

The role of a teacher appears to be under constant scrutiny and an ongoing topic of debate. In the nineteenth century it was said that anyone could teach, this was because teaching was thought to be more of a caring, pastoral role with only ‘bad moral characters’ not being given the job. (Grigg, R. & Hughes, S, 2013, p. 55). The book goes on to explain that it was after the Second World War teaching became more of a ‘respected profession’ which meant that student teachers were able to enrol on courses to further their understanding of the profession. ‘In 1965 the first four-year B.Ed degree programme’ was offered to student teachers (Grigg, R. & Hughes, S, 2013, p. 55). This ‘increased professional status of teaching’ and indicates the need for teachers to have a level of academic ability, highlighting the importance of teacher subject knowledge (Grigg, R. & Hughes, S, 2013, p. 55). In the 1990s the government addressed the education system and ‘sought to identify and remove poor teachers, whilst grading others according to their level of competence’. (Grigg R and hughes, S, 2013. p. 57). This was addressed by Estyn, (2013) who stated

‘We have not been recruiting enough trainee teachers with the best qualifications and we need more consistency in the quality of what is provided for them in initial teacher education and training in order to give them the best start to their teaching career’ (Estyn 2013: 41).

The importance of subject teacher knowledge has been recognised by Donaldson, G, (2015), where he identifies the need to improve schools in Wales with a focus of improving numeracy and literacy skills. This lead to the recommendation;

‘An extensive and sustained programme of professional learning should be developed to ensure that the implications of the Review recommendations for the skills and knowledge of teachers and other practitioners are fully met’.

Donaldson, G, (2015)

The Welsh Government, (2013 p. 4) supports this with ‘The aim of the Requirements on trainee entry is to ensure that those admitted to ITT courses are suitable to become a teacher and have the potential to meet the QTS Standards’. However, Hill, Rowan and Ball, (2005), highlighted the importance of ‘how to teach’, opposed to the

teachers knowledge of the content. This is supported by Shulman, (1987, p. 7), where he states “teaching necessarily begins with a teacher’s understanding of what is to be learned and how it is to be taught”. Shulman, (1987), emphasised how ‘pedagogical content knowledge’ plays equal parts to teacher subject knowledge. Tabberer, J, (2013, p. 3), discussed the need for ‘The Welsh Government to do all in its power to affirm the high status of the teaching profession, so that it attracts the very best in each graduate cohort’. He continues to summarise the key features of the education system;

’Education systems benefit from clear and concise profiles of what teachers are expected to know and be able to do in specific subject areas. This includes both subject-matter knowledge as well as knowledge of how to teach it’.

(Tabberer, J 2013, p. 8)

Furlong, J, (2015, p. 30) suggests in a report to the educational minister that ‘increasing the quality of human capital amongst new entrants to the teaching profession is widely regarded as just as important as raising the quality of provision itself’. Schleisser, (2014, p. 8), supports this notion in the OECD Report where it addresses the countries education system ‘developing high-quality human capital in the profession will be essential to moving the system forward towards educational excellence’, this will be achieved by ‘raising the entry requirements into initial teacher training.’

In this assignment I will be drawing on my professional teaching experience (PTE) to explain why teacher subject knowledge is important in relation to teaching Language and Mathematics in primary schools in Wales. My PTE took place in a large primary school in Carmarthen. During my PTE I was given the opportunity to observe a variety of lessons and reflect on teacher subject knowledge, the pedagogic skills, and a range of learning and teaching strategies used to deliver an effective lesson. I was able to demonstrate my understanding of Language and Mathematics within the National Curriculum when planning for lessons and showing an awareness of appropriate pedagogy in relation to what I was teaching. The QTS standards ensure

that all teachers are expected to have a secure understanding of subject knowledge, as well as developing pedagogical aspects of education. 'S2: Knowledge and understanding: these standards require newly qualified teachers to be confident and authoritative in the subjects they teach and to have a clear understanding of how all learners should progress and what teachers should expect them to achieve.' Education, Wales, (2009).

For the first part of my PTE I was in year 5, where I was able to plan and teach a number of Mathematics lessons. I was working with a class of 57 pupils which were divided into two classes of ability. The mid term focus for year 5 ages 9-10 was to develop numerical reasonings using number skills. The curriculum states that by year 5 you should be able transfer mathematical skills to a variety of contexts and everyday situations. With this in mind my focus was;

- to order and compare the cost of items up to £1 000.
- add and subtract totals less than £100 using correct notation
- plan and track money and savings by keeping accurate records.
- realise that budgeting is important.' (DCELLS, 2008).

I was quite nervous about teaching KS2 and felt I lacked confidence in Mathematics. I felt that I had to ensure that my teacher subject knowledge was correct and accurate. To overcome this I had to research and study what I was teaching. Although I have relevant qualifications in Mathematics, these were obtained over fourteen years ago and I needed to familiarise myself with methods and the mathematical language. I ensured I had a detailed lesson plans, 'the lesson planning process allows teachers to evaluate their own knowledge with regards to the content to be taught' (Reed & Michaud, 2010). I felt that my lack of subject knowledge meant the pedagogical aspect of the lesson was essential and therefore I focused my attention on preparing extensive lesson plans. When preparing my lessons I was able to highlight areas of concern and I was able to overcome these before hand. Although I lacked confidence in subject knowledge, I was confident in my ability to teach and my lack of

knowledge helped me scaffold and model the skills. I achieved this by using notes to prompt me. I found that because I was often unsure of the methods I went through the process thoroughly which was also beneficial for me. If you find something easy, you could find it difficult to break it down to simple parts. I found this particularly helpful when teaching addition methods as this was an area I hadn't done for some time.

Parjona, (2002, p. 170) cites that scaffolding was introduced by Vygotsky. The idea of scaffolding is also supported by Bruner, (1985), who describes scaffolding as allowing the child to do as much as they can with support from a teacher, tutor or mother. The scaffolding will start to be removed once the child has mastered what they need to do. (Parjona, 2002, p. 170)

I had been given the task of delivering five lessons based around the skills mentioned above. For the purpose of this assignment I will be discussing and reflecting on the first lesson. The learning intention for the lesson was 'to use place value knowledge to work out the order of monetary values'. This skill required limited teacher subject knowledge, therefore I was able to confidently teach the lesson and gave me the opportunity to think about how I was going to teach it. I used a social constructivism approach when introducing the lesson on ordering. Pardjona, (2002, p.165), notes that Dewey supports the principle that children are active in their learning. He describes a child's mind as a verb, something that does, not something that is filled. Like Dewey, Vygotsky promotes the theory that children are active in their learning, however his theory slightly differs from Dewey and Piaget as he believes that a child's learning occurs through social interaction with a tutor or a more knowledgeable other.

(Pardjona, 2002, p. 168). I started by writing two numbers on the board, I then asked the pupils to order the numbers. After they had worked out the answer correctly, I asked the pupils to talk me through how they did it. 'Modelling is an instructional strategy in which the teacher demonstrates a new concept or approach to learning and students learn by observing' (Eggen and Kauchak, 2001). By scaffolding the task it gave the pupils an understanding of what they need to do and how they need to do it. I used picture cards with priced items. The class all worked together to work out the order. Using this method supports Mcleod, S, (2018) summary of Vygotsky's theory of

learning from a more knowledgeable other. By working as a class I was able to identify the pupils who understood and it gave me direct feedback on the pupils understanding. Although I introduced the topic using a social constructivism approach, the main task was constructivism. The scaffolding was removed for the main activity as the pupils were asked to work independently to organise a group of priced items into the correct order. Although the scaffolding was removed, the work was still differentiated according to ability. This was facilitated by using different amounts.

During my time in year 5 I was given the opportunity to observe a lesson on angles in preparation to leading up to my own whole class teaching experience. When observing the teacher delivering a lesson on angles she introduced the topic by drawing different angles on the board; obtuse, acute, reflex and right angle. She asked the children to look around the room to find different angles in every day objects. By doing this she got instant feedback from the pupils to check their understanding of what an angle is and if they can differentiate the types of angles. The Evidence Based Teachers Network, (2017), cite Ausubel, D, who acknowledges the importance of linking prior knowledge and experiences to new knowledge. He emphasises the need to use prior knowledge and states that linking the two is the difference between memorising something and really understanding it. By getting the children to look around they room they are looking at objects they already are familiar with. This theory is supported by Piaget 'Children construct an understanding of the world around them, then experience discrepancies between what they already know and what they discover in their environment'. Haylock and Thangata, (2007), note that Piaget introduced 'schemas'. Haylock and Thangata, (2007), go on to say 'If we cannot make connections then we have to resort to trying to learn by rote. The more connected are our experiences, the more secure and the more useful is the learning'. Piaget called schemas the 'basic building block of intelligent behaviour – a way of organising knowledge'. Once the children had looked around the room the children

would then be encouraged to identify the angle. The children were able to see the pictures of the angles on the board which helped scaffold their learning.

The teacher then moved on to give the pupils an opportunity test their knowledge using concrete experience. She removed the scaffolding by taking away the pictures on the board. The teacher handed out white boards and when giving a number of degrees, the pupils were asked to write on their whiteboards the name on the angle. During my observation I was able to identify the connective model being utilised (Haylock and Cockburn, 1989). This allowed the children to make connections between the pictures, language and symbols of angles. When reflecting on teacher subject knowledge I found that although it did not require extensive teacher subject knowledge it is important for the teacher to know the difference between the three types of angles. By the teacher getting mixed up with the angles could cause confusion for the pupils. At the start of the lesson I could not identify the angles or remember the names, however I was able to learn them relatively quickly which then allowed me to assist the pupils when it came to the main activity.

For the second part of my PTE I was in foundation phase, year 2. Following Donaldson's, (2015), report the foundation phase curriculum has been adapted to areas of learning which should be taught cross curricular under a theme or topic. The class topic for the term was the Celts. In the area of language the skill being developed was instruction writing.

Following a class trip to Castell Henylys. I was tasked with delivering a lesson which would give the pupils the opportunity to write a set of instructions. The curriculum states that pupils in the foundation phase should be given the opportunity to 'communicate in a range of contexts for a variety of purposes and audiences'. Welsh Government, (2015). In year 2 pupils should be able to use simple subject-related words appropriately and understand and use language appropriate to writing, e.g. noun, verb, adjective. Welsh Government, (2015). The learning intention for this lesson was to give the pupils and opportunity to write a set of instruction using imperative verbs. While the pupils were on the trip they were taught how to make

bread. To introduce the lesson I created a video of a Celt asking the children to write instructions on how to make bread so they are able to feed their village. I used the theory that children learn by building on and drawing on past experiences. I also felt that it was a good hook and gave the pupils enthusiasm and a purpose to writing the instructions.

I allowed the children to draw on their experience of the class trip by using a social constructivism approach, the children were able to discuss their memories and ideas as a class. I started by using 'think, pair, share' to give the pupils chance to think and reflect. They would then use a hands up approach to discuss their memories with the class. I then encouraged the pupils to think about the stages in making the bread.

Drawing on previous lessons on imperative verbs, I got them to think about 'bossy verbs' and using a lolly pop stick method, asked the children to give me examples.

Hall, G, (2016), states that questioning 'gives immediate feedback on pupils' understanding, which can then be used by the teacher to modify the teaching'. I used scaffolding to support the children through the stages of making the bread. I did this by using pictures to prompt the pupils memory and used a word bank with imperative (bossy) verbs and instructed the children that the sentence should start with a bossy verb. I modelled the activity by giving examples of how the sentence would be laid out. The main activity was differentiated, However, I continued to scaffold for the lower ability groups, giving pictures of stages and a simple word bank. I removed the scaffolding for the higher ability groups.

Conclusion

By reflecting on my PTE, it has given me a good understanding of the importance of teacher subject knowledge and how this has impacted my teaching. Although teaching requires a variety of skills to ensure successful learning is achieved, it is in my view that teacher subject knowledge of what is being taught and how it is being taught play a big part in high quality learning. From this experience I have learnt that I lack confidence in Mathematics which in turn has an effect on how I teach, as my focus was on the content, not on how I was teaching it. Where as, in language I feel

more comfortable which meant I could concentrate more on the pedagogical aspect of the lesson to get the best out of the pupils. To overcome this I fully understand the importance of careful lesson planning. By lesson planning I will be presented with any difficulties I may come across during my lessons and it give me the time before the lesson to overcome them.

It is almost impossible to assume that a teacher will understand and have the knowledge of every subject they will teach, However I believe it is the teachers responsibility to ensure that they understand the subjects they are due to teach and keep up to date with new research and teaching materials and to be aware of a range of pedagogical skills to ensure an effective lesson is taught.

I believe that the passion and motivation of the teacher will help them overcome difficulties with subject knowledge. It will give them the desire and motivation to research and study subjects. Teaching is a huge responsibility and it is important that we get it right.

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