

Looking forward: A critical analysis of literacy, numeracy and digital competence as cross-curricular responsibilities.

The Welsh Government (2019) states that, 'the cross-curricular responsibilities of literacy, numeracy and digital competence support almost all learning and are essential for learners to be able to participate successfully and confidently in the modern world.' This expectation from the Welsh Government leads on to recommend that literacy, numeracy and digital competence should be covered over all areas of learning and experience (AoLE), subjects and phases (Foundation Phase and Key Stage 2). It is the responsibility of all teachers to embed literacy, numeracy and digital competence across the curriculum (Donaldson, 2015).

When teaching numeracy, the Welsh Government (2019) states that literacy can be developed through numeracy by giving learners 'regular opportunities to describe explain and justify their understanding of mathematical concepts, using appropriate mathematical vocabulary.' Additionally, when teaching literacy, learners should be given opportunities where they are able to develop their literacy skills through number rhymes, when beginning to analyse and respond to different texts and interpreting ideas through a variety of texts to developing their opinions. It could be said that if children are given the opportunities to explore their learning in a broader, cross-curricular way then they will access more skills from the different AoLE's.

According to the Welsh Government (2015), 'learners will engage with what it means to be a conscientious digital citizen who contributes positively to the digital world around them and who critically evaluates their place within this digital world.' This highlights the importance of learners being aware of the impact technology is having on the world and themselves as individuals into light.

LSE (2019) suggests that one of the challenges in making sure learners are equipped with the most essential skills in digital competence is that teachers are not appropriately trained in order to deliver teaching that is broad enough and in line with what skills learners need to thrive in our rapidly evolving digital world. This may be due to lack of money to support teachers to take courses and recruit supply staff to cover them whilst they take the training. There may be a need for training to be put

into place for teachers to deliver the Digital Competence Framework as it is rolled out with the new curriculum in 2022 (LSE, 2019).

In this essay, four themes will be discussed and explored in relation to literacy, numeracy and digital competence as cross-curricular responsibilities: subject teacher knowledge, lesson planning, pedagogical approaches and assessment.

Subject teacher knowledge

It is important to discuss subject teacher knowledge when teaching subjects such as, literacy, numeracy and digital competence and having good subject teacher knowledge will help the teaching of these as cross-curricular responsibilities.

Ellis (2009) discusses how greater subject knowledge impacts pedagogical content knowledge and developing subject knowledge will lead to more effective teaching and learning. Furthermore, it is noted that teachers should continue to develop their subject knowledge throughout their careers and should identify gaps in their knowledge in order to be better prepared to teach the content of lessons effectively (Ellis, 2009, p.41).

Kerry (2015) also recognises the importance of a teacher having secure understanding of the subject in order to help children understand the curriculum. It is suggested that teachers are given the opportunity to explore gaining 'mastery' in a subject in order to work as a team and share knowledge and assist planning (Kerry, 2015, p.167). This way of working collaboratively and sharing best practice may be key for teaching in a cross-curricular way and ensuring literacy, numeracy and digital competence are taught to a high standard across the curriculum.

For myself, subject teacher knowledge is a crucial aspect that will greatly impact my ability to teach confidently and effectively. I have found that throughout my initial teacher training, I have had to continually develop my own skills in literacy, numeracy and digital competence. I enjoy teaching numeracy and literacy in school. My subject knowledge in both subjects is reasonably high and I have enjoyed developing these further during university and Professional Teaching Experience (PTE). I had the opportunity to plan a Welsh lesson that incorporated numeracy; Pupils were given the task of using a map to find the co-ordinates of a place and

write in Welsh where one place was in relation to another. I found this way of cross-curricular teaching made the learning more meaningful and more enjoyable for pupils. They appeared very engaged and completed their work to a high standard. I believe my subject knowledge for numeracy helped me create this lesson and boosted my subject knowledge in Welsh.

On the other hand, I lack confidence in teaching digital competence and ICT. I struggle to think of creative and effective lessons and find it difficult to ensure children are learning the correct ICT skills according to the curriculum. It is prudent that I take time to practice planning lessons and develop my digital competency skills. This could be remedied on PTE where I should take every opportunity to plan and teach digital competence and follow on to teaching it in a cross-curricular way. My level of knowledge in digital competence and ICT will greatly impact my ability to teach it across the curriculum. According to Ofsted (2008) teachers' subject knowledge in ICT continues to vary. It is important that teachers do not simply rely on presenting and word-processing and develop a range of skills in aspects such as spreadsheets and data processing in order to teach ICT broadly (Ofsted, 2008). These are some of the aspects I could try to incorporate in lessons across the curriculum.

It is important to note that digital competence is now considered a responsibility for all teachers and that teachers must aim to establish progression in a child's learning where modern society demands high levels in digital skills (Donaldson, 2015).

Lesson planning

A challenge for teachers when planning to teach literacy, numeracy and digital competence as cross-curricular responsibilities is planning lessons that will engage children and ultimately ensure that they have achieved the skill which was taught.

According to Burgess (2007), it is important to establish and develop 'clear and careful cross-curricular planning' as this 'gives cohesion and purpose' to children's learning. The links between the different subjects in the curriculum should be 'detailed and comprehensive'. Planning should show opportunities for learners and there should be emphasis on cross-curricular links. The planning should be a structure that will grow and develop depending on what is of interest and what is

relevant (Burgess, 2007, p.11). Teachers should aim to achieve this by working collaboratively and sharing best practice (Earp, 2016).

It may be essential, when planning to teach literacy, numeracy and digital competence as cross-curricular responsibilities to use one or more of the models of cross-curricular learning. Barnes (2015), states that using the multi-disciplinary model will call upon several different subjects 'to bring understanding to a theme, experience or idea.' This could create a 'powerful and emotionally significant experience for children and teachers' (Barnes, 2015, p.141).

According to Estyn (2016), 'planning themes carefully capture pupils' imagination exceptionally well.' This could potentially link to another one of Barnes' models of cross-curricular learning: theme based cross-curricular learning. If teachers can plan to use a theme across the different subjects of the curriculum, it could impact the pupils' imagination and acquisition of skills. (Barnes, 2015). However, a concern is how teachers' workload affects their ability to plan effectively for the curriculum. This may limit learners in reaching their full potential in lessons if lessons are not planned as effectively or extensively as possible (Education Support, 2019).

On reflection, when planning on PTE, it has at times been difficult to plan lessons that are cross-curricular. I believe that communication is key, between student and mentor as during my most recent placement I had support in planning cross-curricular lessons. This was helpful and gave me many more ideas for future planning; especially incorporating digital competence skills into lessons. On future placements I will aim to use different models of cross-curricular learning in order to teach literacy, numeracy and digital competence as cross-curricular responsibilities as I feel this will give my planning structure and I will be able to see how the cross-curricular links will benefit the learners. Additionally, I believe that in order to improve my cross-curricular planning, I should tap into my own creativity and take more risks. If I were to plan more lessons creatively by perhaps using the outdoor learning environment and deliver lessons that are more kinaesthetic, then I would potentially achieve more effective cross-curricular lessons that are child-led and engaging (Burgess, 2007).

Another aspect of my lesson planning that could be developed in order to more effectively teach literacy, numeracy and digital competence as cross-curricular responsibilities is incorporating group work of different varieties and sizes. Pairing and grouping children, as well as mixing abilities is important so that 'all children are able to thrive whatever the learning situation.' It would aim to give all pupils the opportunity to work collaboratively and access all areas of the curriculum by learning from one another and peer assessing (ISM Trust, 2019).

Pedagogical Approaches

Tracking children's progress is essential in order to know where they are at in their learning of literacy, numeracy and digital competence and where they need to go next. Impact Wales (2018), present Donaldson's 12 pedagogical principles which give recommendations on the 2015 review, 'Successful Futures'. It recommends that teachers should be responsible of choosing the appropriate pedagogical approach for their learners, taking into consideration the context and purpose. It states that firstly the learners' 'greatest needs' must be identified. Then the most appropriate teaching strategy must be matched with the needs of the learners and then learners should be assessed to measure impact through pupil progress (Impact Wales, 2018).

It is important to consider using different pedagogical approaches because different approaches will suit different learners and the theme of a lesson can sometimes lend itself better to different approaches. This is crucial when planning the teaching of the cross-curricular responsibilities. According to Byrne (2017) and Roy (2016), helping learners to see lessons as more than just a 'numeracy problem' or an 'ICT lesson' broadens the acquisition of skills and breaks the pattern of a learner lacking confidence in a single subject. Being explicit about the connections between the 'subjects and shared skills' during the learning is important for learners (Byrne, 2017 and Roy, 2016).

Roy (2016) states that, 'the actual, factual knowledge to be undertaken may be subject specific, but the pedagogical skills needed to implement it are shared.' Therefore, it could be argued that pedagogical approaches such as Barnes' models of cross-curricular learning should be used to help teachers plan lessons where skills are taught broadly across the curriculum in single lessons. On the other hand,

not all of Barnes' models are as equally effective. For example, Barnes notes that teachers should not consider the tokenistic approach to be cross-curricular. If adding a song at beginning of a literacy lesson only adds interest, then this would not be considered as cross-curricular teaching or learning (Barnes, 2015).

During PTE, I have found it difficult to implement different pedagogical approaches when teaching literacy, numeracy and digital competence as cross-curricular responsibilities. From experience it is difficult to know whether what is planned and taught is enough to be deemed as cross-curricular. I have taught numeracy lessons where I have had children use speech to express the answer to a problem and have used group work so that the children reason with one another to problem solve. Encouraging the children to use oracy to problem solve and work collaboratively to support each other has proven itself to be effective as the children engaged in the lesson and were able to solve the problems in new and different ways. However, when it comes to teaching cross-curricular, I worry this isn't enough and may be considered a tokenistic approach. I believe, when teaching in the future, that one of the best ways to ensure effective teaching of the cross-curricular responsibilities is to ask for pupil feedback in order to establish their thoughts on what they learnt and what they found effective.

Estyn (2018) reported that one of the schools in Wales it had inspected showed that 'each pupil has a significant voice in shaping the curriculum and their contributions are valued.' The next steps in my teaching would be to gather an evaluation from pupils so that I can improve my teaching in a cross-curricular way so that I am following the curriculum and to ensure I am taking opportunities to improve the pupils' learning.

Assessment

Timmerman (2017) states that, 'the assessment of students must evolve to consider all pedagogical approaches,' It is essential for teachers and students to work together to assess learning and evaluate teaching. Assessment for Learning (AfL) may be instrumental in ensuring effective cross-curricular links are made between literacy, numeracy and digital competence. Creating opportunities during lessons where learners can assess their own learning and give feedback may prove important when rolling out the new curriculum in 2022. The Welsh Government have

created 'progression steps' for learners, teachers, parents and carers to assess if the appropriate progress is being made. 'They will set out expectations for learners in each area of their learning relating broadly to ages 5, 8, 11, 14 and 16'. A potential limitation in learners using these 'progression steps' is that they may be too broad and not be individually tailored to all learners' achievements in the different AoLE's. Therefore, it might be practical to encourage learners to assess their own learning regularly, in different ways as well as using the progression steps set out by the Welsh Government. Some examples could include verbal feedback, using traffic lights when marking and peer assessment (Welsh Government, 2015).

Whilst on PTE, when assessing and marking pupils' work, I found it helped pupils' if I praised good work, this appeared to give the pupil validation of acquiring the skill and it motivated them to continue to achieve and stay on task. What I found was most useful to the learner was to identify any errors in their work and discuss with them where they went wrong and why, then allow them to re-try the problem and reason together. In a numeracy lesson, this proved effective when teaching long division and pupils began to benefit from the assessment strategy. For further development I will aim to use more AfL strategies when teaching the cross-curricular responsibilities across the curriculum.

Another personal target would be to try to facilitate the learning more and give learners the opportunity to choose what they learn and what way they learn. I believe this could reach more of the learners in a class. Kelly (2019) states that 'increasing the amount of talk in the classroom can appeal to verbal and aural learners.' I believe it also gives children more ownership of their learning and may empower them to be more creative and engaging.

I have previously found this difficult to do, whilst on PTE, as I have found that the children are not used to working in this way and therefore, facilitating a lesson which is more child-led has been challenging. In the future, starting small with the children and giving them more choice and freedom overtime with their learning could help in the children realising the benefits of leading their own learning and help them to cope with the change.

Allowing the learning to be child-led could open more possibilities to learning literacy, numeracy and digital competence. For example, children may have more

creative ideas of how digital competence could be incorporated into a history lesson and their ideas may also be more relevant to what they need to learn. Furthermore, allowing children to use role-play, get creative, use their senses, and learn outdoors stimulates children's imagination and curiosity and in turn allows for greater acquisition of skills. (Read and Spell, 2019).

In conclusion, there are several things I would like to develop personal to improve my teaching such as, becoming more competent at ICT so that I am able to confidently deliver lessons that incorporate digital competence skills and progressing with my lesson planning so that I can deliver lessons that incorporate the cross-curricular responsibilities.

There may be scope for the Welsh Government to provide teachers will courses so that they can benefit from clear guidance on how to deliver lessons in a cross-curricular way and how they may best ensure that literacy, numeracy and digital competence are incorporated across the curriculum.

2743 words

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