

## *Refereed papers*

### e-Collaboration and team learning in pre-service education

Colin Boylan and Ted Munsch

Charles Sturt University and Alaska Pacific University

#### *Abstract*

Through collegial staff links between Alaska Pacific University in Alaska USA and Charles Sturt University in New South Wales Australia, the opportunity for pre-service teachers at each institution to engage and work collaboratively with each other arose.

A voluntary program of collaboration was designed in which students were paired across each institution. Seventeen students participated and formed eight teams. The teams were instructed to maintain regular email contact over a four-week period of time, beginning with an exchange of information about their personal backgrounds and college activities. As a culminating exercise, teams were required to collaboratively plan a learning activity that each member could use in a classroom in either Alaska or New South Wales. Feedback on the program was provided by 14 students.

In this presentation, student feedback on the e-collaboration program's outcomes and benefits for each student as well as examples of collaboratively planned learning activities will be shared. Lessons learned and implications for continuing e-collaborative efforts at several educational levels will be discussed. "Pen pals" have been replaced by "e-pals".

#### **Introduction**

Through a visiting research scholar program, each of the authors has been able to attend and teach in the on-campus delivery mode in the pre-service elementary programs at their respective universities. In 2005, Dr. Colin Boylan visited Alaska to take part in a rural practicum experience in rural Alaska. In 2008, Dr. Ted Munsch was able to engage in the Beyond the Line Program in New South Wales, a similar rural practicum opportunity but a truly different rural experience (Boylan & Munsch, 2006). During the 2008 program, the opportunity to create an online, cooperative learning environment linking 3<sup>rd</sup> year students at the Charles Sturt University and Alaska Pacific University campuses arose and came to fruition.

Today, many universities offer some form of e-learning and distance education as part of their profile (Kanuka, ND). More recently, both Charles Sturt University (CSU) and Alaska Pacific University (APU) have moved to a learning environment in which on-campus and distance education learning opportunities are melded into a blended learning environment (Bele & Rugelj, 2007)

Dabbagh (2007) identified the key attributes of a technology supported learning environment, particularly online environments as being highly interactional and collaborative in nature. Typically these environments are multimodal, allow for both individual and group learning spaces as well as offering both synchronous and asynchronous formats. This author also suggests that successful online learners are "skilled in the use of online learning technologies, particularly communication and collaborative technologies, have a strong academic self concept and good interpersonal and communication skills" (Dabbagh, 2007 p. 221). Bele & Rugelj (2007) extend Dabbagh's ideas when they suggest that blended learning environments often include face to face learning activities, lecturer led web based activities and self paced learning opportunities. Collectively these constructs informed the design for the interactive learning experience report in this paper. Munsch & Boylan (2008) have argued that distance *per se* is no longer the issue in online provision. Rather they argue that convenience – asynchronous and synchronous opportunities, connectivity - hardware and software capacities and interactivity – engagement with other learners and development of calls identity, are

key determinants in creating successful online learning experiences. Menchaca & Bekele (2008) conducted a comprehensive literature review of successful distance education learning and reported that prior experience in using technology was a critical factor in successful learning and that a well designed and structured online program positively impacted on learning.

#### **Description of the program**

The authors devised a learning program with a focus on cross curriculum integrated learning experiences. Students from the two universities participated in this cross-institutional learning experience that was facilitated by both a pedagogical focus on curriculum planning and a technology focus through the use of the Internet and e-mail correspondence. The computer based technologies mediated sustained and focused communication between the students and provided a novel approach to cooperative and collaborative learning techniques, although the students were over 12,000 kilometres (or 7,500 miles) and 18 hours apart.

The pedagogy focus was developed around the notion of designing a cross curricular and cross national learning activity that integrated literacy, numeracy, science and social sciences curriculum learning outcomes or standards at the year 3 / 4 level.

The technology focus required the participating university students to use the Internet to learn about how the curriculum is structured and organised in each state (Alaska and New South Wales), to develop understandings about specific locations in each state and to use email correspondence as the basis for regular communication with students on the other university campus.

The specific details of the online learning experience were:

- The program operated for a four week period of time over the 13 week session;
- Each participant was asked to initiate at least two email contacts;
- Students were paired into collaborative curriculum design teams;
- Each pair was assigned a learning activity that related to a thematic teaching unit that incorporated learning experiences drawn from both Alaska and New South Wales.
- Both set of students examined rural and remote places in rural New South Wales that aligned with a one week rural school visitation program that CSU students were engaged in, called the Beyond the Line program (Munsch & Boylan, 2006);
- For APU students, participation earned 10 hours of practicum credit as part of their school based professional experience program.
- For CSU students, participation formed part of an elective subject.

#### **The participants**

For students in both locations, participation was voluntary. Each participant was allocated to a partner enrolled at the other university. The students were asked to commence e-mail correspondence with their matched "e-mate" student from the other university.

A total of 17 students volunteered: 8 CSU students and 9 APU students who formed 8 teams of "e-pals". All students were undertaking study in their 3<sup>rd</sup> year primary / elementary teacher education program.

At the conclusion to the program, all students were asked to complete a summative feedback survey. The survey sought student feedback on:

- The strengths and weaknesses within the program;
- Personal benefits that each student gained through their participation;
- Feedback on the focus curriculum planning activities;
- Incidental learnings from the interaction with their e-team partner; and,
- Ways to refine and extend the program.

The feedback survey included open and closed questions as well as Likert scale items. Completed feedback surveys were received from i) six teams representing 13 students (six CSU and seven APU students), and ii) one member of another team from APU. This resulted in a total of 14 student respondents.

## Results

Five of the eight CSU students and all APU students were female. Three CSU students were male. All students were enrolled in the third year of their pre-service primary / elementary education course. All students at CSU were enrolled in the course in the internal mode of study while at APU five of the seven students were enrolled in the course in the distance delivery mode.

### 1. Communication and interactions

Each team of students was encouraged to communicate regularly with their partner. The frequency of communications between team members was monitored and these data are reported in Table 1.

Table 1: Team e-communications

Team Members	Total Number of e-mails
Team 1: 3 females	21
Team 2: 1 male & 1 female	15
Team 3: 2 females	15
Team 4: 2 females	11
Team 5: 1 male & 1 female	10
Team 6: 1 male & 1 female	8

A total of 80 e-mail interactions occurred over the four weeks of the program. On average, each team had a total of 13.3 emails with the range being 8 – 21.

Eleven students agreed that a minimum of 2 emails per week to the “e-pal” team member was a satisfactory number. For some teams as shown in Table 1, regular email communication became an integral component for the curriculum planning activity. For the two non-responding teams, it emerged that regular emailing did not occur. An indication of this problem was voiced by one student this way: *“Yes, I did not hear from her on a regular basis, I know she is extremely busy and has other things to do in her life, but when it is a collaborative project it makes it difficult.”* (CSU student). Whereas for teams where regular email communication did occur, their comments included: *“No problems at all my e-mate was the greatest!”* (APU student); *“Getting to learn about my e-mate and what life is like in Australia.”* (APU Student); and *“Learning about their school structure & community.”* (CSU Student).

All 14 respondents supported the idea that the program’s requirement in the first week, that asked each student in the team to a) introduce themselves to their partner, and b) talk about their university studies and interests in teaching.

### 2. The strengths and weaknesses within the program

When asked to respond to six Likert scale items, with responses ranging from strongly agree to strongly disagree, regarding each participant’s impressions of the program, an overall positive experience was reported as seen in Table 2. (SA = Strongly Agree; A = Agree; N = Neutral; D = Disagree; SD = Strongly Disagree)

Table 2: Academic impressions of participants

My participation was:	SA	A	N	D	SD
Academically exciting	APU = 3 CSU = 1	APU = 4 CSU = 5	APU = 1		
Academically challenging	APU = 2	APU = 4 CSU = 5	APU = 1	CSU = 1	APU = 1
Helpful in developing the lesson activity	APU = 3	APU = 1 CSU = 6	APU = 3	APU = 1	
Personally enjoyable	APU = 4 CSU = 4	APU = 3 CSU = 2	APU = 1		
A positive professional learning experience	APU = 5 CSU = 4	APU = 1 CSU = 2	APU = 2		
A good way to learn about different education systems	APU = 5 CSU = 5	APU = 1 CSU = 1	APU = 2		

The overall positive experiences that are depicted above can be considered the strengths of the program when looking at the academic side of this e-collaboration experience. More detailed student responses are addressed in the next section of this paper. In general, both APU and CSU pre-service teachers considered their efforts to be worthwhile, the design of the academic expectations to be well structured and the results of the experience to be beneficial to their learning.

There are always weaknesses that accompany even the very strongest of programs and intentions. In the instance of this collaborative effort, APU and CSU students were all quick to point out problems that are inherent with communicating over vast distances, even when the familiar email and Internet technologies are involved. When asked about problems experienced when communicating with e-mates, the most frequently occurring complaint was that the response time to emails was too long or inconsistent. This short coming may have been exacerbated by the timing of the experience as students at APU were just beginning their semester and the CSU students were preparing for and engaged in their *Beyond the Line* program and rural practicum travels, during which Internet access was not readily available.

In addition to communication infrequencies, a commonly reported difficulty was the short amount of time allowed for students in both APU and CSU to interact and complete the expectations for the e-collaboration experience. Nine of the fourteen participants reported the need to extend the learning experience. Suggestions ranged from adding an additional two weeks, to doubling the amount of time allowed to eight weeks and even making the experience last for an entire semester (15 weeks). It is questionable whether allotting additional time would have made as much difference as a change in the timing of the experience, that is, designing the time frame to avoid the start of a semester, the end of a semester or travel related challenges.

### 3. Personal benefits that each student gained through their participation

Students were asked to identify what they perceived and valued as the greatest benefit they received while participating in the exchange. Thirteen of the 14 students provided 17 responses. The categorisation of these responses is shown in Table 3.

Table 3: Greatest benefits

Category	Frequency	Examples of comments
Broaden understanding about education systems	6	A larger view of education and an appreciation for the resources we have available to us. (APU student) <i>Learning about their education structures and communities.</i> (CSU student) The greatest benefit that I received was learning about a new countries education system. (APU student) <i>How APU worked especially the student studying by distance and the problems that creates.</i> (CSU student)
Collaboration with team member	4	Allowed me to talk about & gain a better understanding of how & why I want to teach. (CSU student) <i>The insight the e-mate had of her final task,</i> (CSU student)
Cross cultural understandings	4	Learning about Australia and hearing from my professor about his experience. (APU student) <i>Talking to other student teachers, gaining and exchanging experiences and knowledge.</i> (CSU student)
Evaluation of program	2	I would like to see it happen again, but spread out over more weeks to accommodate the differences in our semester schedules. (APU student)
Other	1	Practicum hours (APU student)

Most students recognised there were benefits associated with learning about a different education system to the one that were operating within. This experience broadened their appreciation of how curriculum is organised and how teaching and learning activities are linked to the specified learning outcomes or standards. Additionally the pre-service teachers valued the opportunity to interact and work collaboratively with one (or two) student(s) from a different institution on a classroom focused activity.

#### 4. Feedback on the focus curriculum planning activities

Students were supportive of the lesson activity requirement in their overall ratings of the academic nature of the experience (see Table 2). When asked to respond to the question "What was the most useful in planning and developing the lesson activity?" four respondents reported that the lesson exchange and resulting collaboration were not accomplished during the program. Eight responded favorably about the sharing of ideas and comparing Alaska standards with New South Wales curricula learning outcomes expectations. Two students did not respond to the question. However, when asked, "What was most difficult in planning and developing the lesson activity?" six students responded that actually emailing their partners posed a problem or that the amount of time necessary to exchange ideas made the assignment more difficult to complete. As reported by an APU participant, "*Not being able to sit and talk together. About the time we had begun developing our lesson plan [my partner] was on a trip with the school and our work load began to increase, it was tough getting together to work out the kinks.*" One CSU student reported, "*Timing – it took over 2 weeks to put it together.*"

Figure 1 illustrates one result of the collaborative lesson activity, adapted to teach students about measurement and distances (mathematics) while learning about Alaska and New South Wales geography, customs and cultures (social studies). Although one APU student stated that "*The most difficult thing was coming up with a lesson,*" the example in Figure 1 demonstrates that such lessons can be created collaboratively.

### 5. Incidental learning from the interaction with their e-team partner

For the researchers and their students in both the northern and southern hemispheres, this program was a new experience. Designed to provide collaborative lesson planning activities and insights that might be gained through an exchange program, this first attempt at e-collaboration between APU and CSU students provided additional lessons learned, though not intended by the original design. APU students commented positively about learning about Australia: *"I have never been to Australia, so it was exciting to see and hear about life and school there. It sounds like the environment is a major part of life in Australia, just like in Alaska."* CSU students also commented positively about the opportunity to communicate with someone new, for example, *"Making a new friend."* One reflective comment from a CSU student was not anticipated: *"Knowing that all student teachers feel the same daunting fears and experiences and it's not just me."*

Some students found the experience of talking about how their state education system was organised and how the curriculum documents are structured and have a focus on outcomes based learning to be both an insightful and a reflective process, e.g. *"I liked learning about the different systems of education in the two countries."* (APU Student); *"Learning about their school structure & community."* (CSU Student); *"Overall I feel this email activity has been beneficial in expanding our knowledge of teaching in rural and remote places. It has been a positive experience for me as I have gained understandings of school systems and structures in other parts of the world."* (CSU Student); and *"I found it interesting to discuss and compare the syllabuses. I learnt that their syllabus covers K-8 rather than K-6 like ours."* (CSU Student).

For other students, the opportunity to compare how each university organised its pre-service teacher education course and how lesson planning was emphasised within each university created new appreciations about both the similarities and differences between each university's course, e.g. *"I liked the lesson planning format. They also have specific content areas at specific stages, although I did not find out what they are called in Australia. (Here we have the content standards.)"* (APU Student); and *"I have thoroughly enjoyed talking with [Name of APU Student] as it has been a great experience to communicate with another third year teacher from overseas, observing the similarities and the differences between Alaskan and Australian curriculums."* (CSU Student)

Perhaps the realisations that we are a community of educators with similarities in curricular expectations, no matter our location and that our learning is not restricted to our own place, provide us with not only the desire, but the need to collaborate and share common experiences, hence making new friends and creating new opportunities for our own and our students' learning.

### 6. Ways to refine and extend the program.

Part of the feedback sought asked the students about the appropriateness of the four week duration of the program. They were asked: *Was four weeks sufficient time to complete the assignments?* Half of the students (n=7, 50%) agreed while 6 students stated it was not sufficient time. A follow up question asked students about what they thought would be the appropriate amount of time to allocate to the program. The most common suggestion on ways to refine the program was to extend the program's time line by 1 – 2 weeks. Typical comments included: *"Maybe 1 or 2 extra weeks"* (APU student); *"Possibly another 2 weeks."* (CSU student). Additionally some students from both institutions noted that the program was limited by time delays and different time zones: e.g. *"Six weeks, only because of the times issues with e-mail from AK to AU"* (APU student) and *"6 weeks - it was difficult to complete because of Internet availability times for the busy APU students."* (CSU student). However, one student also suggested that the time frame was appropriate but it required both students in the team to be thoroughly organised, e.g. *"I think we had enough time. It requires planning ahead and not waiting until the last minute"* (APU student).

Dabbagh (2007) reported that online environments need to be highly interactional and collaborative in nature. The authors designed the program to include both interactivity and collaboration. Consequently in the evaluation of the program, questions focused on these aspects. One question asked: *Were the*

lecturers helpful in explaining the purpose of the exchange program to you? Thirteen of the fourteen students (92.9%) responded with a Yes. For about two-thirds of the students (n=9, 64.3%), the reported that the instructions and information about the four week's program and the collaborative task were appropriate. Two of the Likert items sought students' reflection on their participation and asked if they found the program academically exciting and academically challenging. Overall, 13 students either strongly agreed or agreed that the program was academically exciting (7 from APU and 6 from CSU) and 11 students agreed that the program academically challenging (6 from APU and 5 from CSU). (See Table 2) Additionally, 13 of the 14 respondents to the post-program evaluation recommended that the program continue next year.

#### Lesson work sample

The focal activity over the four weeks of the program was the collaborative development of a lesson plan / activity based upon syllabus content represented in 2 or 3 curriculum Key Learning Areas. An example of the product of the collaborative planning process by Team 3 is shown in Figure 1.

#### Conclusion

e-Collaboration may be a new term for something that has been going on for years and now may win more favor because of the global connectedness being experienced by teachers and students around the world and the perceived ease of communication that results. ePal, Inc. (2009) has developed an interactive Internet site "where Learners Connect" as e-pals to exchange ideas globally. It is open to students and teachers with links to e-pals around the world. The activity we have described was an initial attempt to start an inexpensive, meaningful and exciting exchange program that allowed pre-service teachers from Alaska and New South Wales to learn more about one another, share their curricula similarities and differences and interact to produce a lesson activity that could be used in either of their local classroom settings. For those who were able to meet the challenges of emailing difficulties, the reported lack of time to do justice to the assignment and the perceived adverse timing of the opportunity, the resulting lesson activity provided a feeling of success as stated by one APU participant in response to the question "What was the greatest benefit you received while participating in the exchange?" - "Working with someone I didn't know and things work out." For a new teacher this is a lesson well worth learning. A CSU student shared that the greatest benefit received from the exchange was that it "Allowed me to talk about and gain a better understanding of how and why I want to teach."

As teacher educators, the researchers contend that any experience leading to an affirmation regarding the desire to teach and to strengthening a pre-service teacher's teaching philosophy, is one worth providing, repeating and nurturing to continued and increased success. With the recommendations of the original e-Collaboration participants, we will continue the experience and encourage others to make room in their teacher training or other professional programs to do likewise.

Figure 1: Collaborative lesson plan

DATE: 18/9/08	STAGE: 2 (YEAR 3)	DURATION: 30 MINS	TOPIC: MATHS & HSlE/ SOCIAL STUDIES-
<p><b>Purpose-</b> To inform students about places around the world, their traditions and values, as well as observing factors such as time change and distance.</p>			
<p><b>Outcomes-</b> Mathematics- HSIE/ Social Studies-</p> <p>As outcomes/ standards are different in Australia and Alaskan schools, it was more important to focus on indicators. However these are the subject areas that the lesson is focus upon.</p>	<p><b>Indicators-</b> Mathematics- • Uses a ruler and scale to measure and find distances • Records findings in a table • Displays knowledge of time/ time change HSIE- • Interprets information from a map • Displays knowledge of countries • Discusses different cultures, their values and customs</p>	<p><b>Resources-</b> Teacher • Globe/ large World map Student • Computers- internet • Atlas • Paper/ pencils/ Ruler • Calculator</p>	<p><b>Student Orientation-</b> Students can- • Identify continents in the world • Work independently to find information • Understand the use of scale to measure distances</p>
<b>LEARNING SEQUENCE</b>			
<b>Introduction-</b>			
<ul style="list-style-type: none"> <li>Look at the world map or a globe and discuss the different continents with students. State that we will be specifically researching areas within Alaska and Australia.</li> </ul>			
<b>Body-</b>			
<ol style="list-style-type: none"> <li>Students locate the countries of Alaska and Australia and find some of the larger cities and towns.</li> <li>Students research one city/ town from each country, and list 10 main points about each one, commenting on size, religions, customs, traditions, climate, landscape, etc.</li> <li>Students use a ruler to measure the length between the two cities, then compare it to the scale to determine the distance.</li> <li>Using the internet, find out the time differences between each city</li> <li>Record these findings in a table</li> </ol>			
<b>Conclusion-</b>			
<ul style="list-style-type: none"> <li>Each student reports their findings to the class in a mini presentation</li> </ul>			
<b>Evaluation-</b>			
<ul style="list-style-type: none"> <li>Were students involved in discussion?</li> <li>Did students work independently to find information?</li> <li>Could students understand using a scale to work out distances?</li> </ul>			
<b>Assessment Strategies-</b>			
<ul style="list-style-type: none"> <li>Observation- Of student participation in discussions and interaction with peers</li> <li>Anecdotal notes- Of student engagement in presentation</li> </ul>			
<b>TEACHER NOTES</b>			
<ul style="list-style-type: none"> <li>Ask students questions about different continents and countries to assess their prior knowledge.</li> <li>Construct table stations which include atlas's, encyclopedia's, other information texts. This means that students can rotate around to find different information as well as all being able to use the computers.</li> <li>Students may like to show pictures of various aspects that they have researched about.</li> </ul>			



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