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Using online discussions to develop preservice teachers as informed and critical professionals

Josephine Ryan
School of Education
Australian Catholic University
PO Box 4115 Fitzroy 3065
j.ryan@patrick.acu.edu.au

Abstract

This paper reports findings from five years of investigation of the use of online discussions with large cohorts of preservice literacy teachers (approximately 200 each year). The report outlines essential components for effective online discussion noting the challenges involved when aiming for informed and critical discussion among large groups of novice educators. It elaborates on the most successful approach to this undertaking involving the use of case study scenarios as the focus of discussion. The report argues that the case study discussions were most effective in promoting professional discussion because they allowed a more effective expert role for the instructors.

Introduction

The research described in this paper contributes to knowledge about productive uses of technology in teacher education. It analyzes the outcomes of teaching in an online environment with sizable groups of students (approximately 200 students each year) over 5 years (2002-2006). The report considers the successes and limitations of the use of online discussion in terms of the significant goal of encouraging preservice teachers to be reflective and critical thinkers in the field of literacy education. An intriguing aspect of teacher education in the 21st century is that while contemporary teachers and university instructors may have been educated in a pre cyber space world (Otero et al. 2005; Green & Bigum, 1993) contemporary preservice teachers appear to be the online *chat room* generation. Can the chat room generation effectively (and willingly) use ICT as a tool in their learning? This analysis will outline:

1. Essential components for setting up online discussion to promote learning
2. Online case study discussions as a way to promote critical professional discourse among preservice literacy teachers

Preparing informed and critical literacy teachers

Debates about literacy instruction and essential knowledge for literacy teachers have been significant in Australia (National Inquiry into the Teaching of Literacy, 2005) and in the United States for decades (Chall, 1967; National Reading Panel, 2000; International Reading Association, 2001). The arguments between the 'whole language' and 'phonics' perspectives on the teaching of reading have been fierce (Louden et al.,

2005, p.1). In the US the influential research of Snow, Burns & Griffin (1998) and the National Reading Panel (NRP) *Teaching children to read* (2000) have stressed the significance of phonemic awareness and teaching phonics as precursors to reading success. Snow et al. also stressed the complexity of the task of teaching reading with effective teachers being highly skilled planners of instruction which meets the needs of diverse learners. "If we have learned anything from this effort, it is that effective teachers are able to craft a special mix of instructional ingredients for every child they work with" (Snow et al., Executive Summary). For Snow et al. the development of this expertise is connected to "regular opportunities for self-examination and reflection, [which] are critical components of the career-long development of excellent teachers." (Snow et al., 1998, Executive Summary). The Australian government's most recent report *Teaching reading* (National Inquiry into the Teaching of Reading, 2005) concurs in recognizing the complex skills and understandings that graduating teachers of literacy need. They must develop "a comprehensive repertoire of strategies and approaches plus the knowledge to select and apply the strategies and approaches that meet individual learning needs" (p.38). The NRP lamented the lack of rigorous research into the connection between teacher education and student outcomes in reading but also highlighted the importance of teacher education among the variables which shape outcomes (NRP, 2000, Findings and Determinations: Teacher education and reading instruction). Darling-Hammond has argued that the "quality of teacher education and teaching appear to be more strongly correlated to student achievement than class sizes, overall spending or teacher salaries (Darling-Hammond, 2000, p.3). For her as for Snow et al (1998) the emphasis is on teacher as the informed and reflective practitioner. For teacher educators the question is how are these characteristics developed in preservice teachers. For contemporary young people everyday information and communication needs are satisfied through digital media (Dole, 2006, Ch. 9). Hence, investigating the value of online discussion as a tool of reflection about professional learning makes sense.

The University of Colorado research (Otero et al., 2005), found that online discussion provided opportunities for preservice teachers to think *aloud* and allow others to respond to and critique their ideas. Others have investigated various uses of information and communication technologies (ICT) to facilitate the development of professional problem solving skills. Ferry et al. (2005) considered the use of a computer-based simulated classroom; Sorin (2004) and Sutherland, Marcus and Jessup (2005) used online case studies as a mode of learning; McDonald and White (2005) were interested in the way online discussions can encourage autonomous learning. The research reported here adds to these findings. Clearly expecting technology to facilitate high level thinking goals is to ask a great deal. This is particularly true when considering teaching in large group settings in higher education where one instructor may be responsible for more than 100 students so that following an individual student's progress is difficult.

In exploring the value of online discussions for learning the researchers also took account of the preservice teachers' perceptions of the discussions. There is extensive research on the influence of one's beliefs in decision-making (Kardash & Scholes, 1996) and the regulation of one's intentions for teaching (Connelly & Clandinin, 1985; Kagan, 1992; Kardash & Scholes, 1996). The robustness of some beliefs, especially those long-held beliefs about teaching and learning experiences has been documented (Block & Hazelip, 1995; Brownlee, 2003; Calderhead & Robson, 1991; Featherstone, 1997).

Hence, the perceptions of technology held by preservice teachers are important. Wai-kit Ma, Andersson and Streith (2005) investigated preservice teachers' perceptions of computer technology in relation to their intentions to use computers in schools in the future and found that perceived usefulness and ease of use were important.

Data collection approaches

The context of the investigation was a compulsory preservice education unit addressing literacy in the early years of schooling. This introductory English education unit comprised 12 weekly one-hour lectures and two-hour tutorials. Two, three or four instructors taught approximately 200 preservice teachers each year of the study; however, the authors were always core staff.

The unit used a blend of various modes of instruction to provide opportunities for linking theory with practice. Preservice teachers observed and, in most cases, also participated voluntarily in elementary years classrooms. The assessment comprised focussed observations in classrooms, weekly online discussions with peers, prescribed readings and two major assignments requiring critical reflection on theory and practice.

Each year the design and use of the online discussions component changed with instructors' increased skills and confidence with using the medium and improved technical infrastructure and support. Table 1 summarizes the focus for the online discussion for each year of the investigation.

Table 1
Summary of the focus for online discussion for each year

Year	Platform used	Focus for online discussions	Number of weeks
2002	DISCUS	To discuss weekly readings with tutorial members	7
2003	WebCT 4.0	To discuss connections between classroom experiences and prescribed readings	12
2004	WebCT 4.3	To allow preservice teachers to experience three modes of learning (handwritten notes, online discussions, answering multiple choice items as online quiz items) and then allow them to choose their preferred mode as a means for challenging prior perceptions of teaching and learning literacy.	3 weeks for each mode culminating in a possible 9 weeks
2005	WebCT 4.3	To provide a forum for discussion of a set of literacy issues	5
2006	WebCT 6.0	To promote collaborative exploration of three case studies using defined roles for each group member	6

As will be analyzed below, the instructors' developing knowledge of effective uses of the online discussion tool was reflected in the move from a relatively unstructured discussion of readings in 2002 to a collaborative problem-solving task in 2006.

During the study three types of data were collected:

- records of preservice teachers' online discussions using the DISCUS (2002) and WEBCT (2003-5) platforms. These electronic records were analyzed in terms of what they showed about the value of the various approaches for promoting learning. Each year the instructors looked for evidence that the preservice teachers were using online discussions to: effectively communicate their understandings of literacy teaching and learning, reflect on their changing views of literacy in light of theory and practice, engage in literacy professional discourse such that they perceived the complexity of literacy teaching issues and were able to debate them.
- Instructors' critical reflections on their practice. In some cases this took the form of written reports to the University's Teaching and Learning Committee as part of the University's evaluation of programs. In other cases it was notes written as part of the instructors' teaching/learning process.
- responses and comments by preservice teachers on the university's unit evaluation instrument (2002-6). These perceptions were in the form of anonymous written responses to items using a five-point Likert scale ranging from *strongly agree* to *strongly disagree*. Table 2 presents the frequencies for preservice teachers' responses in each category. Also analyzed for evidence of perceptions were the anonymous written comments on these evaluations.

Examination of Table 2 suggests that preservice teachers were by no means uniformly enthusiastic about online activity with responses spread across the range from 'agree' to 'disagree' in relation to particular uses of the technology. The following discussion analyses the various uses both in terms of the background to preservice teachers' perceptions, as well as exploring the study's findings about the value of online discussion for promoting critical professional discourse.

Table 2

Preservice teachers' written responses to university's unit evaluation about online discussion components for years 2002-2006

Year	Items on unit evaluation	SD	D	U	A	SA
2002 (n=168)	Working in an online environment contributed to my learning in this unit.	4	17	23	45	11
	I found the technical side of the online learning component user-friendly.	11	26	20	30	13
2003 (n=227)	Working in an online environment contributed to my learning in this unit.	5	21	28	40	6

2004 (n=169)	My perceptions of teaching and learning literacy have been challenged through completing online discussions.	5	23	20	41	11
	My perceptions of teaching and learning literacy have been challenged through completing online quizzes.	6	13	23	39	19
2005 (n=137)	Discussions on WebCT were useful in my professional learning.	5	18	24	35	17
2006 (n=164)	The use of WebCT helped my learning in this unit.	5	16	17	37	25
	The use of case studies helped me with my learning.	2	7	16	46	29

Essential components for setting up online discussion to promote learning

User-friendly technology

The researchers found that if technology fails to reach a reasonable level of accessibility and reliability then preservice teachers' perceptions are negatively colored. In the first year of online discussion free-ware DISCUS platform was used and the end of semester evaluations contained comments such as "The technical problems setting up the online discussion were frustrating" (Student evaluation, 2002); and 37% of the group disagreed with the statement "I found the technical side of the online learning component user-friendly." While 56% of the 168 preservice teachers agreed that the online environment "contributed to [my] learning" instructors were conscious of having to defend the use of online discussions. As at the University of Colorado "the power of the learning got lost in the frustration over the technology" (Otero et al., 2005, p.16). In terms of modelling appropriate uses of technology to preservice teachers the exercise was a limited success. In subsequent years the relative user-friendliness of WebCT was reflected in fewer negative evaluations.

Appropriate tasks

While technological ease is essential if learning is to be optimal this is not always within the control of instructors. On the other hand, the nature of the online activities required of participants is within the realm of the instructors. The task undertaken was an important variable in shaping both preservice teachers' perception of the value of technology and instructors' assessment of what preservice teachers learned. An instructive error occurred in 2002 when the required task did not sufficiently encourage participants to interact with others in their online contributions. Asked to respond to

reading in an online forum, contributions such as “Well here is my discussion” (Student DISCUS contribution, 2002) were made. Just as in the face to face situation, the use of closed questions and teacher-directed discussion may not lead students to making thoughtful contributions, so online learning tasks must be sufficiently open-ended and engaging (Holmes, 2004). Various comments show preservice teachers were aware that they were not always participating in a collaborative activity. For example:

Online discussions did not exactly help my learning – it wasn’t very interactive. (Student evaluation, 2002)

Others ... just didn’t really interact with what had been written, didn’t really agree or disagree, just wrote for themselves. (Student evaluation, 2002)

Assessment arrangements

Another key factor in making online discussions work is the assessment arrangements. In the initial years (2002 and 2003) in this new online environment instructors made the mistake of making online discussion an ‘add on’ to preservice teachers’ other assessment tasks and consequently preservice teachers felt there were too many demands on them. To limit the assessment weight of an untried activity might seem sensible for instructors unsure of its value but from some students’ points of view it scarcely made the task worth the effort. One student wrote about contributing as a duty rather than a means of learning:

The weekly obligation to go online did not assist my learning, as I only found it a tedious necessity, that I often could not find the time to do properly, or with enough thought to have learnt anything from it. Going online was a hassle. (Student evaluation, 2002)

For this preservice teacher online discussion was time-consuming and unrewarding. As noted above, in the initial year of the study instructors made the mistake of centering online discussion around a closed question (asking the preservice teachers to summarize a reading). In subsequent years more interactive tasks were planned and the activities were given significant assessment weight. Two potentialities of online discussions which were very readily established were their capacity for creating

1. democratic spaces
2. avenues for telling personal narratives

Democratic spaces

As has been noted by other researchers, this investigation found that online environments are democratic in that they allow participants who do not speak in classes an opportunity to have a voice and no one dominates the discussion (Bradford-Smith, Smith, & Boone, 2000; Swan, 2001). Moreover, instructors have access to their thoughts. In contrast, time-constraints during classes often cause an instructor to either limit his/her participation with discussion groups to a few minutes at a time, or participate with selected groups. In an online discussion environment the lecturer can access all groups (Bradford-Smith et al., 2000).

Avenues for telling personal narratives

McDonald and White (2005) argued that online forums are ideal for narrative or the sharing of experiences, especially classroom experiences for which there is rarely sufficient time in university classes. Within this investigation preservice teachers were

encouraged to share experiences from both their recollections of their own literacy learning and from their observations as early years classroom helpers. They were asked to connect these experiences with literacy issues being studied. Records of their discussions suggest that there were useful reflections occurring. For example, one preservice teacher wrote:

This one child was working with another child who was fairly good at writing, however, the other child (who did not speak much English and could not read) could copy perfectly the words that the other child was writing- and still would not have been able to read them back to you. So maybe that raises a question as to whether or not simple copying is beneficial to all children; just because you know what a letter looks like and how to copy it, doesn't necessarily mean you understand it. (WebCT discussion contribution, 2004)

It seems that this preservice teacher was capable of critically reflecting on observations of classroom experiences and the reflection provided an opportunity for learning for others reading it. Bandura (1986) described the *vicarious* capability given situations such as this when people learn from others' experiences.

There was evidence that preservice teachers became engaged in discussions and interacted effectively when they were set appropriate tasks. The following is an excerpt from the discussion of a group who shared an interest in children's literature. These preservice teachers were capable of discussing issues enthusiastically with others even though they didn't know each other well. For this task they used an informal *chat room* style of writing as their genre.

Hi there, I'm V*. I can't believe that there are not more people contributing to this topic area! What could possibly be more important for teaching children than children's literature? I have two boys, one four and one seventeen months and they both LOVE reading. The youngest one selects himself a book marches across the floor and slams it onto my lap shouting "Baaa", which I'm sure is "Book". Since I've been reading to my own children I've been amazed at the amount of fantastic stuff that's out there for kids. My head is choca-block with, *Mr Magee*, *The Cat in the Hat*, and *Hairy McClarey*. I'd love to pick five of the ones that I really love then get together and have a chat to see what you both think about [them]. ... If anybody's interested let me know. We could do it over a coffee or in the library. (Message no. 622, 2004)

Sorry to say I don't know all those books V*, though you might like *Roberto the insect architect*, which is a personal favourite. It is written by Nina Laden. I bought a copy for my young nephew. He's too young to appreciate it now, though when he grows up a bit, WHAM! He'll be straight into it. (Message no. 625, 2004)

I found a few very good journals but i havent really gone through it yet, the only thing i picked up on is the issue that some critics believe that children's literature shouldn't be classified as "Literature" because it is basic and undermines the more advanced and detailed forms ie, Jane Austen etc. I really dont agree as one of u have said it is the basis of learning how to read and appreciating texts as a

whole. Look at it this way, if we didnt start off with these “basic” books then we would never be able to read the ones that are considered to be “real literature” and appreciate it as we do today. Thats all i got guys i'll be doing more shortly! (Message no. 899, 2004)

Yes that argument re children’s books being lit is very interesting, if children weren’t given forms of lit that appeal to them they might never pick up a real book when they are older. Picture books enable children to experience “reading” a book for enjoyment before they are able to read the text, without this early introduction to literature they would find it harder to understand the concepts of more advanced forms later on. (Message no. 908, 2004)

Monitoring and providing timely feedback

The above contributions show evidence of enthusiastic student to student sharing of their love of picture books as well as more professional *issue-based* discussion (about whether children’s books can be classified as ‘literature’). Both aspects are evidence of worthwhile discussion. Yet in many cases discussions were limited by lack of instructor input. The task of closely monitoring all the discussion groups in this research was unsustainable when any one instructor might be responsible for 10 to 20 groups whose members often spoke to each other a number of times each week. At times the lack of close monitoring meant that some significant misconceptions went unchecked. This excerpt is from one preservice teacher who seems to have gained only part of the current advice regarding spelling:

The journals I have read have emphasised the BIG changes in learning [how to] spell since my primary school days. I am pleased to hear that research has criticised the traditional rote learning method. The approach to spelling these days is far more integrated which is said to provide more lasting learning than previous memorization models. I think children are less conscious that they are actually learning spelling in a whole language approach. They seem to learn to spell subconsciously through immersion and engagement in a rich world of texts. One journal article that I read referred to this as “acquisition” as opposed to “learning”. It took me until my second classroom visit to actually realise that the children were learning spelling. I had not noticed because it was so implicitly taught! (Message no. 612, 2004)

It was pleasing to see that this preservice teacher realised that it was useful to take words from content being studied and that rote learning methods alone were not as effective as a range of other strategies to study words. However, in this excerpt there is no mention of other strategies and the emphasis on teaching implicitly and learning subconsciously is misleading. On some occasions it was possible to use face to face classes to address misleading information posted by preservice teachers. Other times, the instructors posted a short response. Whatever the approach, there was no guarantee that either would successfully address the misconception. Having said that, it was helpful to note common misconceptions pertaining to particular topics to inform the development of future coursework.

Research into online learning highlights the role of the instructor

Examining learning in a primarily online environment Salmon (2002) and Holmes (2004) identified a period of increased communication between online participants after ten days of interaction and asserted that input from instructors during this period led to maximized learning opportunities. This finding highlights particular challenges for instructors in courses with blended modes of instructions where online discussion is one of a number of elements. For a 12 week teaching unit where online contributions were expected approximately once a week such as those in the current investigation, the optimum period for input comes towards the end of the 12-week period. This suggests that it was not surprising that the interactions were superficial at times.

Salmon (2002) presented a five-stage conceptual framework describing the development of participants' online discussions. Stages one and two involve participants becoming familiar with the technology and their online peers. At stages three and four participants exchange information and construct personal knowledge. At stage five, participants are ready to integrate new content and deepen their understandings. In stages three and four the instructor acts as an *e-moderator* (Salmon, 2002) supporting participants as they become engaged with the task. In stage five, the instructor assumes a mentoring role for participants. In the teaching under investigation here, while the instructors might read, take note of and briefly respond to students' contributions, in many instances they were not acting as e-moderators and mentors. That is they did not involve themselves sufficiently in the discussions to be able to respond to individual or group misconceptions; nor were they able to take a decisive role in discussions as a mentor might do.

Preservice teachers' perceptions of the value of online discussions

Swan (2001) found student satisfaction with online components of courses was influenced by frequent interactions from instructors (Swan, 2001). A limitation of the data collection in this investigation was not collecting data on preservice teachers' perceptions of the role of the instructors in their online discussions. However, examination of the data reveals some trends in preservice teachers' perceptions. In 2002 and 2003 regardless of the platform being used, for each of the five-point scale, profiles of results for the statement *working in an online environment contributed to [their] learning in this unit* were quite similar. Likewise, profiles of results for the statements each year about the value of online discussions to their learning such as, *My perceptions of teaching and learning literacy have been challenged through completing online discussions* (2004) and *The use of WebCT helped my learning in this unit* (2006) are quite similar. Generally, about 46-62% at least *agreed* with such statements and 21-28% either *disagreed* or *strongly disagreed* with the same. In each of those years between 20-28% indicated they were *unsure* whether the online discussions had been helpful to their learning.

A noticeable rise in the levels of satisfaction with online discussions came in 2006 when rather than asking preservice teachers to discuss and reflect in an informal chat room genre, the online discussions were organized around specific cases and the target discourse was more specified. In this setup 75% at least *agreed* with the statement, *The use of case studies helped me with my learning*. As will be elaborated below, examination of the elements of online case study discussion suggests that this rise in the rate of

satisfaction was related to the fact that the case study discussion task established clearer guidelines for educational discussion than had been available to preservice teachers with other online tasks. The instructors were active in shaping and monitoring the discussions.

Online discussion of case studies as a useful mode of learning

In 2006 preservice teachers were given three case studies and encouraged to work collaboratively on a shared task which was related to the major issues and assessment for the unit. For example case study one asked about *Meg, a teacher of a year one/two class [who] notices when she reads a big book to her class that some children know the answers, some have no idea and others seem bored.* Preservice teachers were instructed to take on specific roles in their discussions. These roles made explicit the thinking and discussion processes of literacy professionals. Roles included: ‘initiator’- identify issues impacting on literacy teaching or learning within the case study scenario; ‘researcher’- read research about the issues identified, and propose a plan which addressed the issues explored in terms of advice for literacy learning for either teachers or parents; ‘critic’ - consider the pros and cons of the plan.

Participants were to allocate roles among their six group members to share the task and each undertake different roles over the course of the three case studies. To make room in the instructors’ schedule for the monitoring of the case study discussions other uses of the online environment were limited during the semester. Each case study was assessed on completion before the next one was due and preservice teachers were informed as to the effectiveness of their discussion. After the first case study instructor feedback about ways discussion might be improved was posted on WebCT and after the second an exemplary response from one group was posted. Whereas in the first case study many groups’ discussions were assessed as barely satisfactory, by the end many groups received high points. Critical improvement was related to the groups’ ability to: respond to each other’s ideas rather than write a monologue; find relevant and reputable research; synthesize it into some kind of educational plan and then critique this plan.

The use of case study in preservice education has been seen as valuable (Hsu, 2004; Sorin, 2004; Sutherland et al., 2005). In emphasizing active, cooperative learning and higher order thinking the case study fulfills many of the principles of effective teaching in higher education as enunciated by Chickering and Gamson (1987) and incorporated into an online learning environment by Bangert (2004). In the investigation being reported here the provision of a model structure for case study discussion meant that preservice teachers could plan their contributions in a more focussed way. For example, has the ‘researcher’ found material related to the issues as defined by the ‘initiator’? Whereas in a less structured discussion it is harder to pinpoint where it is/not effective. Since all groups discussed the same issue participants were able to compare their discussion with the exemplary ones. For instructors of a large group of students this was a most time-effective way of giving feed back. Sutherland, Marcus and Jessup (2005) used a similar approach by providing an “annotated model answer” (p.556) as a guide to preservice teachers. While the case studies only dealt with material from some aspects of the unit and feedback to the groups was somewhat generic, still the preservice teachers were expected to participate in a critical professional discussion and assessed on their success in this activity.

Conclusion

This investigation highlighted differences between using online discussion for sharing and communication among novice educators and using it to promote professional discourse. While user-friendly technology and well planned tasks and assessment facilitate useful sharing and communication, the promotion of critical professional discourse necessitates more active intervention by experienced educators. Findings in this study demonstrate that increasing the role of the instructor increases the possibilities for student learning. The study opens areas for further research. Of particular interest is whether the technology can be used to make the professional discussions more on-going as the preservice teachers are involved in 'real' cases in their work in schools during practice teaching. Research such reported in Hsu (2004) and Otero et al. (2005) have undertaken to encourage this kind of reflection and critique among relatively small groups of participants. How can this be done among much larger cohorts where instructors are 'in charge of' multiple discussion groups? Further, what are preservice teachers' perceptions of the role of the instructor in these case study discussions? Do they see themselves as receiving sufficient instructor attention? Research into the pervasive medium of online discussions needs to keep up with its use.

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