

Student Self Evaluation Form

Common Assessment Criteria Applied	REFER		D	C	B	A
	OUTRIGHT FAIL	UNSATISFACTORY	SATISFACTORY	GOOD	VERY GOOD	EXCELLENT
1. Subject Knowledge and Understanding (which includes using research-informed literature and knowledge and understanding of the subject)	☐	☐	☐	X	☐	☐
2. Intellectual Skills (Analysis)	☐	☐	☐	X	☐	☐
3. Pedagogic and Professional Applications (Practical Application and Deployment)	☐	☐	☐	X	☐	☐
4. Key Transferable Skills	☐	☐	☐	X	☐	☐

PLEASE COMMENT ON AREAS IN WHICH YOU FEEL THAT YOU HAVE PERFORMED WELL		PLEASE COMMENT ON AREAS YOU FEEL THAT YOU NEED TO DEVELOP	
- Wide range of literature to support the research topic. - Able to use the skills of a lesson study to evaluate own practice. - Understood the scope of the assignment. - Able to critically reflect sometimes. - Worked well with partner to collect results. - Acceptable presentation of work. - Understood ethical issues.		- Need to reflect more in some areas. - I need to develop my critical awareness of literature.	
Student's Name	Stephanie A Colwill	Date	14/03/18
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Module Title: The Enquiring Teacher

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‘How can we develop children’s thinking skills through the use of questioning strategies in the Foundation Phase?’.

6426 words.

Research purpose and context.

During my professional teaching practice (PTE) I saw many different questioning strategies being used throughout Foundation Phase (FP) and Key Stage 2 (KS2). However, there was one particular strategy that myself and the other researcher witnessed throughout the Foundation Phase and Key Stage 2 (KS2) and that was the use of the question hand. The question hand can often be described as the five W's and one H (*see image 1*) but for this assignment we will be referring to it as the question hand. Questioning a child using the question hand strategy is a type of learning that is linked to Vygotsky theory of 'zone of proximal development' (ZPD). He believed that 'the role of the educator was to know when to and how to intervene in order to move the child on from what the child could do' (Cremin and Arthur, 2014 p.57), hopefully this study will give us the experience to do this as newly qualified teachers (NQT). An importance of this study is also to document how effective the question hand strategy is for the children and to answer: 'How can we develop children's thinking skills through the use of questioning strategies in the Foundation Phase?'.



(image 1)

(Tes, 2018)

It is described that 'generating effective questions requires a certain level of domain knowledge and metacognitive skills from the question-askers' (Choi, Land and Turgeon, 2005 p.483). The study will hopefully guide myself and the other researcher in requiring the certain level of domain knowledge and skills to ask effective questions that will develop a child's thinking. Currently with the Welsh education system steering towards the Successful Futures by Donaldson (2015) and with his beliefs in effective Assessment for Learning (AfL), hopefully this study will allow me to develop and improve my AfL strategies as a trainee teacher alongside the new exciting curriculum for Wales.

The school that the study is based upon is a large Catholic primary school near the centre of Swansea with an overall the school performance is good (Estyn, 2014). The school caters for approximately 480 students, between the ages three – eleven years old. From that figure 18% of the children have Additional Learning Needs (ALN) and 43% are English as Additional Language (EAL). Class A and B both have thirty reception children (four-five years old), with class A having nine EAL and eight ALN students and class B having five EAL and eight ALN students. There are four support staff shared equally between the two classes and one fulltime 1:1 in class A and there is a child that has 1:1 support in class B for 2 hours a day.

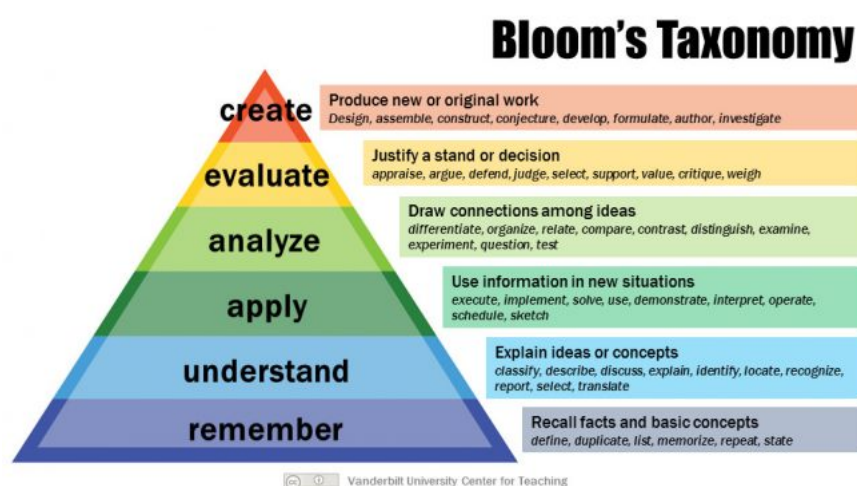
Literature review.

Research suggest that children's thinking skills is vital in their education. Cremin and Arthur (2014), describes the reason that thinking skills are important is because they master the basic education. Department for Children, Education, Lifelong Learning and Skills (DCELLS) (2018, p15) describe that 'questioning is the driving force of developing thinking'. Due to this statement we researched further into this. What this showed, is that the current Welsh Government supported this idea by piloting a programme around developing and assessing thinking skills. What was interesting is that the document expresses the importance of developing learner's performance in thinking skills because it leads to higher quality outcomes (DCELLS, 2008). It is possible to argue that this study was piloted before the previous document, however, from reading other Welsh Government education documents, such as the Successful Future (Donaldson, 2015), it still suggests that thinking skills is vital to a child's education. From this, myself and the researcher decided to develop our question around how questioning strategies improves thinking skills, to develop us as future teachers.

Researching this theme, it brought up many different strategies for both a FP and KS2 teacher to use. Though, for the scope of this assignment myself and the other researcher decided to have a small focus on the question hand strategy because we both witness this in KS2 and FP in the same setting. To develop independent thinking and questioning, it suggests that the question hand is the 'most consider this approach as fundamental when examining any new learning situation' (NSEAD, 2009 p.4). From a research point of view, if

what NSEAD (2009) states is true, then you could ask the question why don't all schools use this strategy? When discussing our idea to the other practitioners from different schools, it was interesting to note that many of them had not seen this strategy in the classroom. As Shulman (1987) stated there is more than one element to a teacher's role, such as having in depth subject knowledge. Some may suggest that subject knowledge filters the effectiveness of a teachers questioning. Barnes (2015) discusses that a teacher cannot move a lesson forward if lacking in subject knowledge, which for the scope of this assignment, it will hinder children's thinking development due to lack of knowledge for questioning. From the literature around questioning children, it has been brought to the attention that majority of the literature agrees and that you need to be particular good teacher to questioning children. One of those, is Cremin, Burnard and Craft (2006, p.108) who believe that a creative teacher is the one 'who uses open questions and who promotes speculation in the classroom, encouraging deeper understanding and lateral thinking'. A limitation to these suggestions is that there is too many strategies and theories based around one element of teaching.

From researching both 'children's thinking skills' and 'questioning children', there was a common result of 'The Blooms Taxonomy' (Bloom, 1956). It is believed to be an important framework that guides teachers in crafting question, (Radmehr and Drake, 2017) to develop Higher Order Thinking skills (HOTS) in the classroom (NSEAD, 2009). The Blooms Taxonomy (1956) believes that children develop their thinking skills in a systematic way and that teachers are there to facilitate the level of question compare to the child's level of thinking (see image 2) (Radmehr and Drake, 2017).



(image 2)

(Armstrong, 2018)

It's believed that it's vital for children to acquire critical thinking skills because they develop reasoning, evaluating, analysing, problem solving and discussion making skills (NSEAD, 2009). This scale supported us in refining our investigation search because the question hand facilitates the development of thinking skills if used correctly. It is strategy a teacher can use across curricular which feeds into supporting the scale. However, if we return to the previous statement about a teacher's subject knowledge, you could argue that a teacher cannot develop the children's thinking using the scale if insufficient subject knowledge. This statement agrees with what Barnes (2015) said previously about the teacher unable to move the learning forward with lack of subject knowledge.

Various of different author describe another benefit of questioning children, is practitioners using the strategies for Assessment for Learning (AfL). Barlett and Burton (2012) describe that there are four areas of AfL that teachers can assess from questioning; to monitor progress, to indicate a final level of achievement, to evaluate the teaching and learning process and to enable comparison of an achievement by external. Agreeing with this, McAteer (2013) book about improving primary maths, believes that misconceptions in maths can be addressed and lead into a creative discussion. She also states that AfL questioning 'highlights gaps in the child's knowledge' (McAteer, 2013 p.35). Another author who agrees with this, is DCELLS (2008) and they have issued types of questions that are vital for a practitioner to ask themselves about questioning. They stated that a practitioner should ask themselves; How involved are the children in their learning? 'Are they

demonstrating a preferred learning style? Which one? Are the children able to discuss and say what they have found out from their work? And able to extend it further?’ (DCELLS, 2008 p.22)

In spite of this, a practitioner may be unaware of the type of question to ask to get the most beneficial response. Cremin and Arthur (2014) agree with Harris and Williams (2012), who believe that open-ended questions provide the foundation for children to develop their imagination and create discussion. On the other hand, practitioners may feel that an open-ended question is not needed for an AfL purpose (Harris, 2006), which Cremin and Arthur (2014) do not discuss in their literature. Addition, to all this literature, Fitriati, Isfara and Trisanti (2017) believe that there is uncertainty when it comes to the best possible solutions for questioning children, however, there is certainty when it comes to why we are asking the question.

Returning to the research question, this literature has shown that there are many stands that fulfil effective questioning for the strategy to work. Another interesting element, is the statement from DCELLS (2018 p.25):

‘The average wait-time of British teachers is 0.9 seconds. If we haven’t accepted an answer by then, we tend to modify the question or simply answer it ourselves! If we want learners to think about a question, we must provide time for this to happen’.

Researching more into this, it is also agreed by Ingram and Elliot (2015) and that they recommend improving classroom learning, teachers’ need to extend the pause between teachers’ and students’ turns (wait time). Reflecting upon this, maybe this is a strategy a teacher needs to consider for effective questioning. Agreeing, Cremin and Arthur, (2014) believe that ‘wait time’ it encourages Higher Order Thinking skills (HOTS). This links to what is previously discussed by NSEAD (2009) and Bloom (1956) with the importance of teachers’ using the ‘The Blooms Taxonomy’ to develop their questioning skills to develop children’s’ thinking skills. Although, Cremin and Arthur (2014) do state that its more effective in partner work and that is takes careful planning. However, no literature disagrees with the fact that it’s vital for those children to have time to ‘think’.

Additionally, classroom talk has been an area of interest when researching this topic. Cremin and Arthur, (2014) believe that children should be given the opportunity to speak in whole classroom discussion. Questioning a child allows the shy ones to speak in front of others. Using question strategies give the children an opportunity to know what to discuss (Cremin and Arthur, 2014). Vygotsky (1972) believed that language is fundamental to the children to process learning and thinking. In this case, Myhill (2006) discusses that what Vygotsky (1972) meant by this is that talk is a process tool for children's learning and thinking. One may question that Vygotsky (1972) work is out of date and not relevant to today's current curriculum. However, Donaldson (2015 p.40) believes that 'Children and young people also need every opportunity to explain thinking, explore and discuss ideas and use language skills at an appropriate level' across all stages. Which argues against the previous argument of being out of date, but it actually underpins what Vygotsky believes in that children need to opportunity to talk, i.e. questioned.

Overall, a teacher has a responsibly to understand how children achieved Higher Order Thinking, however, it was interesting to read how Grigg and Lewis (2018 p.8) state that 'unfortunately, there isn't a common view as to what we should expect from our pupils'. Relating this to what Donaldson (2015) says about what he wants children in the Welsh education system to achieve, he does not state what is meant by good thinking. Although, there is research out there that supports what a teacher needs to do for effective questioning to scaffold children in Higher Order Thinking (Kuusisaari, 2014) because 'scaffolding types of questions and responses is important to allow learners to access and understand the expected levels of demand and become actively engaged' (DCELLS, 2018 p.19). Cremin and Arthur (2014) state that teachers need to challenge children to think more deeply and widely, they suggest to do this you need to ask follow up questions to move learning forward and develop Higher Order thinking (Bloom, 1956). However, to do this Barnes (1979 p.5) propose that 'In order to use questioning more effectively, teachers need to learn to use a basic questioning system' For the state of the research, this is one reason why we choose to look at a particular focus of questioning strategies. Even though, the author work is over a decade old, it still relates to Successful Future (Donaldson, 2015).

Methods.

My investigation will be based on the idea of Kurt Lewin (1946) theory of action research. He believed that action research is conducted by findings, planning and execution; to solve a professional problem. This form of research supports to this investigation because it is linking theory to practice (Bartlet and Burton, 2012). I have considered that this investigation is based on one school. I have taking into account the diversity of the school and that it may not be possible to transfer the findings into a new school (Harris, 2009). However, this broadness of this investigation is developing me as a practitioner not a school.

The form of action research this investigation is going to follow is Dudley (2014) recommendation of a lesson study. A lesson study research methodology involves practitioners undertaking a similar lesson 'to investigate and improve a specific aspect of classroom technique so that pupils' learning and progress improves because pedagogy is better designed and delivered' (Dudley, 2014 p.5). The evidence suggest that the lesson study is a professional research tool used to develop teachers in the current system (Lewis, 2009). This corresponds with what Verhoef *et al.*, (2014) who describe the method as the one that changes the knowledge and beliefs of current teachers/practitioners. This method is a guidance that will allow me to develop as a teacher within the introduction of Success Futures (Donaldson, 2015). Conversely, I have investigated the limitations to the lesson study method, Dudley (2014) does suggest that three or more teachers should be involved in the study and that all practitioners should wait at least a week to reflect upon practice. In spite of this, I and the other researcher have discussed that we need to modify the method due to time restriction on the investigation, as researchers we believe that this will not affect our results. Another limitation of a lesson study, is that teachers may 'put on a performance' when being observed teaching, in which some would argue that this is not a true reflection of a lesson study purposes.

Following on from this, Dudley (2014) also suggest that an individual or group interview should take place with the children after the lesson study. Addition to the lesson study, we as researchers have decided to conduct semi structured interviews to increase validity and depth of the study (Bartlet and Burton, 2012). As well as Dudley (2014), Galletta, (2013 p.9)

believes that semi-structure interviews allow exploration of experience from a student illustrated view. This also agrees with other authors, such as, Bartlet and Burton (2014) who believe that it allows us to adapt the situation (if needed to), making less formal. As researchers, we both agree that this is the paramount method because of the nature of the children's ages, semi – structure interviews are the most effective research method to include into our lesson study. However, we have to consider, according to Bell (2014) that we are not to be biased and ask miss-leading questions. We both agreed on four questions that will add qualitative depth to our results and modifications; 1. What did you enjoy about the lesson? 2. When do you use the question hand? 3. How do you feel when you use the question hand when you are learning? Why? 4. I am going to teach this lesson again. Can you tell me how I can use the question hand better?

A question that myself and the other researcher have contemplated that we may be asked is; how did you choose the children for the lesson study and interview? We understand that a limitation to our data is a that we have a small sample size, after all, for the scope of this study we are limited to what we can do. In spite of this, we are both agreed that if we were to do this research again, we would consider using a larger sample. Despite this, Sandelowski (1995 p.179) reassure that to 'determining adequate sample size in qualitative research is ultimately a matter of judgment and experience'. The children have been purposely selected by their class teacher to collect qualitative data.

In order to answer our research question, myself, and the other researcher, have decided upon some research question to develop our understanding and collect qualitative data; 1. Can questioning strategies support the development of young children's thinking skills? 2. Is the question hand a useful educational tool for young children? 3. Why do young children like or dislike using the question hand when answering topic – related questions. Furthermore, we did consider quantitative data when designing our observation sheet (Appendix 1). We incorporated a checklist for the observe to record simply when observing (Dawson, 2009). However, as Dawson (2009 p.15) states that qualitative data 'attempts to get an in-depth opinion from participants.' This corresponds more appropriately to what myself and the other researcher intend to collect. We understand that there are limitations to qualitative data, such as, the data collected is based on opinion and experience rather

than mathematical results (Mertens, 2015). However, this is the type of data we want to collect.

Following on from the idea of Dudley's (2014) lesson study, my research partner will be a non-participant observer throughout the activity and interviews, as I will be for her as well. We will both be writing notes from the task and interviews (Appendix 2). Caldwell and Atwal (2005 p.43) describe how vital observation is when collecting qualitative data, 'observation is an essential part of professional practice as well as being a highly valued and effective research method'. A limitation of a non-participant observation is that both practitioners can have a different perspective on how much detail to write for notes (Ostrower, 1998). This is something that me and the other research partner need to discuss beforehand to avoid this limitation. Although, we both agree that a non-participant observation will add a value to our study capturing unusual moments (Caldwell and Atwal, 2005).

Ethical consideration.

During this study ethical guidance documents will be adhered to, in addition to, an ethics form completed and signed by the relevant mentors (Appendix 3). The documents that will be adhered to are: *Research Ethics & Integrity Code of Practice* (UWTSD, 2017), *Revised Ethical Guidelines for Educational Research*. British Educational Research Association (BERA, 2011) and *Code of Professional Conduct and Practice for Registrants with the Education Workforce Council* (EWC, 2017).

The children involved in this study will not be treated any differently and the focus task and interviews will take place in a normal classroom environment. All children that are involved will be made aware that any time they can stop the interview or activity. If a child shows distress at any time during the interview or activity then the investigation will stop, this is complying with BERA (2011). The schools Safeguarding policy will also be adhered to; both researchers have a DBS check with no warnings or convictions.

BERA (2011 p.5) states that the 'researcher must take the necessary steps to ensure that all participants in the research understand the process in which they are to be engaged in.' Parental consent forms have been signed by the children's appropriate adult (Appendix 4)

and assent will be gained by all the children involved in the activity (Appendix 5). The children will also be read a statement explaining the activity and their rights (Appendix 6).

Following all guidelines and my professional responsibility I will not disclose any personal information of the child. I will protect the identity of the school, children and staff involved. Pseudonyms will be used to protect the identity of the children. If I am disclosed any safeguarding issues during my investigation, I will adhere to the Child Protection and Safeguarding policy of the school.

Lesson study 1.

The first lesson was conducted by myself (Appendix 7), whilst my research partner observed and took notes on the three target children, seven children all give assent to be involved in the lesson. I discussed with the class teacher what children from the group should be observed and interviewed. Initially this lesson was an area of interest, so I was looking forward to the lesson and I knew the children have had previous knowledge about the topic because it was their current topic. After the lesson and interview, myself and the other researcher were able to reflect and discuss any recommendations to modify the next lesson and our future practice (Appendix 8). This lesson did not involve myself promoting the use of the question hand, it was interesting to see if the children used it naturally (something me and the other researcher discussed beforehand). A positive part of the lesson was that the children were all fully engaged, and all wanted to join in (Appendix 9), for example you can see by all observation records (Appendix 10) that all children were able to answer.

The lesson was based on a topic the children know, so we expected the children to responded with the use of extended and simple sentence. As well as, the children in the first lesson study were top ability and Child A and C were More Able and Talented (MAT) children of that ability group. A positive of the lesson was that the children were attempting to give full sentences. Child C was able to give an extended sentence response as well as create a question for the other children '*who is scared of spiders?*', child C answered this themselves '*people are scared of spiders*'. However, myself and the researcher noted the children were only able to give one-worded answered or sometimes phrased sentences. We did not expect this because of the ability of the children.

A strategy to take forward for the next lesson or a similar lesson is to give the children an opportunity to add additional information. Myself and the other researcher expected the children to go shy, which was the case for child A (Appendix 10). However, child B and child C were able to add additional information using mainly phrase and simple sentences. The other researcher noted it was only when I encouraged, that the both children were using simple and phrased sentences more.

Critical feedback from the other researcher was that I did not give an even amount of thinking time for all the questions and especially not enough thinking time for the MAT children. We discussed together that this may be a possible reason for only receiving five simple sentences responses. We recommended for the next lesson, for the other researcher to pace the lesson allowing the children to have time to respond/think.

Myself and the other researcher wanted to use our interview responses (Appendix 11) from the children to help modify our lesson for lesson study two and whether our changes helped develop children's thinking to a Higher Order Thinking level. Child A, B and C recommended that we showed the next children a picture of the question hand (visual aid). Child C also went on to say that we need to *'tell them to use it'*. We decided that we will act upon the children's responses and have decided to have a question hand on the worksheet (see *image 1*) and for the other researcher to use her own hand as a visual aid and also remind the children constantly about the question hand. We recognised that if they knew about it for this lesson, they would have used it to support their asking and answering questions.

When we discussed our research with other practitioners very little knew about the question hand strategy. However, all three target children knew why and how to use it; *'when you have a question to answer'* (Child C) *'There are who, what, when, where and why. They help with answers'* (Child B) and *'There are different questions. It is on my hand to help me'* (Child A). We both understood that the children need to know about the strategy for it work effectively. We recognised that we need to check the understanding of the strategy with the children involved in lesson study two for the learning and thinking to move forward.

When the children were asked how they felt and why? child A described that they liked using it *'because I can ask different questions'* and child C described that they like using it *'because it helps me to answer questions'*. The children could give additional information when prompted by the teacher. However, there was a lot of repeated answers and the children did not really express their opinion. Although, child B did express an opinion once, saying that he did not like the question hand *'because it's too easy for me'*. Like child B, myself and the other researcher wanted the next group of children to have an opinion from their Higher Order Thinking.

Overall, we are pleased with how the lesson went all children were able to reach the first Learning Objective (LO): I can fill in a fact file about different mini beasts. However, the lesson did not provide a foundation for the children to reach the second LO: I can extend my sentences. Although, the lesson study one showed how literature was connected to the experience we still felt as practitioners that we needed to modify the lesson to scaffold the children effectively with their Higher Order Thinking skills. We also recommended that the next researcher makes sure that her subject knowledge was at a good level, in case questioned by the children.

Lesson study 2.

The second lesson was conducted by the other researcher, following the same lesson plan (Appendix 7) but implementing the changes that we discussed in lesson study one. She also used the ARC (Appendix 8) from my lesson as a guide in her practice. Whilst I observed and took notes on 3 target pupils. The other researcher had one child declined the assent and we both followed the correct conduct that we discussed in the ethics form (Appendix 3) (Appendix 12). Now, there was only three in the group, these would be the children I observed. Again, after the lesson and interview, myself and the other researcher were able to discuss our findings, compare lessons and discuss if the modifications effectively worked for the children (Appendix 13). We also created recommendations to move the lesson and learning forward. The research was conducted the same environment as lesson study one, all the children involved were engaged, calm and relaxed. All children involved participated

in the lesson because you can see from the observation notes that all children had an input into the lesson (Appendix 14).

The children in this group were a 'middle' ability. The ability group was purposely chosen to see if the strategy and recommendations develop the children's thinking skills (simple and extended sentences). Before the researcher started the activity, she reminded the children about the question hand, the children all remembered what it was and how to use it. They all stated in their interview (Appendix 15), that they are happy to use it: *'I am happy to use it because it helps me'* (Child A) *'because it helps me'* (Child B) *'I like to see it because it helps me'*. Comparing the answers to lesson study one, the children in this lesson gave more simple and extended answers. The children confidently used connectives and simple starters i.e. *'I think that...'* Myself and the other researcher discussed this and believed that the recommendations from lesson study one about visual aids and reminders helped the children with their sentences. The visual aids also seemed to help the children activated their prior knowledge allowing them to develop those extended sentences.

It was apparent that there was a difference in the understanding of a question from lesson study one. We believe it's because the children were aware that the question hand was being used by the teacher, the children showed that they had knowledge about the 5 W's and H because they were able to respond to the strategy by asking and answering questions. This showed us the importance of the strategy being promoted was vital for children's talk. As well as, children from lesson study one discussing the importance of knowing about the question hand, the children in this study also expressed the importance. Child B and C were able to recognise that the strategy helps them in their learning when they see it (visual aid). Child A went on to express that they use it to help ask questions. Child A also recognised that they have used the strategy in a previous lesson: *'we used it in Swansea Jack'*.

It was apparent with both abilities that they knew what a question was but the children in this lesson study used more extended sentences to answer. The children in this study were able to respond appropriately towards the questions, comparing, disagreeing, and also stating opinion. Child a had the confidence to disagree with child b, we did not observe this

level of talk in lesson study one. From observing the other researcher teaching, it was apparent then when she used her hand as a visual aid the children become more confident in answering. Myself and the researcher discussed this afterwards and believed that the children felt confident looking at the visual aid because they weren't asking for support out loud. It's important that we take this into consideration when teaching in the future, I recommended to the other researcher that she could have moved the learning forward even more by encouraging the children to use their own hand as a visual aid (Appendix 12s).

We also recognised the importance of thinking time for all ability children. Comparing lesson one and lesson two, we observed the amount of thinking time in lesson study two allowed all ability children to have the time to extend their learning and thinking. It's important to question, that if I gave the children in lesson one more time to think then they would be able to extend their answers, especially those MAT children. For the lower ability children in lesson study two, the amount of thinking time gave them the opportunity to think of an answer without being embarrassed. All children understood the use of the question hand, however, in lesson study two, child a was able to recognise it was a cross curricular questioning strategy. It's important that myself and the other researcher consider using the strategy across the curriculum for the children to recognising its purpose when developing thinking, both in the Foundation Phase and Key Stage 2.

Myself and the other researcher both agreed that the recommendations from lesson study one to lesson study two made an effective difference to the children's thinking skills. We have both recognised that to create an effective question, we need to consider the importance of talk in the classroom, thinking time, visual aids, and teacher's subject knowledge. These techniques we believed will allow us to develop the children's thinking by questioning.

Discussion.

From both lessons it's important to state that the questions asked by using the questioning hand strategy created classroom talk and developed the thinking skills. Returning to what DCELLS (2018, p15) state about questioning being 'the driving force of developing thinking', these both lessons agreed with the statement. In lesson one and two you can see that a

practitioner scaffolding the children with questions allowed the children to move their own learning forward. By asking questions and encouraging the children, allowed the children to have a discussion among themselves. However, from it being a small study it's hard to compare if questioning a child to develop their thinking skills is a mastering their basic education, in which Cremin and Arthur (2014) believe. Although, if this was done with a larger scale, it's no doubt that a questioning strategy is a facilitator to developing children's thinking skills. One may argue, that in the lesson one study, the practitioner was the facilitator to most of the questions. However, comparing it to lesson study two, when the strategy was introduced there was still an equal amount of teacher lead questions, however, there was a higher level of thinking from the children. Both activities allowed the children to express an opinion, which coincidence what Successful Futures (Donaldson, 2015) hopes to achieve. Conversely, the strategy being introduced in lesson study two, is where both practitioners witnessed more of an opinion being given from a usual shy child (Child a, class b).

It is apparent that from the practitioner consulting the children about using the question hand strategy, the level of thinking and talk was higher in lesson study two than it was in lesson study one. However, NSEAD (2009) believe that the strategy is the most considered for new learning, these lessons were based on the children's previous knowledge. It's important to note that child a (class b) stated that they had used the strategy in a previous lesson on a different topic. This shows the connection of the strategy to the importance of children's learning. This is because the strategy promotes the work of Blooms (1956), this child was an 'average' ability child and they could make a connection across the curriculum. However, this is one child, to make this successful a school need to examine this as a whole school approach. The strategy as a whole school approach will facilitate the level of thinking according to the Blooms Taxonomy (Bloom, 1956). It's important to discuss that the question hand strategy was a facilitate to the practitioners in order to assess the level of thinking the children would achieve. If you look at the level of thinking from the responses, the 'average' ability children in lesson two responded with more mature sentences. Radmehr and Drake, (2017) stated that the Blooms Taxonomy (1956) framework guides teachers in crafting question. This investigation shows how a strategy to facilitate the Blooms Taxonomy (Blooms, 1956), did just that but also allowed the children to questioning

themselves and others. For the scope of this investigation, it's vital that we discuss that all children knew about the strategy and that the results of the investigation may not be transferable to another school.

Some may argue that because of the age range of these children, that bare minimum subject knowledge was needed to move the lesson forward, as Shulman (1987) would state. However, even though the practitioners had a good foundation of subject knowledge, they also needed to have the knowledge to use the strategy as an Assessment for Learning technique. As both practitioners needed to assess the situation of the children's thinking skills, the question stated previously by DCELLS (2008) were used to highlight any learning gaps, which is what McAteer (2013) states a questioning strategy needs to do. Relating to this, both practitioners reflected on lesson study one and used their assessment on the children's learning to modify the next lesson. Both practitioners were confident in their subject knowledge to adjust the next lesson from the recommendations by the children.

When reflecting on lesson study one, both practitioners agreed that not enough thinking time was giving to the children, especially for the MAT pupils. This certainly agreed with DCELLS (2018) and that teachers do not give enough thinking time for children to answer a question. Modifying this change in lesson study two, both practitioners reflected on the importance of thinking time to develop the Higher Order Thinking skills, agreeing with what NSEAD (2009) and Bloom (1956) stated. Both practitioners question whether the amount of thinking time allowed the 'average' ability to think of the responses confidently that the practitioner wanted without feeling 'too slow' or embarrassed. Cremin and Arthur (2014) stated that thinking time worked more effectively in partners, however, both practitioners agreed that from this small-scale study that children in any ability would benefit from an ideal amount of thinking time.

Conclusion and recommendations.

There are many positive outcomes that have come from this study, that I will be able to take forward as a teacher with the introduction of Successful Futures (Donaldson, 2015). The lesson study itself (Dudley, 2014) allowed me and the other researcher the opportunity to reflect upon our practice with using the recommendations from the children and each other

(Lewis, 2009). Referring back to our main question, us as practitioners have to agree with Verhoef *et al.*, that the lesson study changed our views about what we can do as teachers to develop all children's thinking in the classroom. Although, one issue encountered from the lesson study, a child declining assent, this limited our scale of study. However, we both agreed that this issue developed us as practitioners investigating an education issue because we were able to follow BERA (2011), EWC (2017) and UWTSD (2017).

From this study I recommend that it's important for me as a practitioner to follow Blooms Taxonomy (Blooms, 1956) when they want to develop Higher Order Thinking within a classroom. Even though, this was a small-scale study it was obvious that using the question hand developed the children's thinking (Cremin and Arthur, 2014 and DCELLS, 2018), this strategy is something both us researchers recommend practitioners use when creating new learning and activating prior knowledge NSEAD (2009).

When discovering the literature about thinking time (DCELLS, 2018), I never understood how vital it was to develop Higher Order Thinking. Having the ability to reflect on both lessons, we were able to recognise that pacing lesson study two gave the children the opportunity to talk which created more opportunity to develop Higher Order Thinking. For all this to work, we both agreed that good subject knowledge (Shulman, 1987) is vital for a teacher to be able to move the learning and thinking forward.

Finally, returning to our research question '*How can we develop children's thinking skills through the use of questioning strategies in the Foundation Phase?*'. We believed that with the relevant literature to compare to experience there are many elements to consider when asking an effective question; thinking time, subject knowledge, and age appropriate strategy. Even though, this was a small-scale study, if we were able to do this again we would consider other ages groups and more children, it was interesting to note how a strategy can develop thinking skills that encourage good quality talk.

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Appendices

1. Observation sheet (blank).
2. Interview sheet (blank).
3. Ethics form.
4. Parental consent.
5. Assent (blank).
6. Statement.
7. Lesson plan.
8. Lesson study 1 ARC.
9. Class A assent.
10. Class A observation record.
11. Class A interview.
12. Class B assent.
13. Lesson study 2 ARC.
14. Class B observation record.
15. Class B interview.

1. Observation sheet (blank).

Date:	Time:	Activity:
Pupil's age:	Pupil's gender:	Pupil's ability:
Teacher:	Observer:	Other pupils:

	One-word	Phrase	Simple sentence	Extended sentence
Who?				
What?				
Where?				
When?				
Why?				
How?				
Additional Notes				

2.Interview sheet (blank)

Date:	Time:	Activity:
Pupil's age:	Pupil's gender:	Pupil's ability:
Teacher:	Observer:	Other pupils:

What did you enjoy about the lesson?	
When do you use the question hand?	
How do you feel when you use the question hand when you are learning? Why?	
I am going to teach this lesson again. Can you tell me how I can use the question hand better?	

3. Ethics form.

SECTION A: About You (Principal Researcher)

Full Name:	Stephanie Colwill.				
Tick all boxes which apply:					
Member of staff:	☐	Student:	☒	Honorary research fellow:	☐

Faculty/School/Centre:	Yr Athrofa		
Campus:	Townhill/Swansea		
E-mail address:	1300377@student.uwtsd.ac.uk		
Contact Telephone Number:	07788208107		
For students:			
Student Number:	13003377	Undergraduate	☐
Programme of Study:	PGCE Primary.	Taught Postgraduate	☒
Director of Studies/Supervisor:	Catherine Morgan/Jayne Morgan.	Research	☐

SECTION B: Approval for Research Activity

Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)	YES	☒	NO	☐
				Date
If Yes, please indicate source of approval (and date where known):	Research Degrees Committee	☐		
	Faculty Research Committee	☐		
	Other TET Module Team	☒	20.2.18	

Approval in principle **must** be obtained from the relevant source prior to seeking ethical approval.

SECTION C: External Ethical Guidance Materials

Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines.	
University of Wales Trinity Saint David (2017). <i>Research Ethics & Integrity Code of Practice</i> . [online] Uwtsd.ac.uk. Available at: http://www.uwtsd.ac.uk/media/uwtsd-website/content-	☒

assets/documents/research/research-ethics-integrity-code-practice.pdf [Accessed 21 Feb. 2018].	
BERA (2011). <i>Revised Ethical Guidelines for Educational Research</i> . British Educational Research Association. UK. (http://www.bera.ac.uk/publications)	x
David, M., Edwards, R. and Alldred, P. (2001) 'Children and school-based research: "Informed consent" or "educated consent"?' , British Educational Research Journal, 27(3), pp. 347–365. doi: 10.1080/01411920120048340.	x

SECTION D: External Collaborative Research Activity

Does the research activity involve collaborators outside of the University?	YES	☐	NO	x
If Yes, please provide the name of the external organisation and name and contact details for the main contact person:				
Institution				
Contact person name				
Contact person e-mail address				

Where research activity is carried out in collaboration with an external organisation

Does this organisation have its own ethics approval system?	YES	☐	NO	x
If Yes, please attach a copy of any final approval (or interim approval) from the organisation				

SECTION E: Details of Research Activity

Indicative title:	How can we develop children's thinking skills through the use of questioning strategies in the Foundation Phase?		
Proposed start date:	27.3.18	Proposed end date:	16.4.18
Purpose of research activity (including aims and objectives) Outline the purpose, aims and objectives of the research activity, including key research questions. Show briefly how existing research has informed the proposed activity and explain what the research activity will add and how it addresses an area of importance. (Maximum 300 words)			
The aim of this research activity is to observe how questioning strategies i.e. question hand effects how children think. As Cremin and Arthur (2014 p.317) state 'effective questioning is the key to good teacher assessment', It will be interesting to observe how a question strategy, such as the question hand allows a child to think more about their response. This study will allow me as a trainee teacher to develop and understand what strategies I need to adapt to that will allow the children to have more effective thinking. With becoming a teacher alongside the introduction of the Donaldson report (2015), it is stated that a good teacher is aware of good assessment for learning AFL. This study will make me aware of all the effective question strategies that develop children's thinking. Developing onto this,			

myself and the other researcher, have decided upon some research question; 1. Can questioning strategies support the development of young children's thinking skills? 2. Is the question hand a useful educational tool for young children? 3. Why do young children like or dislike using the question hand when answering topic-related questions?

(this box should expand as you type)

Proposed methods

Provide a brief summary of all the methods that **may** be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed. (Maximum 600 words)

This study will use the idea of a lesson study (Dudley, 2010) to conduct its findings. Each researcher will conduct one lesson, while the other observes. After each lesson, there will be semi-structured interviews with 3 children from each class, based on a specific area of lesson. From what Dudley (2010 p. 5) suggests that 'teachers who engage in lesson study undertake a cycle of activity together intended to investigate and improve a specific aspect of classroom technique so that pupils' learning and progress improves because pedagogy is better designed and delivered'. For myself and the other researcher, this type of study will able us to reflect upon our practice, even though, Dudley does suggest you should wait at least a week before reflecting. However, due to circumstances out of our control, we will have to reflect as soon as. When collecting data from the study I will be a non-participant observer. Non-participant observation allows me to observe the effective use of question, without being distracted. I am able to focus on the three pupils and collect the data I need for our study. Before reflecting, semi- structured interviews are taking place with the three chosen pupils. Semi-structured interviews allow us to adapt to the situation (if needed to), making it less formal (Bartlett and Burton, 2012). However, I am aware that our presence when interviewing a child can influence their ideas. When the interviews are taking place, both myself and the other researcher will be in the room with the door open for safeguarding purposes.

(this box should expand as you type)

Location of research activity Identify all locations where research activity will take place.
The school that my experience is based upon is a large community school based near the centre of Swansea. Class A and a B are both reception classes with 30 children in each classroom. (this box should expand as you type)
Research activity outside of the UK If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural sensitivities or vulnerabilities of participants.
n/a (this box should expand as you type)

SECTION F: Scope of Research Activity

Will the research activity include:	YES	NO
Use of a questionnaire or similar research instrument?	☐	X
Use of interviews?	X	☐
Use of diaries?	☐	X
Participant observation with their knowledge?	X	☐
Participant observation without their knowledge?	☐	X
Use of video or audio recording?	☐	X
Access to personal or confidential information without the participants' specific consent?	☐	X
Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?	☐	X
Performance of any acts which may cause embarrassment or affect self-esteem?	☐	X
Investigation of participants involved in illegal activities?	☐	X
Use of procedures that involve deception?	☐	X
Administration of any substance, agent or placebo?	☐	X
Working with live vertebrate animals?	☐	X
Other primary data collection methods, please explain in this box	☐	X

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SECTION G: Intended Participants

Who are the intended participants:	YES	NO
Students or staff at the University?	x	☐
Adults (over the age of 18 and competent to give consent)?	☐	x
Vulnerable adults?	☐	x
Children under 18?	X	☐
Prisoners?	☐	x
Young offenders?	☐	x
Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?	☐	x
People engaged in illegal activities?	☐	x
Others (please identify):	☐	x

Participant numbers and source

Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?

There will be sixty children u18 involved (female and male) in the lesson, however only 6 children involved in the interviews. The children will be identified as child a, b and c. The children will purposely be selected to their ability.
this box should expand as you type)

Information for participants:	YES	NO	N/A
Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	X	☐	☐
Will you tell participants that their participation is voluntary?	X	☐	☐
Will you obtain written consent for participation?	X	☐	☐
Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	X	☐	☐
If the research is observational, will you ask participants for their consent to being observed?	X	☐	☐
Will you tell participants that they may withdraw from the research at any time and for any reason?	X	☐	☐

With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☐	☐	X
Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	X	☐	☐
Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	X	☐	☐
If NO to any of above questions, please give an explanation			
(this box should expand as you type)			

Information for participants:	YES	NO	N/A
Will participants be paid?	☐	X	☐
Is specialist electrical or other equipment to be used with participants?	☐	x	☐
Are there any financial or other interests to the investigator or University arising from this study?	☐	x	☐
Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?	☐	x	☐
If YES to any question, please provide full details			
(this box should expand as you type)			

SECTION H: Anticipated Risks

Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them.	
If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.	
Full risk assessment completed and appended?	
Yes	☐
No	☒
Risks to participants	
For example: emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information	
The children involved in this study will not be treated any differently and it will be in a normal classroom activity, that they are used to. All children will be made aware that at any time they feel they cannot answer or visibly show distress, then they can stop the interview/observation. I, the researcher, will adhere to all policies and will not allow the data to be affected by my own opinion. (this box should expand as you type)	
If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities	
N/A (this box should expand as you type)	
Risks to investigator	
For example: personal safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest	
The interviews conducted will be following the safeguarding policy, the other researcher will be in the room and all doors will be left open. Both researchers have a DBS with no warnings or convictions. (this box should expand as you type)	
University/institutional risks	
For example: adverse publicity, financial loss, data protection	
I am aware that I am representing the University and will maintain a professional attitude throughout the study to not damage the reputation of the University. (this box should expand as you type)	
Adverse outcomes	

List measures put in place to limit any adverse effects or outcomes of research activity where appropriate. Include any emergency protocols.

There is limited opportunity in this study for adverse outcomes. I will be following all school policies and if there is anything disclosed to myself during the study, I will follow the schools protocol.

(this box should expand as you type)

Disclosure and Barring Service

If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.

YES

NO

N/A

Has a DBS certificate been obtained?

x

☐

☐

SECTION I: Feedback, Consent and Confidentiality

Feedback
What feedback will be provided to participants, how will this be done and when?
My study will be shared with the Headteacher, if requested.
(this box should expand as you type)
Informed consent
Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded.
I will be requesting assent from the children by the children responding to the statement 'Miss Colwill/Miss Jenkins are doing a small project for University to see how you boys and girls think. Do you want to join in? 😊yes 😞no', the children will be asked to colour one smiley face. I will also be requesting parents' consent using the University's letter and the school are fully aware of the research that will be taking place.
(this box should expand as you type)
Confidentiality / Anonymity
Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.
I shall not disclose any personal information of the child to anyone. I will protect the identity of the school, child and staff involved in this study. I may use the pseudonyms in a whole class observation and refer to the children as a child a etc.

SECTION J: Data Protection and Storage

In completing this section refer to the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (<http://uwtsd.ac.uk/library/research-data-management/>).

	YES	NO
Does the research activity involve personal data (as defined by the Data Protection Act)? <i>"personal data"</i> means data which relate to a living individual who can be identified— (a) from those data, or (b) from those data and other information which is in the possession of, or is likely to come into the possession of, the data controller, and includes any expression of opinion about the individual and any indication of the intentions of the data controller or any other person in respect of the individual.	☐	X
If YES, provide a description of the data and explain why this data needs to be collected: (this box should expand as you type)		
Does it involve sensitive personal data (as defined by the Data Protection Act)? <i>"Sensitive personal data"</i> means personal data consisting of information as to – (a) the racial or ethnic origin of the data subject, (b) his political opinions, (c) his religious beliefs or other beliefs of a similar nature, (d) whether he is a member of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992), (e) his physical or mental health or condition, (f) his sexual life, (g) the commission or alleged commission by him of any offence, or (h) any proceedings for any offence committed or alleged to have been committed by him, the disposal of such proceedings or the sentence of any court in such proceedings.	☐	X
If YES, provide a description of the data and explain why this data needs to be collected: (this box should expand as you type)		

	YES	NO
Will the research activity involve storing personal data on one of the following:		
Manual files (i.e. in paper form)?	☐	X
University computers?	☐	X
Private company computers?	☐	X

Home or other personal computers?	☐	x
Laptop computers/ CDs/ Portable disk-drives/ memory sticks?	☐	x
“Cloud” storage or websites?	☐	x
Other – specify:	☐	x
For all stored data, explain the measures in place to ensure data confidentiality, including details of password protection, encryption and anonymisation:		
(this box should expand as you type)		
Will the research activity involve any of the following activities:	YES	NO
Electronic transfer of data in any form?	x	☐
Sharing of data with others at the University?	x	☐
Sharing of data with other organisations?	☐	x
Export of data outside the European Union or importing of data from outside the UK?	☐	x
Use of personal addresses, postcodes, faxes, emails or telephone numbers?	☐	x
Publication of data that might allow identification of individuals?	☐	x
Use of data management system?	☐	x
Data archiving?	x	☐
If YES to any question, please provide full details, explaining how this will be conducted in accordance with the Data Protection Act (and/or any international equivalent):		
(1)Audio recording the interview on a school Ipad to later transfer to a password protected laptop. (2)Data will be shared with the other researcher. All data will be stored on a password protected computer, no USB devices will be used. (this box should expand as you type)		

List all who will have access to the data generated by the research activity:
Student and researched partner. (this box should expand as you type)

List who will have control of, and act as custodian(s) for, data generated by the research activity:
Student and research partner. (this box should expand as you type)
Give details of data storage arrangements, including where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.
Password protected computers. (this box should expand as you type)

SECTION K: Declaration

The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants. In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's <u>Research Ethics and Integrity Code of Practice</u>	
Signature of applicant:	Date: 26/02/18

For students:

Teacher / Senior Mentor:	Cerian Appleby.
Signature:	SIGNED HARD COPY.
Date:	26/02/18

Supervisor:	Jayne Morgan
Signature:	SIGNED HARD COPY.
Date:	26/02/18

4. Adult consent form.



Dear Parent/Guardian,

Your child's school is a partner with Yr Athrofa at University of Wales Trinity Saint David in Carmarthen and Swansea. This school offers placements to students who are learning to be teachers.

The student-teacher in your child's class has been given the task of planning, teaching and evaluating one lesson so that he/she can develop specific strategies to improve their own teaching. As part of this, student-teachers will be observing the children's responses and asking some pupils their views on parts of the lesson. This is designed to inform students' own practice and support children's learning.

Any information collected would remain confidential, and both the school and the children would remain anonymous in work produced. The work undertaken would be in line with the University's ethical guidelines. If, at any time, your child does not want to share ideas, they would not be required to do so.

If you are happy for your child to contribute to the project, please complete the parental consent form below and return directly to the school as soon as possible. If you are interested in the outcome of this project or if you have any questions, please contact the University Partnership Office - partnership@uwtsd.ac.uk.

Yours faithfully,

A handwritten signature in blue ink that reads 'C Morgan'.

Catherine Morgan

Module lead – The Enquiring Teacher

As Parent/Guardian of..... (pupil name), I do / do not give consent (please delete) for my child to take part in this project

Signed.....(Parent/Guardian).

Date.....

5. Assent.

Miss [REDACTED]/Miss [REDACTED] are
doing a small project for
University to see how you
boys and girls think. Do you
want to join in?



yes



no

6. Statement.

Statement to read to the children.

Miss Colwill and Miss Jenkins are doing a small project for University. We want to learn about how you boys and girls think. Miss Colwill/Miss Jenkins will be in the lesson to watch how I teach, she will then give me some points on how I become a better teacher. It is fine if you do not want to join in, if so, colour in the sad emotion and write your name. If you are happy to join in, colour in the happy emotion and also write your name.

7. Lesson Plan.

Stephani e Colwill. Tiffany Jenkins.		Sessio n ref:	270318_ TET	Date: 27/03/18 – 29/03/18.	Class: Reception.
Name of Trainee:					
Targed(au) Hyfforddi Personol		S3.3 Clear ability to challenge pupils through highly effective, differentiated questions and activities. S.2 Personal research supports planning, teaching and assessment in a creative and innovative way.			
		Number of learners:	30 each class.	Age: 4 – 5 years old.	
Learning objectives/intentions:	LO: I can fill in a fact file about different minibeasts. I can extend my sentences.	Success Criteria	- Work together. - Use the question hand. - Fill in a fact file. - Answer questions.	Meeting learners' needs:	
Introduction/plenary tasks	Main activities	Resources/ Key Vocabulary	Assessment for Learning (strategies and opportunities)		
Introduction Explain about the research project and ask the children to colour in one smiley face whether they agree or not.	Trainee focused task. The children will be asked to discuss as a group 3 different mini beast. I will then ask them 6 different questions about the chosen minibeasts	Work sheets. Visual aid – question hand. Pencils and paper. Minibeasts. Ladybird. Worm.	Lesson study. Observation by other researcher. Open—ended questions. Instant verbal feedback.		

	(based on the question hand). The children will contribute to shared writing about the chosen minibeasts (x3).	Spider. Habitats. Animals. Dens. Question hand. Who. What. Where. When. Why. How. Pwy? Beth? Ble? Sut? Paw? Pryd?	
Plenary Ask the children if they have any additional information they want to share about a minibeasts. Conduct the 3 interviews.			
Curriculum coverage (range and skills). PSD – become independent thinkers and learners. - Concentrate for lengthening periods. - Value the learning, success and achievements of themselves and other people. Language, Literacy and Communication – - Talk about things – adding some description. - Use the 5 W's. - Listen to and carry out a three-step instruction. - Follow action words/commands. - Answer open-ended questions. - Write an emergent piece of writing. - Use spelling support such as phonic mats, flashcards and other resources. - KUW – - Observe the difference between different animals. - Identify that some animals live outside.			
Literacy (LNF) - Talk about things from their experience and share information. - Use words, phrases and simple sentences. - Join in, repeat or memories. - Ask questions. - Exchange ideas in one-to-one and small group discussions. - Take part in activities. - Blend combinations of letters. - Recognize and write familiar high-frequency words.		Numeracy (LNF) - Identify steps to complete the task or reach a solution. - Present work orally, pictorially and in written form, and use a variety of ways to represent collected data.	

- Relate information and ideas from a text to personal experiences. - Compose and dictate a sentence. - Copy and write letters. - Begin to sequence words. - Show understands of different formats. - Hold writing instruments appropriately. - Write from left to right. - Distinguish between upper – and lower – case letters.			
DCF n/a	Thinking - Ask why, what, how, where, when, etc. - Identify, in response to questions, some basic success criteria for what is going to be done.	ESDGC - Understand the variety of living things. - Different habitats support different animals.	YCC n/a

8. Lesson study 1 ARC.

Assisted Reflective Conclusions (ARC) Model

Date: 27/03/18.

Critical incident (focus): Mini beasts fact file.

Profiad/ Experience	
Teimladau/ <i>Feelings</i>	Before the lesson took place, I was initially looking forward to the lesson because it is an area of interest. I am pleased with how the lesson went, however, I have learnt from the children how I need to adapt the lesson.
Cofio a Deall/ <i>Remember and Understand</i>	The aspects that went well are: - Children were fully engaged throughout the activity. - Some children were attempting to give more simple and extended sentences. - The children were given the opportunity to provide additional information. - The research itself was conducted in a relaxed environment. - All children wanted to take part. - When using the phrase 'have a think', it was witnessed that some children took the time to think. Aspects of the lesson I need to consider for next time are: - The children were unaware that the question hand was the strategy being used. - 5/7 of the children could not think of any additional information or question to ask each other. - I was depending on previous knowledge. - MAT pupils did not have enough thinking time. - My subject knowledge was challenged in this activity.
Gwerthuso a dadansoddi/ <i>Evaluate and analyse</i>	What I will keep the same to ensure effective teaching is: - Engaging the children from the start of the lesson and throughout. Creating lots of discussion and sharing their knowledge with their peers keeps all of them engaged. - Giving the children an opportunity to ask and share additional information gave the MAT children an experience to develop. - When conducting research again, I am not going to change the environment children learn in because the natural learning environment made this research activity normal for the children. The causes of the areas of weakness are: - I did not give the same amount of 'thinking time' for all questions. - For additional information I was expecting the children to have an adequate amount of previous knowledge, however, this did not facilitate the discussion for this section. Some children did not understand what extra information I wanted from them because I did not provide a question. Some repeated previous answers.

	- My own subject knowledge was challenged when a pupil asked me a question – I was unsure of the answer which lead to me not moving the thinking forward. - The children were unaware of the ‘question hand’ strategy being used, so this led to them not being as confident in answering or questioning.
Casgliadau a chmau gweithredu/ <i>Conclusions and actions</i>	To follow on the idea of a lesson study, the other researcher will need to adapt her lesson from this ARC. We have decided to adapt the lesson by: - Giving the equal amount of thinking time, follows on from the idea of Choi, Land and Turgeon (2005) who believe to extend thinking responses, children need equal amount of thinking time. - From the respond of the interviewed pupils, we are going to provide children with the information that we are using the question hand. As well as, plenty of visual aids of the question hand and an opportunity for the children to use their own hand to support them (kinesthetic learning). - For now, and future lesson, own subject knowledge will be at a good standard for moving the thinking and learning forward.
Y profiad newydd / <i>Transformed experience</i>	

9. Class A assent.

doing a small project for
University to see how you
children think. Do you want to
join in?

 yes  no

 Class A

doing a small project for
University to see how you
children think. Do you want to
join in?

 yes  no

 Class A

doing a small project for
University to see how you
children think. Do you want to
join in?

 yes  no

Class A

10. Class A observation records.

Observation Schedule for Child A

Date: 27/03/2018	Time: 1:30 - 2:05 pm	Activity: mini - beast factfile
Pupil's age: 5	Pupil's gender: Female	Pupil's ability:
Teacher: Miss Stephanie Colwill	Observer: Miss Tiffany Jenkins	Other pupils: 4

	One-word	Phrase	Simple sentence	Extended sentence
Who?	✓	✓		
What?		✓	✓	
Where?	✓	✓		
When?	✓	✓		
Why?	✓	✓		
How?	✓	✓		

Additional Notes

Ladybird.
It has spots.

At night.
fly.
long legs.

Nighttime.

It's hungry.
Dark place.

flies.
Baby Spider.
It is slimy.

Worm.

Holes.

In the mud.
So it can move.
It wriggles.

This child can
give mostly one word
answers and can
give phrase answers
when prompted. The
child could not provide
any additional information.

Observation Schedule for Child B

Date: 27/03/2018	Time: 1:30 - 2:05 pm	Activity: mini - beast factfile
Pupil's age: 5	Pupil's gender: male	Pupil's ability:
Teacher: Miss Stephanie Colwill	Observer: Miss Tiffany Jenkins	Other pupils: 4

	One-word	Phrase	Simple sentence	Extended sentence
Who?	✓	✓		
What?	✓	✓	✓	
Where?		✓		
When?	✓	✓		
Why?	✓			
How?	✓	✓	✓	

Additional Notes

It is red.

It can fly - with wings.

In ground.

Small, black.

Spider.

Walks.

Tired.

Hungry.

How does Spider's Scare?

At the end it's yellow.

It slithers:

Digs a hole.

A worm.

At night.

This pupil can give one-word and phrase answers without support. They can give additional information when prompted by the teacher.

Observation Schedule for Child C

Date: 27/03/2018	Time: 1:30 - 2:05 pm	Activity: mini - beast factfile
Pupil's age: 5	Pupil's gender: male	Pupil's ability:
Teacher: Miss Stephanie Colwill	Observer: Miss Tiffany Senkins	Other pupils: 4

	One-word	Phrase	Simple sentence	Extended sentence
Who?	✓	✓		
What?	✓		✓	✓
Where?	✓	✓		
When?			✓	
Why?	✓	✓		
How?		✓		

Additional Notes

It has 7 spots.

Worm.

In a tree.

It has no legs.

When it's tired.

Hungry.

It's a spider.

It needs to.

Creepy;

with it's legs.

leaves.

People are scared of spiders.

Who is scared of spiders?

This child can use one word, phrases and some simple sentences independently.

This child can give additional answers and ask a question independently.

11. Class A interview.

Focus group interview questions for Child A

Date: 27/03/2018	Time: 2:05 - 2:20pm	Activity: mini - beast fact file review
Pupil's age: 5	Pupil's gender: Female	Pupil's ability:
Teacher: Miss Stephanie Colwill	Observer: Miss Tiffany Jenkins	Other pupils: 2

What did you enjoy about the lesson?	Learning about mini-beasts.
When do you use the question hand?	There are different questions. It is on my hand to help me.
How do you feel when you use the question hand when you are learning? Why?	yes because I can ask different questions.
I am going to teach this lesson again. Can you tell me how I can use the question hand better?	Put it on the table (A picture).

Focus group interview questions for Child B

Date: 27/03/2018	Time: 2:05 - 2:20pm	Activity: Mini - beast factfile review
Pupil's age: 5	Pupil's gender: Male	Pupil's ability:
Teacher: Miss Stephanie Colwill	Observer: Miss Tiffany Jenkins	Other pupils: 2

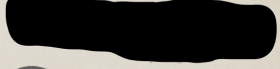
What did you enjoy about the lesson?	Learning about the Spider.
When do you use the question hand?	There are who, what, when, where, why. They help with answers.
How do you feel when you use the question hand when you are learning? Why?	No because it's too easy for me.
I am going to teach this lesson again. Can you tell me how I can use the question hand better?	Show the children. Tell them again.

Focus group interview questions for Child C

Date: 27/03/2018	Time: 2:05 - 2:20pm	Activity: mini - beast factfile review
Pupil's age: 5	Pupil's gender: male	Pupil's ability:
Teacher: Miss Stephanie Colwill	Observer: Miss Tiffany Jenkins	Other pupils: 2

What did you enjoy about the lesson?	Learning about the worm.
When do you use the question hand?	When you have a question to answer.
How do you feel when you use the question hand when you are learning? Why?	yes because it helps me to answer questions.
I am going to teach this lesson again. Can you tell me how I can use the question hand better?	For the children to see it. Tell them to use it.

12. Class B assent.

doing a small project for University to see how you children think. Do you want to join in?  yes  no 	doing a small project for University to see how you children think. Do you want to join in?  yes  no 	doing a small project for University to see how you children think. Do you want to join in?  yes  no 
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13. Lesson study 2 ARC.

Model Beirniad Wedi Adfyfyrrio (BWA)

Assisted Reflective Conclusions (ARC) Model

Date: 28/03/18

Critical incident (focus): Mini beasts fact file.

Profiad/ Experience	
Teimladau/ <i>Feelings</i>	I was looking forward to implementing the changes from yesterday's lesson. I am pleased with how the lesson went. Although, myself and the other researcher have collected recommendations if we were to do this again.
Cofio a Deall/ <i>Remember and Understand</i>	The aspects that went well are: - Children were fully engaged. - All pupils had enough time to think about their question and answer. - The research was conducted in the same environment as yesterday – it was calm and relaxed. - The children used the question hand to extend their sentences: I think that... because... I don't like... I do like... - There was lots of discussion during the whole activity – children were not afraid to question each other and build upon each other's answers. - The question hand visual aid was a foundation to remind children of their previous knowledge about mini beasts. - The children all joined in at some point when given the time to add additional information. - At first a pupil did not want to join in, I respected his discussion fully and let him carry on with his normal routine. However, once he felt comfortable he joined in and interacted with other children. Aspects of the lesson I need to consider for next time: - Encouraging the children to use their own hand as a visual aid. - Encouraging themselves to use ask more questions.
Gwerthuso a dadansoddi/ <i>Evaluate and analyse</i>	What I will keep the same to ensure effective teaching is: - Engaging the children throughout. - Giving the children the appropriate amount of thinking time. - Encouraging the children to respond to each other. - Giving the children the opportunity to add additional information and also to ask additional questions. - Creating an environment for lots of discussion and thinking. - From research purpose, using an environment the children are used too. Also following all guidelines suggested from BERA. - Using and reminding children of the question hand. The causes of the areas of weakness are:

	- It's possible that I scaffolded the children too much when it came to asking each other questions. - It is also possible that I did not encourage the children enough to use their own hand as a visual aid.
Casgliadau a chmau gweithredu/ <i>Conclusions and actions</i>	To follow on the idea of a lesson study, myself and the other researcher have recommendations if we were to do this or similar lesson again: - We have recognised the importance of using a question hand as a visual tool to support children in answering and asking questions. - We have understood when literature discusses the importance of thinking time. - We recognised the importance of talk in a classroom to develop children's thinking and communication skills. - Questioning strategies does improve thinking skills. - It is important for next time to encourage the children to use visual learning aids. - We recognised that the question hand can benefit all children i.e. KS2 FP MAT ALN and EAL.
Y profiad newydd / <i>Transformed experience</i>	

14. Class B observations.

Observation Schedule for Child A

Date: 28/03/2018	Time: 9:30 - 10:05am	Activity: mini - beast fact file
Pupil's age: 5	Pupil's gender: female	Pupil's ability: middle
Teacher: miss Tiffany Jenkins	Observer: miss Stephanie Coulth	Other pupils: Child B other Child C. 3

	One-word	Phrase	Simple sentence	Extended sentence
Who?				✓
What?				✓
Where?				✓
When?				✓
Why?				✓
How?				✓

Additional Notes

Been learning about butterflies
 new about the life. compared a worm
 They live under the mud. to a slippery
 They eat leaves because they Sluggish snake.
 help them to fly.

disagreed with child B -> believed
 that they flew slowly.

Additional info -> used the question hand
 to add extra information.

Answered a full sentences from
 child child C.

Once miss Jenkins pointed to finger
 child A was able to ask a question
 and answer it.

Very vocal - shy child usually.
 own opinion.

goes to sleep at night
 and wakes in the morning..

Observation Schedule for Child B

Date: 28/03/2018	Time: 9:30-10:05am	Activity: mini - beast fact file
Pupil's age: 4	Pupil's gender: female	Pupil's ability: middle
Teacher: Miss Tiffany Jenkins	Observer: Miss Stephanie Colwill	Other pupils: Child A other Child C 3

lots of talk.

	One-word	Phrase	Simple sentence	Extended sentence
Who?	✓			✓
What?		✓	✓	✓✓
Where?			✓	✓
When?				✓✓
Why?				✓
How?				✓✓

Additional Notes

Its red black and white

They sleep in the night.

I think they fly fast.

The spider has 8 legs.

They move using their 8 legs.

Extending sentences with I think that...

given her opinion. — not afraid to disagree with peers.
Adding additional answers from visual learning aids.

lots of discussion and opinion

previous knowledge brought out from visual learning aid,

Enough time given for them to answers.

Miss Jenkins knowledge supported their learning.

Observation Schedule for Child C

Date: 28/03/2018	Time: 9:30-10:05am	Activity: mini-beast fact file
Pupil's age: 5.	Pupil's gender: male	Pupil's ability: middle
Teacher: Miss Tiffany Jenkins	Observer: Miss Stephanie Colwell	Other pupils: Child A other Child B. 3

2

lots of talk.

	One-word	Phrase	Simple sentence	Extended sentence
Who?				✓
What?		✓✓		✓✓✓
Where?				✓
When?				✓
Why?				✓
How?				✓

Additional Notes

Enjoys
 It has 7 spots.
 It likes to eat when its sunny because it is sunny.
 Spiders like to make webs.
 Asked child a & b how do they eat flies.
 Able to compare animal to another.
 Confident when question heard introduced to ask a question.
 Extending sentences with because.

Showing his question heard when needed to.

not agreed to disagree.

Enough time to answer.
 activated prior knowledge from visual learning aid..

15. Class B interviews.

Focus group interview questions for Child A

Date: 28/03/2018	Time: 10:05 - 10:20am	Activity: mini - beast factfile reviews
Pupil's age: 5	Pupil's gender: female	Pupil's ability: middle
Teacher: Miss Tiffany Jenkins	Observer: Miss Stephanie Colwell	Other pupils: 2 Child B Child C

What did you enjoy about the lesson?	Enjoyed learning from peers how spiders moved.
When do you use the question hand?	We used it for Swansea Jack. We can think of questions.
How do you feel when you use the question hand when you are learning? Why?	I am happy to use it because it helps me.
I am going to teach this lesson again. Can you tell me how I can use the question hand better?	Ask more questions.

Focus group interview questions for Child B

Date: 28/03/2018	Time: 10:05 - 10:20 am	Activity: mini - beast factfile review
Pupil's age: 4	Pupil's gender: female	Pupil's ability: middle
Teacher: Miss Tiffany Jenkins	Observer: Miss Stephanie Colwell	Other pupils: 2 Child A Child C

What did you enjoy about the lesson?	When I counted all the ladybirds spots.
When do you use the question hand?	When I read I use the question hand.
How do you feel when you use the question hand when you are learning? Why?	Yes because it helps me.
I am going to teach this lesson again. Can you tell me how I can use the question hand better?	Use our hand more.

Focus group interview questions for Child C

Date: 28/03/2018	Time: 10:05-10:20 am	Activity: mini - beast fact file review
Pupil's age: 5	Pupil's gender: Male	Pupil's ability: middle
Teacher: miss Tiffany Jenkins	Observer: miss Stephanie Colwill	Other pupils: child A 2 child B

What did you enjoy about the lesson?	I liked learning about the spiders 8 legs.
When do you use the question hand?	It helps me to ~~under~~ read a sentence and ask questions.
How do you feel when you use the question hand when you are learning? Why?	I like to see it because it helps me.
I am going to teach this lesson again. Can you tell me how I can use the question hand better?	To use the hand more to ask each other questions.