A critical analysis of the relationship between teacher subject knowledge and effective learning and teaching in the primary school.

Introduction:

In this essay I will begin by identifying the education reviews that have brought to light the importance of teacher subject knowledge in the Primary School. This 'timeline' will of necessity utilise sources prior to five years ago and will arrive at the current changes in the Wales curriculum. Definitions of subject, content and pedagogical knowledge will be identified using various literary and recent research viewpoints and will be used to ascertain the impact on pupil learning.

Further to this discussion of the relevant theories, research and debates I will use personal experiences, both from my own schooling and also from the first teaching practice to analyse the relationship between my subject knowledge and the learning of the pupils.

In order to satisfy data protection protocol (BERA, 2019), the description of the school and any references to specific experiences in the classroom will retain anonymity; the teacher will be referred to as T and any pupils as pupil X/Y/Z etc. The setting is a small community primary school to the north of Swansea. It has a catchment area with a demographical and socio-economical mixture. The classes are each formed from two year groups. My experience has been in the Year 1/2 class with thirty-one pupils aged five to seven. The class has a majority of year one pupils.

A consideration of the literature:

Over the years there have been intermittent reviews of the education system in the UK, each evaluating the effectiveness of the current curriculum/ schooling system and how best to improve things for children in education in light of the socio-economic climate of the time. Some aspects of education seem to be important no matter what the era or climate, or perhaps certain trends are cyclical. According to Sugrue, (2010) the 1969 Plowden report acknowledged the need for an education to fit children for the society they were growing up into; similarly Donaldson (2015, p5)

in his review of “curriculum and assessment arrangements” in Wales, stated that the curriculum and assessment needed to “best meet their present needs and equip them for their future lives” and give each one the capability to “thrive in the face of unknown future challenges”.

Sugrue (2010) further highlighted Plowden’s (1969) recommendations for early primary education to be formulated on play and thematic planning, following the natural interests of children. The National Curriculum (NC) in 1988 then was introduced after reviews found that the thematic approach was failing to provide a broad curriculum to prepare pupils for the workforce and subsequently there was a strong emphasis on subject matter knowledge (SMK) (McNamara, 1994). With the introduction of the Foundation Phase Curriculum in 2010 the emphasis returns to and extends the purpose of learning through play experiences. Each time a review brings about a change in what curriculum is delivered, and how, it has implications for teachers; McNamara, (1994), highlighted the NC in 1988 required initial teacher training provision to focus more on SMK when recruiting and delivering the program of study.

Despite these reviews of education there has been a scarcity of literature defining what impacts on a pupil’s learning outcomes and linking teacher subject knowledge to more than what a teacher knows about a subject. This changed somewhat with the publishing of Shulman’s seminal article in 1987 titled ‘Knowledge and Teaching: Foundations of the New Reform’. Since then many researchers have built on his research and have looked at the importance of, and what constitutes, subject knowledge throughout many educational disciplines.

Shulman (1987, p6-7) considered that knowledge and teaching needed to be addressed together, as “research and policy have blatantly ignored” the correlation in the past. He asserts that empirical research is not the only source needed for defining teacher knowledge and specifies seven areas of knowledge that teachers should possess. These include Content Knowledge (CK), Pedagogical Content Knowledge (PCK), knowledge of education systems and practices as well as knowledge of the learners.

There are slight differences in opinion when it comes to defining teacher subject knowledge and how it is obtained. Kleickmann et al (2013) though, assert that CK is a precursor to PCK, but that CK does not necessarily develop into PCK. They investigated how teachers acquire CK in mathematics and found that generally, trainee teachers' CK is formed from personal learning experiences in the maths curriculum and also that PCK is pre-formed in an informal way through viewing one's own teachers prior to opportunities to practice these skills during teaching placements. Also, formal learning rather than experience alone forms better CK. Rowland et al (2003) chose to define CK as being a combination of subject matter knowledge and PCK; though Shulman (1987) defines PCK as covering a teacher's subject knowledge and their knowledge of how to put the subject across in light of how individual pupils learn and the environment the pupils are in. However, Morine-Dershimer and Kent (1999, p21) suggest that Shulman presented a restricted idea of PCK, possibly as a consequence of his "concern for reinstating content as a critical aspect of teacher knowledge".

Nevertheless, Magnusson, Krajcik, and Borko (1999) support Shulman's definition; stating that the knowledge of the subject to be taught, along with a teacher's understanding of the pupils' needs, learning styles and of how to organise and represent the subject matter for tutoring, adjusting to cater for diversities and interests of the learners is what constitutes PCK.

Despite Shulman writing from the US perspective, his ideas came at a critical time, just prior to the introduction of the NC, and corroborated the concerns in the UK. He asserts that the distinguishing factor that helps one understand the "knowledge base of teaching" is the "intersection of CK and pedagogy". The capacity to transform CK via pedagogical means and to be adaptive to situations is all important from Shulman's viewpoint. This understanding of transformation is furthered in the second part of Rowland et al.'s (2003, p98) Knowledge Quartet, 'Transformation' termed as "knowledge-in-action". This is important as it is all about the choices teachers make regarding how to present the knowledge they have to make it accessible to pupils. Ball (2000, p243) framed the connectivity of subject knowledge and pedagogical knowledge stating that "knowing subject matter and being able to use it is at the heart of teaching".

Shulman (1986, p8) asserts that “mere content knowledge is likely to be as useless pedagogically as content-free skill”. In research involving Pre-Service Teachers (PSTs) Herold and Waring (2017) observed this connection of CK/skills and realised that a deficiency of teaching confidence, and an adverse effect on utilised teaching knowledge (PCK) was evident where there was CK shortcomings; they stressed “that at least ‘adequacy’ of content knowledge is needed, if PSTs are to use more advanced pedagogical strategies with confidence”. It is therefore not enough to know how to teach or just what to teach; the two aspects work hand-in-hand.

Having gained definitions of CK, PCK and SMK it is necessary to discuss how they are gained and how they affect learning. Shulman’s case studies of actual teachers highlight that effective teaching comes with experience. He found that in new or trainee teachers, teacher-knowledge-growth was very evident albeit tentative, contrasting with long serving teachers demonstrating it with fluency. However, Kleickmann et al. (2013, p100) discovered through their research of mathematics teaching in Germany that although CK increases throughout the training period it does not continue to increase throughout a teacher’s career, “the in-service phase does not seem to contribute to substantial further development in CK after initial teacher training”.

Hattie’s (2012) opinion may give a clarification of these two viewpoints; there is no difference in CK and PCK between experienced and trainee teachers, but it was the way in which that knowledge was deployed that made all the difference to the learners. Timperley (2008) details a “teacher knowledge-building cycle” that corroborates the idea of Shulman’s teacher-knowledge-growth; she suggests this cycle comes from having teaching practices challenged through observation and assessment and is essential in order to facilitate growth both in subject and pedagogical knowledge by focusing on learner outcomes.

These viewpoints need to be taken seriously if there is to be sustained increase in positive learner outcomes as a result of a teacher’s input. A continuation of the assessments and observations utilised during training should perhaps be a way forward in maintaining the teacher-knowledge-growth cycle and avoid a plateauing of CK and PCK. McCabe (2015), a head teacher of a London collegiate school, asserts

the importance of teachers keeping up to date with subject knowledge, through continuing professional development, because deep subject knowledge is the overriding quality of good teaching, according to pupils surveyed.

Indeed, Metzler and Woessmann (2012) found that teacher subject knowledge did have a significant impact on student learning and consider that it should be on the agenda for policy-makers, recruitment agencies and teacher training providers.
To further the discussion on the impact of teacher subject knowledge on pupils, Coe et al. (2014) assert that an effective teacher is evidenced in positive pupil learning outcomes. Though, Ball (2000) suggests there is little empirical evidence in existence linking teacher's CK to pupil learning outcomes.
Conversely, in the field of mathematics, studies by Kleickmann et al. (2013) and also, Hill, Rowan and Ball (2005) found that teachers' subject knowledge, if beyond that of basic skills, was extensively interrelated with students' increase in comprehension.

Student progress comes by facilitating the pupils' learning and understanding about the subject matter (McNamara, 1994), teaching is much more than shoe-horning the teacher's knowledge and understandings into children's minds. A Constructivists' theory of learning is not that knowledge is imparted by the teacher, with the precise solutions given, but that learners should be encouraged to explore and come up with answers for themselves, with teachers as scaffolders and enablers, (Grigg, 2015).
A teacher's belief system and the way they approach teaching has a big impact on pupil achievement, "the differences between high-effect and low-effect teachers are primarily related to attitudes and expectations that teachers have..." (Hattie, 2012, p26). Hattie distinguishes between expert and experienced as opposed to the more usual, experienced and trainee teachers. Being 'expert' involves having extensive knowledge and comprehension of subjects and the ability to have a positive impact on learners and their outcomes, effectively scrutinizing learning and feedback, and evidencing it all.
Shulman (1986) claims that a teacher needs to have an in-depth understanding and knowledge of the subject matter, a broad education that can support a learner's prior knowledge and scaffold new understanding. Outstanding teachers convincingly

impart knowledge to enthuse and engage pupils in learning, giving them a thirst for discovering learning, (Grigg, 2015). Evidence suggests, according to Coe et al (2014), that effective teachers have deep-rooted subject knowledge from the point of view of understanding the actual content, as well as how their pupils receive and interpret that knowledge. Enser (2018, p18) builds on their work and agrees with Shulman, when looking at how teachers can maintain their subject knowledge, stating that subject knowledge needs to be 'broad as well as deep'. Coe et al. (2014, p2) assert that "quality of instruction" or in other words pedagogy quality and variety also had a strong impact on student learning. Shulman (1986) states that a teacher needs to "understand *that* something is so and also *why* it is so", this is corroborated by Donaldson (2015) when he stresses the need for the 'what' of teaching to sit equally next to the 'why' and 'how'. He also states that direct teaching needs active engagement by the teacher to scaffold learning. On this matter Shulman (1987, p7) has reason to believe that teacher comprehension is even more essential in the "inquiry-oriented classroom than in the more didactic approach".

When looking at the presentation of a curriculum Donaldson's (2015, p26) new proposals for Wales reflects a constructivist approach; the Four Core Purposes are aimed at "what all children and young people should become and achieve through their school education". Grigg (2015, p147) states that a "curriculum to be 'delivered' by a teacher disempowers students and teachers". Marlow and Page (2005) emphasise the differences between a tradition-based program and a constructivist program, (see Appendix 1). The main difference respectively, is the teacher led, didactic approach versus the focus on learners' empowered autonomy. It is evident that as a result of his review of education Donaldson's plan grants teachers increased jurisdiction over what and how to teach; giving free rein to creativity and elevate excellence in schools. The impact of this on the future of teaching will be to increase teacher requirements in terms of quality.

Analysis and evaluation of my subject knowledge in primary teaching:

Donaldson (2015) further stated that reflective practice is a key element for growth for teachers, and so in this next section I will be using my own reflections from my teaching practice as well as sharing how my own schooling has had an impact on my subject knowledge.

In the Primary classroom a teacher is responsible for delivering all aspects of the curriculum and so needs a broad knowledge of multiple subjects, this contrasts to secondary teachers who need an in-depth knowledge of one specific subject although with the introduction of the Literacy and Numeracy Framework (LNF) and also more recently the Digital Competency Framework (DCF) each subject teacher needs to have a good grounding in the three areas too. As I do not have an in-depth knowledge in any one particular area of learning I felt that Primary teaching would be best for me, though my depth of subject knowledge still concerns me.

Just as Kleickmann et al. (2013) stated that personal learning experiences have an impact on CK I consider that the NC era I was schooled in, seems to put me at a bit of a disadvantage in subject knowledge, in part due to the government trialling a new system known as the 16+. Also, grammar was never explicitly taught, and neither was the reasoning behind mathematical methods; the way those methods are taught have changed over time too.

In my teaching experience in the year 1/2 class, there were a few instances where I felt my lack of subject knowledge or pedagogical inexperience let me down, left me feeling inadequate and left the children's learning hanging in mid-air, see Appendix 2 for full reflections and planning relating to the following experiences.

The first example is concerned with Shulman's (1987) third area of knowledge – that of Curriculum Knowledge; understanding the materials and programs to be used. The school use the Numicon system to aid in teaching mathematical concepts; I am not very familiar with Numicon and its uses. During a whole-class maths introduction about dealing with money, I used the Numicon pieces with coins stuck onto them. I discovered that I confused the pupils about the concept of the value of each coin because I stuck the coin onto one of the holes, this meant that the children were not counting that hole when telling me how much the Numicon piece was worth. Having

a knowledge of how apparatus should be used for different concepts would have benefitted me, and the children, greatly; I did learn from the experience and corrected my mistake ready for the next session. Another aspect that I experienced was using a 'real-life' situation of buying toys to teach money value; this worked well but then I forgot to use the Numicon to back up, support and consolidate the learning. When we moved from the concrete to the abstract some of the children got confused and could not work out what a 2p plus a 5p equalled, whereas they had managed it with using coins to buy a toy – this is where apparatus such as the Numicon would have been a good support for them.
Another experience I had with regards to Curriculum knowledge was taking a group for an outdoor learning session for maths – 'more than/ less than'. My lack of experience of how this sort of session should run meant that I felt inadequate to facilitate learning as opposed to just allowing free-play. Questions that it raised in my mind was 'how formal should this session be?', 'Should there be a plenary for the group before going back inside?', 'Is it all about exploratory play?'. When, at a later date, I was in charge of planning a session that included an outdoor learning group, I made sure I had a clear Learning Objective with expected outcomes to enable structured exploratory play in relation to the subject matter, e.g. Rangoli patterns, use of the stage to act out the nativity etc...

Relating to Shulman's (1987) PCK category; when evaluating the money maths session afterwards I realised that I had just accepted pupils' answers without challenging their thinking and double-checking their own responses, for example I had oversized coins, 1p,2p,5p and 10p, and asked them which would you rather have? I accepted their answer of 10p as it was the 'correct' answer; I should have questioned them on why not the 2p as it is bigger than the others, in order to challenge their thinking. McNamara, (1994, p80) states, the way in which a teacher uses questioning in the classroom depends in part on the "teacher's own subject knowledge".

My next example concerns having 'Knowledge of the learner' (Shulman, 1987). One of my first Literacy experiences was to teach small groups alliteration in poetry form

in relation to the moon. I underestimated the understanding of some of the pupils. When discussing what they already knew about the moon, pupil X said that you could bounce on the moon. I had, in my mind, been thinking about the visible attributes of the moon and had not considered what else they might come up with, so I was unprepared and didn't have the vocabulary to hand in my mind to extend the pupils learning by talking about gravity and its effects. The next session I carried out, with a different group of children, I had made sure that I had a list of possible terminology or topics they might come up with and what I would need to teach them. The session was more successful from that point of view though there were other issues that occurred due to the differing abilities of the group, that I then needed to address in the following sessions.

These issues related to a combination of understanding the learners and also PCK; understanding the learning outcomes and skills that children in this age group are able to manage, taking into consideration any differentiation needed. The use of aids for writing e.g. overwriting on highlighter pen to copying a word from a board; certain pupils struggled with the latter as they could not retain where they had got to in the word as they looked from the page to the board and back again. McNamara (1994) considers that it is not just about a teacher having good SMK but also needing to know how to communicate that subject knowledge in the classroom, in a differentiated way.

An area that I found quite problematic was classroom management; this is part of the Pedagogical Knowledge that Shulman (1987) lists. Some of the class were quite boisterous and 'independent thinkers'. I am naturally quietly spoken and so had to learn to project my voice without becoming too shouty. During my first PE lesson, I tried to use three claps of my hands, but ended up having to use a loud voice to be heard above their noise resulting in a sore throat by the end of the afternoon. However, over the duration of the teaching practice, to get them sitting quietly on the carpet ready for a session or registration I found that songs were the best way, particularly ones that they were not familiar with as this caught their interest more. Sometimes I would use the tambourine, but generally I found that the songs worked

better especially if I held the starting note and first action until I got their attention to the point they started to copy and sit in their spots before continuing with the song.

I had an interesting experience when conducting the introduction to my literacy and RE lesson on the Christmas Story. I remembered to link to their prior learning about festivals and reminded them about the Hindus celebrating Diwali, then I told them that Christians celebrate Christmas and the birth of Jesus. One of the children said, 'What does a Christian look like?'. This was an unexpected question and being a Christian I was not sure how far to pursue it, not wanting to put my beliefs onto others, and so simply said, a Christian is someone who believes in Christ, so they look like me or you, they could be anyone. When reflecting on this, I think that the question came from the fact that I had exhibited pictures of Hindus and Sikhs when we had discussed Diwali. An understanding of the schools' values and purposes would perhaps have aided me in knowing how far it is ethical to follow up this line of questioning.

One way I challenged myself in terms of using and developing subject knowledge was by offering to take the 10-minute Slot Drillio session every day. I have an emerging knowledge and low confidence in Welsh, therefore through taking this on I was upskilling throughout my teaching experience and it helped me to make welsh a focus in my day-to-day interactions with the pupils.

Coe et al (2014) consider that observation is one effective way of assessing teaching effectiveness (effectiveness being measured by student learning outcomes). Prior to my formal assessment by my PTE tutor I did not know what level of capability I should be at as a student, and how quickly I should be getting used to all aspects of teaching. I realised after my observation that I had high expectations of myself; the feedback that was given to me suggested that I was ahead of where they expected me to be on the first placement, which came as a surprise. This, obviously, is not a bad thing per se as I was achieving my targets and engaging with the experience at a good level, using my subject knowledge and pedagogical knowledge to engage with the pupils in each session. However, I had put myself under extra stress because of

my own expectations. This particular observation was purely looking at me as a teacher and as far as I am aware did not assess my abilities against the learning outcomes of the pupils as Coe et al (2014, p9) suggest should be the case, "...it makes sense to judge the effectiveness of teaching from its impact on assessed learning". Relating back to Shulman (1986) and Herold and Waring (2017) I found that making sure I was prepared with knowledge of the content matter helped me feel more confident in my abilities, but if I then struggled with delivering that content my confidence levels dropped significantly.

Conclusion

In teaching practice each time something went awry I was able to build from my mistakes, using it as a learning opportunity, so that each subsequent session was a little more successful in terms of delivery, building the children's understanding of the subject matter.

All of the academics highlighted in this essay consider that subject knowledge is important to be an effective teacher; they all argue, from slightly different angles, that there needs to be an interplay of CK, PCK and SMK in order to facilitate learning in pupils. I am convinced that there is a need for teachers to have a good grounding and in-depth knowledge of curriculum, pedagogy, systems and learners with the addition of possessing empathy for the students, in order to facilitate learning that makes a difference in each individual pupil's life. There is a need for teachers to be engaged with, and enthusiastic about the lesson content to engender the same attitudes in the pupils.

As a result of my research and the experiences I have had thus far, my goals for the near future are to extend my subject knowledge, in relation to the individual curriculum subject areas, Enser (2018) suggests that social media is one way to cultivate subject knowledge simply, as groups of teachers are disposed to impart resources and "discuss teaching difficult concepts", he also advises to allocate time to maintaining subject knowledge as one would for marking or making resources to develop subject knowledge. Welsh is one area in particular that I will take this advice,

as this will enable me to utilise and embed Welsh in the classroom better, encouraging the pupils to use it too.

I will also focus on finding more innovative ways of engaging the pupils in learning for themselves; this will help combat my natural tendencies of being quiet and make learning fun and interactive for the students.

Word Count: 4125

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Appendix 1.

Tradition-based Programs	Constructivist-based Programs
Teaching	Learning
Teacher-centered instruction	Student-centered instruction
Authority driven	Empowerment
Learner dependency	Learner autonomy and initiative
Learning as product	Learning as process
Knowledge as fixed	Knowledge as provisional
Isolated work	Collaborative work
Information delivery	Knowledge creation and exchange
Skill acquisition and rote learning	Exploratory, inquiry-based learning
Practice makes "correct"	Practice as "shifting"

Table 1. Comparison of Learning Constructs

Appendix 2.

ARC Reflective Conclusions and Planning sheet:

A. **Money maths – knowledge and use of apparatus**
B. **Depth of subject knowledge for moon poetry**
C. **Abilities of pupils at different stages**
D. **Plan, plan, plan**
E. **Money maths planning**

A

Assisted Reflective Conclusions (ARC) Model

Dyddiad/*Date*: 19.11.18 **Digwyddiad critigol (Ffocws)/*Critical incident (focus):***

Planning for maths for the week, and leading a maths session for the first time, including an introduction for the whole class and working with individual groups. I planned the groupings of the children, with guidance, assigning Mrs N two groups and myself two groups as well as a group with Miss W – to do outside learning. The groups who weren't working with myself or Mrs N initially would be on provision working on their challenges. The school use the Numicon scheme, half the class are working at Book 1 level and the rest are on either book 2 or Book 3.

Profiad/ *Experience*	
Teimladau/ *Feelings* *Beth yw eich teimladau ynghylch y profiad?* *"What are your feelings regarding the experience?"*	Overall, I feel it went okay. I felt a little anxious about getting them settled and interested in what I was doing. I felt that the intro used quite basic language, I am not sure if I pitched it at the right level. I did manage to confuse them at one point – I will explain that later. I come away from an activity or session feeling like I have only scratched the surface and maybe they haven't learned anything. I forgot to give Mrs N the paperwork and details for her groups before the session!
Cofio a Deall/ *Remember and Understand* *"Can you list the aspects of the learning experience that went well?"* *"What were the elements of the learning experience that were disappointing?"*	I had several short interactive activities to start off with, which helped with keeping them engaged. 1. Dropping pennies into the tin (children eyes closed) – how many did you hear? Add some more...how many now? 2. A 'snazzy' purse hanging round my neck with numicon shapes in with money stuck to it – 1p on the numicon 1 shape, 5p on the 5 shape etc... 3. Oversized card money – which would you rather have? 1, 2, 5, or 10. I realized after that I should have extended their learning by questioning their choice of the 10p in the third activity – why not the 2p as it is larger? To get them talking about value/worth. I lost my link to my randomizer for choosing pupils to come up and take something from my purse. So, I had to just use lolly sticks - I then also forgot, due to being flustered over my missing link, that I had done a hide and peek money recognition PPT. I had stuck the coins onto the numicon in one of the spaces rather than in the middle somewhere – this caused confusion and they kept taking one away from the numicon number instead of giving me the full amount e.g. the 10 shape became 9 in their minds because one of the holes was covered up with a coin! As far as the numicon was concerned – I forgot to identify that not all numicon pieces have a coin on them.... I forgot to follow up with Mrs N to see how her group had got on with their learning.
Evaluate and analyse *"What will you keep the same to ensure effective teaching and learning in the future?"* *"What was the most important disappointing element?"*	A variety of short activities is best I think to keep them actively engaged. These activities need to be interactive, as much as possible. Real objects work well too. The numicon money issue was the most important disappointing aspect, because this was confusing for the pupils and made it difficult for me to get my point across – how much each coin is worth.

B

Assisted Reflective Conclusions (ARC) Model

Dyddiad/*Date*: 5th November 2018 ***Critical incident (focus):*** The depth of subject matter that occurred during the discussion about the moon was unexpected and therefore I felt unprepared.

Profiad/ *Experience*	
Teimladau/ *Feelings* *"What are your feelings regarding the experience?"*	I felt disappointed in myself for underestimating the knowledge of the children. I felt a bit anxious at the time because I didn't have the right vocabulary to back up and extend their thinking – my mind went blank and I couldn't remember the word gravity! Duh!
Cofio a Deall/ *Remember and Understand* *How did the resources impact on the learning?* *What would be an example of effective teaching and learning during the session?*	The resources I used: iPad app – Moon Globe, Story of Bob and the Moontree Mystery. The app showed a real image of the moon and was interactive in that you could turn the moon round and see it with different amounts of light shining on it. This generated good discussion about what they could see and what they knew about the moon. The story interested them, and, in some ways, it was a little distracting because I only wanted to pick out some of the story, whereas they wanted to hear it all (time was against us). The story had some alliterative elements in it and when I read two alliterative words and said they were special, half of them were able to say why they were special. The resources supported the aims well I feel as we were doing poetry about the moon using alliteration. An example of effective teaching is having a hook to get the children interested; poetry and alliteration could be a dry or difficult topic to broach with 5-7 year olds – the app and the story did that. The effective learning was evidenced by the children using things we had discussed in the session in a later session with Mrs. Newport. They had engaged with the discussion about the different qualities of the moon, & light and dark and came up with ideas for questions they might like to ask focused on the moon itself when discussing the topic of light and dark with the teacher.
Evaluate and analyse *What will you say to a person who said...the learners didn't meet the learning objectives* *what was the relationship between the behaviour and the learning*	This is part one of a two-part session for each group. The planning I did was for the overall outcome initially and so the LO and Success criteria don't allow for the split sessions. They achieved some of the LLC and LNF objectives written on the planning, the rest will be addressed in the next session I do with them. Generally, they were well-behaved, but were easily distracted by others in the classroom doing different activities. This distracted behaviour meant that I needed to keep bringing them back to concentrate on what our task was and keep re-engaging them – keeping the activity interesting and exciting for them. One of the children was very talkative, but didn't always talk about relevant things, getting sidetracked. This impacted on the timings of the activity and also distracted everybody else in the group causing 'down time' for those not involved in his talk. I felt that at times they weren't learning anything because their focus was elsewhere. Things would be different in an ideal world where we would be in our own space with no distractions.

C

Assisted Reflective Conclusions (ARC) Model

Dyddiad/*Date*: 13 November 2018 ***Critical incident (focus):*** During my literacy session to write a poem with group 3, I realized that a couple of the pupils were struggling to copy the poem we had created together, from the board.

Profiad/ *Experience*	
Teimladau/ *Feelings* *"What are your feelings regarding the experience?"*	The group engaged well with this session I felt; they were keen to find the matching alliterative words they had come up with last week. It wasn't until near the end of the session I realized that a couple of the girls were having problems – this made me feel a little silly and sorry for them.
Cofio a Deall/ *Remember and Understand* *Any factors that influenced the learning experience*	The fact that all the pupils were engaged throughout in some form or other, whether choosing the words, helping to compose a sentence, writing/ copying the sentence onto their moon or drawing a picture on their moon helped the activity to run quite smoothly. Some of the children needed to be reminded to focus and to get on with the writing part. Part of the reason for this was that the girls were preferring to draw than tackle to difficult skill of looking at the board and then down at their paper – losing their place in between.
Gwerthuso a dadansoddi/ *Evaluate and analyse* *How will you do things differently to ensure a better learning experience?*	I will be aware of the different skills involved in copying writing – I thought I was making it easier for them by composing the poem together and then getting them to copy it down. Ask why they are not writing yet, rather than telling them to get on with the writing, in order to find out sooner if there is a difficulty in the learning.
Casgliadau a chamau gweithredu/ *Conclusions and actions* *"What will you do next?*	I have another less able group tomorrow, so will ensure that the skill I am expecting of them is poetry writing not the kill of transferring writing from the board to paper. I will keep in mind the varying abilities of the groups and continue to adapt my teaching and resources appropriately.
Y profiad newydd / *Transformed experience*	

D

Assisted Reflective Conclusions (ARC) Model

Dyddiad/*Date*: 23/10/2018 ***Critical incident (focus):*** Maths session outside

Profiad/ *Experience*	
Feelings *"What are your feelings regarding the experience?"*	Having a group of six children works well, as I was able to focus on each individual for a portion of the time each. I felt that the session went quite well, though the children maybe needed a little more guidance and focus on the learning objective. I felt confident in my abilities as this was the second group I took out, I knew their names and a bit about their abilities too.
Cofio a Deall/ *Remember and Understand* *"Can you list the aspects of the learning experience that went well?"* *"What were the elements of the learning experience that were disappointing?"*	What went well: All the children listened. I was clear and firm about what I expected from them from the outset. I adapted what we were doing to fit with what the children were doing, while still teaching some concepts of maths – more, less, counting on, how many more do we need? what was disappointing? I didn't do a plenary type bit to remind the children of what they were learning while outside. The children were easily distracted – maybe that's ok for outdoor learning – they are exploring and making their own learning in some form or other.
Gwerthuso a dadansoddi/ *Evaluate and analyze* *"What will you keep the same to ensure effective teaching and learning in the future?"* *"What was the cause of the most important disappointing element?"*	I will be guided somewhat by the intentions of the children. I think that although we were supposed to be doing more than and less than, they were getting focused teaching and support in the classroom with the teacher, so there is supposed to be a more explorative element in the outdoor environment anyway. Cause of the most disappointing bit: was me being unclear in my mind exactly how the session needed to be run, so I didn't feel I could bring them back from their 'play' to do a plenary...because it seemed a bit too formal after their exploratory play and games
Conclusions and actions *"What are your possible solutions to the disappointing issues identified?"* *Beth ydych yn mynd i'w wneud nesaf?* *"What will you do next?"*	Have a clear plan for the whole session out there. If I am sending a TA out, make sure I give her clear objectives. Plan, Plan, plan – consider ways of enabling the exploratory, child led play and learning while still achieving the aims of the session. Look at outdoor resources to support the learning aims.
Y profiad newydd / *Transformed experience*	

E

Name of Trainee: Anne-Marie Roberts	**Session ref:** M – money	**Date:** 19.11.18	**Class:** Yr 1/2		Cynllun Ffocws y Cyfnod Sylfaen 2d
Targed(au) Hyfforddi Personol		**Number of learners:** 31	**Age:** 5-7		
Learning objectives/intentions:	Awareness & understanding of money values	**Success Criteria**	To be able to use money to pay for items.	**Meeting learners' needs:**	Circles – OC3, Triangles and squares – OC 4, Pentagons- OC 5, Hexagons – OC 5/6

Introduction/plenary tasks	Main activities	Resources/ Key Vocabulary	Assessment for Learning (strategies and opportunities)
Introduction Use a "purse" with Numicon money in it – one of each value up to 10. Use randomiser for one pupil to pull a Numicon out of the bag – they then choose who can tell everyone how much it is. EXPLAIN this FIRST! Use oversized coins – which would they prefer? 1p, 2p, 5p or 10p Which is the higher value /worth more than…out of two picked out?	Trainee focused task (purpose, outline of trainee's role and children's learning): To aid awareness/understanding of money values: Book 1: MUST: Find totals up to 10p. (OC3 up to 5p) SHOULD: Use different combinations of money to pay for items up to 20p COULD: Give change from 20p Additional adult tasks (purpose, outline of additional adults' role and children's learning): SM – Book 2pp67-71 MUST: Use different combinations of money to pay AND give change from 10p. SHOULD: use different combinations of money to pay for items up to £1 COULD: find totals and give change from multiples of 10p. OC5 – Use mental calculations. OC 6 – Use up to £2 and record using decimal notation. TA CW: outside hide, seek and count money. TA KT: Provision 2 groups	Outdoor learning – Hide money in small 'treasure chests' and get the children to find it then MUST: count out how many coins, SHOULD: order them in value, COULD: add them up. Numicon with coins taped to them in a purse for introduction. Vocab: Value, fair, individual coin values, addition, cost. How much altogether?	Randomiser online when doing intro/ plenary. In groups - Whiteboards (individual) to write answer to money question and show the teacher.
Plenary In groups – using **All** strategy with whiteboards.	Independent learning opportunities: Enhanced provision – Toy shop in role play area.		

Curriculum coverage (range and skills) Mathematical Development: Using number skills – use number facts and relationships. Manage money			
Literacy (LNF) Oracy – Take part in an activity with others and talk about what they are doing.		Numeracy (LNF) Use 1p, 2p, 5p and 10p coins to pay for items Use different combinations of money to pay for items up to 20p Use different combinations of money to pay for items up to £1 Use different combinations of money to pay for items up to £2 and calculate the change	
DCF	Thinking	ESDGC	YCC