and digital competency into my lessons as I saw them as distinct subjects to mathematics. However, since studying literature surrounding literacy and digital competency, I now realise that they complement mathematics when used in conjunction with it.

I have made progress in my provision of literacy, as I have begun to implement aspects of progression step two of the LNF (Welsh Government, 2015b) into my lessons. Illustrative example 2b shows a question involving literacy which was given to year 10 pupils. I believe that their ability to learn has positively correlated to my ability to teach. As my teaching experiences have expanded, I have gained confidence and now succeed in creating opportunities for pupils to work independently and therefore increase their literacy skills (Bynner, 2002).

I have also made progress in my provision of digital competency, as I have begun to give more independence to pupils in their learning. As seen in illustrative example 3b, pupils were required to derive the formula of the area of a triangle from the area of a rectangle. This allowed them to use their logical thinking to derive a formula and explain why it is correct as required in the Digital Competency DCF (Welsh Government, 2015a). This shows progress, as I began by giving formulas to pupils, but am now allowing them to derive them themselves.

Retrospectively, I am satisfied with the progress I have made, as I feel more confident that I am providing pupils with opportunities to improve their cross-curricular skills.

I started my teaching experience using a direct teaching method. I soon realised that using only direct teaching can restrict pupils to learning to the level of the teachers' delivery (Eppley and Dudley-Marling, 2019). Whilst acknowledging the limitations of this method, I still utilise direct teaching in certain scenarios. However, I try to ensure that I use a more 'student focused' style rather than 'teacher focused'. This allows pupils to practice their communication and collaboration skills and to become more interested in their learning (Hou, 2018). Pupils are also able to develop their own ideas and become more independent in their learning, which better prepares them for their working life (Bynner, 2002).

During the second week of my teaching experience, I became confident enough to begin to integrate different teaching methods into my lessons. My lessons incorporate problem-solving and critical thinking activities. Since

introducing these methods, I believe that my students have become more engaged in lessons and seem more confident in their own abilities as their learning is not restricted by direct teaching methods. Proulx and Maheux (2017), believe that pupils can achieve higher grades by integrating regular problem-solving activities into their timetables.

In order that pupils are able to maximise learning gains, I have introduced problem-solving activities at the end of each topic. Illustrative example 2c shows that the use of a 'relay race' activity at the end of the 'Pythagoras and trigonometry' topic. I have quickly realised that by introducing different teaching methods, I need to also have prepared answers to questions that might be raised by pupils. Lessons based around problem-solving and critical thinking tend to be fast paced and I need to be prepared to respond quickly to these questions. I will continue to use these types of activities at the end of modules in order to challenge pupils and to recap their knowledge and understanding of the topic.

I believe that I have made progress in my use of critical thinking as a teaching method. I began to integrate it regularly into my lessons. I make a conscious effort to include the type of marking activity seen in illustrative example 3c into every module of work, so that pupils can identify common misconceptions and appreciate the value of checking over their work. I have received positive feedback from my mentor on my provision of this pedagogical principle. She has told me that the pupils enjoy this type of activity and that I should continue to utilise this method in my lessons as its benefits are proven by Jones and Alcock (2014). Altogether, I am happy with the progress made with my use of different teaching methods, as I am feeling more confident to experiment within the classroom.

Further Development

The literature review has genuinely enabled me to understand the importance of introducing and combining various teaching methods and activities into lessons. I will always be open to new ideas and methods which will enhance pupils learning abilities.

I found the 'traffic lights' activity mentioned in the discussion on AfL particularly useful as it engages students and encourages reflection. It gives me the knowledge to properly plan future lessons according to pupils needs. However, in future, I will look to introduce the activity during the lesson rather than at the end. Whilst its use is beneficial as a plenary activity, its use throughout the lesson will allow me to change the direction of that lesson if necessary. AfL should be used throughout lessons in order to maximise its benefits (Kyaruzi et al., 2018).

I will continue to implement cross curricular responsibilities into lessons and use real-life contexts within mathematics lessons to allow pupils' numeracy skills to be enhanced. I will include written questions without visual aids so that pupils can develop their literacy and mathematics skills simultaneously and work their way up the progression steps of the LNF (Welsh Government, 2015b). I hope to utilise more digital competency within lessons, as that can create opportunities for pupils to progress in the steps outlined in the DCF (Welsh Government, 2015a). I will study this document further in order to enhance my knowledge on the effective provision of digital competency.

I am happy that I have been able to utilise different teaching methods during my placement. I will continue to do this and attempt to blend these approaches, keeping lessons fresh so that students are engaged during them. I intend to increase the use of problem-solving and critical thinking activities, which allow pupils to recap, extend knowledge and highlight misconceptions.

The focus of this assignment has been to reflect on my progress made in three pedagogical principles, which will allow me to further improve my Professional Development and therefore become a better teacher.

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