Counter-factual thought mutation of critical classroom incidents: implications for reflective practice in initial teacher education

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This paper explores reflective practice through the lens of counterfactual thinking and examines its role in encouraging student teachers to reflect on negative ‘critical incidents’. The paper posits that reflections on critical incidents are often not ‘critical’ in nature. They more frequently result in counterfactual thinking processes which lead to a counterfactually mutated outcome congruent with one’s initial beliefs. To explore this issue the study examined a collection of school placement reflections (n=180) from a cohort of initial teacher education students on a 4-year B.Ed programme in the Republic of Ireland. The data revealed that, where present in the student teachers’ reflections, critical incidents of a negative nature did invoke counterfactual thinking. These counterfactually mutated scenarios and actions tended to draw on quite traditional views of teaching and tended to reinforce the idea that teachers should be authority figures. The paper discusses some of the factors, specific to teacher education, that increase the likelihood that counterfactually thinking is invoked and raises questions about current practice in teacher education that contribute to this.

Keywords: Reflective thinking; initial teacher education; counterfactual thinking; critical incidents

Introduction

Reflective practice is a dominant concept in teacher education and is now widely applied in teacher education programmes across the globe (Liou 2001; Harford and MacRuaric 2008). For example, Poom-Valickis and Mathews (2013, 421) argue that possessing a ‘disposition to engage in reflection and a willingness to learn from those reflections are integral to becoming an effective classroom teacher’. The reported benefits of reflective practice range from its potential to challenge and broaden the teacher’s perspectives (Bolton 2005) to assisting teachers solve problems in their practice (Bartelheim & Evans 1993; Loughran 2002) to broader effects in challenging prevailing norms (Pedro 2005; Halliday 1998).

Yet despite its importance, concerns remain about what it constitutes and what are its defining attributes (El-Dib 2007). In addition, in studies where the concept is not necessarily contested, concern is also expressed about it effectiveness. Many studies exploring its use in teacher education programmes have questioned the depth of reflections and the extent to which it is of benefit to the teacher (Akbari 2007; Cornford 2002; Lee 2005; El-Dib 2007). For example, in teacher education programmes where students are required to provide evidence of reflective thinking, often in the form of a reflective journal, the level of engagement can be questionable (Author 2010). In many instances student teachers can engage in reflective journaling at a superficial level concerned more about meeting programme requirements than exploring beliefs and values. In other cases they can adopt a reflective approach in a more genuine manner but see its value primarily in helping to achieve performativity measures, within the context of national attainment targets, rather than a tool for realising one’s educational values (Cain and Harris 2013).

When supported through the use of reflective journaling as part of a school practice placement requirement, the influence of the intended audience cannot be
underestimated (Fersten & Fernsten 2005; Hobbs 2007; Poulou 2007). In this context reflections can be written to present a favourable image of the student teacher or, on the other end of the spectrum, can become confessional in tone. In both cases an appeasement of the assessor takes precedent over exploring issues of concern and relevance to the student teacher’s development and understanding of their practice (Bolton 2005; Pavlovich, Collins and Jones 2009). Strategies to address these problems and increase the authenticity and relevance of reflections have involved encouraging students to examine critical incidents that arise in their practice that are of ‘real’ concern. Exploring reflective thinking from a psychological perspective (using the lens of counterfactual thinking) this paper argues that the types of reflective thinking encouraged amongst student teachers often runs counter to the psychological thought processes at work when thinking about classroom incidents. Drawing on a collection of school placement reflections from a sample of final year B.Ed students this paper aims to:

- Explore the presence of counterfactual thinking in student teachers’ reflections on critical incidents
- Determine the extent to which the counterfactually mutated scenarios reinforce prevailing beliefs rather than provide opportunities for critical reflection.

The paper firstly reviews the role of reflective practice in teacher education before moving on to explore the value of examining critical incidents as part of this reflective process. Following this, the concept of counterfactual thinking is explained before using it to provide an alternative perspective on how critical incidents can be viewed by student teachers engaged in reflective practice. Subsequent to a presentation of the research methods and findings the paper concludes raising some implications for teacher education.

Reflective Practice in Initial Teacher Education

Student teachers often enter initial teacher education with pre-constructed images and beliefs of teaching, both formed by their long apprenticeship of observation but also by the deeply embedded images of teachers in the wider society (Lortie 1975; Mager 1992; Romano 2006; Balli 2011). Romano (2006) argues that these beliefs are often unconscious but nonetheless strongly dictate actions. These beliefs of what teachers do, and how they do it, often reflect a form of classroom learning dominated by the teacher with an emphasis on information delivery. The control of learners is also seen as an important aspect (Sugrue 1997; I'Anson et al 2003; Hammond Stoughton 2007; Author 2014). This ideology is rarely questioned since its adoption has been incorporated into the student teacher’s beliefs over a long period of time. The general absence of alternative positions of how teaching and learning could be conceived within the wider public discourse does little to challenge the prevailing perspective, that is, the teacher is the figure of authority and good teachers control learners.

Attempts to challenge the lay theories of student teachers have focused around assisting them to reflect on their practice and to challenge their initial, perhaps instinctual, interpretations of events, particularly classroom incidents that could be described as critical in nature. In this context, reflective practice has played a central role in attempting to scaffold this process and change perceptions (Marcos, Sanchez and Tillema 2009; Humphreys and Susak 2000; Bolton 2005; Griffin 2003). At its heart, the purpose of the reflective process is to assist students in thinking critically.
about their practice and examine alternatives to perhaps the standard conditioned responses to day-to-day issues and challenges confronted by teachers.

Katsarou and Tsafos (2013, 535) argue that action research, and the reflective process accompanying it, has the capacity to challenge what they describe as one’s personal tacit knowledge;

‘Student-teachers’ tacit theory is very powerful, having been shaped by the educational tradition and their lived experiences as school and university students … the tacit theory shaped by the teachers’ early learning experiences constitutes a lifelong reference point … [student teachers] draw on it not only to make their teaching decisions, but also to interpret the educational process’

The emphasis on ‘critical’ reflection is paramount. Several commentators refer to the various levels of reflection (For a good overview of these different models see Lee (2005) and El-Dibs (2007)). All models describe a common trajectory from descriptive accounts of one’s experiences towards a more critical perspective which ask broader questions and challenges beliefs and assumptions. Brookfield (1995) for example argues that unless reflective practice challenges the assumptions, particularly the hegemonic assumptions, that stifle teachers’ ability to work outside their own limiting perspectives, the reflective process is largely ineffective and not worthwhile. This ‘level’ of reflection mirrors Van Manen’s (1995) description of critical reflection where, as El-Dib (2007, 26) explains, ‘the teacher is not simply concerned about the goals, the activities and the assumptions behind them but he is rather reflecting upon the larger context where all education exists. He is incorporating moral and ethical questions into his line of thinking’. The absence of this critical perspective on practice creates a reflective cycle that has limited value for the teacher and can maintain the teacher within a self-defeating cycle.

However, despite the recognition of the importance of critical reflection, achieving this level of reflection amongst novice teachers has proved more problematic. Bruster and Peterson (2013, 171) note that while it is assumed that reflective practice facilitates the ability to apply theory to one’s practice and learn from it, ‘encouraging deep critical reflection from students in an educational environment is often met with disappointing outcomes’. Similarly, Poom-Valickisa and Mathews (2013, 421) claim that, ‘despite the fact that reflection skills are commonly emphasized in all teacher education curricula, researchers have found that prospective and novice teachers demonstrate rather low levels of reflection’. Evidence from studies would suggest that many novice teachers engage in a form of pre-reflection; Larrivee (2000, 342) describes it as a form of ‘conditioned response’;

‘At the pre-reflective or non-reflective level developing teachers react to students and classroom situations automatically, without conscious consideration of alternative responses. They operate with knee-jerk responses attributing ownership of problems to students or others, perceiving themselves as victims of circumstances. They take things for granted without questioning and do not adapt their teaching based on students’ responses and needs.’

The apparent failure of many student teachers to engage in a level of critical reflection may be due to a belief that reflective practice is a natural response to challenges faced by professionals in their practice (Bruster & Peterson 2013). Working under this assumption creates the view that once student teachers are encouraged to reflect the process will take care of itself, however, as outlined earlier, strongly embedded lay theories may work against this. Griffin (2003, 207) notes that novice teachers tend to
model their practice on their own experiences as learners which creates and maintains ‘deeply ingrained attitudes and beliefs that constitute a latent philosophy of education’.

Critical incidents and ‘Bumpy Moments’

One area within the reflective practice literature that is seen as being particularly helpful in initiating reflective thinking is the notion of a critical incident (Tripp 1993; Romano 2006; Yair 2008; Meijer, De Graaf and Meirink 2011). Challenging teachers to focus on critical incidents is seen as a good opportunity to initiate more in-depth thinking and critical inquiry on one’s practice. Meijer et al (2011, 117) note that experiencing critical incidents can be a source of ‘accelerated development’. Similarly, Yair (2008, 94) comments that ‘[t]he qualitative information that critical incidents embody proves highly fruitful for influencing practitioner thinking and supporting professional development’. Others have used different terminology, for example, Romano (2006) refers to these instances as ‘bumpy moments’, Maslow (1968) refers to them as ‘peak experiences’ and Walters & Gardner (1986) describe them as ‘crystallising experiences’ but all generally refer to the same process.

But what defines a critical incident and why are they seen as helpful in initiating the type of reflective thinking that can develop greater levels of understanding? Tripp (1993) argues that while some incidents that can be described as critical in nature are ‘major events’ that occur in a teachers practice, the majority are less dramatic and occur in routine professional practice. He argues that these become critical when analysed and seen as ‘an example of a category in a wider, usually social context’ (1993, 25). However, one could question whether more commonplace events can constitute critical incidents. If the incident is seen as critical, based on the level of analysis of the event, then one could argue that all events are potentially critical in nature. This also suggests that if one fails to critically reflect one may not experience any issues ‘critical’ in nature. Such a definition therefore does not account for major events that the teachers experiences that they do not reflect on to any great depth but they still perceive it as a significant event. As Tripp (1993, 8) notes, ‘to take something as a critical incident is a value judgement we make, and the basis of the judgement is the significance we attach to the meaning of the incident’. Similar to Tripp’s definition, the intensity of the experience and the effect on the life of the individual is what characterises a ‘key experiences’ according to Yair (2008).

Building on these definitions, for the purposes of this paper, a critical incident is defined as a significant event in the experience of the teacher, whether or not it initiates a deep level of reflection and analysis. Therefore a critical incident is any event that throws the teacher into a state of disequilibrium or as Nelson and Sadler (2013) note is a puzzling situation that is inconsistent with one’s tacit professional knowledge. This definition is more in line with Ghaye’s (2011) idea of a jolt. A jolt, according to him is, ‘… a moment when something is confirmed or a routine is disrupted; a moment when the way we are thinking about ourselves (e.g., as good teachers or an exam failure) is challenged’ (Ghaye 2011, 82).

Critical incidents that focus on major events can vary from positive career affirming events to challenging negative experiences. Negative experiences can often result from events in lessons that do not meet the teachers’ expectations or fit within their classroom schema and as Shoffner (2011, 431) notes, ‘there is often a significant difference between what beginning teachers expect and what they experience when
In this context, negative experiences can often center on challenging student behavior when student conduct is not what was expected by the teacher or incongruent with the way the teacher believes the students should act (Meijer et al 2011; Romano 2006). In these instances, one could argue that it is the incongruency of the event, in relation to the teacher’s expectations and assumptions, rather than the event itself that frames the event as a critical incident. As Larrivee (2000, 301) notes, ‘self-created assumptions and limiting expectations can wreak havoc in the classroom by creating a mental picture of how things ought to be’. Reflections of events, particularly of incidents that could be defined as critical in nature, where things did not turn out as planned, often compare the incident to an idealized version of how things should have been. They subsequently challenge us to examine possible alternative actions that could have resulted in more favorable outcomes. From a psychological perspective, this form of thinking is referred to as counterfactual thinking.

**Counterfactual thinking**

Counterfactual thinking refers to the ‘what if’ or ‘if only’ thoughts of people following an event. It is pervasive in everyday thinking. Examples such as, ‘if only I went the long-way home I would have avoided the traffic’, or ‘if only I met sooner it wouldn’t have happened’ reflect the type of thoughts that occur. They are often characterised by a negative reaction to an actual outcome and changed (or mutated) action that the person believes would have positively altered the actual outcome. Possible alternatives that people think about following an event can be ‘upward’ or ‘downward’ in nature. Downward counterfactual thinking occurs when one makes comparisons to worse alternative outcomes – this direction of thinking can provide comfort and boost self-esteem (Reichert and Slate 2000). On the other hand, upward counterfactual thinking occurs when one compares the actual outcome to a more desired outcome. Typically, events that result in negative outcomes or unusual occurrences trigger such thinking. Therefore, one can see how such thinking resonates strongly with reflective thinking on critical incidents.

Epstude and Roese (2008, 170) argue that counterfactual thinking begins ‘with a problem, mishap, or other negative experience that falls below a reference value for success or satisfactory performance’. Since these outcomes are compared to normally expected outcomes, the presence of more desirable alternatives can exacerbate the counterfactual thoughts. These contrast effects, where one’s judgement is made more extreme by the juxtapositioning of an ‘anchor’ or standard, can result in the same outcome being judged as worse or better depending on the salience of the outcome (Roese and Morrison 2009).

Roese (1994) claims that CTF is an essential feature of human consciousness serving as an affective function, helping us to feel better, and as a preparative function, assisting future improvement. Similarly, Dixon and Byrne (2011, 1317) claim that it ‘may help people to prepare for the future, work out causes [and] learn from mistakes...’. Bouts et al (1992) argue that speculating on alternative outcomes can help in trying to overcome adverse consequences thus helping people to prepare for the future.

Since the 1980s, several studies have highlighted the regularities of such thinking. For example, bad or unanticipated outcomes tend to generate more counterfactual
thoughts rather than good outcomes. When asked to counterfactually mutate events following a negative outcome people tend to ‘undo’ the first event in a causal sequence of events (the causal order effect) and ‘undo’ the last event in a temporal sequence of independent events (the temporal order effect) (Miller and Gunasegaram 1990; Wells, Taylor and Turtle 1987). Research has also revealed that people tend to change the actions of individuals rather than their inactions (particularly influenced by social norms of action/inaction) and change controllable events more than uncontrollable ones (Kahneman and Tversky 1982; McCloy and Byrne 2000). Of particular relevance to this study is the tendency of people to change ‘exceptional’ actions to ‘normal’ actions (Dixon and Byrne 2011). For a review of other dimensions of counterfactual thinking see Roese (1997) and Roese and Olson (2014).

A number of research studies have also examined the tendency to have ‘if only’ thoughts about socially unacceptable actions such as the consumption of alcohol rather than socially acceptable acts such as helping others (Walsh and Byrne 2007) and how behaviours that deviate from a person’s own behavioural norms triggers counterfactual thinking. For example, Catellani et al (2004) examined participants’ counterfactual thoughts regarding a rape case. The research was interested in how normative behavioural standards and the deviation from such perceived norms, influence counterfactual thinking since ‘behaviours that do not conform to stereotype-based norms are more likely to be counterfactually mutated than conforming behaviours’ (Catellani et al 2004, 423). Their research found that stereotype-based norms influence counterfactual mutability and responsibility attribution. Similarly, McCloy and Byrne (2000) examined the mutability of appropriate and inappropriate behaviour in counterfactual thinking. Using a vignette where the actor engages in a series of target events (some appropriate and some inappropriate) they found that participants tended to counterfactually mutate the inappropriate actions more than the appropriate actions.

The gravitation of counterfactual thoughts towards changing actions to socially shared norms of behaviour found by Catellini et al (2004) and the counterfactual mutation of inappropriate behaviour to appropriate behaviour (McCloy and Byrne 2000) suggests that counterfactual thinking, while being goal orientated, is highly influenced by interpersonal (an individual’s adherence to their habitual modes of behaviour) and intrapersonal norms (abiding by prevailing social norms). Therefore our attitudes, beliefs and biases guide our assumptions in relation to how things should be and what should happen.

**Methodology**
The research reported in this study aimed to explore the extent to which student teachers’ reflections on critical incidents was used as an opportunity to reflect critically on their practice as professional educators or whether the occurrence of these critical incidents led to counterfactual thinking in which the counterfactually mutated scenario reflected the interpersonal norms of the student teachers as well as the intrapersonal norms of the school. The study aimed to:

- Explore the presence of counterfactual thinking in student teachers’ reflections on critical incidents
- Determine the extent to which the counterfactually mutated scenarios reinforce prevailing beliefs rather than provide opportunities for critical reflection.
To explore this issue the study drew from a collection of school placement reflections from a sample of 6 undergraduate initial teacher education students from a University in the Republic of Ireland. The programme of study had two significant school placement components, one in year two and the second in year four. During these placements students were required to write three reflections each week as part of their placement portfolio requirements. These reflections were read by their supervising tutors and formed part of the placement requirements of the programme. Students were free to reflect on issues of concern to them and the reflective model within the programme emphasised the role of reflective practice in exploring and improving practice as well as critically reflecting on broader social and political aspects of classroom and school life. Over the course of the 10-week placement students completed approximately 30 individual reflections although students were encouraged to use the individual entries as an opportunity to pursue over a longer period of time particular issues of interest/concern to them as student teachers. The students in question were all in their final year of study of a 4-year concurrent teacher education programme that had recently completed their final 10-week placement. All students in the cohort of over 253 students were invited to participate in the research study which involved submitting their reflections anonymously to the researchers via email. Six students agreed to participate in the study resulting in the collation of over 180 individual reflections. The average age of the students was 21 years and they were specialising in a range of subject areas including Technology, Science, Languages and Physical Education.

Having received the students’ reflections all were read to identify the presence of counterfactual thinking emerging from critical incidents.

In order to qualify as a suitable examples for analysis, two dimensions had to be present in the reflections. We firstly examined the reflections for examples of ‘critical incidents’. As outlined previously, this could be described as an initial ‘jolt’ or event which threw the student teacher into a state of ‘disequilibrium’ where what happened did not align with expectations. Having identified these ‘events’ we subsequently explored the presence of counterfactual thinking following the incident. This was evidenced through the use of phrases such as, ‘had I’ or ‘if only’. The excerpt below, from one of the participant’s reflections, is used as an example to illustrate this:

My last class today was a disaster. I am having serious discipline problems with this particular class on a regular basis and am running out of ideas to deal with them. It is very discouraging after all the work I put into preparing lesson plans and resources for this class… Had I been firm and very tight on behaviour at the beginning I might not have half the problems I am having today. I must live and learn!... In the next class I will have to be very firm and keep them working throughout the class so that they don’t get a chance to misbehave (Male, Technology teacher).

The incident presented in this example refers to a negative experience, i.e., ‘my last class today was a disaster …’. This description was then subsequently followed by counterfactual thinking, ‘had I been firm and very tight on behaviour….’. The counterfactual thinking present may have expressed a desire to undo what was done
following the incident or indicate future intentions in light of the incident – which was normally expressed as an intention to modify future behaviour.

**Research Findings**
Analysis of the 180 reflections unearthed numerous examples of critical incidents. While some incidents were positive in nature, reflections on critical incidents tended to focus on negative experiences, largely concerning discipline and behavioural issues that were not congruent with the student teachers beliefs and assumptions. While acknowledging the small sample size, those who experienced persistent negative critical incidents showed evidence of greater engagement in counter factual thinking. This occurred following sustained exposure to critical incidents of a similar nature (i.e. disruptive student behaviour) and perceived failure on the student teacher’s part to address and ‘fix’ these disturbances. When evidence of counter factual thinking did appear, these tended to be non-critical in nature with the student teacher drawing on prevailing beliefs and attitudes, i.e., ‘don’t smile till Christmas’ and ‘stop being so nice’. Counter factual thinking did not occur on any occasion when students reflected on positive critical incidents. All examples of counter factual thinking identified by the authors were upward in nature in that the students compared the actual incident to a more desired outcome i.e. ‘if only’.

A number of excerpts are now provided to portray evidence of counter factual thinking of a non-critical nature in a sample of student teachers reflections. In all instances a brief descriptor is provided on each student teacher, followed by examples of counter factual thinking. The critical incident and the counter factual thought are subsequently outlined by the authors.

Anne, a twenty-two year old Physical Education and Geography teacher, appeared to have an overall positive experience in a single sex (girls) religious secondary school, as evidenced in the fact that many of her reflections iterated how ‘enjoyable’ the experience was, how she ‘fell very settled in the school’ and how the pupils were in general ‘extremely well behaved’. However, throughout her reflections there were occasional references to a challenging ‘fourth year Geography class’ that she was assigned. Early on in the placement, at the end of the second week, Anne wrote the following entry to her teaching portfolio:

> **My overall feelings after the last two days are those of contentment but with a hint of disappointment. I feel very settled in the school as the pupils are, for the most part, extremely well behaved and classes are very productive. My fourth year Geography class however is still causing trouble. They are extremely chatty in class and I find that they are very unwilling to participate productively. These pupils have been chatty in class from the first day, however by using group work and different activities I have been able to deter them from talking excessively in class. However, last Tuesday many of the pupils did not have their homework done. As it was the pupils’ first time not having homework done for me I chose to let them show me it the next day. I am now wondering if this was the best choice. Perhaps if I had exerted my authority at this stage I would have gained more respect from the pupils and they would be less likely to misbehave in my class. I feel I need to gain the respect of this class…In the next lesson I feel I must ensure to show the pupils that their behaviour in class will not be tolerated and hopefully reduce the level of disruption to the lesson.**
Perhaps to provide some contextual information in order to justify her position, the student teacher in this case presents a scenario of a largely disengaged and 'extremely chatty' group that were, 'very unwilling to participate productively'. The critical incident which appears to have sparked the counterfactual thinking was when the students did not present their homework. Evidence of counterfactual thinking, of a non-critical nature, is evident in the statement 'perhaps if I had exerted my authority at this stage…'. Alternatives to this standard conditioned response are not explored by the student and she immediately situates the teacher as a figure of authority in the classroom. In this instance the student teacher also portrayed evidence of how this counterfactual thinking will influence future behaviour ('in the next lesson I feel I must ensure…'). Later, in the same reflection, Anne again engaged in counter factual thinking (of a non-critical nature) when she stated that:

It is vitally important that I follow through on disciplining these pupils so that they take me seriously as a teacher in a position of power. While I have put some of these pupils on detention already I do not feel this had enough of an impact on their behaviour. Perhaps moving on and using a more serious sanction for misbehaviour in class would have more of an effect with this particular group of pupils’.

No further examples of counter factual thinking (or classroom management issues) occurred in the remainder of Anne’s reflections, perhaps suggesting that it was only incidents of negative behaviour that caused counter factual thinking. The swift reversion to quite traditional views of the teacher, and the limited exploration of alternative views and perspectives, was similarly evident in reflections from Tim. Tim was a 22 year old teacher of Technical Graphics and Metal Work in a community college. While feeling ‘overwhelmed’ and ‘nervous’ to begin with, Tim soon became ‘more settled’ in the school. Ongoing submissions indicate an overall positive experience however, Tim, like Anne, experienced classroom management issues, particularly with two class groups. These experiences, early on in the placement, culminated in the following reflection at the start of week four:

Last week I felt the students were very restless and it was hard to get them focused on task…I must try to be a little stricter in the class and the next day I will try these small things I have been reading up on. The old saying “don’t smile until Christmas” comes to mind about now. I wonder if I have been too naive until now?

The critical incident, in the excerpt above, emerged as a result of pupils being ‘very restless’ and lacking focus. Similar to the previous example, Tim portrays evidence of how this thinking will influence his future behaviour in the sentence beginning ‘I must try to be a little stricter…’ He quickly draws on traditional, non-critical discourses around teaching i.e. ‘don’t smile till Christmas’. Such discourses continued to emerge throughout the remainder of Tim’s reflections. From this perspective it could be argued that this type of thinking foreclosed alternative perspectives on the issue, maintaining him in a pre-reflexive loop. This was evidenced two weeks later when, having faced similar experiences with a different class group, he wrote:

In today’s Technical Graphics lesson with my first year group I noticed a lot of restlessness and unwanted chatting. This was not the normal behaviour I had come to expect from the class and so I want to focus on this issue for the reflection. So could this have been the start of the misbehaviour snowball for the class. Now the
behaviour was nothing major but it was enough to disrupt the class. I think the other aspect that is springing to mind as I write this reflection is the fact that I may have become a little complacent with this class group. I had reported in the last reflection that I was very happy with the group but am I forgetting that they are only first years? I think I will have to be careful in the next class not to let the behaviour get out of hand again.

As before, the critical incident emerged as a result of pupils behaving in a way that fell below the student teachers reference value for success. The student teacher was, yet again, thrown into a state of disequilibrium by ‘a lot of restlessness and unwanted chatting’.

One student teacher in particular, John, displayed reoccurring instances of counter factual thinking in his reflections. John, a 28 year old mature student teacher of Woodwork in a single-sex (boys) Christian Brothers school, engaged in counter factual thinking, of a non-critical nature, frequently throughout his ten week placement. His counter factual thoughts related to particular class groups whom he found ‘difficult’, ‘loud’ and ‘hard to deal with’. The student teacher began to counter factually mutate his experiences with this class group (a junior cycle woodwork class) in his reflections in week five of placement. In his week five reflections, John explained, ‘my last class today was a disaster. I am having serious discipline problems with this particular class on a regular basis and am running out of ideas to deal with them’. The student teacher counter factually mutated this experience to wonder whether ‘had I been firm and very tight on behaviour at the beginning I might not have half the problems I am having today’ and suggests, showing evidence of future changes in behaviour, that ‘in the next class I will have to be very firm and keep them working throughout the class so that they don’t get a chance to misbehave’. The student teacher engaged with similar patterns of counter factual thought for the remainder of school placement,. For example at the end of week 6, the student teacher made the following entry in his reflection portfolio:

To gain and maintain this type of classroom and learning I must be very firm… If I get a job next year, my first couple of months teaching pupils will be ones where I am very strict where lateness, disrespect, lack of uniform, lack of equipment and other simple things are taken very seriously. I need to learn how to become this teacher rather than being too nice.

Again, at the end of week 7, following a lesson that was viewed by one of his school placement tutors, John described how the students were ‘loud and hard to deal with’.

As before, the ‘pupils did not listen to instruction’ and John had to ‘fight to maintain control in the classroom’. Drawing on his own counter factual thinking, as well as the advice provided by the school placement tutor, John concluded that he ‘must keep a very tight reign on them and be firm with them on simple things’. The student teacher placed ‘blame’ for these reoccurring classroom management issues on his ‘first class with the group’. John, in the same week 7 reflection, considers the impact, ‘not [being] strict enough’ during these early lessons had on his experience with the class:

Looking back, it was my first class with this group that has caused the problems throughout the rest of teaching practice. In that first class I was not strict enough, did not pick up on and deal with misbehaviour and ultimately let them away with behaviour that I should have called them up on. In future I will be very strict in the first couple of months with classes and will make sure everybody respects me as the teacher and will behave appropriately in the class. This will require a complete
change of attitude on my part. I must stop being too nice and be very straight with pupils. I must make sure they know they way they are expected to behave and know the consequences for breaking the rules... I have put a huge amount of work into everything to do with this teaching practice and was hoping for a high grade. With a pass mark this will be very unlikely. However I must continue and focus on gaining control of this particular class and keeping on top of the other classes I am teaching.

As well as illustrating examples of counter factual thinking, the above excerpt highlights how the student teachers preconceived assumptions and prevailing beliefs and attitudes were supported and strengthened by the views of the tutor who appeared to reinforce such beliefs as ‘not being too nice’ in the student teacher. This perspective appears to have been confirmed and affirmed in the mind of the student teacher from his engagement with this school placement tutor.

When reflecting back on the placement as a whole, John considered his experiences with these class groups and showing, yet again, counter factual thinking of a non-critical nature, drew on traditional prevailing beliefs and attitudes around student behaviour and approaches to classroom management:

The first week was good except for one double woodwork class which knocked my confidence. The mistakes I made in that class taught me quite a lot and I ended up suffering with that class for the next nine weeks. First impressions are everything. Had I have been strict and better prepared as I was with some of the other classes I might not have had half the problems I experienced with this particular class…the tone I set in my first class was one in which pupils dictated the pace of the lesson along with what was acceptable. It was an uphill battle from this point on and I never fully recovered…My control in the classroom is clearly something I need to work on.

There is a remarkably similar pattern to the excerpts highlighted in this section and this sample reflect the types of counterfactual thinking evidenced in the students’ reflections. All of the examples of counter factual thinking related to student teachers reflecting on and reinforcing their beliefs around the ‘control of learners’ (Sugrue 1997), what constitutes good teaching (i.e. control) and the belief that the teacher is, and should be, a figure of authority. Having highlighted the presence of counter factual thinking in student teachers reflections, the possible reasons and implications for teacher education and reflective practice requirements are now explored.

**Discussion of findings**

Larrivee (2000) argues that, 'unless teachers engage in critical reflection and ongoing discovery they stay trapped in unexamined judgments, interpretations, assumptions, and expectations’ (p. 294). She further adds that these habits tend to close off opportunities for perceiving and interpreting incidents in different ways since remaining in the pre-reflexive loop limits the information one selects to understand one's practice. Viewed through the lens of counterfactual thinking, it could be argued that the thinking processes activated by the critical incidents outlined above maintains student teachers within this pre-reflexive loop.

As has been highlighted, the ‘what if’ and ‘if only’ thoughts that characterise counterfactual thinking, and the counter-factual mutated scenario they produce, are influenced by one’s habitual norms of behaviour as well as current social norms. In
relation to teaching practice these personal habitual norms and social norms are very influential.

Student teachers’ experience of teaching, through their long apprenticeship of observation (Lortie 1975), plays a significant role in determining how they teach and engage with students. These habitual norms of behaviour influence their perceptions of what should happen in classrooms and what classroom life (including teacher and student behaviour) should look like. In addition to personal experiences and habits, prevailing social norms act as a strong reference point when teaching and evaluating incidents in classrooms. As was evident in this study, the student teachers drew on quite traditional and conservative views of teachers, namely figures of authority that have strict control over students. Challenging such perspectives, while an important part of teacher education programmes, is a long-term process. Yet it could be argued that there are some programme requirements, common to many teacher education programmes, that potentially maintain student teachers within a pre-reflexive counterfactual thought process. On the surface these programme requirements are taken for granted yet viewed through the lens of counter-factual thinking appear more problematic.

The first of these programmatic requirements relates to the planning and reflecting cycle itself. A common requirement of many teacher education programme is the requirement to reflect on one’s planning following a lesson or scheme of work. This process is normally presented as part of a planning cycle and is thus seen as an essential part of preparing for future lessons. Evaluating the success or otherwise of lessons can invoke counterfactual thoughts and counterfactual mutations. Thoughts such as, ‘if only I planned this’ or ‘I shouldn’t have planned that’ can quickly draw the student teacher into thinking about alternatives - bypassing the important opportunity to question and reflect on broader issues. In addition, the strong emphasis on planning and preparation while on school placement can also make the student teacher feel more responsible for any unanticipated and negative outcome that arise. This is reflected in the fact that in all excerpts above, student teachers placed responsibility for pupil misbehaviour on the teacher and their approach to discipline and classroom management. As reported earlier, research into counterfactual thinking has found that humans have a tendency to counterfactually mutate actions rather than inactions (Kahneman and Tversky 1982; McCloy and Byrne 2000). Thus, having originally planned the lesson, one develops a higher level of responsibility for the negative outcome. The intensity of the regret is dependent on the extent to which the individual blames him/herself on the original outcome (Connolly, Ordonez and Coughlan 1997) and since they have ultimately planned the lesson, there is the potential for this to be quite high.

The plan, reflect and revise cycle may also have other unintended consequences in relation to reflective thinking since it can be seen by some student teachers as a mechanism to find quick practical solutions to problems that emerge in one's practice rather than taking the time to reflect and consider various perspectives. This is reflected in the lack of alternative perspectives explored by student teachers in the current study and the speed of which they settled on a ‘solution’ to the difficulties they were experiencing. Orland-Barak and Yinon (2007) refer to the need amongst novice teachers to acquire the ‘concrete tool-box of ideas’ to survive the early years of teaching. A similar emphasis on practical solutions was found by Down and Hogan
(2000) and Pedro (2005). Yet, as Poom-Valickis and Mathews (2013, 421) note, ‘individuals are well served when they are willing and able to suspend judgment while actively searching for supporting and conflicting evidence and, when reaching a conclusion, to do so with temperance and a consideration of the potential short-and long-term consequences’. Within the threatening and pressurised nature of school placement, a central component of teacher education programmes, opportunities for this ‘suspension of judgement’ are limited. Ward and Cotter (2004, 244) importantly ask the question, ‘When [preservice teachers] join the profession as first year teachers they will be immersed in the pressures of standards-driven curriculum and closely examined student outcomes, how will the habits of reflection and questioning survive under these conditions?’.

Attempting to establish oneself within a school within such a short period of time can also result in feelings of anxiety, frustration and even anger. In this context Colton and Sparks-Langer (1993, 48) note that these negative emotions can inhibit the student teacher's ability to draw upon the relevant knowledge base to find alternative perspectives on their practice. Poom-Valickis and Mathews (2013) comment that in these instances reflective thought is temporarily frozen. Viewed from the perspective of CFT it would seem unlikely that student teachers would critically reflect on alternative perspectives in the quest for achieving ‘success’.

In addition to coming to terms with the emotional demands of the classroom, the student teacher is also faced with expectations to 'perform' and display a level of competence in their practice (Author 2010). Mistakes are often perceived as a sign of weakness by the student teacher and therefore teachers are less likely to take risks and adopt new ideas even in the presence of evidence of their effectiveness. This emphasis on performativity can cause the student to become nervous and protective resulting in the adoption of a cautious and conservative stance in their teaching where lessons are highly controlled to ensure that the planned lesson runs 'smoothly'. This is evident in the interactions between John and his school placement tutor, the emotions John experienced in receiving a ‘pass mark’ and how these experiences reinforced a traditional view on what ‘good’ teaching means.

Sinner (2012, 609) makes reference to the ‘panopticism’ of the practicum experience creating the consciousness of constant oversight. She argues that, ‘feeling under surveillance on practicum can modify behaviour, making surveillance in the classroom an effective method of ensuring control and compliance, even if surveillance is framed as mentorship’. Within such an environment negative critical incidents can be seen as threatening and something that requires immediate rectification rather than thoughtful reflective action. Counterfactual thought processes are at play as the student teacher reverts to what they feel should be done in an effort to avoid any future ‘derailment’ of their planned lesson.

Although the sample of student teachers opting to participate in the study from the larger cohort is small, the data nonetheless suggests that critical incidents of a negative nature can lead to counter factual thinking, hence limiting opportunities for critical reflection. In addition, while the number of examples of counter factual thinking to emerge across the 180 reflections was relatively small in comparison to the number of reflections analysed, a clear distinctive pattern was evident in all cases: student teachers experienced a negative critical incident followed by them counter factually mutating the incident to reflect their interpersonal and intrapersonal norms and beliefs around the traditional role of the teacher as a figure of authority. Further
research is needed to explore this issue, particularly studies in different contexts and settings to determine if factors unique to the Irish context and to the particular culture of the school are at play or whether this is a more universal phenomenon. We speculate that, similar to related work on counterfactual thinking, this is potentially common to all student teachers' reflections.

**Conclusion**

Ward and McCotter (2004) note that teacher educators place a high value on reflective thinking in the belief and expectation that it has the capacity to broaden the perspective of the individual and help them to question the ‘taken-for-grantedness’ of the teaching enterprise. Similarly, Bruster and Peterson (2013) note that many educators assume that reflection is a natural response to a dilemma or challenge - hence its taken for grantedness. Viewing reflective practice, particularly the reflections invoked by critical incidents, through the lens of counterfactual thinking, challenges these assumptions. Reflecting on critical incidents can have enormous value if the student teacher is effectively scaffolded beyond the ‘knee-jerk’ responses that inhibit progression into a more critical reflective space. However, as this study has highlighted, reflective thinking is a cognitive process and thus subject to cognitive biases that are evident in other cognitive thought processes (e.g., attribution theory). Therefore care should be taken to avoid allowing students slip into the counterfactual pre-reflexive loop.

The findings of this study raise a number of implications for teacher education programmes. Rather than encouraging student teachers to reflect on the event itself, perhaps an implication for teacher education is that the emphasis should shift to the counterfactually mutated scenario that is invoked following the critical incident. Romano (2006, 984) notes that within each critical incident are the ‘thoughts, beliefs, and knowledge that these particular teachers bring to these problematic instances in teaching’. Challenging the student teachers to reflect on this conceived scenario (and encouraging them to unpack the beliefs and assumptions that underpin it) may begin to unearth some of these beliefs and attitudes that have remained unquestioned. A second implication is that teacher educators may also need to critically reflect on the role that programme requirements have on students’ engagement in reflecting on critical incidents and the extent to which performativity expectations not only stifle these opportunities but also maintain students within a pre-reflexive cycle of thinking.

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