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A critical evaluation and the identification of next teaching and learning steps focusing on a case study of an individual learner or a group of learners, based on an observed critical incident.

Introduction

David Tripp defines critical incidents in teaching as “an interpretation of the significance of an event” (1993, p. 8). It is not the incident itself that is critical in the sense that it is a negative experience that has the potential to become disastrous. Instead, these incidents can be ‘typical’ and are rendered critical based on the way in which they are reflected upon and used to inform further practice. As Tripp explains, “To take something as a critical incident is a value judgement we make, and the basis of that judgement is the significance we attach to the meaning of the incident” (1993, p. 8). Through critical reflection of incidents, teachers can gain a greater understanding of the processes and routines of the classroom and why they are implemented. This is essential in forming a teacher’s pedagogical and reflective practice for their own professional development, and for the benefit of their learners’ education.

A further critical evaluation will be made regarding the role of critical reflection in the teaching profession and education reform, particularly in connection to the new Curriculum for Wales (2022). Furthermore, by understanding the context of a local school in which observations from a lesson were drawn, links will be made between the Four Purposes and Twelve Pedagogical Principles and how these may have informed the teacher’s practice that led to the incident (Donaldson, 2015). A critical evaluation will be made as to the importance of establishing routine and employing retrieval practice techniques in the classroom through a literature review, particularly focussing on some of the schools of thought regarding learning and psychology. Finally, a reflection will be made concerning potential next steps in both professional and personal development, as informed by the aforementioned research.

The Role of Critical Reflection

Critical reflection is an integral part of professional practice in most occupations. There are several models of reflection, including Donald Schön's (1987) concept of *reflection-in-action* and *reflection-on-action* which differentiates between the critical evaluation of an event both during and after it occurs and emphasises the need for a teacher to consistently assess the impact of their practice upon their learners. Additionally, David Kolb's (2014) Experiential Learning Cycle foregrounds the ongoing, cyclical nature of reflective practice in the teaching profession and how it is necessary for the progress of continuous professional development.

Paula Zwozdiak-Myers brings together the two aforementioned theories and the work advanced by other scholars in the field into her *Framework of Reflective Practice*, which illustrates what she perceives as the nine dimensions which "can provide the catalyst for [...] a disposition to enquiry [...] that [informs] teaching for the purpose of professional development" (2012, pp. 4-5). As a result of incorporating the many concepts proposed and advanced by theorists within the last century, Zwozdiak-Myers' framework amplifies the common theme which links these theories – reflective practice is only effective if there is a value placed on the reflection. For example, reflective practice can be used to shape teachers' practice both in and outside the classroom in order to maintain continuous professional development, especially in the interest of educating learners so they are equipped with the skills and knowledge necessary to succeed in an ever-changing world.

In line with recent reforms in Welsh education, effective reflective practice has become a fundamental element of teaching. Graham Donaldson proposed that teachers need "a sound understanding of the 'why' and 'how' of teaching [...] for the formation and subsequent growth of teachers as reflective practitioners" (2015, p. 71). Essentially, what Donaldson argues in his review of the Welsh curriculum is that teachers must be informed by the different pedagogical principles of teaching when conducting lessons in the classroom with the aim of developing reflective practice. Arguably, critical reflection is the most significant element of teaching practice and by critically evaluating their teaching methods and implementing changes where necessary, educators will subsequently develop professionally.

However, the impact of critical reflection for students undergoing Initial Teacher Education (ITE) may be limited due to their lack of experience and hesitance to challenge the status quo of the institution and teachers they observe (Meierdirk, 2016). The concern that arises here is that ITE students engage with critical reflection extrinsically and whilst

student teachers may understand the importance of critical reflection, they may not comprehend the career-long impact it may have on their future professional practice. Consequently, there is a gap in our understanding of the true effect of the role of critical reflection in teaching. In her inquiry that aims to create links between separate studies into reflection, how they relate to ITE and how useful they may be, Vivienne Griffiths identifies the difficulty in monitoring the effects of reflection and that it is “methodologically difficult to pin down” the links between reflection and action (2000, p. 552). Griffiths’ proposal is to conduct a long-term study of newly-qualified teachers throughout their career, rather than ITE students, in order to understand the extent of the benefits of critical reflection. Research of this kind would allow for the certainty that critical reflection allows those who work in educational settings to develop as reflective practitioners; ultimately, it could be confirmed that as a result of challenging and critically evaluating their perception of classroom processes, teachers can improve their professional practice for the benefit of their learners in career-long development to ensure they are continuously research-informed and research-shaped practitioners.

Observation: School and Class Context

For the purposes of ethical practice, the participating school and individuals shall be anonymised (BERA, 2018). Henceforth, the aforementioned school shall be referred to as ‘School X’, the classroom teacher as ‘Teacher Z’, the group of learners as ‘Class Y’ and any individual learners as ‘Learner A’, ‘Learner B’ and so forth.

School X is a mixed-gender, English-medium comprehensive school situated in the Swansea locality for learners aged eleven to eighteen (Estyn, 2018). As of 2021, there were one-thousand eight-hundred and twenty-one learners in an attendance (Welsh Government, 2021). School X is placed in a seemingly affluent catchment area, with only 10.3% of its one-thousand eight-hundred and twenty-one learners eligible for free school meals (FSM), compared with the national average of 25.2% in the same year (Welsh Government, 2021). With figures showing that non-FSM learners have a higher average of GCSE attainment levels than their FSM peers, this low level of FSM learners within School X may have had an effect on the above-average GCSE awards compared with the national average (Welsh Government, 2019).

Class Y are a capable Year Seven Mathematics class in their second week of term. The observed lesson took place at twenty past ten on a Monday morning in September, immediately after the learners’ first break, so Teacher Z was aware that they could be quite

boisterous. As a consequence of this, Teacher Z set out to establish classroom routines that Class Y are able to maintain. One of these routines is to provide a short, achievable starter task for Class Y to complete as they settle for the lesson with the aim of upholding good behaviour and classroom management and to ensure that information obtained from previous lessons is preserved for long-term application.

Observation: Links to Donaldson's Four Purposes

The incident that will be critically evaluated was the first moment of the lesson when Teacher Z instructed Class Y to take a question sheet as they entered the room and complete a ten-minute starter task. This incident was interesting as it created links between the Four Purposes – particularly encouraging Class Y to be ambitious, capable learners and healthy, confident individuals – but Teacher Z may have also been informed by two of the Pedagogical Principles in their planning of the starter task (Donaldson, 2015). Obviously, as this was a Mathematics lesson, encouraging learners to be ambitious and capable through “understanding how to interpret data and apply mathematical contexts” and “[using] number effectively in different contexts” was immediately apparent (Welsh Government, 2022). Additionally, through applying a timed limit on the task, learners were inspired to “set themselves high standards and seek and enjoy challenge”, as well as “questioning and enjoy solving problems” as they were prompted to raise hands if they had any queries or wanted the task explained once more (Welsh Government, 2022); Learner A arrived late and had some initial confusion as to how the task should be completed, although this may have been as a result of them taking their time to arrive from their break or because as a Year Seven, School X was a fairly new and unfamiliar environment for them and they were not sure where to go for the lesson, or got lost.

For those learners who arrived late, Teacher Z was patient and kind and continually explained the task as Class Y settled. Through considerate language and attitude, Teacher Z began the course of creating healthy and confident individuals as they allowed the learners to “form positive relationships based upon trust and mutual respect” (Welsh Government, 2022). Learner B seemed to struggle with the concept of the task – placing decimal numbers in descending order – yet Teacher Z took the time to provide one-to-one support, and Learner C also offered peer support, placing an emphasis on the different forms of mutual respect and trust within this classroom. Moreover, because the starter task was applying the use of Activating Prior Knowledge (APK) and utilised as retrieval practice from the previous week's lessons, Teacher Z allowed learners to “[build] up a body of knowledge and have the skills to connect and apply that knowledge in different contexts” under the ambitious,

capable learners purpose, as they learned to apply their knowledge from their previous lessons to questions and numbers they had not encountered before. Furthermore, Teacher Z provided learners “the skills and knowledge to manage everyday life as independently as they can”. Teacher Z framed the activity for students as an essential skill that they would need in order to complete the upcoming lesson, as well as to have a basic comprehension of number to succeed in the rest of their lives.

Interestingly, Teacher Z applied two key Pedagogical Principles – that good teaching encourages learners to meet high expectations by maintaining sustained effort, and tasks and resources build on prior knowledge (Donaldson, 2015). These pedagogies emphasise the significance of elements of the aforementioned incident including the importance of establishing routines to maintain high standards and expectations for classroom and behaviour management to maximise the learning potential of learners, in addition to the value of APK and retrieval practice under the new curriculum and equipping learners with the knowledge and skills that are necessary for success throughout their school experience and into their adult lives.

Literature Review

Questions around behaviour management have been thoroughly debated in learning theology. In the observed incident, establishing classroom routines was effective for reducing potential discipline issues, particularly as Class Y were Year Sevens and new to the environment. By determining clear boundaries and expectations within the first few weeks of their education, it can be ensured that the core values of the school are maintained by the new learners. Ken Appleton contends that firmly establishing routines in the first few weeks with a class is vital for automatically generating and sustaining on-task behaviour, which consequently creates a “purposeful learning environment” where the teacher can deliver content “effectively and efficiently” for greater student satisfaction and success (1995, p. 296). Whilst Appleton discusses potential issues that may arise from a multi-cultural class – as different cultures have different communication behaviours – he omits the consideration of students with Additional Learning Needs (ALN), who may find it difficult adapting to new routines between classes, in addition to the lack of scaffolding if the routine relates to completing starter activities based on APK without the assistance of the teacher. Teacher Z included differentiation techniques in their planning, highlighting how this gap in Appleton’s research reflects the rate at which inclusive education has developed since the late twentieth century. This will be explored in subsequent discussion regarding the Humanistic school of thought in approaches to learning.

The belief that establishing classroom routines is the most effective way of pre-emptively managing behaviour is in line with the Behaviourist school of thought in approaches to learning, which was researched heavily in the early twentieth century by J. B. Watson. Children are less socially developed than adults and thus are less likely to act instinctively; instead, children show learning when there is a change in their behaviour as a result of conditioning in the environments they encounter (Watson, 1928). Routine allows for lower levels of disruption to learning and creates an environment where linear learning – where content grows incrementally more complex – can occur. Although Appleton argues that routines in the classroom will lead to children automatically displaying appropriate behaviour, much like Pavlov's Classical Conditioning theory on which Watson based his research into human habits, other Behaviourist theorists believe that B. F. Skinner's work on Operant Conditioning is more relevant, particularly in vocational professions and education in the post-Second World War half of the twentieth century (Field, 2007). These Behaviourists insist children need some form of behaviour reinforcement in order for learning to occur, whether that be positive reinforcement following a successful action, or negative reinforcement following a deviation from the expected behaviour. Field argues that this approach to learning was the "dominant paradigm" by the end of the century, possibly as a result of society's desire for definitive structures to live by after such a turbulent era during the war, and in the years immediately succeeding it. As times have moved on from this, different schools of thought in approaches to learning have arisen.

As previously discussed, developments in education reforms which call for inclusivity mean that other learning theorists dismiss Behaviourism due to its rigidity and lack of awareness of an individual's needs and value. Constructivists argue that learning is not linear and learners need to take part in the construction of their own learning by placing a value on their interaction with the physical and social world that surrounds them; unlike Behaviourists, Constructivists believe that learning occurs beyond the classroom as well as within (Fosnot and Perry, 2005). Consequently, outside factors may affect the way in which a child interacts with an established routine in the classroom and expected behaviour may be opposed, so negative reinforcement of this resistance may damage a child's learning in the lesson as external influences have not been considered.

Additionally, with recent discussion into children's mental health, Humanist schools of thought should be considered when establishing routines in the classroom. Humanists believe that children have a fear of failure and rejection which subsequently produces maladjustment (Holt, 1982). Children need to be able to adapt to their environments, and the teacher must have a flexibility where it is possible for children to have their individual needs met, hence, using routine to pre-emptively manage behaviour through the means of an

unaided starter activity may cause a child to put their energy into avoiding the pressure placed on them and thus, avoiding the task and the learning they may gain from it. Nevertheless, in his article, Appleton proposes that children take part in establishing the routines of their classrooms in order to create a sense of belonging in what he refers to as a “minisociety” (1995, p. 293). Therefore, in order for established routines to be effective for classroom and behaviour management, they must be flexible in order to meet the needs of individual learners in the moment, as well as involving differentiation techniques for those who may struggle to adjust or learn through rigid structures.

Through a series of studies, it has been found that the use of retrieval practice in the classroom for long-term retention of information is truly beneficial (Brown, Roediger and McDaniel, 2014). Brown, Roediger and McDaniel draw reference to study which required students to read a passage then split into three groups, each taking a different kind of test – the study found that the students who were asked to recall what they read were able to retain fifty-percent more information than the students who were tested using the other two methods – drawing detailed diagrams and repeatedly studying material (Karpicke and Blunt, 2011). Whilst this study proves that cramming information is less effective than retrieving pieces of information from long-term memory, a question arises from Brown, Roediger and McDaniel’s compilation of studies of whether retrieval does benefit the development of learning, or whether its use in education to assess if learning has taken place is actually a test of memory instead.

Some academics contend that whilst children have “poor memories”, if they are given the time to process new information, the “storage and retrieval” of knowledge can be effective (Miller, 2002, pp. 229-233). Miller also believes that retrieval itself a skill children must learn and no matter the increase in knowledge a child receives, they must be able to reorganise this knowledge in order for retrieval to develop and thus be effective for long-term learning (2002, p. 234). However, the ability to retrieve information from long-term memory does not necessarily mean that a child has truly learnt. Arguably, for a child to have a sound understanding of knowledge, they must be able to reconstruct their learning to apply it to new contexts. The development of knowledge into a skill that can be adapted to different contexts and experiences is a crucial part of learning, specifically under the new Curriculum for Wales, which is designed so learners are equipped with the skills to succeed for the rest of their lives.

Repetition is a process favoured by some theorists for long-term learning. The Behaviourist school of thought puts forward the notion that the breaking down of concepts

into smaller, more achievable processes can not only ensure that learners are successful more regularly, but also means that the incremental increase in the complexity of knowledge allows creation of links between ideas to be made easier (Morra *et al.* 2008). By requiring learners to repeat processes, understand the links between them and apply them to different contexts over a long period, long-term learning improves because it encourages the application of these concepts to become effortless and thus, children become natural problem-solvers.

However, as children develop, they are able to construct their own methods of creating links and applying knowledge and skills; if teachers provide them with “surface” learning, then they themselves will eventually be able to use “relational” and “elaborative” processes to gain deep and constructed understanding of concepts (Hattie, 2009, p. 28). Therefore, the use of retrieval practice to ensure that students can recall information and most importantly, recall it correctly, is perhaps the most effective classroom strategy to maintain long-term learning, based on the research conducted by Brown, Roediger and McDaniel (2014). The danger which arises here is that research-informed teachers may come to rely on such techniques because they are found to be beneficial to learning; consequently, they may utilise them to such an extent that they lose their effectiveness. Thus, retrieval practice is becoming a form of “lethal-mutation” and its true purpose is being forgotten as a result of meaningless use (Jones and Wiliam, 2022). In relation to the new Welsh Curriculum, the idea that good teaching derives from creating tasks for learners that build on prior knowledge could mean that including some form of retrieval practice in a lesson has become a sort of tick-box exercise for teachers to meet at least one of the Pedagogical Principles (Donaldson, 2015).

As previously discussed, the effects of retrieval practice in Karpicke and Blunt’s study (2011) were only observed after one week. The implication here is that retrieval practice is most efficient when there are long intervals between having to use effort from within to recall information. By using an “expanding retrieval schedule”, learners will be more likely to retain knowledge for long-term learning compared to those who are encouraged to retrieve more in shorter intervals more regularly (Roediger and Butler, 2011, p. 22). Therefore, the closer one is to forgetting something when they are required to retrieve information, the more likely the knowledge will be retained, and it should be retained for longer. So, whilst retrieval practice can be used to monitor and correct misconceptions, the true extent of its benefits, if utilised effectively and accompanied by other methods of research-informed teaching and learning, do have a tremendous impact on long-term learning.

Reflection and Next Steps

Although some evidence shows alternative means and methods, I believe that the research I conducted highlights that the incident I observed could be effective in my own future practice if I adapt it appropriately. I will set out to establish classroom routines within the first few weeks of teaching a new class in order for students to understand what is expected of them as learners in the classroom, thus preventing or reducing the number of occasions when students' behaviour is off-task. I will aim to ensure that my classroom is a safe space for all students so I will be flexible to ensure that the needs of each individual are met to the best of my abilities using the resources provided by the school or schools I attend. Using starter activities as retrieval practice will not be one of my established routines for every lesson as, based on the research, it may lose its effectiveness and become tokenistic, rather than meaningful. Using activities for APK and retrieval practice will be good for long-term learning, especially if I use it on a timescale that the research suggests is most effective, and it will be an efficient process to check that learners are recalling knowledge correctly and applying it successfully. I will begin to develop these practices in the first few weeks of my initial placement and also whenever I have a new class, but as research develops, I will have to keep pace with changes and reforms in education to ensure my practice is continuously research-informed during the length of my career.

I will continue to observe how these techniques are used with different age groups throughout the school year in order to understand their uses and application in wider school contexts and how they can be made successful. Once I begin teaching, I will use the Humanist school of thought to establish classroom routines; by listening to pupil voice, I will base routines upon what works best for each teaching group by considering each students' individual needs and drawing compromises between them. Furthermore, I will monitor whether the methods of retrieval practice I use are successful – I will ask learners for their feedback to inform me on whether this is something that is effective and helpful for them in terms of developing and maintaining their long-term learning. Additionally, this should be reflected in their results which, as the research shows, should be around fifty-percent higher than if I were to employ different modes of teaching and recall.

Whilst research is relatively limited in this field due to the fact that these practices depend on the individual learners in the classroom, any future decisions I make regarding how to approach delivering their learning will be informed by any further studies that are undertaken. The role of critical reflection will also be vital to my adaption of the aforementioned techniques. By adapting Zwozdiak-Myers' framework – as different models of reflection are appropriate in differing circumstances – and utilising Shön's *reflection-in-*

practice and *reflection-on-practice*, I will be able to adapt my use of particular teaching techniques in the moment and also after the fact in order to understand why any changes had to be made. Moreover, Kolb's Learning Cycle will promote the idea that I need to continually adapt my teaching methods over the course of my career in order to keep pace with the ever-changing world so that my learners can receive the best education for them. I will also potentially need to conduct further research into longer-term studies to see the effects of retrieval practice on learning from ages eleven to sixteen, rather than across one week as the studies I have examined investigate.

Conclusion

This research into the benefits of establishing routines for managing behaviour in the classroom and using retrieval practice for long-term learning has heavily informed how I intend to conduct teaching and promote learning in my future career. Through additional study of other modes of classroom management and long-term learning, I have decided that I will use the techniques from the observed incident in conjunction with other effective processes in the classroom to be sure that, to the best of my abilities, I am equipping my students with the necessary knowledge and skills so that they can be independent and successful individuals that will thrive for the rest of their lives. By examining a range of literature, I have come to the realisation that there is more research for me to conduct and that this process of researching, testing and reflecting is one that will be continuous throughout my career if I am to be a research-informed and research-shaped practitioner for the benefit of learners in this rapidly changing world.

Ultimately, as education in Wales and around the world reforms, so does the role of the teacher. The use of critical reflection to evaluate classroom incidents, and the gradual transformation of learning into something that is holistic by nature promises that children can fulfil the four purposes of the curriculum, which is fundamental in ensuring that education and the teaching profession is shaped to best suit the needs of learners so that they can succeed whatever the future holds for them.

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