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Reflecting On Emotions During Teaching: Developing Affective-Reflective Skills In Early Career Teachers Using A Novel Critical Moment Protocol

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Abstract: Affective-reflective skills are an integral component of classroom pedagogy, providing teachers with emotional understandings and confidence that can improve overall classroom performance. This article presents a case study of early career primary school teachers, showing how such affective-reflective skills can be developed through iterations of a purpose-designed collaborative protocol. Use of this novel protocol allowed teachers to examine their classroom practices via critical moment analysis of affective responses observed from lesson videos. Findings demonstrate how teachers' use of this non-judgmental and self-evaluative protocol contributed to an emerging understanding of the relationship between their affective-reflective skills and teaching confidence. Findings support an argument for reframing teacher professional learning, from a focus largely on curriculum content and pedagogy, to a focus that includes the teacher's emotional experience and its subsequent analysis, as part of the learned content that supports the growth of teacher confidence.

Introduction

A substantial body of literature developed around the importance of teacher emotional literacy has begun to converge with an equally substantial literature supporting collaborative teacher professional learning (Woolcott et al., 2017a, 2017b; Wurf & Croft-Piggins, 2015). This convergence links reflective practice, seen as critical for the purpose of improving teaching and sustaining change (Cavanagh & Prescott, 2010), with the affective skills that encompass teachers' emotional understandings and regulation (Galligan et al., 2019; Uitto, Jokikokko, & Estola, 2015; Yeigh et al., 2016). Such affective-reflective skills are related to notions of emotional intelligence (Goleman, 2006) and are linked with the ability of a teacher to identify and control their emotions (Vesely, Saklofske, & Leschied, 2013). Teacher professional learning that develops such skills is important in positively supporting a teacher's enthusiasm, resilience, adaptability and abilities in understanding their own emotional states; a teacher so armed has more confidence in teaching and more influence on the emotional-motivational climate of the classroom (Bellochi, 2019).

There is a large disparity, however, between the potential for benefit from affective-reflective skills and the rare occasion of their development in teacher professional learning, particularly for early career teachers (Dolev & Leshem, 2017; Jennings & Greenberg, 2009). This disparity has been compounded by research on the interface of emotional literacy and teacher confidence that tends to view the two notions of reflection and emotion (with affect a measure of emotional experience and understanding, see e.g., Yeigh et al., 2016) as distinct and separate (Hawkey, 2006). However, one way that affective-reflective skills have been successfully developed is through professional learning that engages collaborative reflection processes, with corresponding improvements in teacher confidence¹ (Nichols et al., 2017). There exists an opportunity, therefore, for the development of professional learning processes that interface and develop affective-reflective skills, through a focus on emotional literacy skills, particularly where those processes involve group or peer reflection (Doig & Groves, 2011; Woolcott et al., 2017a, b).

This article introduces findings from research that examined early career teacher professional learning utilizing an affect-based “critical moment protocol” within a collaborative reflection process. We begin by presenting a theoretical framework and study context that serve to illustrate the links between emotional literacy and collaborative reflection, and their application as a novel critical moment protocol in the recently completed project, *It’s part of my life: Engaging university and community to enhance science and mathematics education* (IPOML) (Woolcott et al., 2017a, 2017b). The methodology and research design are then outlined, followed by a results and discussion section that examines the case studies involved and argues their relevance to broader teacher professional learning contexts, and a conclusion.

Theoretical Framework and Study Context

Collaborative and Reflective Teacher Professional Learning

Collaborative and reflective teacher professional learning is defined here as a collection of processes that demand an active, constructive, and problem-focussed role for the teacher, and provide opportunity for critical reflection designed to sustain change and improve practice (OECD, 2009). This kind of teacher professional learning embeds the theory that knowledge and learning arise from teacher experiences which promote reflection and social interaction (Gröschner et al., 2014). Such professional learning generally includes the dimensions of shared responsibility, reflective professional inquiry, and shared values and vision (Stoll et al., 2006), and involves a constant assessment of assumptions and a capacity to actively construct, reconstruct, and apply knowledge (Rawlins et al., 2019; Runhaar, 2008).

These aspects of professional learning are steeped in literature that supports the way video can engage teachers as a community of learners, with the potential to cultivate a culture of safe and supportive reflection. It has been widely reported that video analysis can open more opportunities for discussion and “trust-building” in a staff profile than the more traditional writing methods of analyses (Borko et al., 2008). When examining their video recordings, teachers have immediate evidence and data of their pedagogy, and this can help to foster more scholarly analyses of their practice on a critical level (Burn, 2006). Analyses of video-based

¹ Confidence here includes perceived competence, a self-efficacy measure, seen in this article as separate from professional competence, the measure of actual classroom performance (e.g., see Hatlevik, 2017).

observational, reflective and collaborative teacher professional learning have proven that a non-judgemental examination of practice and focus on affective states, such as developed in IPOML, can enhance pedagogical confidence (Woolcott et al., 2017a, 2017b; Woolcott, Whannell et al., 2019).

Teacher Emotional Literacy

Teaching is an emotional practice that demands constant monitoring and controlling of behaviour, with the focus on both the teacher's thoughts and external actions in conjunction with their emotional experiences as they respond to student feedback (Cejudo & Luz López-Delgado, 2017; Hargreaves, 1998; Richardson & Shupe, 2003). The way a teacher can identify, assess, and control their emotions is strongly related to a teacher's pedagogical identity, their practice, and their skills in professional reflection (Bellocchi, 2019; Zhu & Zhu, 2018). Nonconscious and conscious affect have the power to facilitate the pursuit of desired emotional outcomes (Bloomfield, 2010), and it has been suggested that anticipated emotions carry great potential to direct decision-making, since such emotions influence behaviour by acting as a feedback system (Immordino-Yang & Damasio, 2007).

A conceptualization of affective-reflective skills, set within the notion of emotional intelligence, has emerged from the more constrained conceptualization of emotional literacy (Steiner, 2003) as a way of describing the emotional competencies involved in the ability to understand and control emotional states as well as respond to these states in others (Cornelius-White, 2007; Rivers et al., 2013; Weare, 2004). Affective-reflective skills also draw upon social-emotional learning, 'the process through which children and adults develop the skills, attitudes, and values necessary to acquire social and emotional competence' (Elias et al., 1997, p. 2). Amongst the body of theories that appreciate the emotional nature of pedagogy, however, there exists a paucity of systematic attention given to the way teachers can understand and utilize their emotional experiences (Bellocchi, 2019). Indeed, much of the literature that supports awareness and development of both affect and emotion in teachers relates to classroom students (Joshith, 2012).

Emotional Understandings and Early Career Teachers

The benefits of emotional understanding and labour fundamental to the success of early career teachers have been well documented and analysed. A teacher's pedagogical ardour, being the result of their emotions, is an integral part of the profession and is, in fact, necessary for teacher effectiveness (Yin, Huang, & Lee, 2017). It is no surprise, then, that there is significant and striking evidence for a recent 'burnout cascade' of early career teachers—teachers now entering the often-fluctuating environments of their profession need to adapt and develop at speeds that can be ruinous to the cognitive-emotional aspects of teacher professional learning (Jennings & Greenberg, 2009). Further, a widely reported lack of the skills and resources required for teachers to effectually manage and utilize their emotions is contributing to teacher attrition (Hong, 2012).

The early career teacher literature emphasizes the point that, in relation to teacher change, attrition and confidence, the study of emotional impact must be brought to the forefront of teacher professional learning (Ria et al., 2013; Shoffner, 2009). With this in mind, the focus of

the present study was to explore if, and how, early career teachers can self-regulate their emotions by developing affective-reflective skills. These skills were analysed in relation to teaching confidence in a primary school classroom, designed to assist the development of affective-reflective skills in pre-service teachers (Woolcott et al., 2017a, 2017b).

IPOML was based around well-trialled iterations of an Enhancement-Lesson-Reflection (ELR) process (Fig. 1), sequenced as follows: an enhancement session (E) where the pre-service teachers, content experts and pedagogy specialists worked collaboratively to plan a lesson; a teaching lesson (L); and a reflection session (R) involving teacher self-reflection and guided collaborative feedback conducted with peers and the pedagogy specialists. Reflection involved an examination of affect-based critical moments, selected by the teaching pre-service teacher from a video of their delivered lesson (Galligan et al., 2019; Marshman et al., 2018; Woolcott et al., 2017a, 2017b; Woolcott, Whannell et al., 2019; Yeigh et al., 2016).

The enhancement phase of the ELR process allows for the pre-service teacher to enhance the quality of their lesson planning by working with one or more subject area experts. This is intended to provide the teacher with content specific knowledge as required, and to identify real-world, hands-on, engaging activities that might be used in the lesson. Collaboration with one or more pedagogy experts then provides support in the planning of the lesson delivery. The planned lesson is then taught in school with a class of student. The lesson is videoed and observed by other teachers, including perhaps a mentor, other early career teachers and initial teacher educators. The reflection phase, the focus of this article, involves a collaborative reflection process using critical moments as the basis for reflection. The ELR process is intended to be iterative, with each phase informing the next to allow for continued enhancement of emotional literacy.

A critical moment in a classroom lesson has been defined and used in a number of ways. Myhill and Warren (2005) identify a critical moment as “those points in a lesson where something a child or teacher says creates a moment of choice or opportunity for the teacher” (p. 55), while Fisher-Yoshida (2015) describes critical moments as turning points in a lesson that are “decisive in determining the flow of the rest of the conversation or interaction” (p. 1). Labercane, Nicols and Johnson (1998) argue that reflection on critical moments is able to bring about change in teaching practice. Within the context of this study, a critical moment was considered to be a moment within a lesson where the pre-service teacher experienced an emotional/affective response that was considered critical to the progress of the lesson or to how the events in the lesson may have been interpreted.

As noted, the current study focussed on the reflection (R) component, where each teacher used a video recording of their lesson to recognize and then report the emotional states they were experiencing as a basis for collaborative reflection on the teaching lesson, including planning for future lessons. This iterative process enables the teacher, and collaborative peers, to consider emotions linked to the teaching, rather than considering only the teaching itself as a basis for improvement (Tripp, 2011). This allows teachers to explore their pedagogy, and the pedagogy of others, from a personally meaningful perspective in order to construct professional self-understandings (Darby, 2008). Further, while such a process can be confronting, it assists teachers in becoming more attentive to their (and others’) emotional states, as well as becoming exposed to different sources of knowledge and various professional perspectives (Rich & Hannafin, 2009; Shoffner, 2009).

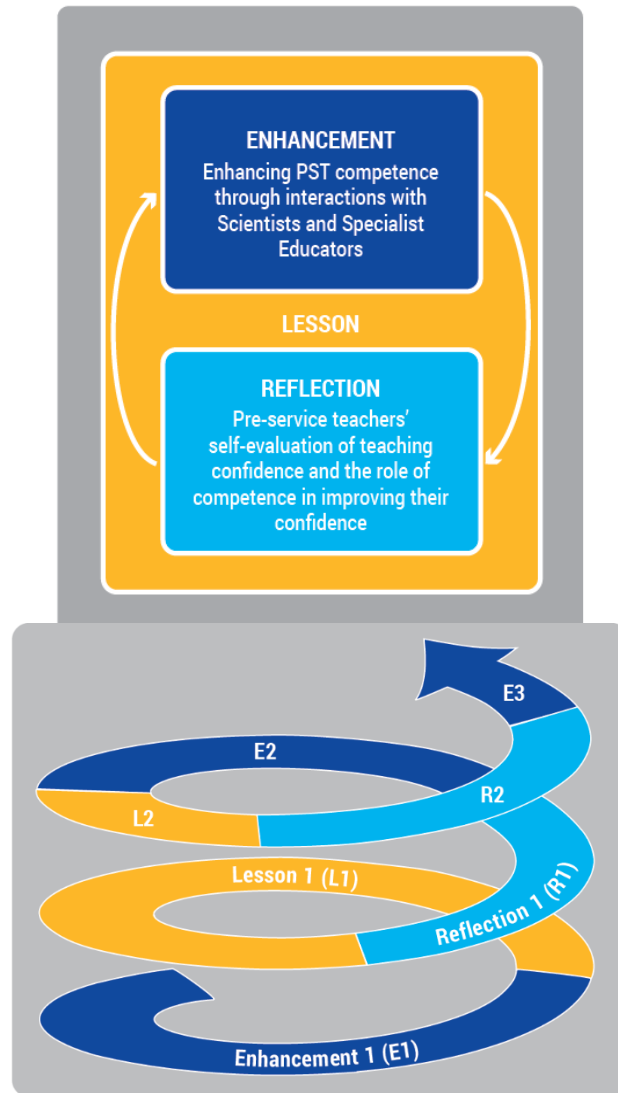


Figure 1: The Enhancement-Lesson-Reflection (ELR) process and its iterative path. Reproduced by permission (Woolcott et al., 2017a).

Research Questions

In accordance with the aims of IPOML (Woolcott et al., 2017a, 2017b), the current study was designed to delineate a relationship between early career teacher's emotional understandings and their teaching practices. In particular, the study was designed to examine the hypothesis that the reflection process would successfully develop and continue to develop, via an iterative process, affective-reflective skills relating to teaching confidence. The study was designed, therefore, to consider the following central research question.

How does an affect-based reflection protocol assist early career teachers to focus on improving classroom teaching practices?

Two subsidiary research questions were also considered.

What affective-reflective skills did early career teachers develop by undertaking the reflection (R) component of the ELR process?

How did any improvement in affective-reflective skills contribute to early career teachers' classroom confidence?

Methodology

Research Design

This study took a design-based implementation research (DBIR) case study approach, where the design and testing is done in cycles to allow evidence to arise from the variations in implementation and from analysing within-data comparisons, in order to direct potential improvements and innovations (Fishman et al., 2013). This article reports teacher interactions related to reflection sessions, including collaborative discussion of positive or negative emotional highlights (critical moments) from two teaching lessons for each of two participating early career Teachers, A and B, both with less than five years of teaching experience. The reflection group consisted of two education experts, the Observer (an experienced teacher who also gave feedback on critical moments) and the university Researcher, along with either Teacher A or Teacher B. Each reflection session was based on a preceding video of a teaching lesson and provided opportunities to define needs, develop related theory, and reflect and modify affect-based strategies for the next teaching, reflection and planning experience (Fishman et al., 2013).

This approach allowed each Teacher to re-examine and interrogate their experiential affect as well as change adjoined behaviours and construct future strategies from their negative or positive experiences. This iterative, self-reporting and justifying focus allowed each Teacher to engage in multiple cycles of strategy implementation and knowledge assimilation, as required in DBIR aligned with teacher professional learning (Penuel et al., 2007). These iterations therefore assisted in the integration of new skills, allowing for increased affective-reflective skills in future practice.

Participants and Processes

The study followed Teachers A and B, both early career primary school teachers in the first five years of their teaching. Each Teacher was required to teach two lessons in an open classroom environment. The study site was an urban school of about 350 students and 30 teachers, with ample provisions for infrastructure and support for teacher professional learning. All study participants received and discussed definitions of emotional literacy and were given an overview of the DBIR reflective approach (adapted from Woolcott, Seton et al., 2019).

During each lesson, the Observer and Researcher assigned to each Teacher was present in the classroom, but did not interact with the Teacher or classroom students, recording only observational notes on each Teacher's emotional states. After teaching their lesson, each Teacher identified (from the video record of the lesson) three critical moments of important (positive or negative) emotional feeling or experience. These moments were distinguished from moments of students' activity or perceived learning, and instead focused on the emotional state of the teacher 'in the moment'. Each teacher identified one critical moment from each third of the lesson and

kept a record of the time and duration of these moments². The Teacher and the Observer separately reviewed the selected critical moments and wrote down all of the words or phrases they deemed apt in describing the emotion observed (see Toivonen et al., 2012). They could also rate each word or phrase on a 1 to 5 scale, for example, with scoring reported as ‘annoyed’ (4) indicating a high level of annoyance.

These affect-based critical moments then formed the basis for collaborative reflection aimed at developing strategies to reinforce positive emotions and minimize negative emotions during the subsequent lesson. This reflection focused only on identified critical moments; responses relating to student learning were not included unless they were linked to a critical moment. Each Teacher was encouraged to answer a set of reflection questions as part of the structured reflection (Fig. 2), and the Observer and Researcher facilitated discussion on the relationship between critical moments and emotional understandings, structured around these questions (similar to the dialogic feedback in Charteris, & Smardon, 2015).

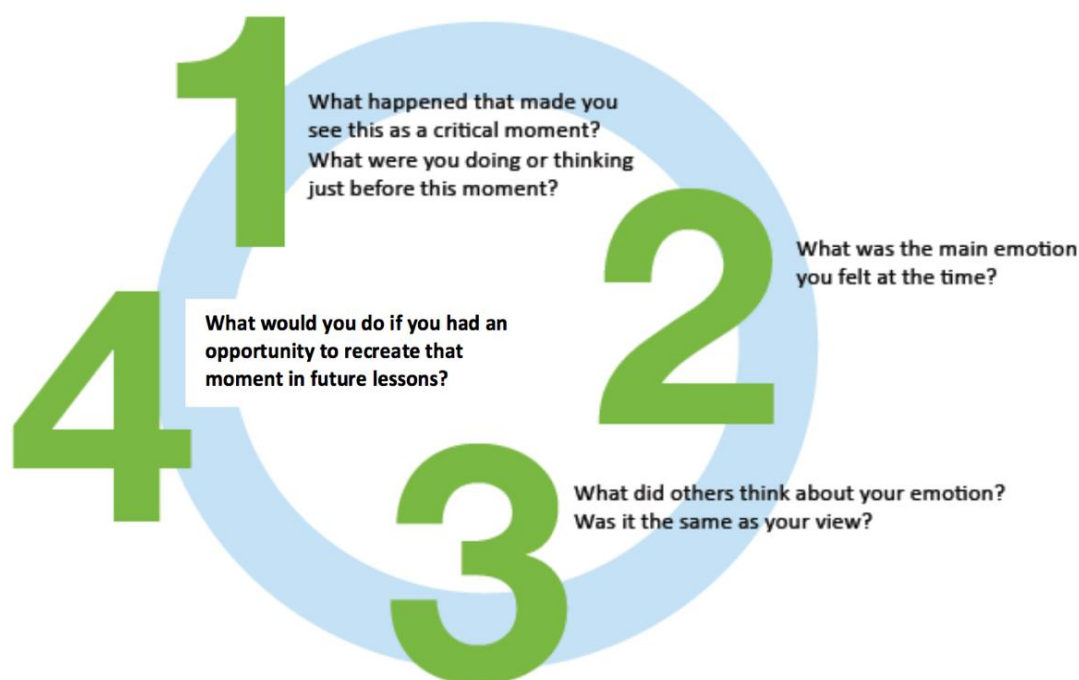


Figure 2. Questions for reflection using the critical moment protocol in the ELR process. Reproduced by permission (Woolcott et al., 2017b)

Questions 1 and 2 were intended to prompt the pre-service teacher to consider the events involved in each critical moment, particularly how his/her thinking and behaviour were related to the events and the emotions/affect associated with it. Question 3 prompted the pre-service teacher to consider a critical moment in comparison to how others involved in or observing the critical moment (the observing pre-service and mentor teacher/s) perceived it. This approach emphasised that the same critical moment may prompt emotional/affective responses that may be understood differently by the pre-service teacher and observers. Question 4 was positioned as the final step in the iterative approach to prompt action be taken after appropriate reflection on the critical moment and a, hopefully, sound interpretation and understanding of it.

² Record forms and details of the ELR process are available in Woolcott et al. (2017b).

Data Collection and Analysis

A multi-method approach to data collection was applied in the iterated study sequence. A video record (and transcription) was made of a preliminary session where each Teacher was briefed on the study, with explanations concerning purpose and methodology. The present study focuses on the participant Teachers analysing their critical moments in semi-structured discussions as a basis for developing affective-reflective skills. Data collection, therefore, also included transcripts of the audio and video recordings of interactions within each of the four group reflections, approximately an hour in duration, as well as records of semi-structured interviews with all participants and lesson observation notes.

Data were analysed via manual thematic analysis, with the transcripts coded and scored using constant comparative analysis (Denzin & Lincoln, 2011). This analysis identified themes, using the iteration data to provide evidence of progress (or lack thereof) in the development of affective-reflective skills.

Results

Two major themes emerged that illustrate the development of the Teachers' affective-reflective skills in relation to the research questions.

Theme 1: Affective Self-Awareness and Feedback

The first theme revealed a developing capacity for participants to recognize their emotions and regulate associated behaviours. This affective-reflective skill was used by the Teachers to analyse student emotional feedback and their own heightened sense of self-awareness, positively altering their teaching confidence. Examples here focus on Teacher A, but the theme was also evident for Teacher B.

In her first reflection session, after the video review, Teacher A identified negative emotions experienced in response to a particular student's behaviour. The critical moment identified was related to Teacher A noticing the student move his collection of books and sheets to the edge of his desk and collapse his head into his arms, abandoning the problem-solving task and withdrawing in a defeated manner. Teacher A recounted that the boy had begun the lesson with enthusiasm, despite rarely sharing responses or verbally engaging with curriculum concepts being taught. She recorded these negative emotions about his 'shut-down'.

I thought this was going to go on for the whole lesson. [It is] such a shame because he was so pumped. He was feeling really confident, and then suddenly he wasn't.

While this critical moment was described by Teacher A as one that evoked 'worry' and 'doubt', a potential solution was also attempted:

I whispered to [the student]. In my head I was thinking of a game-plan.

When, in the following lesson, Teacher A sat in front of the group and 'previewed' the forthcoming independent task by holding up printed task cards, the same student let out a moan of 'No!'. Teacher A stopped herself mid-sentence and addressed him, positively, by saying that he had done 'so well' in the last lesson. The student remained deflated, and simply stated that, in fact, he had not done well. Teacher A recorded and rated her emotions at the time as 'annoyed'

(3) and ‘frustrated’ (3). Teacher A then applied a strategy of ‘positive temperament’, which had come from her first reflection. She subsequently experienced positive emotions when the student returned to his work with a new level of excitement and confidence. Teacher A reflected that the strategy had ‘worked’ and therefore recorded this moment as a positive one. Although this and other strategies had been attempted in her first lesson, suggesting an emerging affective-reflective skill, she had acted to provide a more effective approach, measured by emotional feedback.

Teacher A’s interactions with the student show that she was able to discern an affect pattern in her two lessons which allowed her to become more aware of her own affective states and their consequent influence on the student’s affective states, suggesting the development of affective-reflective awareness. This development represents an emotional literacy finding similar to the work of Richardson and Shupe (2003), wherein teacher increases in affective self-awareness intensify an awareness of the reciprocal affective influence that occurs between teachers and students. The awareness noted by Teacher A thus agrees with research demonstrating that a positive relationship between a teacher’s self-awareness, their levels of teaching confidence, and their abilities (as based on these levels of awareness and confidence) shapes student self-image and efficacy (Dolev & Leshem, 2017). This affective-reflective skill seemed most apparent when Teacher A noticed her own negative emotions repeated in the second lesson and understood that they arose from perceptions of student disengagement, highlighting the pattern as being important for further development.

Noticing emerging trends in one’s practice is a skill identified in the findings of Yeigh et al. (2016) concerning affect-awareness as a result of the critical moment process, as well as in the theory of critical incidents by Tripp (2011). Importantly, Teacher A’s awareness of positive emotions after applying modified pedagogical strategies in her second lesson demonstrate that the emotions resulting from her intervention came from her perceptions of student affect states, that is, from her empathy (Hen & Sharabi-Nov, 2014). Perez (2011) also notes the importance of this skill, suggesting that the ability to analyse emotion ‘in the moment’ develops teacher attunement to the affective states of students, supporting the notion that *in situ* affective analysis can allow teachers to guide their own and their students’ affective states simultaneously. Similarly, in a recent trial of critical moments within IPOML, pre-service teachers successfully developed emotional literacy in line with this theme (Marshman et al., 2018), expressing greater teaching confidence as the result of a developed awareness, via collaboration reflection, of their students’ affective states.

Theme 2: Awareness of Affective-Reflective Strengths and Areas of Development

The second theme illustrates the power of anticipated emotions to guide reflection and pedagogical decision-making, as well to highlight areas of pedagogical strength and address further affective-reflective growth. As with theme 1, we focus here on one teacher, Teacher B, as representative of a theme evident for both. From this perspective, Teacher B’s critical moment reflections focused on the ‘hook’ of the lesson, particularly in its orientation phase. This led to development of two personal strengths, storytelling and use of dramatic voice, which assisted her to better recognize and develop her capacity to engage students through the use of narrative.

In her first lesson, Teacher B told a story relating to the scientific area of study and recorded ‘confidence’ as her main experienced emotion. In her reflection, Teacher B noted that this lesson was changed at the last-minute due to a rearranged schedule in the open classroom

and this change made her feel apprehensive about potential consequences. In her first critical moment analysis, undertaken in the reflection session, she reported:

... I felt like I had to come up with something juicy and that's what I did.

When pressed to consider how to reinforce this state of mind in the orientation phase of future lessons, Teacher B said that she could extend herself with more steps to reinforce her story-telling strength:

Becoming really descriptive with language. Changing my intonation. It really hooks them in.

Throughout this reflection, Teacher B noted her feelings of being 'in control' within her narrative stance and feeling confident in her dramatic hook for the lesson. She recognized this and was able to consider extending herself on the basis of stimulus questions from the Observer and Researcher, for example: 'How could you apply this to other phases of the lesson?'

In her second lesson, Teacher B then used strategies that were suggested in the previous reflection session to extend her engagement into all phases of the lesson. With a heightened awareness of her aim to reinforce this positive affective state, and to strengthen student engagement from the lesson's hook, she directed students to write adjectives on the board as they arose in the story. Teacher B reflected on the power of these strategies for future lessons and developed an awareness of her potential to apply these strategies to future experiences whether they confronted her as positive or negative affective states.

Stories are not tied to storybooks. So, to get that human interest or that hook I'd often act things out to hook them in. So, when we were talking about how to recreate that in another lesson, it doesn't need to be another lesson with a picture book in it. I think that when I feel out of control or panicked, sometimes I want to go to a story because that's when I can get that [control] feeling again. Watching this, I feel like I should do it more. Because I can see how well it works.

This awareness was best illustrated in the orientation phase of her second lesson, where she decided to use a storybook to extend these strengths. She again recorded positive emotions, but with high ratings for 'in control' (4), 'confident' (4), and, 'excited' (3). In her second reflection, Teacher B identified that this positive affect had resulted from building upon her strengths.

I had them. I could pull them in. There was no need for behaviour management. Because they were hooked.

Teacher B's reflective analysis highlighted areas of teaching strength and encouraged further refinement of effective strategies. In both lessons, she experienced positive affective states when she applied strategies that she identified as her strengths, improving in the second iteration. Her awareness of how positive emotions contributed to her teaching confidence shaped her teaching behaviour in the second lesson—anticipated positive emotions are known to direct ongoing cognition relating to affective outcomes (Bellocchi, 2019). Making a decision based on anticipated affect outcomes, in lieu of an actual emotion, can result in more promising consequences, and reinforce positive affective states previously felt.

In line with anticipated emotions theory, previous experiences provide 'somatic markers' (Damasio, 1996), physiological markers in the body that later activate when one is confronted with a similar situation. For example, Teacher B's emotions around confidence (feeling 'in-the-zone') were her 'markers', and these were attached to the hook phase of the lesson connecting to a 'juicy', well-told narrative. Each emotion that is provoked in a past situation carries

information about the affective outcome (Immordino-Yang & Damasio, 2007). This information lingers in the body as physiological ‘residue’, which later promotes the behaviours that caused the positive affect, or the avoidance of behaviours that induced the negative affect (Damasio, 1996). The initial event thus acts as a kind of affective map, ‘triggering’ directions of emotion to reinforce or repress future behaviour. Analysis of Teacher B’s reflections supported this awareness of anticipated affective states, allowing her to recreate these states through affect awareness. In her teaching, these strategies were linked to the anticipated emotions of ‘confidence’, ‘pride’ and ‘excitement’, and could therefore act as a guide for her pedagogical behaviour in future situations. After the first reflection, Teacher B became more aware of her anticipated emotions and used them to recreate the reinforcing affective outcome, that is, success from feeling ‘proud’ and ‘confident’.

A reflection of this awareness was seen from Teacher A in noting the importance of anticipated emotions. To quell the negative affect, or the *potential* for negative affect, she had planned to use a strategy of positive ostensive behaviour. She was aware that this had previously reinforced the positive state. Reflecting on her first negative affect moment, Participant A explains how her awareness of her demeanour in these positive and negative affective states can create a sort of self-fulfilling prophecy for her own and her students’ motivation and affect (see Dweck, 2008).

“It is really important to be excited in those moments. Because [the students] can reflect your mood. They respond to your temperament. If you’re excited, they will be excited too.”

Teacher A’s development of an affective awareness was similar to Teacher B’s, differing in that Teacher A employed her awareness of anticipated negative emotions to map an area of development, having identified a pattern from her interactions with the defeated and disengaged student. The critical moment reflection then supported her in identifying and progressing her empathy and associated behaviours in these moments (i.e., her demeanour and timely use of positive reinforcement strategies). In her subsequent reflection, Teacher A noted the importance of anticipated emotions for such a scenario. To quell the negative affect, she planned a strategy of positive ostensive behaviour, as she was aware that this had previously reinforced her positive affect. In her second reflection, she noticed the usefulness of negative affect that arose when the boy had recoiled from the lesson.

Discussion

The critical moment protocol, as used here, was aimed at highlighting affective feedback during collaborative reflection. Importantly, the reflection emphasized areas of strength and elucidated potential development, and the emergent affective-reflective skills influenced the teaching confidence of both Teachers A and B. Teacher B, for example, developed an awareness that encouraged refinement of her lesson by examining positive experienced emotions and both positive and negative anticipated emotions. Although some of Teacher A’s classroom situations entailed negative affective states, she became progressively aware of these as well as any positive states, and this helped her develop affective-anticipation skills that she then refined for pedagogical improvement.

These results correspond to similar findings from trials of the critical moment protocol in the ELR process with pre-service teachers (e.g., Marshman et al., 2018; Woolcott et al., 2017a,

2017b; Woolcott, Whannell et al., 2019; Yeigh et al., 2016), for example, in examining critical moments in self-reflection as a means of recreating success in teaching. The responses of the pre-service teachers, as well as those of the early career teachers in the current study, point to the value of assessing emotions, including anticipated emotions, in relation to pedagogical behaviour as Tripp and others have suggested (e.g., Lindqvist et al., 2017; Tripp, 2011).

Comparable affective reflection has been tested and proven to support increased awareness concerning pedagogical development; focusing on potential positive emotional outcomes, teachers and students have managed to better regulate their emotions in response to both actually experienced and potential emotions (Rivers et al., 2013). Heller (2017) explains that this approach involves ‘stepping back and considering how to respond through the lens of your best self’ (p. 23). This is the skill that both Teachers developed when they examined past emotions and then began to integrate previously experienced and anticipated positive emotions.

The DBIR process assisted these participants in examining their own behaviours, these often being pre-emptive behaviours designed to stave off negative affect and invite positive affect. In analysing how their emotions arose from particular behaviours, the participants were able to challenge themselves to take on more responsibility for their emotional regulation. They choreographed appropriate strategies for desired affective outcomes, and they refined effective teaching strategies to ‘chase’ the necessary emotions that were linked to their pedagogical confidence. In this respect, the DBIR process casts a light on the areas of Teacher B’s pedagogical strength, as well as Teacher A’s areas of required improvement, to assist both teachers to improve their pedagogical confidence. Both Teachers established empathic patterns to better identify and self-regulate emotions and affixed behaviours (see e.g., Hen & Sharabi-Nov, 2014; Perez, 2011), and both scrutinized their affective feedback in order to recreate their successes. Thus DBIR, as used within the ELR framework, scaffolded for increased intentional control of pedagogically related emotions.

Importantly, feedback was viewed as working in dual directions, with student behaviour contributing to the Teachers’ affective states, and Teacher behaviour contributing to students’ affective states. This was an interesting and surprising finding since it was presumed from the reviewed literature that the Teachers would be mainly influenced by feedback from the Observer and Researcher, these more ‘experienced’ reflections forming potentially transferrable teaching skills (Woolcott et al., 2017a, 2017b). However, while the Observer and Researcher offered significant input to reflections and flagged significant behaviours and emotions in the reflection sessions, the bulk of affective feedback came from classroom students. Or, more specifically, the useful feedback came by way of focusing on the behaviours and affective states of classroom students, and from the participants connecting this feedback to their own affective states and behaviour. This was unprompted by either the Observer or the Researcher and was thus an unexpected finding. Importantly, this finding suggests new ways that the protocol can successfully support beginning teachers in developing their affective-reflective skills for improved pedagogical confidence through DBIR.

In line with the literature on anticipated emotions (Immordino-Yang & Damasio, 2007) the reflection process demonstrates how DBIR assisted these Teachers to choreograph their future decision-making. This indicates that the iterative reflection enables construction of a mental map to guide a teacher’s affective development, suggesting that this process includes a heuristic function in relation to teacher confidence—a teacher or a student will learn best when they themselves are able to determine that which is most relevant to their personal or professional selves (Gore et al., 2017).

Conclusion

The affect-based reflection protocol successfully allowed the participant Teachers to develop an awareness of how their affective-reflective skills influence others, as well as evoking emotional triggers in themselves which helped to clarify emotional responses that had been previously turbid. This new innovative protocol is not widespread, nor has it been widely studied. The associated reflective process in particular, however, shows promising value in support for the idea of relinquishing the curriculum content focus that is often required of a teacher's professional development (Gore et al., 2017), and instead allow the emotional experience, and its subsequent analysis, to become part of the learned content.

This study has a number of implications for practice for initial teacher education and building the resilience of early career teachers. Teaching is an emotionally charged and challenging environment (Shapiro, 2010) and enhancing the emotional literacy of teachers in the early years in the profession will assist them in navigating that environment and enhance their confidence and resilience (Bellochi, 2019, Ria et al., 2013; Shoffner, 2009). The positive and negative affective impact of classroom situations on the early career participants in this study was evident and the reflection component of the ELR process provided them with an effective tool to understand that impact and to better understand and manage their responses.

This research has demonstrated the effectiveness of the reflection component of the ELR process in supporting emotional literacy development in the participants. ELR provides a simple framework that can be implemented easily, and with limited resources, by a teacher working alone or in a group setting. Strategies such as this that focus on the emotional experience of teaching may assist in reducing the high early career attrition issues being faced by many Western countries (Hong, 2012). The AITSL professional standards of teaching require teachers to be highly knowledgeable and effective in relation to pedagogy and content. However, a focus on the teacher and their personal experience of teaching needs to retain a focus in both initial teacher education and the professional development of early career teachers. This study contributes well to this area.

Study Limitations

These findings are limited by the small sample size, making it difficult to draw strong generalisations. However, the emergence of striking and clear trends from the data, in relation to comparable findings from similar research, suggest that future studies will likely bear corresponding illustrative and instructive trends. The perceived emotional awareness of the participants may also present a limitation to this study. While both participants specified a perceived change in awareness and their behaviour, it is difficult to precisely locate the conscious or unconscious level at which this occurred. In this respect future study could focus more directly on the relationship between anticipated emotions and pedagogical confidence. Perhaps additional reflective questions could be introduced to prompt inquiry into the emotions that may be going unnoticed and unappreciated, as a fruitful area of expanded inquiry.

Further study could focus also on the influence this protocol has on a wider audience, such as the students and others involved in the group's reflection. Again, the use of specific reflective prompts in the critical moment analysis could draw upon this sort of information. This wider focus seems to be both timely and necessary for the study of affective-reflective skills

within the teaching profession. It is also relevant for research into the cognitive-emotional learning of beginning teachers and the relationship this has to their pedagogical confidence.

References

- Bellocchi, A. (2019). Early career science teacher experiences of social bonds and emotion management. *Journal of Research in Science Teaching*, 56(3), 322-347. <https://doi.org/10.1002/tea.21520>
- Bloomfield, D. (2010). Emotions and 'getting by': A pre-service teacher navigating professional experience. *Asia-Pacific Journal of Teacher Education*, 38(3), 221-234. <https://doi.org/10.1080/1359866X.2010.494005>
- Borko, H., Jacobs, J., Eiteljorg, E., & Pittman, M.E. (2008). Video as a tool for fostering productive discussions in mathematics professional development. *Teaching and Teacher Education*, 24(2), 417-436. <https://doi.org/10.1016/j.tate.2006.11.012>
- Burn, K. (2006). Promoting critical conversations: The distinctive contribution of higher education as a partner in the professional preparation of new teachers. *Journal of Education for Teaching*, 32(3), 243-58. <https://doi.org/10.1080/02607470600782252>
- Cavanagh, M., & Prescott, A. (2010). The growth of reflective practice among three beginning secondary mathematics teachers. *Asia-Pacific Journal of Teacher Education*, 38(2), 147-159. <https://doi.org/10.1080/13598661003678968>
- Cejudo, J., & Luz López-Delgado, M. (2017). Importance of emotional intelligence in the teaching practice: A study with primary education teachers. *Psicología Educativa: Revista de los Psicólogos de la Educación*, 23, 29-36. <https://doi.org/10.1016/j.pse.2016.11.001>
- Charteris, J., & Smardon, D. (2015). Teacher agency and dialogic feedback: Using classroom data for practitioner inquiry. *Teaching and Teacher Education*, 50, 114-123. <https://doi.org/10.1016/j.tate.2015.05.006>
- Cornelius-White, J. (2007). Learner-centered teacher-student relationships are effective: A meta-analysis. *Review of Educational Research*, 77(1), 113-143. <https://doi.org/10.3102/003465430298563>
- Damasio, A. (1996). The somatic marker hypothesis and the possible functions of the prefrontal cortex. *Philosophical Transactions: Biological Sciences*, 351(1346), 1413-1420. <https://doi.org/10.1098/rstb.1996.0125>
- Darby, A. (2008). Teachers' emotions in the reconstruction of professional self-understanding. *Teaching and Teacher Education*, 24, 1160-1172. <https://doi.org/10.1016/j.tate.2007.02.001>
- Denzin, N. K., & Lincoln, Y. S. (2011). *The Sage handbook of qualitative research* (4th ed.). Sage.
- Doig, B., & Groves, S. (2011). Japanese lesson study: Teacher professional development through communities of inquiry. *Mathematics Teacher Education and Development*, 13(1), 77-93. Retrieved from: <https://eric.ed.gov/?id=EJ960950>.
- Dolev, N., & Leshem, S. (2017). Developing emotional intelligence competence among teachers. *Teacher Development*, 21, 21-39. <https://doi.org/10.1080/13664530.2016.1207093>

- Dweck, C. S. (2008). Can personality be changed? The role of beliefs in personality and change. *Current Directions in Psychological Science*, 17(6), 391–394. <https://doi.org/10.1111/j.1467-8721.2008.00612.x>
- Elias, M., Zins, J., Weissberg, R., Frey, K., Greenberg, M., Haynes, N., Kesler, R., Shwab-Stone, M. E., & Shriver, T. (1997). *Promoting social and emotional learning: Guidelines for educators*. Association for Supervision and Curriculum Development.
- Fisher-Yoshida, B. (2015) *Critical Moments. Key Concepts in Intercultural Dialogue* 54. Retrieved from: <https://centerforinterculturaldialogue.files.wordpress.com/2015/03/key-concept-critical-moments.pdf>
- Fishman, B. J., Penuel, W.R., Allen, A. R., Cheng, B. H., & Sabelli, N. (2013). Design-based implementation research: An emerging model for transforming the relationship of research and practice. *National Society for the Study of Education*, 112, 136–156.
- Galligan, L., Axelsen, T., Pennicott, T., Addie, R., Galbraith, P., & Woolcott, G. (2019). *It's part of my life* and the modelling process. *Journal of Mathematics Teacher Education*, 22(4), 355-378. <https://doi.org/10.1007/s10857-019-09426-3>
- Goleman, D. (2006). *Emotional intelligence*. Bantam Books.
- Gore, J., Lloyd, A., Smith, M., Bowe, J., Ellis, H., & Lubans, D. (2017). Effects of professional development on the quality of teaching: Results from a randomised controlled trial of Quality Teaching Rounds. *Teaching and Teacher Education*, 68, 99–113. <https://doi.org/10.1016/j.tate.2017.08.007>
- Gröschner, A., Seidel, T., Pehmer, A. K., & Kiemer, K. (2014). Facilitating collaborative teacher learning: The role of “mindfulness” in video-based teacher professional development programs. *Gruppendynamik und Organisationsberatung*, 45(3), 273–290. <https://doi.org/10.1007/s11612-014-0248-0>
- Hargreaves, A. (1998). The emotional practice of teaching. *Teaching and Teacher Education*, 14, 835–854. [https://doi.org/10.1016/S0742-051X\(98\)00025-0](https://doi.org/10.1016/S0742-051X(98)00025-0)
- Hatlevik, I. K. R. (2017). The impact of prospective teachers' perceived competence on subsequent perceptions as schoolteachers. *Teachers and Teaching*, 23, 810-828. <https://doi.org/10.1080/13540602.2017.1322056>
- Hawkey, K. (2006). Emotional intelligence and mentoring in pre-service teacher education: A literature review. *Mentoring & Tutoring*, 14, 137–147. <https://doi.org/10.1080/13611260500493485>
- Heller, R. (2017). On the science and teaching of emotional intelligence: An interview with Marc Brackett. *Phi Delta Kappan*, 98, 20–24. <https://doi.org/10.1177/0031721717696473>
- Hen, M., & Sharabi-Nov, A. (2014). Teaching the teachers: Emotional intelligence training for teachers. *Teaching Education*, 25, 375–390. <https://doi.org/10.1080/10476210.2014.908838>
- Hong, J. Y. (2012). Why do some beginning teachers leave the school, and others stay? Understanding teacher resilience through psychological lenses. *Teachers and Teaching: Theory and Practice*, 18, 417–440. <https://doi.org/10.1080/13540602.2012.696044>
- Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain, and Education*, 1, 3–10. <https://doi.org/10.1111/j.1751-228X.2007.00004.x>
- Jennings, P. A., & Greenberg, M. T. (2009). The pro-social classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, 79, 491–525. <https://doi.org/10.3102/0034654308325693>

- Joshith, V. P. (2012). Emotional intelligence as a tool for innovative teaching. *Journal on Educational Psychology*, 5, 54–60. Retrieved from: <https://eric.ed.gov/?id=EJ1102310>.
<https://doi.org/10.26634/jpsy.5.4.1691>
- Labercane, G., Last, S., Nichols, S. & Johnson, W. (1998). Critical moments and the art of teaching. *Teacher Development*, 2(2), 191-205.
<https://doi.org/10.1080/13664539800200050>
- Lindqvist, H., Weurlander, M., Wernerson, A., & Thornberg, R. (2017). Resolving feelings of professional inadequacy: Student teachers' coping with distressful situations. *Teaching and Teacher Education*, 64, 270-279. <https://doi.org/10.1016/j.tate.2017.02.019>
- Myhill, D., & Warren, P. (2005). Scaffolds or straitjackets? Critical moments in classroom discourse. *Educational Review*, 57(1), 55-69.
<https://doi.org/10.1080/0013191042000274187>
- Marshman, M., Galligan, L., Woolcott, G., Axelsen, T., & Whannell, R. (2018). Variations on a theme: Pre-service mathematics teacher reflections using an affect-based critical moment protocol. In J. Hunter, P. Perger & L. Darragh (Eds.), *Making waves, opening spaces (Proceedings of the 41st annual conference of the Mathematics Education Research Group of Australasia)* pp. 511-518. Auckland: MERGA. Retrieved from: https://merga.net.au/Public/Publications/Annual_Conference_Proceedings/2018-MERGA-CP.aspx.
- Nichols, S. L., Schutz, P. A., Rodgers, K., & Bilica, K. (2017). Early career teachers' emotion and emerging teacher identities. *Teachers and Teaching*, 23, 406-421.
<https://doi.org/10.1080/13540602.2016.1211099>
- OECD [Organisation for Economic Co-operation and Development]. (2009). *Creating effective teaching and learning environments: First results from TALIS*. OECD.
- Penuel, W. R., Fishman, B. J., Yamaguchi, R., & Gallagher, L. P. (2007). What makes professional development effective? Strategies that foster curriculum implementation. *American Educational Research Journal*, 44, 921–958.
<https://doi.org/10.3102/0002831207308221>
- Perez, L. M. (2011). Teaching emotional self-awareness through inquiry-based education. *Early Childhood Research & Practice*, 13, 1–8. Retrieved from: <https://eric.ed.gov/?id=EJ956380>.
- Rawlins, P., Anthony, G., Averill, R., & Drake, M. (2019). Novice teachers' perceptions of the use of rehearsals to support their learning of ambitious mathematics teaching. *Asia-Pacific Journal of Teacher Education*, 1-14.
<https://doi.org/10.1080/1359866X.2019.1644612>
- Ria, L., Seve, C., Saury, J., Theureau, J., & Durand, M. (2003). Beginning teachers' situated emotions: A study of first classroom experiences. *Journal of Education for Teaching*, 29(3), 219-234. <https://doi.org/10.1080/0260747032000120114>
- Rich, P., & Hannafin, M. (2009). Video annotation tools: Technologies to scaffold, structure, and transform teacher reflection. *Journal of Teacher Education*, 60(1), 52–67.
<https://doi.org/10.1177/0022487108328486>
- Richardson, B. G., & Shupe, M. J. (2003). The importance of teacher self-awareness in working with students with emotional and behavioral disorders. *Teaching Exceptional Children*, 36, 8–13. <https://doi.org/10.1177/004005990303600201>

- Rivers, S. E., Brackett, M. A., Reyes, M. R., Elbertson, N. A., & Salovey, P. (2013). Improving the social and emotional climate of classrooms: A clustered randomized controlled trial testing the RULER approach. *Prevention Science, 14*, 77–87.
<https://doi.org/10.1007/s11121-012-0305-2>
- Runhaar, P. R. (2008). *Promoting teachers' professional development*. University of Twente.
- Shapiro, S. (2010). Revisiting the teachers' lounge: Reflections on emotional experience and teacher identity. *Teaching and Teacher Education, 26*(3), 616–621.
<https://doi.org/10.1016/j.tate.2009.09.009>
- Shoffner, M. (2009). The place of the personal: Exploring the affective domain through reflection in teacher preparation. *Teaching and Teacher Education, 25*(6), 783–789.
<https://doi.org/10.1016/j.tate.2008.11.012>
- Steiner, C. (2003). *Emotional Literacy*. Personhood Press.
- Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change, 7*(4), 221–258.
<https://doi.org/10.1007/s10833-006-0001-8>
- Toivonen, R., Kivelä, M., Saramäki, J., Viinikainen, M., Vanhatalo, M., & Sams, M. (2012). Networks of emotion concepts. *PLoS One, 7*, e28883.
<https://doi.org/10.1371/journal.pone.0028883>
- Tripp, D. (2011). *Critical incidents in teaching: Developing professional judgment*. Routledge.
<https://doi.org/10.4324/9780203802014>
- Uitto, M., Jokikokko, K., & Estola, E. (2015). Virtual special issue on teachers and emotions in Teaching and Teacher Education (TATE) in 1985–2014. *Teaching and Teacher Education, 50*, 124–135. <https://doi.org/10.1016/j.tate.2015.05.008>
- Vesely, A., Saklofske, D., & Leschied, A. (2013). Teachers—The vital resource: The contribution of emotional intelligence to teacher efficacy and well-being. *Canadian Journal of School Psychology, 28*, 71–89. <https://doi.org/10.1177/0829573512468855>
- Weare, K. (2004). *Developing the emotionally literate school*. Sage.
- Woolcott, G., Scott, A., Norton, M., Whannell, R., Galligan, L., Marshman, M., Pfeiffer, L., & Wines, C. (2017a). *It's part of my life: Engaging university and community to enhance science and mathematics education*. Final report for Enhancing the Training of Mathematics and Science Teachers. Australian Government Department of Education and Training, Canberra, Australia. Retrieved from: <https://nla.gov.au/nla.obj-537078723/view>.
- Woolcott, G., Scott, A., Norton, M., Whannell, R., Galligan, L., Marshman, M., Pfeiffer, L., & Wines, C. (2017b). *The Enhancement-Lesson-Reflection process: A resource manual for science and mathematics learning and teaching*. Companion Report to the Final report: *It's part of my life: Engaging university and community to enhance science and mathematics education*. Canberra, Australia: Department of Education and Training. Retrieved from: <https://nla.gov.au/nla.obj-553298237/view>.
- Woolcott, G., Whannell, R., Wines, C., Pfeiffer, L., Marshman, M., & Galligan, L. (2019a). Collaboration and co-creation in regional and remote education: Case studies from initial teacher education programs. *Australasian Journal of Regional Studies, 25*(1), 54–80. Retrieved from: <https://www.anzrsai.org/assets/Uploads/PublicationChapter/AJRS-25.1-pages-054-to-080.pdf>.

- Woolcott, G., Seton, C., Mason, R., Chen, O., Lake, W., Markopoulos, C., & Boyd, W. (2019b). Developing a new generation MOOC (ngMOOC): A design-based implementation research project with cognitive architecture and student feedback in mind. *European Journal of Open, Distance and E-learning*, 22(1), 14-35. Retrieved from: <https://content.sciendo.com/view/journals/eurodl/22/1/article-p14.xml>.
<https://doi.org/10.2478/eurodl-2019-0002>
- Wurf, G., & Croft-Piggin, L. (2015). Predicting the academic achievement of first-year, pre-service teachers: The role of engagement, motivation, ATAR, and emotional intelligence. *Asia-Pacific Journal of Teacher Education*, 43(1), 75-91.
<https://doi.org/10.1080/1359866X.2014.932328>
- Yeigh, T., Woolcott, G., Donnelly, J., Whannell, R., Snow, M., & Scott, A. (2016). Emotional literacy and pedagogical confidence in pre-service science and mathematics teachers. *Australian Journal of Teacher Education*, 41, 107–121. Retrieved from: <https://ro.ecu.edu.au/cgi/viewcontent.cgi?article=3076&context=ajte>.
<https://doi.org/10.14221/ajte.2016v41n6.7>
- Yin, H., Huang, S., & Lee, J. C. K. (2017). Choose your strategy wisely: Examining the relationships between emotional labor in teaching and teacher efficacy in Hong Kong primary schools. *Teaching and Teacher Education*, 66, 127-136.
<https://doi.org/10.1016/j.tate.2017.04.006>
- Zhu, J., & Zhu, G. (2018). Understanding student teachers' professional identity transformation through metaphor: An international perspective. *Journal of Education for Teaching*, 44(4), 500-504. <https://doi.org/10.1080/02607476.2018.1450819>