

M6X02149: Learning and Teaching in the Primary School

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

Introduction

This essay is an exploration into the relationship between teacher subject knowledge and the impact this has on effective learning and teaching in the primary school. It will seek to understand whether it is what a teacher knows that matters, or how a teacher uses and adapts their knowledge for their pupils that matters, or a combination of those and other characteristics that mark out the difference between effective and ineffective learning and teaching. The first part of this essay will be a critical review of key literature on the subject, highlighting similarities, differences, and the implications, whilst the second part will analyse and evaluate my own subject knowledge and the implications this will have on my practice, and the impact the developing curriculum will have on this and my professional learning. I will use my own reflections from Professional Teaching Experience (PTE) in a placement school to help inform my argument. To ensure the confidentiality of the school, staff and pupils, I will not mention any by name, and therefore will simply refer to them as 'School X', 'Teacher X' or 'Child X', in accordance with BERA guidelines.

School X currently has around 500 pupils aged between 3 and 11. It is situated in an area outside Cardiff where the majority of pupils "come from homes which are in a Communities First area, and most come from backgrounds which have some degree of social or economic disadvantage." (School Guide, 2018). Around 36% of children have free school meals, and around 31% have additional learning needs. No pupils speak English as an Additional Language (My Local School, 2017). I was placed in a Reception class of 30 pupils, of which 19 were girls and 11 were boys, and all were aged between 4 and 5 years old. The class teacher had two Learning Support Assistants and a small number of occasional volunteers.

A consideration of the literature

The 1987 seminal work of the American educational psychologist, Lee Shulman, entitled “Knowledge and Teaching: Foundation of the New Reform” is regarded as a key piece of literature regarding teacher effectiveness since it has formed the basis of many other books and papers on the subject and has even influenced Donaldson’s Curriculum Review in Wales, some 30 years later.

In his article, Shulman puts forward a ‘knowledge base’ for teaching as the starting point for a re-form of the way in which trainee teachers are taught, saying that in the past there has been far too much emphasis on “pedagogy and supervision” (Shulman, 1987, p.20). The knowledge base, he says, is a “codified or codifiable aggregation of knowledge, skill, understanding and technology, of ethics and disposition, of collective responsibility – as well as a means for representing and communicating it” (Shulman, 1987, p.4). Within the knowledge base, Shulman listed 7 categories:

- Content knowledge
- General pedagogical knowledge
- Curriculum knowledge
- Pedagogical content knowledge
- Knowledge of learners
- Knowledge of educational contexts
- Knowledge of educational purpose

He doesn’t go into detail on each of the categories, simply stating that for him, pedagogical content knowledge is the most important because “it represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented and adapted to the diverse interests and abilities of learners, and presented for instruction” (Shulman, 1987, p.8). Thus, content and pedagogy are no longer treated as separate entities, as they had been in the past. Although Shulman does specify what he deems to be the most important element needed for effective learning and teaching, he doesn’t give any indication as to the hierarchy of each of the other categories,

so it must be assumed that he gives them all equal importance. However, he does go on to try and uncover what it is about these particular elements that contribute towards the making of an effective teacher.

Shulman's work inspired research by many others on the subject of pedagogical content knowledge (PCK), and in 2003, researchers at the University of Cambridge, England, published a paper in which they put forward a framework to help identify and discuss the mathematical content knowledge of primary teachers (Rowland et al., 2003). Rowland and his colleagues conducted extensive research of mathematics lessons into "the ways in which...trainee's mathematics content knowledge 'played out' in their teaching" (2003, p.97), focusing on subject matter knowledge (SMK) and PCK. This therefore suggests that what they found of most importance in effective learning and teaching was not only the pedagogy of the knowledge – how teachers transform knowledge (Shulman, 1986) into something their learners can understand – but also specific subject matter knowledge, in this case mathematics.

The framework that the researchers put forward was borne out of the identification of 18 categories of SMK and PCK, which were subsequently divided into four areas:

- Foundation
- Transformation
- Connection
- Contingency

These four areas were called 'the knowledge quartet'. The foundation "refers to a teacher's theoretical background and beliefs" (Rowland et al., 2009, p.29), which is what the teacher learns before they enter the classroom, for example at university during Initial Teacher Education (ITE). Transformation refers back to Shulman's assertion that in order to be effective, the teacher must have "the capacity...to transform the content knowledge he or she possesses into forms that are pedagogically powerful" (1987, p.15). Further to this though, is the ability of the teacher to find different ways of representing what they already

know, to help the pupil to learn themselves (Rowland et al., 2009). Connection then, relates to how the elements of a particular topic are woven together throughout one lesson, or across several lessons. The final area of the knowledge quartet is contingency, and this concerns the way in which the teacher responds to the learners' questions and ideas, and their capacity to deviate from the lesson plan (Rowland et al., 2003), or in simpler terms, the flexibility of the teacher.

The knowledge quartet differs from and builds on Shulman's work in that it suggests that for effective learning and teaching, it is more about the process teachers go through in order to transfer knowledge and understanding of a subject to their pupils and thus starting to find out exactly how teachers become pedagogically effective. Furthermore, within the contingency part of the process, and the invitation for teachers to be flexible with their content and their pedagogy to respond to the needs of their learners, this implies the need for teachers to be creative within their lessons as well, rather than resolutely sticking to one way of teaching, even if the learners are not responding to it.

Arguably, the most important point of difference between Shulman's article and that of Rowland and his colleagues, is their use of teachers within their case studies. Shulman uses an experienced English teacher and a trainee English teacher, both at secondary school level, to illustrate his points, whilst Rowland et al use a trainee primary school teacher for theirs. The different levels of education for which the teachers are trained are essentially not relevant here, since the overriding message between the two articles is that the veteran teacher is far better equipped to deal with the twists and turns of her lesson than the two trainee teachers, because she simply has more SMK and PCK to draw upon. Therefore, to be an effective teacher, SMK and PCK must be built up over time. Shulman (1987) remarks that to be able to adapt a lesson is to fully understand the content to be taught, whilst Rowland et al (2003) recognise that the performance of trainee teachers is not dependent solely on the amount of their SMK.

In contrast to the knowledge quartet and the focus on SMK, the Coe et al. 2014 review of the underpinning research into "What makes great teaching?" dealt with the idea that effective teaching is measured through pupil progress, and therefore that teachers should

be assessed on pupil progress as a marker of teacher effectiveness. This contrasts with Shulman's view that "teachers cannot be adequately assessed by observing their teaching practice without reference to the content being taught" (Shulman, 1987, p.20). The review separates effective teaching into 6 areas:

- Pedagogical content knowledge
- Quality of instruction
- Classroom climate
- Classroom management
- Teacher beliefs
- Professional behaviours

Coe and his colleagues define effective teaching as "that which leads to high achievement by students in valued outcomes, other things being equal" (Coe et al., 2014, p.9), but make it clear that in most cases, all the other elements which come together will not be equal. Other elements will be external factors such as the physical, intellectual, social, cultural, and emotional development of the learners (QTS standards, 2009) and also the characteristics of the teacher, school and the context of the learning. This fits with two of Shulman's categories - knowledge of learners and knowledge of educational contexts - but redefines them and gives them far more importance than Shulman did. Donaldson (2015) also puts emphasis on the responsibility of the learners on their own education, saying that helping learners develop better metacognition skills will in turn improve their active participation not on their learning but in the planning of their learning. This therefore suggests that effective teaching and learning is dependent in part on the learners, and not just in the knowledge of the teacher and their ability to make that knowledge relevant to their learners.

In the article, Coe et al. (2014) also stress the importance of defining what effective pedagogy is before it can be promoted, otherwise ways of teaching that are no longer relevant or effective could still be used. This links forward to the *raison d'être* of 'Successful Futures': in 2018 children are still being taught in ways that were only introduced due to the

Industrial Revolution, and that children being taught now, are being taught for jobs that don't yet exist. However, Coe et al. (2014) also note to exercise caution when trying to define the indicators for good pedagogy, in that there is a danger that they can become too specific, and therefore miss the 'glue' that holds them together, or that they can be not specific enough and therefore untestable. The 'glue' therefore is a combination of all the other elements listed above that together with Shulman's PCK and Rowland et al's SMK, make up effective learning and teaching, with the emphasis both on the learning of the pupils, and the instruction of the teacher.

Upon analysis of Donaldson's 'Successful Futures', it can immediately be seen that all the main elements of the pieces of literature discussed so far are present within the document. Donaldson regards educational purpose as one of the most important features of a curriculum. He said it "should be designed to help all children and young people to develop in relation to clear and agreed purposes. The purposes should be constructed so that they can directly influence decisions about curriculum, pedagogy and assessment" (Donaldson, 2015, p.23). This fits with the last of Shulman's (1987) categories of the knowledge base, in that it must address the end goal of education as well as the ways and means of teaching. In light of extensive research, Donaldson puts forward four distinct purposes of the new curriculum, taking into consideration several factors, including culture, lifelong learning, and wellbeing, with the central thread that "young people should all leave school having experienced a broad education that equips them to thrive in an increasingly complex and rapidly changing world." (Donaldson, 2015, p.28). The four purposes are that children and young people develop as:

- Ambitious, capable learners, ready to learn throughout their lives
- Enterprising, creative contributors, ready to play a full part in life and work
- Ethical, informed citizens of Wales and the world
- Healthy, confident individuals, ready to lead fulfilling lives as valued members of society

In his Review, Donaldson regards the structure of education as an important element of effective learning and teaching. He calls for a more skills-based curriculum, in order to help

teach today's children for tomorrow, but says that direct teaching still has its place in the classroom. This type of structure was also mentioned by Shulman decades before, and his Model of Pedagogical Reasoning and Action relates very closely to the inquiry-led learning model now used by School X.

Another important aspect of Donaldson's Review is his call for a more cross-curricular approach to learning and teaching. He proposes that Literacy, Numeracy and Digital Competence be taught across all areas of the curriculum, and that subjects be replaced with Areas of Learning and Experience (AoLE) which all contribute to the cross-curricular feel. This isn't something that is discussed in any of the other articles, since their focus is on particular subjects rather than a whole curriculum.

The Pedagogy section of Successful Futures seems to cover all aspects of Shulman's knowledge base, and also the framework for teaching quality discussed by Coe et al., and thus the 'transformation' element of the Knowledge Quartet. For Donaldson (2015), pedagogy "lies at the heart of what it means to be an excellent teacher" (p.63). This therefore implies that for successful teaching and learning, it is not just the amount or quality of teacher subject knowledge that is important, but the many other factors that make up pedagogy as a whole which contribute towards it.

The subject of assessment within learning and teaching divides opinion and focus between each of the articles. Shulman (1987) focuses on the trainee teacher as the subject for assessment, saying that assessing teachers on their competence is notoriously hard, but that it cannot be done without paying attention to the subject being taught. Rowland et al (2003) again focus on the teacher, and whilst they don't expressly mention assessment in their article, the Knowledge Quartet was intended for use to help observe trainee teachers on the effectiveness of their subject knowledge on their lessons. In contrast to this, Coe et al. (2014) make it very clear that their focus is on the learner and the learning. Donaldson (2015) devotes a whole section to the assessment of learners in his report, and also addresses the assessment of trainee teachers, as well as the continuing professional development of teachers throughout their careers.

Therefore, it is clear that in order for effective learning and teaching in the primary classroom, it is not only teacher subject knowledge which is important, but a wide-ranging set of factors which together contribute to excellent teaching and learning, all of which will be given more importance in light of the developing curriculum in Wales.

An analysis and evaluation of personal subject knowledge for primary teaching

For the purposes of this part of the essay, I will be using the aspects of subject knowledge as detailed by Rowland et al. in *The Knowledge Quartet* (2003) to structure my discussion. I will seek to use my analysis of the literature discussed in the first part of this essay to consider the implications on my own teaching practice, especially in light of the developing curriculum for Wales.

Foundation

For me, the most important aspect of effective teaching is having a strong foundation on which to build. Rowland et al. (2009) said that the other three dimensions of the Knowledge Quartet all rest on the foundation – without the knowledge and understanding, of the ‘what’, the ‘how’ and the ‘why’, it is simply not possible to transform the knowledge into something learners can understand, make connections between lessons, or have a contingency plan in order to adapt and change a lesson to suit the needs of the learners. Donaldson agreed, saying that “Sound pedagogy...means much more than the implementation of a pre-determined repertoire of methods” (Successful Futures, 2015, p.71).

One example of when I found my subject knowledge lacking was in my teaching of Welsh. I had only been learning Welsh myself for a few months, and so found myself teaching myself the content of the lesson just days before I taught it to the class. This meant that I was completely unable to be creative with the lesson, and my confidence suffered as a result. (See fig.1 for the lesson plan and fig.2 for further reflection.)

The implications of the new curriculum on my own SMK and PCK in primary teaching are several. With regards to SMK, Donaldson's recommendation of a move towards a more skills-based curriculum, and the advent of the Four Purposes means that the 'what' of teaching will be far less specific than in the past. This is because "there is evidence, internationally, of a move towards a more skills-based curricula that are focused on identifying and defining essential overarching competences alongside the more traditional subject-based curriculum content" (Donaldson, 2015, p.36). This means that I will have more freedom in terms of what I teach and will be able to provide engaging experiences that match the needs of the particular group of children in my class, from year to year. In turn, my subject knowledge will need to be broader than it might have had to in the past, and I will need to be more creative in my teaching. With regards to PCK, Donaldson is not prescriptive about particular pedagogical approaches, saying that "decisions about teaching and learning are very context and purpose specific, and are best taken by teachers themselves" (p.63). Therefore, since my SMK will need to be broad and creative, it stands to reason that my PCK will need to be the same. Donaldson (2015) put it quite succinctly when he said that pedagogy lies at the heart of the making of an excellent teacher – teaching is much more than just the methods of teaching, it's about selecting the most appropriate methods to fit the purpose, needs of the children, and the combination of theoretical and practical knowledge and skills and judgement of what is required to enhance effective learning.

Transformation

For both Shulman and Rowland et al., despite their differences about pedagogical and subject knowledge, they were united in their view that it is how that knowledge is transformed by the teacher into something learners can understand that is an integral part of effective teaching. Hattie (2012) agreed, saying that the amount of PCK and SMK themselves had very little effect on learning, and it was in actual fact due to the deeper level of understanding by the teacher of how to structure and utilise that knowledge in order to make it relevant and meaningful to learners that was the key.

Whilst on PTE, I consistently found teaching discrete Mathematics lessons to the children in my key worker group to be the area in which I felt most comfortable at transforming my

knowledge, both subject and pedagogical, through the use of “analogies, illustrations, examples, explanations and demonstrations” (Shulman, 1986, p.9). The school teaches Mathematics using the Singapore Maths method, which aims to teach maths through the use of a three-step concrete, pictorial and abstract process. For me, this process lies at the heart of what it means to transform knowledge, through the use of concrete objects such as counting teddies, through to pictorial representations such as a picture of some teddies, and then to using abstract numbers and symbols to solve mathematical problems. Using this method, I was able to teach the children in my key worker group the beginnings of simple addition. (See fig.3 for reflective ARC.)

For Donaldson (2015), transformation is also about using a blend of different teaching approaches, such as direct teaching and inquiry-led learning to provide the best possible breadth of teaching and learning, and to encompass the shift towards a more skills-based curriculum. In my future practice I will not only have to transform my own knowledge into something learners can learn and understand themselves, but also to teach them how to apply that new knowledge in different contexts. And this not just in one subject at a time, but across the whole curriculum, making full use of problem-solving, creative and critical thinking to initiate powerful learning. (Donaldson, 2015).

In my PTE school, the move has already been made to a structure of learning called the ‘carousel’, whereby the children are given opportunities every single day to learn through direct teaching, independent learning, and through collaborative learning with their peers. Collaborative learning especially allows the children to test ideas, and make and learn from their mistakes, using the tools and guidance provided by the teacher. My challenge will be to provide access to high-quality authentic information to provoke creative and critical thinking, providing stimulating environments, effective activities and strategies where wider skills can be applied.

Connection

Rowland et al. (2003) defined ‘connection’ as the way in which topics or parts of topics are bound together across a lesson or series of lessons. No other article mentioned connection in quite the same way, but to Grigg (2010) and to Donaldson (2015) being able to highlight

and teach connections between parts of the same subject and across different subjects is of huge importance. The ‘connectionist’ method of teaching was, according to Grigg, where teachers valued the methods and strategies used by pupils to make connections within mathematics, and in particular using mental strategies, practical tasks and collaborative learning (2010), which therefore links to the Singapore Maths method discussed earlier.

Donaldson takes this approach a step further by saying that “one of the defining features of twenty-first century education will be the capacity to make connections and transfer knowledge and understanding across different contexts in order to address unfamiliar problems” (2015, p.68). He added that these links should be made naturally and authentically, rather than just being shunted on to a lesson in order to tick a box. The cross-curricular aspects of the developing curriculum stand out here, as literacy, numeracy, and digital competence should now be incorporated into all Areas of Learning and Experience (AoLE).

Whilst on PTE, I personally found it hard to incorporate digital competence into every lesson, and especially to make it natural and authentic. I felt that sometimes the lesson didn’t warrant it, and other times the link felt forced. For example, during discrete phonics lessons, the focus was on including an ‘active’ element; finding items in the classroom beginning with a certain phoneme, or finding different letters hidden around the classroom and then matching them up to objects, and for me, to then get the children to play a phonics game on the iPads felt counter-productive. The challenge for me therefore, will be to find ways of making meaningful links to the DCF across all AoLE.

An example of how I made connections across a series of lessons was during Light and Shadows week. Since in Foundation Phase topics are taught through a combination of ‘discrete’ sessions, and continuous, enhanced and focused provision, with links throughout all areas during the week as well as across the curriculum, it felt both natural and meaningful to make links in this way, and the children were able to use what they had learned in focus sessions and apply it to their independent learning in enhanced and continuous activities during the week.

Contingency

The use of contingency is not expressly mentioned by any of the other writers, but is alluded to in Shulman's article, across all seven categories of the knowledge base. Rowlands et al. (2009) define contingency as "being able to make appropriate decisions" (p.33) by using a combination of all types of knowledge, as well as taking into account the context and purpose of the lesson. This would therefore seem to be the culmination of the three other parts of the Knowledge Quartet, and without those, being able to have and use a contingency would be nigh on impossible, as seen in Rowland et al.'s case study of Naomi, and in Shulman's case study of Colleen, both trainee teachers.

Hattie (2012) wrote that "a typical lesson never goes as planned" (p.30), and this was something I learned extremely quickly whilst on PTE. Having planned my lessons so thoroughly, I wanted to be able to teach everything on my lesson plan. However, there were myriad reasons why this rarely happened in reality, such as timing issues, the work was either too hard or too easy for the children, or the lesson didn't go ahead at all due to some other outside factor.

On my first day on placement, my class mentor wrote in my feedback diary "don't feel like you have to follow your plans directly – go with it...plan for further challenge in case you finish sooner than expected (Maths)" (Anonymised, 2018). In a later entry, my class mentor wrote "your planning changed to suit the level of children's learning...you just went with it and let the children lead their own learning." (Anonymised, 2018). This shows the clear improvement I made in developing contingency during PTE. Because I had got to know the children and exactly what stage each individual was at with their learning, I was able to plan appropriate lessons using their previous and next steps as guidance and therefore pre-empt where the lesson might go off-track and be able to respond accordingly when questions arose. This links through Shulman, Rowland, Coe and Donaldson in respect of knowledge of learners. All four writers say that knowledge of learners is vital to becoming an effective teacher, and I will ensure I use this consistently in my professional practice.

Conclusion

In conclusion, through my consideration of key literature on the subject, and through my analyses of the factors which contribute to effective learning and teaching, it is clear that the amount of subject knowledge and the way in which it is synthesised in the classroom, and particularly how it is developed and refined throughout the course of a career is a key component. However, without the other aspects of the knowledge base, such as knowledge of the learners (both educational and social) or curriculum knowledge, and without the ability to excite and inspire children to want to become lifelong learners themselves, there is a limit to the effectiveness of the teaching or the learning. With regards to my own professional development as a primary school teacher, in respect of the developing curriculum in Wales, it will be necessary for me to develop my own pedagogy in cross-curricular skills and areas of learning, particularly in digital competence, develop a sound knowledge of all my pupils, and foster a personal professional development approach throughout my career to ensure that I remain at the forefront of future curriculum development in Wales.

Word count: 4398

References

Coe, R., Aloisi, C., Higgins, S. and Elliot Major, L. (2014) *What makes great teaching: Review of underpinning research*, available at <http://suttontrust.com/researcharchive/great-teaching/>

Donaldson, G. (2015) *Successful Futures: Independent Review of Curriculum and Assessment Arrangements in Wales*, Crown Copyright, available at <http://gov.wales/topics/educationandskills/schoolshome/curriculum-for-wales-curriculum-for-life/why-we-are-changing/successful-futures/?lang=eng>

Hattie, J. (2012) *Visible Learning for Teachers: Maximising impact on learning*, London: Routledge.

Grigg, R. (2010) *Becoming An Outstanding Primary Teacher*, Harlow: Pearson.

Rowland, T., Huckstep, P. and Thwaites, A (2003) *The Knowledge Quartet* in Williams, J. (Ed) *Proceedings of the British Society for Research into Learning*, available on Moodle.

Rowland, T., Turner, F., Thwaites, A. and Huckstep, P (2009) *Developing Primary Mathematics Teaching*, London: Sage.

Shulman, L. (1986) *Those who understand, knowledge growth in teaching*, Educational Researcher Vol.15 No.2: pp.4-14.

Shulman, L. S. (1987) *Knowledge and teaching: Foundations of the new reform*, Harvard Educational Review, 57(1): pp.1-22.

Surname (Anonymised), X. (2018) Personal Feedback Diary (anonymised receiver of communication, 5 November and 14 November.

Qualified Teacher Status Standards Wales 2009. Available at <https://gov.wales/legislation/subordinate/nonsi/educationwales/2009/3220099/?lang=en> (Accessed 06/12/18).

X Primary School information. Available at <http://mylocalschool.wales.gov.uk/School/6732181?lang=en> (Accessed: 14/12/18).

X Primary School information. Available at <https://www.schoolguide.co.uk> (Accessed 14/12/18).

Appendices

Fig. 1: Discrete Welsh lesson plan, 10/12/18

Name of Trainee: Emma Blackie Session ref: DW007 and DW008 Personal training target: Develop the use of verbal feedback with children so that they are aware of their next steps		Date: WC 10/12/18 Class: Dosbarth Garth (Reception) Number of learners: 30 (whole class) Age: 4-5 years old	Foundation Phase Focus Plan 2d
Learning objectives/interventions: - Learning to listen to and speak in Welsh - Learning to count in Welsh	Success Criteria: - I can join in singing songs in Welsh - I can use pictures to help me translate Welsh words - I can count to at least 10 in Welsh	Meeting learners' needs: - There are 5 MAT children in Class Dosbarth Garth - There are 2 children for BESD and 1 for GLN in Class Dosbarth Garth	
Introduction / plenary tasks	Main activities	Resources / Key Vocabulary	Assessment for Learning (strategies and opportunities)
Introduction: Monday: - Sing the song "Ting a ling cylchau Santa Clos" - What is the song about? Can they join in? Wednesday: - Sing the song "Mair, Joseff a'r Baban Iesu" - What is the song about? Can they join in? Plenary: Monday: - Sing "Ting a ling..." again – who can remember the words? Wednesday:	Trainee focused task: Monday: - Read the story "Nadolig Tedi Twt" - What is the book about? Can they join in? Wednesday: - Re-visit counting in Welsh - Count the Nativity story – "Sawl ...?" (how many ...?) Additional adult tasks: n/a Independent learning opportunities: - Small World – Nativity role play	Resources: Monday: "Ting a ling cylchau Santa Clos" song https://www.youtube.com/watch?v=3ylQzNw5o-A "Nadolig Tedi Twt" book Wednesday: "Mair, Joseff a'r Baban Iesu" song https://www.youtube.com/watch?v=DkXeDoRvjaM Key Vocabulary: - Nativity story vocab - Welsh numbers to 10 and beyond	Questioning and individual meaningful feedback

Plenary: Monday: - Sing "Ting a ling..." again – who can remember the words? Wednesday: - Sing "Mair, Joseff..." again – who can remember the words?			
Curriculum coverage (range and skills) - View and listen carefully to a variety of visual and audio-visual stimuli - Listen and respond simply to what they hear in familiar circumstances, with growing attention and concentration - Speak clearly, using simple words, greetings and expressions - Listen to increasingly complex phrases and instructions and respond as appropriate			
Literacy (LNF) - Use words, phrases and simple sentences - Speak audibly - Join in, repeat or memorise rhymes, songs and stories with some support		Numeracy (LNF) Count reliably up to 10 objects	
DCF	Thinking	ESDGC	YCC

Fig. 2: Discrete Welsh ARC, 10/12/18

Model Beirniad Wedi Adfyfyrio (BWA) Assisted Reflective Conclusions (ARC) Model

Dyddiad/Date: 10/12/18

Digwyddiad critigol (Ffocws)/Critical incident (focus): Discrete Welsh

Profiad/ Experience	
Teimladau/ <i>Feelings</i> <i>"What are your feelings regarding the experience?"</i>	I was a bit disappointed with today's lesson. This was because I didn't have enough of a grasp of Welsh to be able to sing the song ("Ting a ling...") with any conviction, or to read the story ("Nadolig Tedi Twt"). However, the children started joining in with the song after the first couple of choruses, and Miss X read the story so I knew the class were hearing the correct pronunciation of the Welsh.
Cofio a Deall/ <i>Remember and Understand</i> <i>"What were the elements of the learning experience that were disappointing?"</i>	• Not having a secure enough grasp of Welsh to be able to sing the song or read the story properly • My level of questioning in relation to the song and the story
Gwerthuso a dadansoddi/ <i>Evaluate and analyse</i> <i>"What will you keep the same to ensure effective teaching and learning in the future?"</i> <i>"What was the cause of the most important disappointing element?"</i>	I will keep the song and the story the same, but ensure that when the time comes again I will have a better knowledge of Welsh and therefore will be able to teach the lesson with more confidence. The cause of the most disappointing element was my level of Welsh
Casgliadau a chamau gweithredu/ <i>Conclusions and actions</i> <i>"What are your possible solutions to the disappointing issues identified?"</i> <i>"What will you do next?"</i>	I will learn some more Welsh, and practice the song and story beforehand to ensure I am confident before teaching it. I may find a Welsh tutor to give me a bit more help in this area also so that I am a few steps ahead of the children.
Y profiad newydd / Transformed experience	

Fig. 3: Discrete Maths lesson ARC, 06/12/18

Model Beirniad Wedi Adfyfyrio (BWA) Assisted Reflective Conclusions (ARC) Model

Dyddiad/Date: 06/12/2018

Digwyddiad critigol (Ffocws)/Critical incident (focus): DM008

Profiad/ Experience	
Teimladau/ <i>Feelings</i> <i>"What are your feelings regarding the experience?"</i>	I feel that I was well-prepared for the session, and had all my resources ready, and knew exactly what I was going to be teaching the group. However, I let the children lead their learning and adapted the session to meet their needs.
Cofio a Deall/ <i>Remember and Understand</i> <i>"What happened during the main body of the lesson?"</i> <i>"Please explain why the learning could have been more effective."</i>	The main body of the lesson was learning about simple addition using concrete resources, and then transferring this to number sentences. I activated prior knowledge by asking the children who could remember what the + sign and = sign mean, and checking for understanding by modelling a sum to the whole group first of all, then splitting the group into more able / less able partners and working together to help scaffold the learning. Using whiteboards or specially-made number sentence laminates, the group wrote out number sentences in their pairs, for sums using counters or counting teddies. The learning could have been more effective if I had been able to spend enough time with each pair. I found I wasn't able to spend time with all the pairs, so I wasn't able to provide verbal feedback for them which meant that for them the learning hadn't been effective as they didn't know if they had been successful or not.
Gwerthuso a dadansoddi/ <i>Evaluate and analyse</i> <i>"How does pupil achievement today compare with previous achievement?"</i> <i>"How will you use the feedback from weekly evaluation meetings to improve your pedagogy?"</i>	Pupil achievement today has been higher than previously, as I now know I can push the more able further, and also how far I can push those who need a little more help. All pupils are moving forward with their learning. I will ensure I do some personal research into developing excellent verbal feedback for the learners to ensure they know what their next steps are, and also research how learners' physical, intellectual, social, cultural and emotional development can affect their learning. This will, in turn, improve my pedagogy and thus the children's learning.
Casgliadau a chymau gweithredu/ <i>Conclusions and actions</i> <i>"What is the most important piece of feedback gained?"</i> <i>"How will you find out the information needed to move forward?"</i>	The most important piece of feedback gained is to take more risks with my teaching! Research other ways of providing the tools for learning, and think outside the box. I will use the knowledge of other teachers to help me with ideas for how to take more risks in my teaching, and use websites such as Pinterest and TES to help me with ideas.
Y profiad newydd / Transformed experience	