

Overview of Assignment

Monday, December 2, 2019

1:56 PM

Assignment Title: Prepare a portfolio (as though you were sharing with a mentor or student colleagues) which illustrates a critical reflection of progress made on the planning and implementation of three pedagogical principles.

Student Number: 1903469

Pathway: P-PGCE

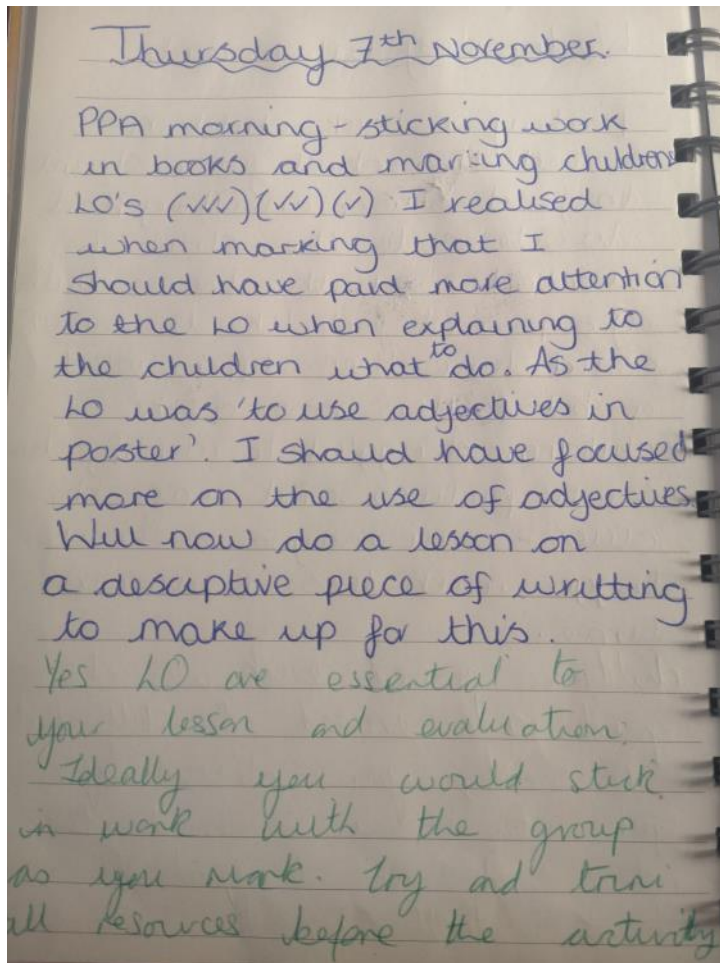
Link to OneNote assignment: https://uowtsd-my.sharepoint.com/:o:/g/personal/1903469_student_uwtsd_ac_uk/Ek-ltrICztJrTQ-MOxvwVEB2zZ2WftlsQsdfy3kSVp3sw?e=VqTpQj



Illustrative example 1

Saturday, May 9, 2020

9:34 AM



This example shows the notes I had made in my learning journal straight after the lesson I had carried out. I realised quickly that I had not explained the learning objective well enough and when marking the children's work they had not achieved what they should have. In order to provide good assessment for learning, a teacher needs to be clear about what they want students to learn and what the outcome will look like (Hattie, 2012). Once I had made this mistake I was quick to change how I carried out the following lesson and ensured that I had explained to the pupils precisely what was expected from them.

★ Illustrative example 2

Monday, December 9, 2019

10:09 AM

Good teaching and learning means employing assessment for learning.

Time	Activities/Methodology/Key Concepts	Pupil Tasks	Resources (Including Health and Safety requirement)
	(Teacher's Role – including key teaching points, differentiation strategies and key questions)	(Pupils' role – including differentiation, engagement in formative assessment and homework)	
Opening phase (with links to prior learning)	Read stick man book again or show the children a video of the stick man story. Stick man's family have written to the school to ask if we could create a poster to help them find stick man	Get the children to join in with the story to see if they remember any of the words or if they remember what happens next. Think pair share ideas of the story of stick man to remind	Stick man book Letter from stick man's family

		ourselves about all the different points in the story.	
Teaching & Core Learning	Discuss with the class as a whole what they could write in their posters. Use a spider diagram on board with descriptive words given by children e.g long, thin, brown.. Explain to children that they can add pictures and colours to their posters to make it appealing - They want to catch the attention of the reader.	Children to be encouraged to use the role on the wall to encourage use of adjectives. LA – word maps MA – Complex sentences Stop the lesson half way though to show some pupils work and collaborate ideas to improve pupils work.	Paper, pencils, colours, word maps.

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In the create a poster to find stickman lesson (see above), with a year 1 class I included very limited AFL strategies. It would have been helpful if I had stopped the pupils throughout the class to discuss ideas again with each other about what they had written. This would have allowed snowballing ideas to help pupils who were a little bit unsure of what to write. I could have also allowed some time for think pair share prior to the pupils carrying out their work to allow children to gather more information themselves about what they could include in their posters. I have annotated my lesson plan (in red) to show where I could have included some AFL strategies in this lesson.



Illustrative example 3

Monday, January 6, 2020

11:04 PM

Success Criteria (clearly linked to each Learning Objective and related to the process and/or product of learning)	Assessment of Pupils' Learning
	Evidence (What have the learners to say/write/do/produce – to demonstrate learning)
Are the children able to work as a team to find the next clues? Are the children able to scan the picture using the i-pad? Are the more able children efficient enough to read the question to the less able children? Are the children able to work out the code to find the next clue? Are the children able to talk and listen to each other to find others view? Are the children able to say what went well, what they could have done better, would do differently and what they enjoyed and would like to do again?	Think – pair – share • Think about where you could go next for 30 seconds. • talk with your partner for 1 minute where you think we could go next. Thumbs up- thumbs down To vote where to go next If all or most of the children agree we walk to the next area. If the children have decided to go to the next area and there is no picture there, we walk back to the last area and try to work out the clue again. ...

PMI grid

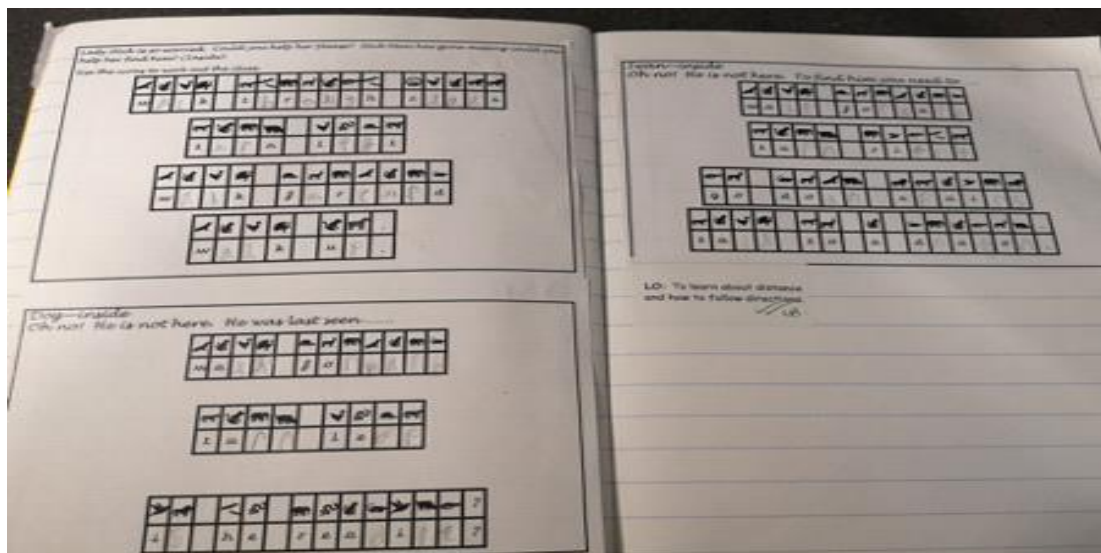
What worked well?

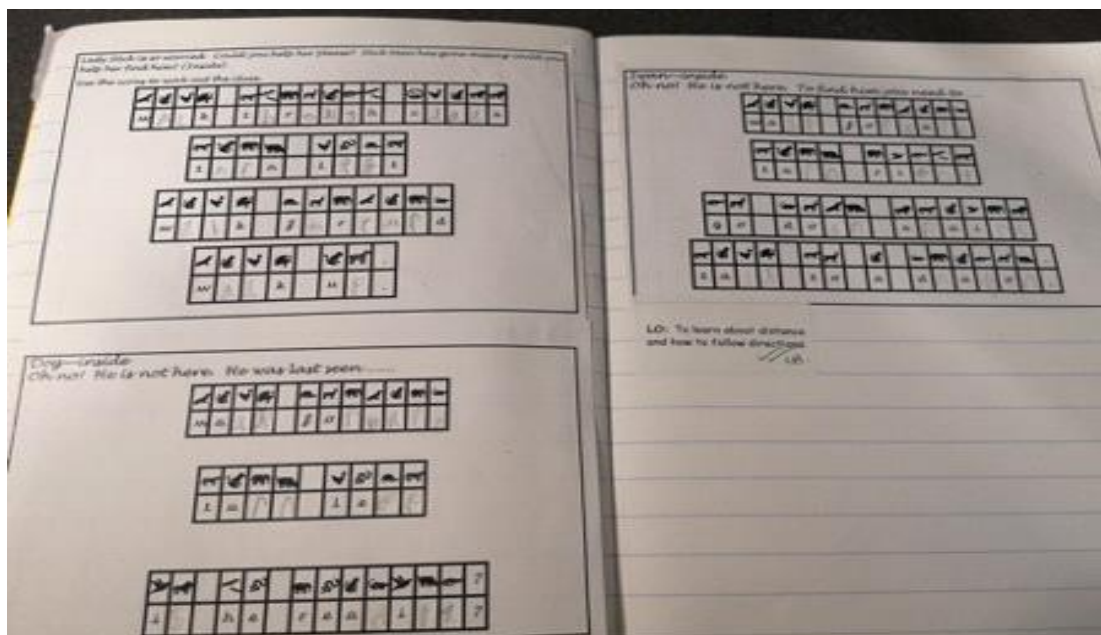
What could have been done better?

How could we do it differently next time?

What was interesting and would pupils like to do again?

For the next lesson in the year 2 class, I tried to include more strategies for AFL within my lesson (highlighted yellow). The pupils task for the lesson was to reveal a number of clues using coding and to eventually find stickman who was hiding around the school. (An example of the pupils completed clues is shown below). The think pair share strategy and the thumbs up thumbs down strategy worked really well in this task as the pupils were working together as a team to find stickman. The PMI grid at the end of the lesson worked really well because children worked in groups, so it gave the children a chance to discuss what they had learned collaboratively as a class and gather ideas of how they could improve the lesson for next time. An example of the clues to find stick man in shown below.





We used the thumbs up thumbs down AFL strategy after revealing each clue to see if all the pupils had the correct answers and were ready to find the next clue. This worked really well and encouraged the pupils to work effectively as a team as I would notice that once one had finished un-coding the clue, they would help their friend with their work before moving on to the next.



Illustrative example 4

Monday, March 30, 2020

5:18 PM



This picture shows a 'hot seating' lesson taking place with the Year 2 class. Since we had been learning the stick man book and had carried out many activities based around this theme, I thought it would be a good idea to allow the pupils to act out the role of a character of their choice from the story, work together as a team to collate some questions to ask the character and use I-pads to record the questions and answers. I felt this was a really good way of assessing what the children had learned about the theme and gave the children the chance to be imaginative whilst building their confidence working as a team and individually. The children really enjoyed this lesson and asked some very interesting questions, however, next time I will try to encourage more complex questions, for example, including feelings and maybe changing the ending to the story to make the lesson even more creative.

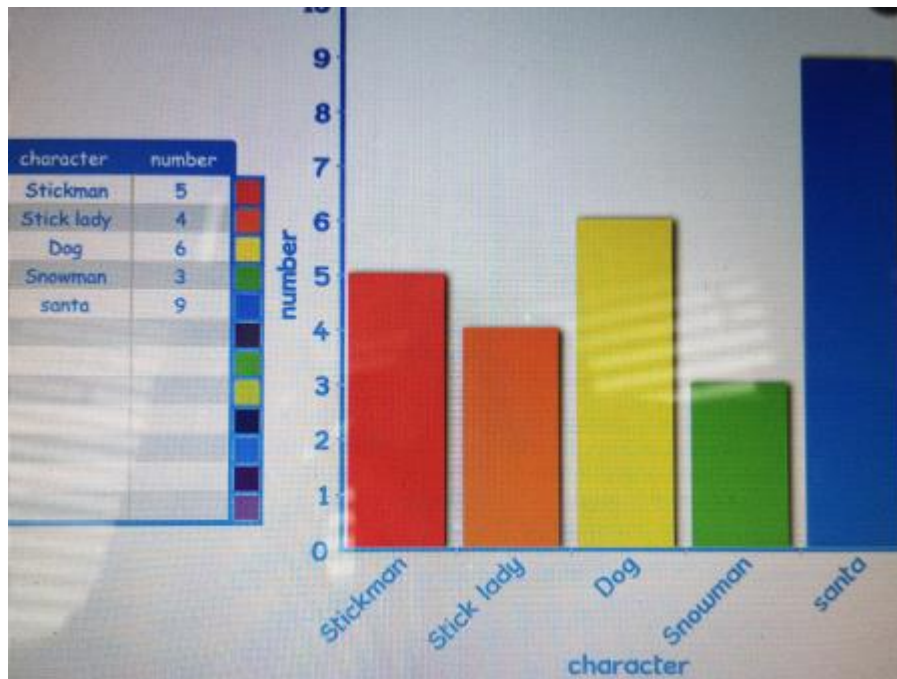
The children were put into groups of ability and prior to the actual carrying out of the hot seating challenge, we worked together in groups to discuss what questions we would ask the characters and wrote them down on a large piece of card using a spider diagram.

★ Illustrative example 1

Monday, December 9, 2019

10:09 AM

Good teaching and learning regularly reinforces cross curriculum responsibilities, including literacy, numeracy, and digital competence, and provides opportunities to practice them.



The picture shows a graph a year 1 pupil had created on a computer using the J2E application. The pupils task was to create a tally chart showing each pupil in the class favourite character from the story and then record it in a graph form on the computer. I decided to carry out this lesson as the children had asked if they could do some work using the computers. This activity fitted in nicely with our theme and the children really enjoyed going around the class asking their friends what their favourite character was. Some pupils had never used J2E before so this was helpful to them as it was quite a basic activity to complete. Once the pupils had finished they were able to print of their graphs and stick them in their challenge books.

I would carry out this lesson again, however, next time I would maybe allow the pupils to choose their own characters so that the lesson is more child led and also gives them a chance to remember what characters they had learned in the story. We could make this lesson better by asking the pupils to think of some characters that were not in the book in order to change it to their own story and then ask them to go around the classroom to see what the most popular made up characters were. The whole class could then read the story back through together but adding in their own characters. Within this lesson the children used language, literacy and communication skills whilst also using numeracy and digital competence.

★ Illustrative example 2

Monday, January 6, 2020 11:04 PM

Predict that it will sink because it is heavy.
 Predict that it will sink because it is big.
 Predict that it will sink because it is slim.



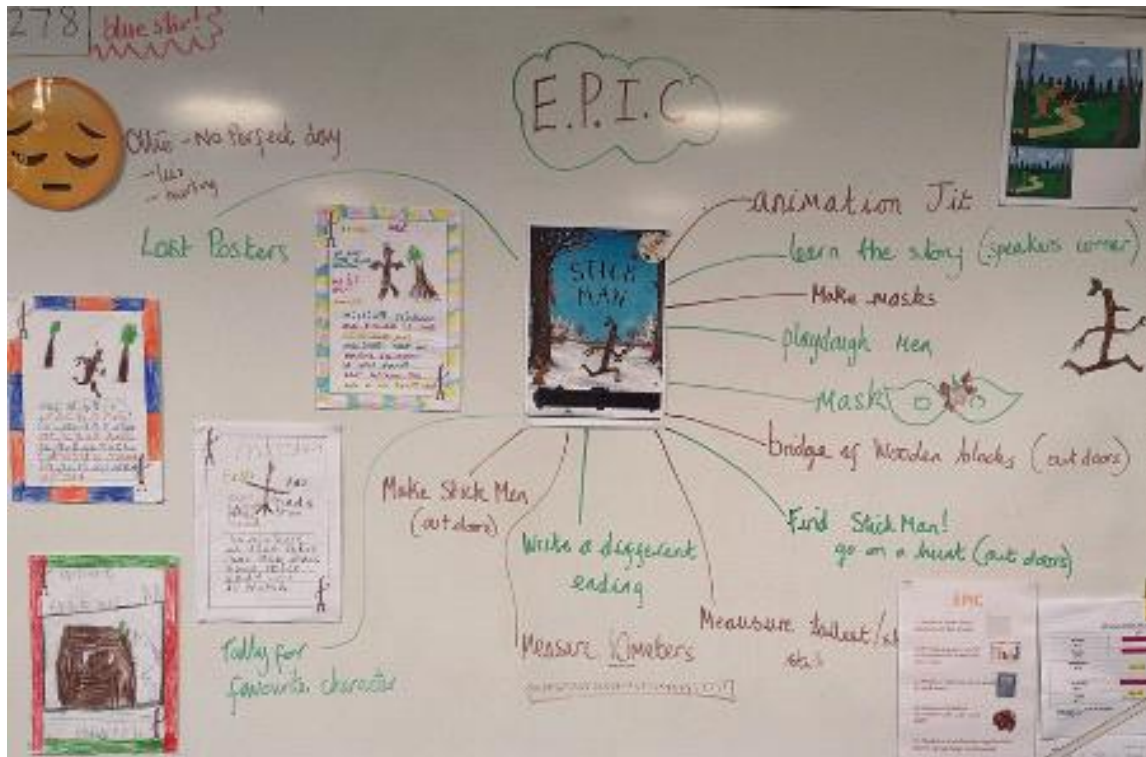
Object	Sink	Float	Was my prediction correct? Yes/No
Spool	✓		Yes
Marbles	✓		Yes
Stick		✓	Yes
Apple		✓	No
Tennis ball		✓	Yes
Straws	✓		Yes
Paperclip	✓		No

The above illustrations are examples of work completed by pupils for a cross curricular themed lesson which involved science and technology, maths and numeracy and language, literacy and communication including welsh. The pupils also used I-pads throughout the lesson to take pictures to upload their work onto their online profile. Prior to the lesson, I discussed with the children what floating and sinking meant. We collaborated some ideas and then started to discuss what type of objects they thought would sink or float. Preparing for our lesson we used the word mat I had created (shown above) to think about what would happen to these objects if we put them in water. The children chose which objects they wanted to test and wrote their predictions for each object and also wrote a reason why they thought this would happen. Whilst carrying out the actual experiment, the pupils had a chart to complete (shown above) where they wrote their prediction and whether they predicted correctly or not once they had tested the object.

★ Illustrative example 1

Monday, December 9, 2019 10:10 AM

Good teaching and learning sets tasks and selects resources that build on previous knowledge and experience and engage interest



This illustration shows a collection of ideas myself and the pupils gathered together at the beginning of the week. Everybody planning in class (EPIC) meant that children were involved in their own learning and therefore typically thought of ideas that would interest them based on previous knowledge and experience. Both the Foundation phase and the new curriculum talk about when motivating children to learn, it is especially important to ensure that the curriculum responds to their interests and builds on prior experiences. With the children working together with myself to come up with ideas, it made their learning meaningful and encouraged interest.

★ Illustrative example 2

Monday, January 6, 2020 11:04 PM



Above are some pictures of some of the 'challenges' the pupils had thought to do themselves for their enhanced activities. The foundation phase curriculum allows children to learn through play. During the time I was working in the foundation phase (year 1) the

classes worked in groups, so the teacher would have a focus group carrying out a planned lesson based on a certain subject. The pupils who were not in the focus group then took part in the enhanced activities set up around the classroom. These activities were monitored by a teaching assistant and the materials that were used for example the sticks and the leaves were collected by the pupils in school and at home. They really enjoyed this activity and got really creative, they then used their stick people in their following lesson on hot seating. Some children also brought some stick people into school that they had made at home to show their friends.



A critical
reflection

A critical reflection

Introduction

This piece of writing is a critical reflection of progress made during my first teaching experience and will include the planning and implementation of three of the twelve pedagogical principles from Graham Donaldson's new curriculum for Wales. The three pedagogical principles being explored throughout will be: assessment for learning, selecting resources that build on previous knowledge and experience and the reinforcement of cross curriculum responsibilities.

Pedagogical principle: Good teaching and learning means employing assessment for learning.

Assessment for learning (AfL) has become a dominant discourse across educational policies throughout the world and provides a compelling alternative to traditional large-scale testing (DeLuca et al, 2018). Instead the focus on student learning is the primary source of assessment. Donaldson (2015) explains that assessment is a vital and integral part of learning and teaching and so needs to be fundamentally linked to the curriculum. In order to provide good assessment for learning, a teacher needs to be clear about what they want students to learn and what the outcome will look like (Hattie, 2012). In an assessment for learning document published by the Welsh Assembly Government (WAG)(2010) it states that the criteria of the lesson must be transparent to learners and is understood and used most effectively by learners when they have been involved in its construction.

I realised whilst carrying out one of my first lessons that I had not explained the learning objective well enough to the pupils, this is shown in my notes in my learning journal (illustrative example 1). Although the pupils had successfully created a poster, the learning objective was 'to use adjectives' and whilst marking the pupils work, I realised that I had not emphasised the use of adjectives enough. Hattie (2012) suggests that learning intentions describe what it is that we want students to learn and their clarity of the work is at the heart of formative assessment.

Formative assessment supports children in following their interests and extending what they excel at as well as encouraging further development in areas where the child struggles or lacks confidence (Welsh Government, 2017). Summative assessment measures pupils development overtime rather than throughout a particular lesson. Although some formative assessment was used throughout this lesson, such as walking around the classroom looking at the pupils work to ensure they were on track, it was due to a lack of explanation of the learning objective and the success criteria at the beginning of the lesson why some pupils

did not achieve the essential point of the lesson.

The following day, I decided to ask the pupils to write a descriptive piece of writing to add to their posters so that they included adjectives. I introduced the lesson in much more depth, I ensured that the learning objective was written on the board and worked with the children as a whole class to show them an example of what would be expected from them. Black (2004) asserts that children can achieve a learning goal only if they understand the goal and can assess what they need to do to reach it. Although the pupils were aware of what they needed to achieve and most pupils were on task, I realise now that I could have included far more assessment for learning strategies throughout the lesson (illustrative example 2). I realise now that I could have stopped the lesson half way through to ask questions or get the pupils to feedback some of their work they had produced.

Questioning is the driving force of developing thinking and assessment for learning in the classroom. High quality questions lead to high quality talk which in turn leads to discussion (WAG, 2010) this would have allowed the pupils to collaborate ideas together and extend their work further to produce a more high quality piece of writing. The use of feedback throughout the lesson could have also helped improve outcomes, according to WAG (2010) feedback should be as immediate as possible, should be clear, and should make the learner think. Teachers need to keep learners on track, and should aim to develop a wide range of assessment strategies for use during the lesson which encourages learners to make ongoing improvements. An assessment activity can help learning if it provides information that teachers and their students can use as feedback in assessing themselves and one another (Black et al., 2004). Some of these strategies I used with the pupils in the following lesson during a 'hunt' around the school to find stickman (illustrative example 3). I tried to include as many AfL strategies as I could for this lesson, for example, 'think pair share' this is where learners are posed a question, given time to think individually and then given time to discuss ideas with their partner and share their ideas with the rest of the group or class (WAG, 2010). This strategy worked well for this particular activity as it allowed the group to work collaboratively and led to discussion about where they thought they would find stickman. I also noticed that the children who usually lack confidence in talking, were joining in with discussion.

Another assessment strategy which was used in this lesson was a PMI diagram (plus, minus, interesting) it encourages pupils in a discussion to look at an idea from more than one viewpoint. This activity allowed the pupils to discuss and reflect upon what they had learned and also gave me an understanding of what the pupils found interesting and what they enjoyed, therefore, giving myself ideas on how to further their learning based on the pupils interests. This links with the view that AfL provides practitioners with insight into the effectiveness of learning and involves providing regular and meaningful feedback and adapting teaching materials to meet the needs of individuals (Donaldson, 2015).

Following on from this lesson and reaching towards the end of this particular theme, I needed to carry out a lesson which summarised everything the children had learned during this theme of stickman. I was more aware of the abilities of the children and was able to group them appropriately according to their needs and abilities. Hattie (2012) summarises the importance of knowing what the children are able to achieve, he explains that before the lesson is planned, the teacher needs to know what a student already knows and can do. This allows the teacher to tailor the lesson, so that the student can bridge the gap between his or her current knowledge and understanding, and the target knowledge and understanding. As a student teacher I feel this understanding of the children's abilities got better as the placement went on and therefore the way in which I assessed the children's learning was more specific to each child. This improved knowledge of the pupils abilities allowed me to plan lessons which were differentiated between ability groups. This is shown in this example of hot seating, the children were split into groups according to their ability and prior to the hot seating challenge being carried out, we worked in small groups to discuss what questions we would like to ask the character in the hot seat. Depending on which group I was working with, I was able to determine how much support they needed and provided resources specific to the children's needs. This lesson really allowed me the

opportunity to assess what the children had learned and also allowed the children to reflect upon and think about what they had learned whilst pursuing the theme of stickman.

Although I have developed a few assessment for learning techniques and this is shown throughout the progress of my lessons, I will also continue to keep developing these in my next placement. I have learned how important it is to explain the learning objective and the success criteria specifically, to provide continuous feedback and ask quality questions, and also the importance of formative assessment strategies throughout the whole lesson and not just at the end, I will continue to keep developing these techniques that I have learned whilst on PTE1 and enhance them further on my next placement.

Pedagogical principle: Good teaching and learning regularly reinforces cross curriculum responsibilities, including literacy, numeracy, and digital competence, and provides opportunities to practice them.

The new curriculum for Wales allows for a more cross-curricular approach to teaching and learning. The curriculum for Wales guidance promotes collaboration and cross-disciplinary planning, learning and teaching, both within and across areas of learning (Welsh Government, 2020). This new approach will allow pupils to build connections across learning experiences, knowledge and skills. Starting of my first teaching placement, I tried to adhere to the set structure of lessons that the children already had in place for them, for example they would have literacy in the morning and then maths. The afternoons were for topic work and finishing off any uncompleted work. This is when I had the chance to think of some cross-curricular activities, however, this was mainly carried out through enhanced activities in the classroom not always monitored by a teacher or teaching assistant. As a student teacher, at the beginning it was hard to determine what the children could do independently as I was still getting to know their abilities.

Since we had been following the theme of the stickman, the children were given a sheet with a table and the characters from the book, their task was to go around the classroom and ask each other what their favourite character was and record it as a tally chart. They would then need to go to a computer and record their findings on a graph. (illustrative example 1). Although this was quite a simple activity, the pupils learned skills in digital competence, they were also learning skills of communication and recording information in graphs. Although literacy and numeracy have already been given priority through the literacy and numeracy framework (LNF) within the Welsh curriculum, Donaldson (2015) explains that digital competence is increasingly fundamental to learning and life and that it should have similar status to that of literacy and numeracy. In an article on ESTYN (2019) it describes that the development of pupils ICT skills are not as good as skills in literacy and numeracy. The review of the new curriculum recommends that these three areas should be cross curriculum responsibilities for all teachers.

As placement went on and I was given more of a voice and became more independent with planning lessons and setting up tasks for the pupils, I was able to carry out lessons that were more holistic and gained the pupils interest. Donaldson (2015) asserts that children and young people want lessons to be more relevant and engaging, with more practical lessons, more fun, interactivity and more out of classroom activities. However, the challenge for teaching posed by the cross-curriculum responsibilities will be to maintain the focus on these responsibilities so that their application becomes natural and authentic rather than an add-on.

The expectation in the National curriculum is that all children are entitled to a coherent, broad and balanced curriculum (Stead, 2012). In a report by Ofsted (2002) they certify that thematic or cross-curricular teaching is a feature of a successful primary school. However, Barnes (2011) and Savage (2011) point out that for cross-curricular lessons to be effective the links between subjects need to be made explicit, because it should not be assumed that skills in one context will be transferred to another (Pritchard, 2005). A teacher needs to have

a good knowledge of a range of subjects and as a student teacher I feel I am still developing this subject knowledge and experience.

We carried out a science investigation, the children had to test what objects they think would sink or float and then record their findings (illustrative example 2). During the lesson prior to carrying out this activity, the children were thinking of objects they had seen floating or sinking whilst in the bath or during swimming lessons or at the beach. The pupils were able to think of ideas based upon previous life experiences. The pupils were provided with a prediction table to complete prior to the lesson, they wrote in the boxes what objects they thought would sink or float and once they had carried out the experiment they were able to go back to this table and see if they had predicted correctly or not. This allowed the pupils to reflect on their work and assess what they had learned from the lesson - they then used this table to write a sentence about what they thought would happen, what actually did happen and what they had learned. This lesson engaged with cross-curricular themes - science & technology, language, literacy & communication and mathematics and numeracy. The children were exploring the properties of objects and whether they sank or floated using water. They used language, literacy and communication by discussing what they thought was happening, making predictions and justifying answers. The children used mathematics and numeracy by counting how many objects they had used to test and used measurement to measure how much water to fill the water tray up with.

I realised whilst explaining to the pupils what sinking and floating actually meant, that it was quite hard to gather any information from the pupils of what they already knew about this concept, they found it really hard to explain and link things to being either heavy or light. Next time I carry out this lesson for a foundation phase class, I feel like it would be beneficial to go over the more basics concepts to begin with, for example discussing with the children what objects are heavy or light. After quite a lot of discussion about what sinking and floating meant, the pupils were able to discuss objects at home they think would sink or float. One child explained that a rubber duck would float on the water because they had tried it out in the bath. It was really interesting to see how excited the children were being able to carrying out their experiment outside the classroom.

I have learned whilst carrying out these lessons that cross curricular teaching and learning has strong links with the constructivist view of learning, as children work collaboratively and learn from their own direct experience (Hayes, 2010). I have also learned that it is important to allow children to experience real life authentic contexts, Barnes (2015) quotes 'our experience of the world is cross-curricular' he explains that everything which surrounds us in the physical world can be seen and understood from multiple perspectives and therefore it is important to allow children to pursue these experiences. However, Kerry (2010) implies that to teach an integrated curriculum effectively there are some basic essentials needed in a teachers armoury, for example, classroom management, skills in explaining and questioning, skills in task setting and differentiation and also skills in assessment. I will continue to keep developing these skills in my future practice.

Pedagogical principle: Good teaching and learning sets tasks and selects resources that build on previous knowledge and gain interest.

At the beginning of my first placement, selecting resources that build on previous knowledge and experience that gain interest was quite a challenge at first. I needed some time to get to know the children and understand what interested them all individually and how they learned best. The Welsh Assembly Government (WAG)(2010) suggest that different children respond differently to learning styles. Some children learn best through visual stimulus, others through auditory or practical activities. Hattie (2012) also stresses the importance of knowing the children's trajectories of learning, the current strategies used, and how willing the child is to invest in learning. As a student teacher I was still getting to learn these things about my class, however I knew there was something I needed to do in order to get a better understanding of the children and what interested them.

At the end of the first week, I sat down with the pupils in my class and we collaborated ideas together and discussed what activities the children would be interested in doing the following week. We created a big spider diagram on the board with all the children's ideas on (illustrative example 1). We discussed what the children had been doing previously and what they would like to do again or anything new they would like to try. This was very valuable as it gave me a much better understanding of what the children really enjoyed doing and what interested them. This also allowed the children to have a voice and relates to the four purposes of the curriculum as it is allowing children to be ambitious capable learners/enterprising creative contributors in given them an opportunity to decide what they would like to learn and what interests them. I learned that the children were able to think of really imaginative activities to carry out and also whilst pursuing them some children who may not be as interested in certain activities set for them by a teacher, were really involved with these activities as they had thought of them themselves and found it interesting.

One aspect I have considered further is the relationship between interest and involvement. Ferree Leavers introduced the term 'involvement' to describe the deep concentration that children demonstrate when they are involved in an activity. According to Bertram and Pascal (2014) there is evidence to suggest that an 'involved' child is gaining deep, motivated, intense and long-term learning experience. We carried out an activity which the pupils had thought about and decided to do - we collected sticks, leaves and acorns from out the outdoor environment in order to design a personalised stickman character. Most of the children were really involved in the activity, however there was a few who needed support and I did not differentiate the lesson to meet the needs of this support, this will be an aspect I will focus on in my next placement.

Jerome Bruner stressed the importance of adult intervention to support or 'scaffold' learning and enable a child to make progress. Olsen (2014) explains that the teacher constructs a scaffold that could be used to support the efforts of the learner to construct his or her own understandings. I discovered quite quickly that each child needed different amounts of support and it was quite challenging to attend to the needs of each child. As a student teacher this is something I am still learning to develop. I have learned that it is important to allow children to be involved with their own learning. I found that the children were much more engaged in the activities they had chosen themselves and also much more motivated to achieve the outcomes and discover new things. However, I will continue to develop my classroom management skills and also be more aware of the need to differentiate the lessons appropriately.

To conclude, I have learned that my key targets in order to progress in my next placement will be to keep developing assessment for learning strategies, I will do this by reflecting on what I am already doing now and allow discussion with colleagues and observations to spark reflection and aid progression. I will continue to think of lessons which will allow cross-curricular experiences and keep developing subject knowledge in different areas of learning. I will ensure from the start that I allow time to get to know the pupils abilities and interests and also ensure that discussion is carried out with the pupils in order to get a good understanding of what they have previously learned and what they would like to learn. Chapman (2006) explains that teaching and learning are seen as being linked - teaching purposely influences learning and vice versa. Therefore, pedagogy is not the action of teaching, it is about the relationship between teaching and learning and how together they lead to growth in knowledge and understanding through meaningful practice.

References

Monday, December 9, 2019 10:10 AM

Barnes, J. (2015). *Cross-curricular learning 3-14*. London: Sage.

Bertram, T & Pascal, C. (2014). *The effective early learning project: The quality of adult engagement in early childhood settings in the UK*. Leuven University Press.

Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2004). *Working Inside the Black Box: Assessment for Learning in the Classroom*. *The Phi Delta Kappan*, 86(1), 8-21. Available at: www.jstor.org/stable/20441694 [accessed 1st April 2020].

DeLuca, C., Chapman, A., & McEwan, D. (2018). *Student perspectives on assessment for learning*. *The curriculum journal*, Vol. 29, p77-94. Routledge: Canada.

Donaldson, G. (2015) *Successful futures, Independent Review of Curriculum and Assessment Arrangements in Wales*. Welsh government publication.

Estyn (2019). *Digital competence: improving pupils' digital skills*.
<https://www.estyn.gov.wales/blog/digital-competence-improving-pupils-digital-skills>.

Hattie, J. (2012). *Visible learning for teachers, preparing the lesson*. London, Routledge.

Hattie, J., & Timperley, H. (2007). *The power of feedback*. *Review of educational research*, Vol 1, p81-112.

Hayes, D. (2010). *The seductive charms of a cross-curricular approach*, *Education 3-13. International journal of Primary, Elementary and Early Years education*. Vol 38, pp 381-387.

Kerry, T. (2010). *Cross curricular teaching in the primary school, planning and facilitating imaginative lessons*. London, Routledge.

Ofsted. (2002). *The curriculum in successful primary schools*. London: Ofsted.

Olson, D. (2014). *Jerome Bruner*, London, Bloomsbury Academic.

Pritchard, A. (2005). *Ways of learning: Learning theories and styles in the classroom*. Abington: David Furton.

Stead, K. (2012). *Enhancing primary science: Developing effective cross curriculum links*. Open University Press. London: Routledge.

WAG (2008). *How to develop thinking and assessment for learning in the classroom*. Welsh government publication.

WAG (2010). *Why develop thinking and assessment for learning*. Welsh government publication.

Welsh Government. (2020). Introduction to curriculum for Wales guidance. Welsh Government. Available at: <https://hwb.gov.wales/curriculum-for-wales/introduction> [accessed: 1st April 2020].