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Sharing and supporting through an online network: four studies with newly appointed teachers

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The paper discusses the experiences, needs and concerns of newly appointed teachers in four separate studies conducted by UTS teacher educators over the years 1999-2006. Newly appointed teachers were invited to participate in an online support network in each of the studies. The studies were all small in scale, and allowed teachers to express their concerns, aspirations and experiences to others in the online network. Although participation in the online network was limited, those who did participate found the network to be supportive and helpful in providing much-needed advice and suggestions. Support was offered by mentor teachers, lecturers from the university and the other newly appointed teachers in the network. The paper will highlight the common issues regarding online access to support, as well as aspects of online interaction that were found to be beneficial to participants. It will also discuss issues of participation as highlighted by the different designs of the four studies, and indicate the strengths and weaknesses of each of the research designs with regard to meeting the needs of the participants.

Introduction

This paper considers four small-scale studies conducted by UTS researchers, which investigated the offering of support to beginning teachers through online facilities. The four studies were conducted independently in 1999-2000, 2003-4, 2005 and 2006. The focus of this paper is the online aspect of the support networks and the ways in which these were used in the four studies. The paper will examine the factors that were facilitating or constraining of online usage in the four studies and suggest further directions for research on online networks.

Background literature

The high rate of attrition for newly appointed teachers is a matter of concern to all employing bodies of teachers. A prime focus for research internationally in this area is moving from recruitment to retention (Ingersoll, 2001). The area of retention has been one of concern over the last two decades in Australia and is documented as needing attention by various governmental papers and monographs (Ramsey, 2000; Senate Enquiry, 1998). The overseas experience shows that the loss of teachers in their first years of teaching, particularly in rural and hard-to-staff locations, can be as high as forty to fifty percent. While there are few figures available publicly in the Australian context, most recent reports list retention as a matter of significant concern (Ramsey, 2000; Senate Enquiry, 1998). A current study by the authors is gaining up-to-date data on retention and early career experiences of 2005 NSW graduates in public schools over the years 2006-2009.

Studies of early career teachers indicate that the experiences of novice teachers mediate whether or not they will stay in, or leave their chosen profession. International studies indicate that the transition and adaptation of those beginning to teach can be a harrowing professional journey. Sabar (2004) likened it to the passage of immigrants to a new country. The metaphor is a powerful one in that normally a person does not choose to immigrate alone, but in new teaching appointments may find herself or himself in a strange place experiencing culture shock with little external support. As Hebert and Worthy (2001) demonstrate, the match between expectations and reality in terms of the culture of given workplaces is not achieved by chance but requires great effort on the part of all involved.

The DEST report *An Ethic of Care* (2002) cites the considerable and largely unanticipated demands of the professional teaching role as critical. The workload is overwhelming and relentless. This argument is supported by the research of Smithers and Robinson (2002) and Frijters, Shields and Price (2004) who demonstrated that pecuniary benefits were not sufficient to retain unhappy graduates: "our analysis suggests that there is little scope for improving teacher retention through increasing wages in the public sector profession in England and Wales" (p. 21). The DEST report also cites physical and professional isolation, the conflict between expectations and reality, difficult initial teaching placements, and inadequate induction. In summation, it suggests that the quality of the first teaching experience is the most heavily weighted factor influencing teacher retention (p.19).

Research in NSW strongly supports these findings. In his review of Teacher Education in NSW Ramsey (2000) indicated the upward trend in early career teacher resignation rates in this State. Following the report Ewing and Smith (2003) undertook a longitudinal study examining the experiences of beginning and early career teachers both inside and outside the classroom. A key finding in the study was the disappointment that beginning teachers felt regarding the quality of their induction: "The data suggests that those who should be most responsible for such induction, principals and executive staff are not fulfilling their responsibilities and that the majority (70%) are left to find informal support" (p.16).

Manuel (2003) was also concerned with following a group of beginning teachers over time. She enquired into the experiences of six beginning teachers through the first five years of their teaching career, gathering interview, journal and survey data at seven key stages. Her findings are familiar ones, poignantly illustrated by stories of stressful and unsatisfactory encounters. She reported that the principal issues to emerge from these teachers' stories centre on:

Day to day working conditions; personal and professional support structures and mechanisms sought and/or encountered by each teacher; and the need for more than mere on-the-job professional development in the areas of classroom and behaviour management and pedagogical knowledge. (p. 148)

On the basis of her findings, which fleshed out and echoed what had already been known, Manuel suggested a range of ameliorating strategies: a reduced teaching load; enhanced mentoring and induction; tied funding for targeted professional development; additional support for schools carrying a number of first year out and

early career teachers; pastoral care for new teachers; professional development for existing staff in effective ways to support and affirm new teachers; and, the forming of more substantial links between initial and ongoing teacher professional learning (pp 148 – 149).

Collaborative digital technologies offer a potentially powerful means by which teachers can access support from mentors, both from their initial teacher education programs and in schools. Such technologies offer the opportunity to discuss pedagogical issues with a community of colleagues. Yet, such technologies remain under-used and undervalued by practising teachers. Indeed, over the last decade the slow adoption of technology by teachers for their personal professional learning has been noted with concern by governments and employing authorities world-wide. The early promise of e-learning has not materialised in this context. (Cuban, Kirkpatrick & Peck, 2001; Peck, Cuban, & Kirkpatrick, 2002; Phelps, Graham & Kerr, 2004; Robertson et al., 2004; Schuck, 2002; Selwyn, 2003).

The value of harnessing the power of collaborative innovative technologies to provide collegial networks for early career teachers' professional learning and support is an important focus for research. The benefits of not being restricted to interactions with people in one's own school; of being supported even if geographically isolated; of enjoying access to expertise over a range of areas readily available in an online learning environment; and of building a personal support network, all seem to offer much promise. One example of such an online network for beginning teachers was the Lighthouse Project (Babinski, Jones & DeWert 2001) in the United States, in which twelve beginning teachers had the opportunity to interact with mentors, university staff and each other through an online forum. Projects such as the Lighthouse Project, in which computer networks are established that link beginning teachers to each other and to others, are reported to provide neophyte teachers with emotional support and encouragement while lessening their feelings of isolation (Merseeth, 1991). Yet, the actual deployment of such technologies is minimal. Electronic learning and support networks appear to be restricted mainly to discipline-based offering of resources, without the benefits of such networks being realised in any systemic and rigorous way for collaborative learning and support (Selwyn, 2000; Staples, Pugach & Himes, 2005).

This paper will discuss the use of four collaborative online networks that were established in studies conducted by the authors. The four studies were implemented for a variety of purposes: the first wished to research ways in which newly appointed teachers and experienced teachers in mentoring roles could interact together to provide support for the newly appointed teachers as well as enhancing the mentoring skills of the experienced teachers; the second wished to develop further understandings about the value of online support; the third had an initial purpose of examining the efficacy of the teacher education program through the experiences of its graduates; and the fourth was set up primarily as a support system for graduates of a secondary mathematics teacher education program. In our studies, the common feature was the use of the online support for collegial interaction and networking rather than for access to information and resources. In this paper, the different studies are briefly described and then the differences and similarities regarding both their online nature and their findings are discussed and implications developed.

The research questions we ask about the online networks described in this paper are:

- How did the online networks operate?
- What were the affordances of each online component of the networks?
- What were the limiting aspects of the online component?

Outline of the studies

The four studies were similar in that they each provided an online network of support to a small cohort of newly graduated teachers. In all but one case, the participants were graduates of the researchers’ university teacher education program. In two of the studies, experienced teachers joined the new graduates and researcher in the online network. These teachers acted as mentors and joined the network to both enhance their mentoring skills and support the newcomers to the profession.

Table 1 gives a synopsis of the characteristics and features of each of the studies. Further details of Studies 1 and 2 can be found in Schuck, 2003a; Schuck, 2003b and Brady and Schuck, 2005.

Table 1: Features of the four studies

	Study 1	Study 2	Study 3	Study 4
Year(s) of study	1999-2000	2003-2004	2005	2006
Researcher	Sandy	Sandy	John	Anne
Purpose of study	Investigate the provision of support to beginning teachers, and development of mentoring skills of experienced teachers.	Investigate how an online support network can be self-sustaining for beginning teachers and experienced teachers.	Investigate, through email interactions, the matches and mismatches between university and school teaching environments.	Provide support to a newly graduated class of maths secondary school teachers.
Type of school	Primary	Primary and secondary	Primary	Secondary
Initial Participants	18 beginning teachers, 20 mentors, 2 DET participants, 2 teacher educators	17 beginning teachers, 3 mentors, 2 teacher educators	10 beginning teachers	28 beginning teachers
Initiator	Beginning teachers then researcher	Researcher	Researcher	Beginning teachers
Relationship to researcher	Beg teachers were graduates of teacher educator program	No pre-existing relationship, except for one graduate of our program	Had been students in elective class taught by researcher	Grad Dip Ed students in mathematics method classes taught by researcher
Timing (onset)	March of first	Initial contact	8 months after	Immediately

	year of teaching	in Aug of first year of teaching, network operational from beginning of second year	graduation	after completing the Grad Dip Ed program
Duration	One year	Eight months	Four months	Ten months
Number of prompts	N/a	4	3	1
Modes of interaction	Four workshops throughout the year and online discussion forum	Access to DET discussion forum with private area for participants	Group emails initiated by researcher and then email responses to group or researcher	Three workshops and group email list. A wiki has just been started.
Number of active participants online	14 beg teachers (5 regularly), 20 mentors, 2 teacher educators (infrequently), 2 DET staff (infrequently)	5 beg teachers, 2 teacher educators. 1 silent reader (beg teacher), one anonymous contributor	7	17
Data collection	Discussion at workshops, phone interviews, online interactions	Initial interview, online interactions, final interview	Online interactions	Online interactions supported by workshop discussions
Pre-existing relationships in group	Beg teachers knew each other and the teacher educators.	Participants only knew colleagues from same school	Shared four semesters of elective classes with each other and the researcher	Beg teachers knew each other from mathematics method classes
Online Mode	Discussion forum through university	Discussion forum through NSW DET	Email	Email, later wikis

Of interest from this table are the following features:

- The date of each study – the interactions in the earlier studies would have been characterised by difficulties in downloading, lack of access to online networks and slowness of interactions. As online access and interactions have become increasingly commonplace over the years, these features would all have improved in the later studies.

- The initiator of each study – in some studies newly appointed teachers were approached to participate, in others they requested the network.
- The cohesiveness of each group – whether they knew each other and were simply transferring the network online or whether they were meeting for the first time through the network.
- The modes of interaction – face-to face, discussion board or email.
- Date of first initiation of network

Data collection and analysis

Data were collected through a variety of methods in the four studies. These included the following:

- Field notes and tape recordings of workshops were used to collect data about the experiences and issues that beginning teachers were encountering, as well as to collect information about the perceptions of all the teachers regarding the network. Anonymous surveys were also completed at the end of each workshop in study 1 and these provided information on the participants' views of the electronic interactions, workshops and issues they would like to discuss further.
- Audio- taped telephone interviews were conducted by an external research assistant in studies 1 and 2, at two stages in each study. Both the mentors and beginning teachers who were interviewed were asked to describe their views of the networks, including reflection about the support they received from other network participants, constraints, challenges, facilitatory factors, and any critical incidents that occurred during network or mentoring interactions. Participants' perceptions of the electronic aspects of the network were also gathered.
- Records of interactions on the Web-based conferencing tool or the emails were kept in all four studies and these indicated how the electronic network was used and what sort of problems arose or were discussed online.

Data were analysed through reading of transcripts and web postings, with a view to finding responses that provided insights regarding each study's research questions. For this paper, data regarding the online tool and its value to participants were mined for emergent themes using a method of constant comparison.

Central Findings

How did the networks operate?

Both the first and second study operated through an online discussion board and had a number of forums set up within them, while the third and fourth studies used email.

In the first study the participants were encouraged to visit the forums regularly, with mentor teachers posting items on a fortnightly basis and newly appointed teachers participating as required. Initially, all participants started posting at the top level of the forums and it became clear that a different structure was needed, as the forum became flooded with responses, and difficult to read. Sub-forums were created and participants were instructed as to how to post in those forums. This change led to more efficient downloading of information.

In study 2 a forum existed on the NSW Department of Education and Training (DET) website for mentors and newly appointed teachers. Participants were registered and given logins, and these gave access to the web board. Within the web board, a

“locked” set of forums was set up for the teachers and teacher educators in this study. Only they were able to enter this area.

By comparison, the second two studies’ interactions were by email. The reason for choosing the email approach in the third study was that it was considered to be less intrusive than phone calls for the participants. They had the opportunity to read and respond as/when they wished, and to formulate their thoughts. It was also an easier-to-maintain method than phone calls, obviating the need to be by the telephone at a particular time, or the participant not being available at a previously agreed time etc. The researcher found it easier to maintain records in this form as well. Two of the participants originally expressed a preference for phone conversations, but later reverted to email contact. Email was also regarded as a more informal and accessible mode of interaction than a discussion board.

The intention in study 3 was that a conversation would be generated among the participants, and that John would merge into the background of a virtual focus group, to eavesdrop on their conversation. Comments from participants informed subsequent questions that John posted. Each contributor to the conversation received an individual email response from John and, in some cases, participants responded only to John, and not to the whole group.

The network in study 4 operated at the whim of the students – if they wanted to communicate they sent an email. For much of the conversation on the network, Anne was simply an observer, allowing the beginning teachers to be the support for each other. About half way through the first term, the network was quiet for a couple of weeks so she asked how things were going. Within a very short time, the network was working again.

As most participants in studies 1 and 2 had access via a telephone line and a modem, accessing the forums was a time-consuming matter, but the very structured nature of the forums helped the participants to choose the ones in which they were interested. Unfortunately, in study 2 a number of operational matters led to delays in getting the network set up. This meant that although participants had been interviewed in their first year of teaching, they could only access the network from the beginning of their second year.

More recently, one of the beginning teachers in study 4 appealed for help with classroom management. Several colleagues immediately supported this teacher with ideas and empathy, and this was followed by one of the beginning teachers establishing a wiki because “it’s easier to respond in a wiki”.

What were the affordances of the networks?

There were two major affordances of the online networks in studies 1 and 2. The first was the access to expertise and support from outside the participants’ immediate environments. Questions were posed on quite specific topics (for example, how to develop a literacy program or how to improve discipline in a class) and responses were posted promptly by participants who had specialised in the area, as well as by others who would indicate that they too had struggled with some of the same issues at some point in time.

The second was the flattening of hierarchy afforded by the lack of contextual information that would be gained in a face-to-face encounter. Although participants had all introduced themselves in an introductory forum and had photographs of themselves posted, their details were not always remembered at the time of posting a response in another forum. As well, a number of the participants did not describe themselves as newly appointed or experienced in their introductions so that information was often not available on the online site. This flattening of hierarchy was a positive feature in that newly appointed teachers often offered advice to experienced teachers, a role they did not seem to experience in their schools. As well, it allowed the mentor teachers to seek advice from the network. They may not have felt comfortable doing this in their own schools where they were constructed as experts.

When the early career teachers were interviewed prior to the setting up of the network in the second study, one indicated that she was already part of an informal network that she and her friends had set up using a commercial email and chat system. Others felt that such a network would be a good idea. They could see the value of being able to share their experiences and acknowledged the capacity of the technology for doing so. There was a clear indication that an online network would be well received. Those who participated found that they obtained valuable support from the mentors and UTS researchers, and also became aware of the DET site in which the study site was located. However, as can be seen from Table 1, very few members of the group did participate.

The email conversation in study 3 generated disclosure of some impressive achievements on the part of the teachers. Many of these attracted the admiration of their colleagues, their employers, as well as the researcher. The teachers wrote about the outcomes they helped their students meet, often in the context of language, learning and/or emotional and behavioural difficulties. The respondents also referred to the organisational and educational leadership roles they had undertaken during this period. It is interesting to note that the participants all used personal email addresses rather than their school email address, perhaps indicating a desire for privacy in these interactions.

Some of the beginning teachers in study 4 were not comfortable with the level of support and the mentoring process as it existed in their schools, so looked to the network as a sounding board for their frustrations. The email interactions allowed them to discuss issues with people outside their immediate school environment. Their emails tended to be descriptive of the highs (only a few emails) and the lows (many emails) of the first year of teaching.

What were the limiting aspects of the online component?

A major limitation in all the studies was that beginning teachers often felt too overwhelmed and busy to interact online. Many said they were just overwhelmed by each day's events and so had little time for anything but survival in the classroom. The emails in the fourth study were often short and to the point "Where do I get blank dice?" but time was obviously an issue even for participating in the email discussions.

In the first and second studies beginning teachers did not feel that they could participate in the network from a school computer because there was a lack of privacy

in the areas in which computers were located. A concern that we had was that participants would not feel totally secure in disclosing their difficulties on a DET website (participants had to go through the general DET website to arrive at the special section allocated to them) as DET was their employer. At home, they were usually too tired, or had inadequate access to the network. In contrast, the participants in studies 3 and 4 would have had far greater access to the Internet and email, as owning a computer and having Internet connections was more commonplace at the time of these studies.

In the second study the online network was beset with problems and it was clear by the conclusion of the project that this network was not the desired way for the participants to interact or gain support. Two major difficulties hindered the project. Firstly, there were technical difficulties in setting up the online forum within the established web board and this caused long delays, which would have removed this support network from the radar of the newly appointed teachers. Secondly, and in part due to this delay, participation in the online network was low. Researchers contacted the participants on a regular basis by email and phone to see if they could improve participation rates by addressing problems that teachers might be experiencing. However, contact with the participants was difficult; calls were usually not returned and emails were not answered. An offer to hold a face-to-face meeting was unanimously declined by the participants. Two issues of relevance here are the following: the network was initiated by the researchers, not the teachers, and there was no pre-existing relationship between the participants and researchers.

Because the participants in studies 1 and 2 did not have a personal relationship with all the other participants in the network, some participants felt reluctant to disclose difficulties that they had experienced. They had not developed sufficient trust in the other participants to air their problems in what felt like a public arena to them. Without already established relationships, interactions would only be at a superficial level, as trust had not been developed. The permanent nature of the online discussion led participants to think carefully about what they would write. Some mentors indicated that they were reluctant to put their thoughts down in case they were found lacking by other mentors, and some of the newly appointed teachers felt that they would be more comfortable disclosing concerns to one person only, so they preferred to email individuals rather than post on the discussion site. This problem did not occur in studies 3 and 4 as participants and researcher were all known to each other from their interactions at university.

As well, some participants in the first study felt that the presence of university staff constrained what they wished to say, as they felt they would be “letting down” the staff who had taught them by indicating that they were experiencing difficulties. This also appears to have been an issue in the fourth study because another network emerged without Anne’s email address but a single network was re-established when some of the participants realised that she had been left off the list.

Other issues were evident in the second study, that were felt to contribute to the low participation rates. The first of these was the timing of the support – due to the technical difficulties the network only became operational at the beginning of the volunteers’ second year, and not in the second school term of their first year as was originally planned. The beginning of the year is a very busy time for teachers, and

having gained experience from their first year of teaching, their need for outside help was not so pronounced. The other studies were all initiated much earlier, during the participants' first year of teaching, when access to outside support was required.

The conversation hoped for in study 3 never really materialised. Towards the end of the year, in response to an impassioned plea, most of the participants responded, but in each case only once. This conversation, while it lasted, was compelling and educative, and embodied some powerful anecdotes. The email network in study 4 also slowed to a trickle but was ramped up with a general "How are you going?" email.

In the fourth study, all the participants found it hardest to respond to the beginning teachers without jobs. For the overseas teachers passing the Professional English Assessment for Teachers (PEAT) test of language ability was the stumbling block and there was little anyone could say other than keep trying. For others, it was the lack of a job and the difficulties of getting even casual teaching that arose as problems.

Discussion

Themes common to the four studies

The four studies tell similar stories in many respects. They are all small studies with under 40 school participants, they all ran online and they all had an aim (although for some, not the primary aim) of supporting newly appointed teachers through an online network. Similar tales of support, challenges and constraints were told in each.

Some issues that emerged in all of the studies are outlined below. The quotations that follow are taken from the different studies but exemplify the comments and questions on these issues. All names are pseudonyms.

- The challenges of the workload and the resulting lack of time to manage this, let alone to interact in the network;

I am VERY scared at the moment and feel very unprepared and inexperienced. It's worrying [being in a selective school] because we spent a lot of time [at university] trying to teach maths to students who did not understand it. I want to be able to teach students to excel not just in their studies but their minds... I am VERY excited and overwhelmed!!!! (Email, February 2006, study 4)

In some studies more than others, the silences spoke volumes about the paucity of time, and at times eliciting responses from participants was a complicated business.

- problems with behaviour management and classroom dynamics;

Hi, I'm Jenny. I am working at my local Catholic school, I am teaching Year 4 and I'm struggling!!! I have only got 21 children in my class which is great but it is still quite a challenge. (Posting from beginning teacher, Jenny, 1999, in forum entitled *Getting to know each other*, study 1).

- specific questions about teaching a particular topic or teaching-related matter.

Can anyone tell me where I can get help on teaching ESL students in my class? (Posting in study 2 forum, 2004).

For those who participated, the networks did seem useful: for example, in the first study, a great deal of support was offered both by the mentor teachers, and the beginning teachers themselves, to Jenny, regarding behaviour management. This led to a sustained engagement by her in the trial of various methods and culminated with her working by email with one of the mentors on developing a behaviour management program for her class. Jenny had this to say about the online network:

I think it's great. You get a whole wealth of advice and you also get to offer advice as well, and you just get to read some of the difficulties that other teachers are having so you don't feel all alone, so I think it's a great idea and definitely great support. I feel less isolated (telephone interview, June 1999, first year teaching).

Another example of the usefulness of the online network is illustrated in the following quotation, from a beginning teacher in study 1:

Yeah, I got some great ones [responses to her questions]. I asked a question about what to do about teasing, and I got a few responses ... and it's interesting reading the comments of the other teachers and students and you keep up on those things as well and it feels good when you [the researchers and mentors] also ask for advice. You're not above us but have something to offer as well. (Telephone interview, June 1999, first year teaching)

Some other positive characteristics of an online network were the opportunities it provided for raising of issues that might be seen as trivial by school colleagues, or for chatting about issues newly appointed teachers were not so comfortable discussing face to face with a school mentor:

It is good to get some outside ideas especially – just little things, I wrote in about seating arrangements. It is one of those things that you don't really feel is worth bringing up with a mentor. Like with my mentor at school, there is so much else going on. It was one of those things that you can get a few different ideas from different people who do things in different ways in different school cultures. (Final interview, study 2, 2004)

And

Quite often you are in a situation in a school where you might not have time to be able to sit down and have a chat about things, you may not feel comfortable talking face to face. It would be very nice to email someone and say this is what I am a bit worried about, or this is what I am thinking about for assessment and they could just email back. (Final interview, study 2, 2004)

One teacher noted the value of being able to keep up with friends made at university, as well as the benefits already listed:

On my part, the process of conversing with peers from uni was invaluable over the course of term one. Simply being able to whinge & bitch about

anything to do with school, to a bunch of people who were going through the same experiences was invaluable (and helped to keep all of us sane). Keeping regular contact with people has also meant that friendships created in uni were more likely to be sustained. This has been wonderful, as it provided us with networks for exchanging and trading school resources. (Email, May 2006, study 4)

For some, the email conversation appears to have been quite cathartic, and perhaps raised issues that could not be talked about freely at school, for various reasons.

My children have mostly emotional problems and I have one student whose mum is dying of cancer. The concern I have for him is that am I equipped to handle his emotional wellbeing day to day to make him feel that school is his safe place???? (Email, December 2005, study 3)

The parents of one child in study 3 “don't want her to have any form of help as they think she will grow out of it. ... They just won't accept that there is anything wrong with her”. Alice asked, “How do you get through to parents like this?” (Email, December 2005)

For those who did not participate, the lack of time mentioned above was an important factor. Some beginning teachers in study 2 volunteered to participate in the study but then did not contribute at any time to the online discussions. When they were asked why, after expressing interest in being in an online support network, they had chosen not to participate, a common response was lack of time and a general feeling of being overloaded.

Once I tried – we have a lot of work once school starts. So from last year they have changed the system of the school, we have parent teacher night, writing reports, a lot of things. So because of the workload I decided, otherwise I don't have any other problem. (Interview with non-participant at end of study 2, 2004)

Other participants were hesitant to post their questions or concerns on the discussion board as they felt concerned about a lack of privacy. In answer to a question of whether Nancy, who had not accessed the online forum at the time of the interview, would feel comfortable in typing in a problem online, her response was:

I'd modify it. I wouldn't put up what I'm telling you now. I wouldn't be 100 percent honest. I would be partial or make it sound not as bad as it really is. ...Because it's going out there and someone might recognise me. It's also fear of failure if I keep asking questions, why can't I get it right. (Telephone interview, June 1999, first year teaching, study 1)

Similarly in study 4, concern about privacy led to individual email exchanges with Anne. Five students conducted individual email conversations with Anne as opposed to the whole network and in each case they were looking for support that did not exist in the school, for example,

My Year 11 General class has played up considerably in Year 10 and as a result are terribly behind in their work. ... Do I continue with the syllabus and lose them completely? Do I teach them basic stuff of Year 9 and up? ... What are my options? There are only two maths teachers and we are both inexperienced. (Email, February, 2006, study 4)

However, others noted that there was an aspect of privacy offered online that was not available in face to face mentoring.

You felt more at ease saying things online than you would face to face because there was an aspect of privacy there. (Final interview, study 2, 2004)

Differences in the four studies

As can be seen in Table 1, there are several features that differed amongst the studies. The first two studies both used online discussion boards, one through the participating university and one through the NSW DET. Studies three and four both used email exchanges.

Some of the participants cited difficulties with accessing the discussion board as reasons for not interacting, as the following quotation illustrates.

The biggest problem I had was the actual set-up of the whole thing. I found it really difficult to find my way through and even my colleague, he was also on – he tried to show me his response, ... we couldn't find it at all.... But basically finding your way through it was difficult. (Study 2, final interview, 2004)

This would not have been an issue in the studies using an email network.

Another difference in the studies was the different times at which the networks started operating. The networks in study 1 and study 4 began early in the school year and during the participants' first year of teaching. These two studies had much higher participation rates than the other two studies.

The nature of pre-existing relationships between the participants also varied, from a tightly-knit group in study 4 to a group who did not know each other at all prior to the study (study 2). The existence of such relationships proved to be facilitatory in study 4 but had both advantages and disadvantages in study 1. Nancy's response above indicates how being recognised by others was a constraint which limited the open voicing of concerns. Others were concerned that their former lecturers would be disappointed in them if they asked 'stupid' questions. However, interactions between beginning teachers in study 1 were very collegial and supportive of one another. They would often proffer advice to each other, based on their experiences. In study 2, where there were no pre-existing relationships, postings from the beginning teacher participants tended to pose questions rather than respond to them, or engage in discussion.

In the fourth study the beginning teachers were a very close-knit group before the network was established and were used to discussing their classroom teaching during the mathematics methods classes. It was therefore not a difficult step to take these

discussions to an online forum. In study 3 the participants knew each other but were less close-knit prior to the study than the participants in study 4, and their email responses were also more limited.

Implications of the studies

It is clear from these studies, that such networks certainly do serve a need for newly appointed teachers. They provide teachers with collegial support, the opportunity to share challenging or joyous incidents, and to gain advice from experts in various areas. The networks provide the opportunity to ask what might be viewed as trivial questions, or to disclose weaknesses and struggles to people outside the immediate school environment. The relative anonymity of the online interaction provides some with a sense of safety, although others were concerned about being recognised or about the permanence of the postings.

The timing of the network seems to be a critical factor in influencing participation rates. Beginning teachers in two of the studies initiated the studies as they felt the need for support from the network in their early days of teaching. In the second study, teachers were only invited to participate from August of their first year of teaching, and then only had access to the online network from the beginning of the second year of teaching. For many, the majority of urgent problems requiring outside support need resolution within the first two terms of their first year, so by year two the urgency has passed.

It was also clear that access to the network has to be quick and easy. Advantages of an email group are that it is more visible and is more immediate than a discussion board. However, if the discussion becomes extensive, it can become cumbersome in the email system. This was demonstrated in study 4 when participants moved to an in-depth discussion about classroom management from email to a wiki. The ongoing establishment of new collaborative digital technologies is likely to facilitate such interactions.

Trust appeared to emerge as a critical factor in the success or otherwise of the networks. There appear to be two dimensions to this aspect of trust: a 'horizontal' dimension – relationships with peers and a 'vertical' dimension. This vertical dimension could be further divided into university staff as former teachers of the network members, and the participants' current mentors and other supervisors. The role of university staff in acting as mentors seems to be both a facilitating and inhibiting factor. Some participants noted the value of having suggestions from the university staff, and of being encouraged to interact with them. Others felt that they would be disappointing their lecturers by struggling with aspects of the job that had been covered in class, or perhaps simply exposing perceived or real shortcomings in the execution of their jobs. Nonetheless, we recognise that, as observed earlier, the networks did afford some anonymity and flattening of this hierarchy among the participants.

The extent of difficulties faced by the participants seemed to be a double-edged sword. On the one hand, participants were understandably diffident when it came to sharing difficulties they were experiencing. On the other hand, these same difficulties appeared to be the catalyst for cries for help. Based on this, we propound that, for example, 'the loneliness of the long distance mathematics teacher' might be a

contributing factor in these participants' willingness to discuss issues with each other. Anecdotally, mathematics teachers at times report, more than do teachers in other faculties, a sense of being besieged in terms of aspects such as student resistance. It probably needs no justification here that the problems of classroom management amplify in secondary school as compared to primary school.

The option of using email or discussion boards as modes of communication also impacts the matter of trust. Participants are probably reticent about asking what might be perceived as naïve questions, questions to which they should know - or otherwise be able to find - answers. Email messages have a 'send-and-regret' permanence not shared by telephone or face-to-face communication. While it is possible to delete postings from a discussion board, participants did express a concern that such postings were semi-permanent.

We believe that there is an often-unspoken cultural pair of expectations amid the teaching profession: to know everything and to be in control always. Both are impossible and the latter is arguably undesirable. Online networks may serve to break down some of these barriers, but it appears from our endeavours that this is by no means a given. If this is a significant factor in the early attrition of teachers from the profession, it is worthy of further study.

Further, an online network may not solve the problems it was designed to solve, in that it may leave a particular participant feeling even more isolated. The 'star student' at university may surprise her or his colleagues by sharing the nature, extent and depth of problems being encountered. Other variables such as the culture of the school or the class, individual differences etc may blur into the miasma of first year survival. Such a teacher may be reinforced in their self-concept as inadequate, or perhaps be deceived into believing that there are comfortably adequate teachers out there. Moreover, to be offered assistance from peers may smack of humiliation for such a person. These perceptions are magnified if other participants are masking or minimising problems they are encountering.

Another related aspect is that of pre-existing relationships within the network. On balance, this seemed to be a facilitating factor. Participants were able to join in conversations in which they could offer advice and empathy. Participants who knew each other provided a solid support network and this changed the nature of the interactions so that they became more collaborative rather than one-way seeking of advice.

Finally, the time issue is an enduring one. Lack of time is the most common reason given by respondents for non-participation. As well, teachers do not sit at desks with computers as do people in other professions. Their job takes place in the classroom, playground, staff room and other places. So access to computers is not always easy or convenient, nor does it always afford privacy. Given that secondary teachers have more release from face to face time than their primary counterparts - even though preparation (arguably) and assessment (probably) consume more time for the former - it stands to reason that our primary school participants had less flexibility in terms of opportunities to communicate online. In this we add our cry in the wilderness to those of others for an increase in release time for early career teachers.

Conclusions and recommendations

It would appear that on balance, online networks have a value, both for newly appointed teachers and for the teacher educators in their institutions. They provide support for the teachers and valuable information for university staff on the relevance of the teacher education program.

However, there are a number of areas that would help to facilitate the success of such networks. One suggestion is that mobile communication devices are investigated for their role in providing the network. As noted above, teachers do not tend to spend long hours at computers, but are more likely to access mobile telephones as they stand in a playground or sit in a staffroom. Provision of support networks that capitalise on m-learning (mobile learning) need investigation.

Another recommendation is that the time factor needs to be considered carefully. Many teachers in other countries such as the USA are given lighter loads during their first year of teaching and if part of this time is set aside as time to interact with others in online or mobile networks, encouragement to use such networks would be increased, hopefully leading to greater participation rates. From the above discussion, it does appear that the access to other people than those in the immediate school environment, with different ideas and non-judgemental strategies of support, can contribute greatly to the newly appointed teachers' induction. As well, the benefits to the teacher educators, articulated above, are substantial. We repeat this plea for lighter loads here, consistent with our beliefs as teachers and in the hope that the message will be heeded. This is not simply a matter of new-teacher survival, but of social justice for the students of these relatively inexperienced teachers.

By offering newly appointed teachers the support and advice that so many seem to need, it is likely that retention rates will improve. This was indicated by a number of participants in the studies above, who suggested that they would not still be teaching had they not had the support of the network. Given that improvement of retention rates of beginning teachers is a national priority, careful consideration of ways of improving online networks should occur.

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