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9. REFLECTIVE PRACTICE IN THE ONLINE SPACE

INTRODUCTION

This chapter reports on the use of an online discussion forum to develop pre-service teachers' critical reflection on their own teaching practice during the practicum component of their teacher education program. Reflection is considered a key aspect of ongoing learning and development for teachers, but can be reduced to a descriptive-type task rather than one through which learning about teaching is more likely to occur. The aim of the online reflection reported in this chapter was to encourage pre-service teachers to critically reflect on their school-based experiences through the process of linking their practicum experiences with the theoretical aspects of their academic coursework. This linking of theory and practice through critical reflective thinking was encouraged in order to promote pre-service teachers' learning about how effective learning and supportive environments are created for students. Thus, the study sought to address the often-criticised theory-practice gap in teacher education. The findings demonstrate the levels of reflection in which pre-service teachers engaged and analyse factors that appeared to encourage various kinds of reflection. Pre-service teachers also provided an evaluation of the online discussion experience.

REFLECTIVE PRACTICE

Reflective practice is a *term d'art* within the teaching profession, and some have argued that it is a "generic component of good teaching" (Korthagen, 2001, p. 51). This is no doubt linked to the common belief that effective educators should be continually looking for ways to improve their teaching practice and subsequently, their students' learning outcomes, and that reflective practice aids such improvement. The expectation of reflective practice is documented in national and international teacher standards. It is a core proposition within the United States' National Board for Professional Teaching Standards (NBPTS) where teachers must "think systematically and learn from experience" (NBPTS, 2002, p. 4); and in the United Kingdom, Department for Education (DfE) teachers must "reflect systematically on the effectiveness of lessons and approaches to teaching" (DfE, 2013, p. 8). The Australian Institute of Teaching and School Leadership (AITSL, 2012), the accrediting body for professional standards across Australia, embeds reflective

practice in the achievement levels for teachers at all career stages: graduate, proficient, highly accomplished and lead teachers.

Reflective practice has been discussed and defined by many different authors both generally and in regard to teacher education. Within the education context Dewey (1933) was among the first to discuss the practice of reflection, defining it as a process of thinking about a teaching dilemma or perplexing situation and acting on this in some manner to seek improvement. Similarly, Schon's (1983) model of action-reflection encompassing *reflection in* and *reflection on* action is primarily concerned with the identification of a problem, which then leads to action for improvement. In fact Loughran (2002) purports that the perception of reflection being concerned with a problem, "a puzzling, curious, or perplexing situation" (p. 33), is the most prevailing definition, no doubt stemming back to Dewey's original work. Osterman and Kottkamp (2004) also refer to reflection as a problem, and suggest that reflective practice is specifically concerned with data collection relating to a personal issue or problem experienced in the professional setting. The importance of this "problem" is explained by Loughran (2006) who states "a problem is unlikely to be acted upon if it is not viewed as a problem" (p. 131). Thus viewing reflective practice in association with a problem heightens the likelihood of action for improvement; the purpose of reflective practice in education.

Kreber and Cranton (2000) argue that for teachers, reflective practice includes issues such as success and difficulties in a particular lesson. This expands on the common view associating reflection with a problem, suggesting that it can also be concerned with reflection on success. Reflection on success may in fact help practitioners identify crucial elements or patterns that contribute to successful teaching, which in turn could also improve overall practice. This view of reflection thus allows for improvement based on a wider range of experiences and incorporates more than the deficit view of reflection being about a problem.

The varieties of models of reflective practice evident in the literature appear to be adaptations or applications of Schon's (1983) action in and action on reflection. Brookfield (1995) offers four lenses through which he encourages reflection: autobiographical, students' eyes, colleagues' experiences and theoretical literature. These cover respectively, personal perspectives on practice, looking at practice through the eyes of students, peer review/discussion with colleagues, and researching the literature to help explain the assumptions that influence practice and ways to change them. The use of a framework like this helps to avoid reflection being reduced to a descriptive task which Parsons and Stephenson (2005) describe as the reporting on events, rather than as an analytical task where reasons for successes and difficulties are identified in order to construct approaches for improvement. This more analytical approach to reflection is what makes reflection critical rather than descriptive.

Kreber and Cranton (2000) also discuss critical reflection drawing on Mezirow's (1990) transformational theory that involves three levels of reflection: content,

process and premise reflection. Kreber and Cranton explain content reflection as being focused on identifying problems/issues but without any real consideration of the causes underpinning them. This is what Mezirow (1990) describes as thoughtful action without reflection. Process reflection extends on this to become thoughtful action with reflection, or reflective action (Mezirow, 1990). Kreber and Cranton (2000) explain process reflection as that which takes into consideration the reasons underpinning certain approaches to pedagogy or to resolving problems/issues experienced. This level of reflection is thus more critical than the content reflection. Further increasing the level of critical reflection, Kreber and Cranton explain that in premise reflection, practitioners go on to consider the importance of the problem they are facing, or its "functional relevance" (Kreber & Cranton, 2000, p. 478). Mezirow (1990) describes it as questioning the very premises on which we base justifications for our past and intended actions. The three levels of content, process and premise reflection could be considered as the *what, how* and *why* of the problem, and when practitioners engage in premise level reflection, and thus consider *why* the issue is arising and *why* it is of significance for learning, then reflection is truly critical.

REFLECTIVE PRACTICE IN TEACHER EDUCATION

Reflective practice needs to be a fundamental component of pre-service teacher education. Parsons and Stephenson (2005) explain that new teachers in their first appointment are expected to be reflective practitioners. Corley and Eades (2004) highlight that any profession that expects continuous professional development, as does the teaching profession, should be concerned with reflective practice. It is essential then, that teacher education courses build in experiences of reflection and strategies for being critically reflective in order to equip pre-service teachers with the skills required by their profession.

Loughran (2002) discusses effective reflective practice as the consideration of "teacher knowledge through particular concrete examples" (p. 39). This integration of theory and practice through the key role of reflection helps to prepare pre-service teachers in a manner in which they are better able to "handle the problems of everyday teaching through theory-guided action" (Korthagen, Loughran & Russell, 2006, p. 1021). Darling-Hammond (2006) also offers the view that the integration of course-work and field-work helps pre-service teachers to better "understand theory, to apply concepts they are learning in their course work, and to better support student learning" (p. 307), something she reports as being supported by a number of other researchers. These considerations position reflective practice as a key determinant for bridging the theory-practice gap, and an important one given that the theory-practice divide is one of the most commonly criticised components of teacher education programs (House of Representatives, 2007; Parliament of Victoria, 2005).

Korthagen et al. (2006) highlight reflection as being an "essential tool" (p. 1024) for bridging the theory-practice gap in pre-service teacher education. They discuss how learning does not occur through experience, but rather through reflection on experience and interaction with others. They also highlight the need for the theoretical underpinnings of practice to be "tailored to the specific situation under consideration" (p. 1025). This helps to achieve two things: firstly, it demonstrates the relevance of the learning to the learner and develops learning through constructivist means by building on what the learner already knows or believes he/she knows; and secondly, it reinforces ideas that are being connected through theory and practice which Darling-Hammond (2006) tells us produces more effective learning.

Of course, most teacher education programs incorporate some form of field-work through the teaching practicum, also known as the teaching placement, teaching round or professional experience among other terms. However, re-iterating Korthagen et al.'s (2006) message, Loughran (2006) reminds us that "experience alone does not lead to learning–reflection on experiences is essential" (p. 131). Parsons and Stephenson (2005) explain the importance of this, reporting that the teaching round is usually so pressured and time hungry that pre-service teachers spend most of their time thinking about "what should I do next?" rather than on "why am I doing it?" (p. 103). Moreover, practicum placements are often quite solitary in nature, which inhibits the development of reflective practice (Parsons & Stephenson, 2005). Loughran (2002) discusses how sharing experiences in practice-focused discussions can enhance meaningful learning for pre-service teachers, particularly if they are required to "develop assertions about their practice as a result of this sharing" (p. 38). He argues that meaningful learning occurs due to the developing understanding stemming from pre-service teachers reconsidering their own and their peers' experiences and articulating these as practice-based assertions through discussion. This development of higher-order synthesis of experience into assertions has to involve thinking and talking about theory, thus drawing on a number of Brookfield's (1995) lenses for reflection, as reflection moves from personal experience to collegial experience, and is articulated through theoretical notions associated with the course of study. Loughran (2002) believes that:

> This ability to recognise, develop, and articulate a knowledge about practice is crucial as it gives real purpose for, and value in, effective reflective practice; it is a powerful way of informing practice as it makes the tacit explicit, meaningful, and useful. (p. 38)

One of the key issues in achieving this practice-based sharing and reflection on experience is that when engaged in the practicum component of a teacher education course, pre-service teachers are placed in schools away from campus for extended periods of time. The locations of these school practicum placements can be geographically diverse, and this, coupled with the full-time teaching and the after-school commitments associated with the practicum, inhibits pre-service teachers' ability to engage in meaningful reflective practice.

ONLINE LEARNING

The online platform is a useful tool to help overcome the issue of geographic spread during practicum periods and enables pre-service teachers to engage in reflective practice during this critical component of teacher education. Koballa and Tippins (2001) indicate that online discussion is a useful tool for providing pre-service teachers with "opportunities to engage in discussion and debate with fellow learners" (p. 222). Furthermore, Means, Toyama, Murphy, Bakia and Jones (2010) indicate that online learning can have a similar impact on learning outcomes as face-to-face learning. Together, these assertions suggest that the online space could provide the means for pre-service teachers to share experiences in the practice-focused discussions that are required for reflective practice, which may overcome the issue of distance from the campus inherent in the practicum period.

Online learning provides a space for the social construction of knowledge (Koballa & Tippins, 2001; Hammond, 2005), another characteristic of reflective practice as described by Loughran (2002, 2006) and Korthagen et al. (2006). Hammond (2005) indicates that online forums are also beneficial for:

– Interaction that could not otherwise take place easily due to distance;
– Engendering student appreciation for the opportunities for discussion;
– Providing social support and subsequent motivation to study;
– Fostering higher order discussions and knowledge building;
– Adding value to the learners' experience.

Swan, Richardson, Ice, Garrison, Cleveland-Innes and Arbaugh (2008) also recognise the social element of online learning but argue that an instructor must facilitate both this and the teaching and learning. They consider the learner experience in the online space and argue for three key components to make the online environment supportive. The instructor must have social presence, providing social and emotional support through encouragement; teaching presence, the level of teacher interaction; and cognitive presence, the level of inquiry that is fostered through the instructor contributions. Swan et al. (2008) indicate that through meeting these three levels of fairly intensive instructor involvement, deep learning can be achieved.

Salmon (2003) also argues for a strong instructor presence in establishing an effective online learning community, but she argues that the level of the instructor presence should gradually be reduced as the learning community becomes more independent. By the time her fifth and final stage of instructor presence is reached, the role of the instructor has changed from emotional and social supporter to facilitator of individual cognitive skills and reflection. This, she argues, encourages practitioners to become more responsible for their own learning. Means et al. (2010) warn that instructors need to be wary about how their contributions are directed within the learning community. Comments that are directed to the group as a whole may influence group interaction, and thus meet Swan et al.'s (2008) social presence, but to foster learning Means et al. argue that comments must be directed at the individual.

THE STUDY DESIGN

The present study attempts to bridge the theory-practice gap in teacher education by engaging pre-service teachers in online reflective practice during the practicum component of their course. The study is a small component of a larger Australian federal government-funded project investigating practicum partnerships between two regional[1] university campuses located in the state of Victoria, Australia in 2011, Australian Catholic University (ACU), Ballarat and La Trobe University Shepparton (see Ryan, Jones, McLean & Walta, 2012). This larger project involved lecturers and pre-service teachers from the two universities as well as teachers from the schools hosting pre-service teachers in the practicum. ACU was running a one-year Graduate Diploma in Education Secondary[2] program (see Chapter 3) and La Trobe was running a one-year Graduate Diploma in Education Middle Years[3] course (see Chapter 4). Two staff from each university were involved in the project along with all 84 pre-service teachers who were completing the practicum component of their respective courses, which included 27 pre-service teachers from ACU and 57 from La Trobe University. There were 22 male and 62 female pre-service teachers across the two courses. Only the component of the project focussing on reflective practice in the online forums during practicum is reported here. This small component of the project is referred to as the study from herein.

Four Professional Learning Teams (PLTs) were established in the study to help manage the size of the online discussion groups. Allocations to PLTs were made such that pre-service teachers from each university were equally distributed between each PLT. This resulted in mixed-university PLTs of 21 pre-service teachers, with fewer numbers from ACU compared to La Trobe University. The 22 male pre-service teachers were also distributed equally giving a mix of males and females in each PLT. Each PLT was supervised by one of four lecturers associated with the two courses. This included two female lecturers from ACU, and a male and a female lecturer from La Trobe University. The supervising lecturers were responsible for communicating with members of their PLT in the online space as well as acting as an initial point of contact for pre-service teachers and schools with regard to overall supervision of the practicum.

The study was focused on engaging pre-service teachers in online critically reflective discussions during the five-week practicum each course was running as a part of their program. The coinciding practicum took place approximately three weeks into the second semester of each course. It was the second practicum experience for most of the pre-service teachers; however, pre-service teachers from La Trobe University had their first practicum in a primary school, so this was their first experience of the secondary school setting. Participation was considered a core part of the practicum, and was linked to an assessment task for some pre-service teachers. This required that all pre-service teachers participate in the practicum forum, but only those who provided consent were also used for analysis. All 84 pre-service teachers provided this consent.

The forum was designed mindful of the variety of opportunities that the online platform affords, including social construction of knowledge (Koballa & Tippins, 2001), and social support and motivation to study (Hammond, 2005; Swan et al., 2008). This was incorporated by encouraging group discussions and by requiring pre-service teachers to contribute both original posts and responses to others that extended the discussion. Support and encouragement were provided through lecturers' regular input that acknowledged pre-service teachers' posts. Lecturers also aimed to pose questions asking individuals and others to extend the discussion and develop links to theories. The design of the forum also built on the findings of a preliminary investigation within the overall project in which the lead researchers investigated a group of eight pre-service teachers as they engaged in online discussions and found that they tended to prefer to recount experience (content reflection) and rarely engaged in high level reflection (Jones & Ryan, 2014). Therefore in the present study there was a focus on fostering critical reflection through the topics which pre-service teachers were asked to discuss and through the interaction with lecturers and each other. The topics aimed to encourage the critical reflection on school-based experiences that Kreber and Cranton (2000) purport leads to knowledge about the scholarship of teaching. Examples of questions that achieved this included "Have others had similar experiences?" "Were the outcomes similar or different?" "Why is this important?" In this way pre-service teachers were encouraged to engage in the analysis of their own and others' experiences, which Loughran (2002) sees as a key professional skill. This process, in turn, assisted the identification of the reasons for successes and difficulties that Parsons and Stephenson (2005) argue are needed for *critical* reflection. This questioning was also intended to encourage pre-service teachers to make links to the theoretical components of their courses and articulate the reasons for their successes and failures in relation to this theory, thus promoting the theory-practice nexus. Hence critical reflection in the current study was viewed as the ability of pre-service teachers to make theory-practice links based on their own and others' experiences, in a generalised manner that recognises the "functional relevance" (Kreber and Cranton, 2000, p. 478) of their experiences and thus aligns with Kreber and Cranton's premise reflection.

Five threaded forum topics were published online, one for each of the five weeks of the practicum. Postings were analysed for levels of reflection using Kreber and Cranton's (2000) content, process and premise reflection, which builds from descriptive content level reflection to critical premise level reflection. The role of the lecturer was also considered in the discussion of the findings in terms of how critical reflection can be encouraged in teacher education. Pre-service teachers were asked to contribute to each week's forum topic a minimum number of three times per week. The five weekly forum topics that were established were:

Week 1: Briefly highlight ONE issue/incident you have experienced this week in relation to classroom management OR a teaching and learning approach you used. Was it an effective/ineffective approach? What do you think

made it effective/ineffective? Everyone should then comment on what could be done to enhance/improve a situation like this next time and provide evidence that supports these improvement ideas.

Week 2: Share your reflections on Week 2 of the practicum here!

Week 3: What are the top three strategies for creating a productive and effective learning environment and why do they work?

Week 4: We have selected the following quote for you to think about, then respond to our question below: *"We're walking into schools full of all this knowledge on 'research done on the Middle Years of Schooling' and 'Teaching–Best practice' etc and yet, what we're seeing and being forced to be a part of is almost a polar opposite."*
Question: This is one rather pessimistic image of schools today. What are you seeing, (or what will you do in your classroom), that gives you hope that schools are giving students what they need for living in contemporary society?

Week 5: What are the most crucial things you have learned about students; about schools; and about how to best engage students in learning over the past four to five weeks?

At the end of the practicum period the discussion forum was closed and participants' posts were downloaded and printed in preparation for analysis. Pre-service teachers returned to coursework on the conclusion of the practicum, which ran for a further seven weeks (ACU) and three weeks (La Trobe University). At the end of the year's coursework, 50 of the 84 pre-service teachers invited completed a questionnaire that was administered through SurveyMonkey®. Pre-service teachers from ACU were also asked to complete a course evaluation upon the conclusion of their course. For some this was at the end of 2011, the year in which the study took place, and for others who were only halfway through their part-time enrolment, this was at the end of 2012. Only five of the 27 ACU pre-service teachers returned a completed course evaluation. Aspects of these questionnaires and evaluations dealing with the online forums are also presented in the findings.

Data Analysis

Data analysis involved three researchers independently engaged in topic coding of online forum postings (Richards, 2009). The analysis was being conducted with regard to the level of content, process and premise reflection (Kreber and Cranton, 2000) reached which meant that the topic areas or categories for analysis were pre-determined. Analysis was a matter of determining which responses best matched each category. This is consistent with topic coding, which according to Richards (2009) requires very little interpretation, it "merely allocates passages to topics" (p. 100). Once this analysis was completed, the researchers swapped their analyses allowing for a cross-checking process to be undertaken. Any classifications that were not agreed on were discussed by the two lead researchers, with reference to

the definitions of each level of reflection until a consensus on the categorisation was reached. Responses were also analysed according to whether or not they were in response to lecturers' posts, peer interactions as evidenced through discussion threads, or individual reflections in direct response to the topic. This was completed in order to determine the impact of the lecturers' role in encouraging critical reflection and whether peer interactions were more or less likely to promote critical reflection. The nature of lecturers' posts was also noted as to whether or not they provided the social/emotional support and/or questioning to encourage more critical reflection. In some cases a post was a direct response to a peer even though the pre-service teachers did not use the threaded discussion functionality. In these cases researchers categorised it using internal evidence from the post to determine whether or not it was response to an earlier idea/comment.

SurveyMonkey® data was analysed by frequency of responses to closed, multiple choice questions, and open questions were subjected to a process of analytical induction, a qualitative method for building up causal explanations of phenomena from a close examination of a small number of cases (Burns, 2000; Bernard & Ryan, 2010). The analytical induction, which involved considering the meaning of the data in context and creating categories which expressed common threads (Richards, 2009), led to the formation of themes. The analysis of both the quantity and nature of the discussion posts and pre-service teachers' evaluation of their experiences are reported below.

FINDINGS AND ANALYSIS

The findings and analysis of the study are outlined in sections below that deal with 1) pre-service teachers' overall engagement in the online discussion, 2) ways in which content reflection, 3) process reflection, and 4) premise reflection were reached, 5) the influences and conditions encouraging premise level reflection and 6) pre-service teachers' evaluation of the online experience.

Pre-service Teachers' Engagement in Online Discussion

Table 1 shows the extent of content, process and premise reflection for each of the PLTs over the five weeks of the practicum in which the forum took place.

Table 1 shows that over the five weeks of online reflection, the final week of the practicum tended to contain fewer contributions in the online reflection compared to the first few weeks. This was the case for each PLT where there were fewer posts made in week five, compared to weeks one to four in each PLT, except for PLT 4 where there was a significant decrease in contributions in week three. The general pattern of decreased contributions in week five is perhaps indicative of the busyness of the end of the practicum compared to early in the practicum where there may be more observation than planning, teaching and assessment occurring. Table 1 also shows that there was substantially less premise reflection occurring (12% of total number

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of posts) compared to content or process reflection in any given week, which did not show the same marked difference (45% and 42% respectively). This is likely to be due to the relative ease in describing issues and approaches (content reflection) and why teaching and learning strategies were selected and trialled (process reflection), two aspects that are naturally embedded within the teaching endeavour. Pre-service teachers did not engage as often in deeper thinking about why particular strategies/ ideas are important in a philosophical and generalised sense (premise reflection).

Content Level Reflection

When engaging in content reflection, pre-service teachers tended to recount classroom incidents, and mostly ones associated with classroom management. This was particularly the case early in the practicum where there was little reflection on teaching strategies and school processes. Most reflections tended to focus on negative and challenging experiences with student behaviour. Some examples that characterise the nature of the content reflection include:

> The class sizes are what I find difficult to manage. My Year 10 science class has 29 student [sic], and this number of teenagers in one room is a lot!

> I seem to find a lot of dis-engaged students, especially boys… Some students in the class have very low literacy levels and are disengaged from the school processes.

As the practicum progressed, the content reflection expanded to include thinking about the schools and curriculum as well as recounting more positive encounters with students as the following excerpts exemplify.

> I've seen a lot of positive things in schools that I've been in this year, both on placement and at work. I've seen a lot of technology implemented and for the most part, students have really enjoyed it.

> I am lucky to be based in a school that is very progressive. There are lots of different techniques used here. There are interactive whiteboard [sic] in all but 2 classroom [sic] ... Students have a great deal of access to computers … All secondary students have a wiki.

These examples of reflection illustrate the descriptive nature of what is essentially a recount of experiences–describing the problem/situation. None explicitly considers the implications for learning or why the issues they raise are important considerations for education, thus they remain at a content level of reflection. It also shows, not unsurprisingly, that pre-service teachers' initial preoccupations lie in their grappling with classroom management, something that would be expected as they establish themselves with their classes, particularly given their novice status. Once this becomes more established there is less focus on it in reflections, which then began to consider the teaching approaches, school structure and curriculum instead.

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Table 1. Incidence of content process and premise reflection

	PLT 1					PLT 2					PLT 3					PLT 4					Total
	W1	W2	W3	W4	W5	W1	W2	W3	W4	W5	W1	W2	W3	W4	W5	W1	W2	W3	W4	W5	
Content Reflection	35	18	16	27	17	47	45	17	27	15	36	31	24	26	34	33	22	0	13	13	496 (45%)
Process Reflection	20	25	32	27	21	23	33	22	34	18	28	23	28	28	27	21	11	12	11	21	465 (42%)
Premise Reflection	2	10	5	12	7	4	6	11	12	5	2	9	12	13	3	1	7	4	7	4	136 (12%)
Total	57	53	53	66	45	74	85	50	73	38	66	63	64	67	64	55	41	16	31	38	1097
	PLT 1 Total: 274					PLT 2 Total: 320					PLT 3 Total: 324					PLT 4 Total: 181					

Content reflection also tended to contain social/emotional elements. There were a number of instances where pre-service teachers shared common experiences with statements beginning with "I agree with you…" and "I can relate to that…" They also encouraged each other with expressions like "I think that was a good tactic, well done!" The sharing of common experiences and affirmation were the most common examples of the emotional and social support pre-service teachers offered one another. Some also asked for help, providing a further example of this form of content reflection. For example: "What strategies do you think I could use with a class where there are so many different levels?" These words of support and encouragement pre-service teachers' provided one another reflect the social/emotional dimension that a number of authors highlight as important to establish in online learning communities (e.g., Hammond, 2005; Salmon, 2003; Swan et al., 2008).

Process Level Reflection

There were instances where posts did extend into more critical levels of reflection, particularly process level reflection where some consideration was given to the reasons that certain problems/issues arise in terms of the pedagogical processes that may be involved. As stated earlier, these also tended to be largely within the same post as a content level introduction. Some examples that characterise the nature of the process reflection that occurred include:

> I put the Japanese 10 useful classroom expressions poster (such as greeting, farewell, yes/no, can you repeat that again? I do understand/I do not understand, etc) up on the board. I have created these posters to enhance the usage of target language in the classroom.

> I use PowerPoint presentations as it keeps me on track and I haven't developed a good whiteboard script yet and it also keeps my students from misbehaving when I am writing.

> When I feel like I've done a large amount of 'information dumping' I reckon [*sic*] it's necessary to change angle. I often do this by placing a relevant picture, video, statistic, etc up on the board and asking students to "reverse engineer" why I've selected the material and how it relates to the topic at hand. This helps to break the session up, while also allowing different thinking skills to come into play.

These examples illustrate how pre-service teachers provided reasons for their actions/comments demonstrating an awareness of the pedagogical underpinnings of practice and represented about 42% of the total reflections made. Given the similarity of this figure to the 45% content level posts, these results show that pre-service teachers are able to readily move beyond the content level or descriptive reflection that Parsons and Stephenson (2005) emphasise is too prevalent in teacher education. These contributions show some engagement in cognitive development (Swan et al., 2008)

as pre-service teachers reflected on why they were using particular pedagogical approaches. In these posts there were sometimes either explicit or implicit links to theoretical underpinnings of the specific situations in which the pre-service teachers were involved. This supports Korthagen et al.'s (2006) notion of learning through reflection on experience.

Premise Level Reflection

The awareness of pedagogical underpinnings of practice was also evident in the 12% of postings where premise level reflection was reached. In these premise level postings, the pedagogical underpinnings were identified alongside a consideration of the "functional relevance" (Kreber & Cranton, 2000, p. 478) that is the importance of the approach for learning. Some of the examples of premise reflection include:

> It is good to take a list with photos to class and discreetly refer to it throughout if you need … It really personalises the lessons as I can speak with students and use their name.… I believe using their names makes them feel like part of the class and not "just another student that the teacher doesn't know". And when they feel like part of the class they are more open to contributing to discussions, sharing their work or ideas.

> I believe if the students can see the relevance and practice (or learn) a skill they can use again in life, then that is half the battle. I was the worst student for asking "why are we learning this?" I have turned this around and make sure my students always see the relevance in what they are learning.

As demonstrated by these examples, most premise level reflections contained statements of belief: 'I believe…" or 'I think…". It was when pre-service teachers engaged in this metacognitive thinking that their postings reached a premise and thus critical level of reflection. In these posts pre-service teachers also extended beyond the specific situation and rather, used their experiences to consider the general importance of their idea/issue. In this way, pre-service teachers tended to justify their actions/ideas, which is what Mezirow (1990) describes in premise reflection as considering the premises on which justifications for our past and intended actions are based; and what Kreber & Cranton (2000) discuss as the "functional relevance" (p. 478) of the idea/issue. However, as reflected in the small number of these types of posts (12%) this level of generalising about the importance of particular ideas was not a typical part of most pre-service teachers' reflective writing.

Given the competing demands of the online forum to provide social/emotional support as well as develop pre-service teachers' critical reflective thinking, it is unsurprising that premise level reflection was less frequent than other levels of reflection. However, overall, the online forum did, to some extent, address both the emotional and cognitive needs that Swan et al. (2008) and Salmon (2003) discuss as important in the online space.

Factors Influencing the Level of Reflection

The Nature of the Forum Topic.   Two further interesting aspects of the nature of the reflection emerged in the data for weeks three and four. In week three there was a drop in the number of content level reflections and an increase in the number of process level reflections for most PLTs. In week four there tended to be a small increase in the number of premise level reflections compared to other weeks. These results may be linked to the nature of the discussion forum question posed for each of these weeks. In week four the forum asked participants to share their top three strategies for creating a productive and effective learning environment and why they work. This topic lends itself to process level reflection as it specifically asks for strategies and reasons for their use to be discussed. Answered fully (the what/how, along with the why) there in fact should be very little room for any content reflection, although this was not quite the case, except for PLT 4. In week 4 the forum asked participants to share what they were seeing or doing that provided hope that schools are giving students what they need for living in contemporary society. By its nature, this topic is more philosophical than some of the others, and may have thus prompted a tendency to reflect in the generalised ways associated with premise level reflection. Week one's topic also asked participants to share what made particular approaches effective/ineffective, which should have led to process and/or premise level reflection, but it was a wordy four-part forum topic that began by asking for an issue or incident to be shared. Perhaps its long four-part structure encouraged the tendency for pre-service teachers to respond to only the initial part of the question: that of sharing their issue and thus producing the large number of content focused reflections. Together, these findings suggest that the level of reflection can be engendered through the nature and wording of forum topics.

The Influence of Interaction.   Data were also analysed to ascertain the conditions that encouraged premise reflection within pre-service teachers' postings. Table 2 reports these data in terms of the frequency of the different ways in which premise reflection was reached.

Table 2. Interactions that led to premise reflection

Conditions Leading to Premise Reflection	PLT1	PLT2	PLT3	PLT4	Total
Reached on own	21	24	28	15	88 (65%)
Reached after interaction with peers	15	13	11	7	46 (34%)
Reached in response to lecturer contribution	0	1	0	1	2 (1%)
Total	36	38	39	23	136

Table 2 indicates that pre-service teachers were more likely to reach premise reflection as a result of their own musings in response to a discussion forum question than they

were as a result of interactions with one another. There were 88 (65%) instances of premise reflection being reached within a pre-service teacher's initial post. This would occur, for example, when pre-service teachers responded to the forum by describing an example and going on to consider the importance of the problem for teaching and learning more generally. The examples of premise reflection provided earlier are examples of this occurring. As also noted earlier, they tended to contain "I believe" and "I think" statements as a part of the post.

Instances of premise reflection as a result of interaction would occur when one pre-service teacher responded to another's post about a certain situation and then attempted to provide a reason or justification for the experience. For example, one pre-service teacher posted a comment about using a strategy called "the box train method" to solve a perimeter problem in mathematics. Her post described the use of the method and how it enabled students to access visual stimuli to help construct a solution to the problem. The original post showed process reflection as the pre-service teacher highlighted the pedagogy as beneficial, but did not extend to premise reflection to demonstrate the importance of the different approach she used. In response to this, another pre-service teacher commented:

> It sounds like a great way of understanding processes as to WHY we get the answers we do in a more step by step fashion and promotes deeper (cognitive) thinking and questioning for learners/teachers alike. I think it's great that you can actually see the mechanics and evidence of the learning processes; I think this is really valuable as it gives you the great insight as to where individuals are up to and how they got there in their learning.

This example illustrates how one pre-service teacher can provide the reasoning for why a particular strategy/situation described by another is of importance and was characteristic of the 46 (34%) instances of premise reflection reached as a result of peer interaction in the online space. This example also demonstrates that reflection on successful experiences can also lead to useful reflection for learning, rather than reflection needing to focus on problems as is generally stated in the literature as required for fostering improvement in practice (e.g. Schon, 1983; Osterman & Kottkamp, 2004).

What was interesting, and indeed concerning, was the lack of premise reflection stemming from interaction with the lecturer. Table 2 shows that there were only two (1%) incidences of premise reflection reached through interactions with lecturers which was substantially lower than the premise reflection reached through interactions with peers or through independent meta-cognitive thinking. The researchers, noting the low level of premise level reflection in response to their contributions, made a further analysis of the data to see how lecturers were participating in the discussions. A key focus was whether lecturers were encouraging premise level reflection through asking questions and thereby encouraging pre-service teachers to be more critical in their reflections. Table 3 reports data on lecturers' contributions to the forum.

Table 3. Lecturer contributions to forums

	PLT 1	PLT2	PLT 3	PLT 4	*Total*
Lecturer poses a question in contribution	3	8	0	3	14 (8%)
Lecturer input leads to premise reflection	0	1	0	1	2 (1%)
Lecturer input is responded to in non-premise ways	0	3	1	6	10 (6%)
Lecturer input does not elicit a response	30	13	67	43	153 (93%)
Total number of lecturer contributions	30	17	68	50	165

Table 3 shows that of the total number of lecturer contributions in only 14 (8%) cases did the lecturer pose a question that might have led to more reflective thinking. Most posts from lecturers were supportive acknowledgements of what the pre-service teacher was experiencing. For example:

> I think Robyn's point is true–it's hard or perhaps impossible to have a perfect mix. Don't give up with this boy–continue to work on connecting strategies – however, don't be disappointed if it doesn't work out. As I have said before, there are some very difficult students around and it takes more than five weeks to connect, or even make small progress.

> Wow Daniel! You are going to be busy! It is interesting reading your comments about that all boys and all girls classes [*sic*].

It was surprising that 153 (93%) of the lecturers' posts were evidently ignored by pre-service teachers. In the small number of instances where pre-service teachers did respond to a lecturer's comment or question, it appeared that a question would be more likely to elicit a response than a comment, although with so few instances of lecturers posing questions, it is difficult to establish whether there was a trend with this. The nature of the question posed by the lecturer may also be important. One lecturer asked pre-service teachers to provide examples of other strategies that could be used for classroom management after one pre-service teacher described difficulties with keeping the whole class in at recess. This led to a couple of pre-service teacher responses, but they were both content level contributions, describing examples rather than discussing why they were better/worse alternatives to each other or the initial strategy trialled. This suggests that lower order questioning may encourage less critically reflective responses.

When pre-service teachers responded to a comment made rather than a question posed by a lecturer, it tended to be when they disagreed with the comment the lecturer made. For example, one lecturer, who frequently posted their personal opinions and experiences, at one point commented that the use of ICT was sometimes done for the sake of using ICT rather than for specific pedagogical reasons. On another occasion the same lecturer offered sympathy to a student after an experience and encouraged

her to see it as a learning experience. In each of these cases a pre-service teacher responded, one with *"I'm not sure I agree that the use of ICT 'for it's [sic] own sake' is something to be avoided"* which the pre-service teacher followed up with a premise level reflection explaining why. The lecturer responded to this as well, but there was no further interaction from the pre-service teacher. In the instance where sympathy was given, the pre-service teacher concerned responded with "I don't feel sorry for myself, and I see it too as a learning experience." These examples suggest that comments that confront pre-service teachers' views may engender some response. This raises the question of whether it might be beneficial for the lecturer to play the role of devil's advocate in the online space where they try to interject alternate or potentially contentious views to stimulate a reaction from participants. Although, the lack of continued debate in the first example may be an indicator that this would not lead to sustained interaction.

The lack of response to lecturers' posts and the general lack of premise reflection that resulted in the few interactions that did occur in response to lecturers' contributions were concerning and surprising. It also suggests that the lecturer had little to no impact on the nature or extent of interaction among pre-service teachers outside of setting the original discussion topic. However, as has been argued, lecturers' contributions tended to be ones of encouragement and support and rarely did they pose questions that might have encouraged deeper thinking and more critical reflection. The fact that they did provide encouragement and support is not necessarily a bad thing, as it does help to address Swan et al.'s (2008) demand for social/emotional support, something Salmon (2003) also alludes to in the early stages of her five-step lecturer presence in the online space. Swan et al. (2008) indicate that in addition to social support, lecturers must provide interaction that develops cognitive presence which they describe as the level of inquiry that is fostered through the instructor contributions.

Another point of interest regarding the role of the lecturer relates to Means et al.'s (2010) warning that instructors need to be wary about targeting the learning community rather than individuals in their contributions. Means et al. (2010) indicate that comments that target the group as a whole may influence group interaction, and thus meet Swan et al.'s (2008) social presence, but to foster learning, they argue that comments must be directed at the individual. Three of the four lecturers in this study tended to direct their contributions to individuals and one lecturer used a combination of individual and general group summaries. Pre-service teachers did not respond to either of these forms of interaction so it is unclear whether the individual versus group directed contributions had any bearing on pre-service teachers' learning. What is evident, however, is that this remains an area for further investigation. Further investigation would also be beneficial to explore whether the level of cognitive presence and premise level reflection could be improved if lecturers adopted a role more focused on developing higher order thinking through an increased amount and level of questioning directed to individuals and the group.

Pre-service Teacher Evaluations

In evaluating the use of the online professional learning teams, pre-service teachers generally indicated that the practicum forum was useful for their learning. Of the fifty pre-service teacher respondents to the survey monkey evaluation, 26 (52%) agreed and 7 (14%) strongly agreed that the initiative supported their learning. Nine (18%) were undecided. The course evaluation distributed to ACU pre-service teachers showed that all five pre-service teacher respondents viewed the PLT forums favourably. The reasons provided for why the practicum forum was useful for learning were generally linked to the social and emotional support they offered. For example:

> Keep in contact with lecturers and students (Pre-service teacher 2, course evaluation)

> As beginning teachers we really are in need of ideas for teaching strategies, classroom management and teaching resources (Pre-service teacher 4, course evaluation)

> I found reading the comments extremely useful and interesting. In many cases I felt I was not the only person experiencing problems (Pre-service teacher survey monkey)

There were some comments indicating that the practicum forum assisted learning:

> Develop more insight into personal teaching practice (Pre-service teacher 2, course evaluation)

> Good to open my mind and be aware of common challenges and ways to improve (Pre-service teacher 3, course evaluation)

> It helped me broaden my horizon from people who have different perspectives about their experiences (Pre-service teacher survey monkey)

> Very useful. I also liked the explicit questions given, which encouraged more intellectual discussion. (Pre-service teacher survey monkey)

When asked whether lecturers' contributions were valuable for the learning experience, most reported favourably, indicating that:

> It is good to have a mentor from the university who has a word about what students write and to redirect the conversation (Pre-service teacher 4, course evaluation)

> Keeps you on the right track, helpful insight into problems (Pre-service teacher 2, course evaluation)

> Generally prepared and gave useful tasks (Pre-service teacher 1, course evaluation)

Reasons given for not liking the forums were to do with the desire to want to "unload" or because of the challenge to engage in critical thinking:

> The structured discussion feels like assessment - I want to debrief. (Pre-service teacher survey monkey)

> I don't like discussion, you have to think of what to respond with. (Pre-service teacher survey monkey)

The first set of these responses aligns with the social and emotional support that was also derived from the general pre-service teachers' discussion. The lecturers' input appeared to enhance pre-service teachers' overall sense of feeling supported. Some comments were also associated with the lecturers' expertise in providing insights and directing the conversation in meaningful ways and appeared to have a closer association with the learning intention of the forum. This suggests that even if lecturers' posts were not being responded to directly as the earlier findings demonstrate, they were still valued by some and may have influenced the thinking underpinning the posts being made, even if this was not explicitly acknowledged or evident.

CONCLUSION

Overall, the findings suggest reflective practice in the online space associated with the practicum experience of teacher education courses offers an opportunity to engage pre-service teachers in meaningful reflection on their teaching practice that goes some way towards addressing the often-criticised theory-practice gap in teacher education. There is some concern about adding additional university requirements to the practicum period given it is usually very time pressured (Parsons & Stephenson, 2005) and in this study this led to some deliberation among the researchers about what would be appropriate and manageable. Pre-service teachers reported favourably on the weekly forum used in the study, indicating that it was a useful strategy to support their learning. It also provided a means of overcoming the often isolated nature of the practicum (Parsons & Stephenson, 2005), that generally sees pre-service teachers placed in schools away from campus for extended periods of time. The process and premise level reflection that emerged in this study shows that an online forum with discussion topics centred on pedagogical practices and the underpinning theoretical notions from their course can encourage critical reflective practice in the online space as well as help overcome the sense of isolation that they can often feel on placements. A model such as Kreber and Cranton's (2000) content, process and premise reflection may also assist lecturers to focus on ways to provide opportunities for social and emotional support as well as fostering learning about teaching practice.

The literature highlights the view that reflective practice for improved practice needs to focus on the identification of a problem (Loughran, 2002; Osterman & Kottkamp, 2004; Schon, 1983). The findings of this study support this notion, particularly in the posts early in the round, which centred on classroom management

issues and fostered reflection and discussion about improvement. Similar reflection on problematic teaching strategies also occurred. However, the reflection on why particular teaching approaches have been successful also appeared to offer opportunities for effective critical reflection on practice. This was evidenced in the "box train" example where success with a teaching strategy led to premise reflection. Thus, reflection need not always be associated with a problem. As well as a deficit view of reflection for improvement, improvement can also be achieved by critically reflecting on why particular approaches are successful and considering ways to replicate the underpinning pedagogical approaches and premises that justify them. Thus, reflective practice can be achieved through reflection on problems encountered in practice as well as through the examination of factors contributing to success.

One of the key findings of this study was associated with the role of the lecturer in the online space, which needs careful consideration in practicum forums. This study provides evidence to indicate that the lecturers' contribution to the online forum did little more than support the social and emotional climate. Further investigation into purposeful, higher-order questioning in online practice-based discussions is needed to examine whether the lecturer can foster increased levels of critical reflection and learning about teaching in the online space which in turn promote the cognitive development with which Salmon (2003) and Swan et al. (2008) are concerned with, and thus heighten the linking between theory and practice.

NOTES

[1]   In Australia regional refers to both distance from major cities and population. Regional cities are small (less than 100, 000).

[2]   In Victoria, Australia, secondary school refers to Years 7-12 of schools where students are approximately 13-18 years of age.

[3]   Middle Years does not have a set definition with different authors defining it in slightly different ways. It is generally considered to encompass the late years of primary school and early years of secondary (Years 5-8 of schooling)

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