

“WHY SWALLOW THE SILICON SNAKE OIL?” MAINSTREAMING ONLINE LEARNING IN TEACHER EDUCATION

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Abstract

The future of education itself has become the driving force in integrating technology in pre-service teacher education. This paper discusses the experiences of faculty and students in the foundational teacher education unit EDFD 204 Catholic Education and Schooling at the Australian Catholic University, Strathfield. Since 1999 this unit has integrated online learning in an ‘adjunct mode’ as a compulsory component for on-campus students. Motivations for this may be described as pragmatic but are essentially pedagogical. Common reactions from students begin with “Why do we have to do this?” but usually end with an appreciation of the value of the experience. At the commencement of the Semester, faculty sometimes feel like the fabled ‘snake oil’ peddlers (Stoll, 1995), exhorting students to swallow the oil. This paper discusses faculty motivation and student reactions to “swallowing the oil”: the “Why?” of mainstreaming of online learning as a compulsory element in teacher education. It answers the question by analysis of faculty and student responses and by reference to relevant literature in the field.

Keywords

higher education, online learning, teacher education, web-based tuition

Introduction

Teacher education has entered an era well past the pedagogy vs. technology debate. Online learning has now entered the mainstream for on-campus students in pre-service teacher education. What follows here is a discussion of the experiences of faculty and students in the foundational teacher education unit EDFD 204 *Catholic Education and Schooling* at the Australian Catholic University, Strathfield. Since 1999 this unit has integrated online learning in an ‘adjunct mode’ (according to the definition of Harasim, 2000, p.9) as a compulsory component for on-campus students. Motivations for this may be described as pragmatic (due to the increasing size of tutorial groups) but are essentially pedagogical (since the online components do not replace face-to-face instruction but supplement it). This paper examines why online learning technology is used to complement and supplement traditional instruction.

Initial reactions of students tend to be negative, questioning: “Why do we have to do this?” but usually end with an appreciation of the value of the experience and its applicability for their professional future as educators. At the commencement of the Semester, faculty sometimes feel like the fabled ‘snake oil’ peddlers (Stoll, 1995), exhorting students to swallow the oil. This paper discusses faculty motivation and student reactions to “swallowing the oil”, and considers the reasons why online learning has become a compulsory element of teacher education. It reports on the reactions of faculty and offers comments from the rich data (from online artefacts) of final reflection papers submitted by students at the end of the

Semester. These reactions and comments are set in the context of relevant contemporary literature in the field in answering why online learning today is integral as a compulsory element of teacher education for on-campus (not distance) students.

Beginnings, a rationale for the direction

The move to integrating online learning with traditional teacher education at Australian Catholic University, Strathfield, emerged originally from faculty discussions in the School of Education. As is the case with many tertiary institutions today, tutorial groups were too large for effective teacher/learner communication. As the annual group size for this unit ranged between 200-250 students, with tutorial groups ranging from 20-25, these numbers were seen as counter-productive to quality teacher-student interactions.

There was also a perceived need for a new model more appropriate to the preparation of the teachers of the future. It is worth noting that model was created not by neophyte education tutors but by the most senior lecturers (silver jubilarians) in the teacher education program. Their wisdom and experience decided upon an integrated use of technology with on-campus students, founded upon clear pedagogical principles and a willingness to proceed by trial and error. The decisions were based not on snatching at new technological possibilities but at the realisation of the best possible options in pedagogy and economy.

The model is a response to the need for more effective pedagogy countering the problems of large group tutorials. It is also a response to an era of economic rationalism in education. In this context, there is an economic imperative, driving pragmatic change in tertiary education institutions. Its aim is to deliver lucrative modes of tertiary education. In some cases in the wider context of tertiary education, this generates the abandonment of traditional courses in favour of totally online modes (TOMs) of delivery. The economic imperative has been described in this way:

Internet-based learning is a response to consumerism and the reduction of government funding. This has been an unfortunate context for the expansion of online pedagogy. The language of computer-based systems – cost savings, efficiency, and productivity – has masked the public interest and investment in information technologies. (Brabazon, 2001, p.3).

The path for the teacher education program at Australian Catholic University was to steer a course *towards* more effective pedagogy and, while not denying the economic climate, to insist upon ‘pedagogy first’ principles. As appropriate to teacher education, the notion of ‘pedagogy first’ principles guided the process (as identified by many contemporary commentators, e.g., Lockyer, 2001; Visser, 2001; these commentators insist on the primacy of pedagogy over rationalist economic principles and technocratic determinism).

The model as it evolved became an attempt to demonstrate to prospective teachers ways of using IT to teach something more efficiently. Tertiary education traditionally has been a pioneer in modelling new forms of education:

Historically, Australian higher education institutions have been fundamental drivers in the development of information technology in Australia. Universities have combined high-level technical skills with advanced research, pioneering technologies and high quality infrastructure. (EdNA, c. 2001, p.2).

Nevertheless, the university faculty had their reservations about the potential criticism of creating ‘Digital diploma mills’ (Noble, 1998). So there was a conscious priority for pedagogy, yet also an awareness of the question posed by Bates: “Are we the being driven by the juggernaut of technological determinism?” In answer to this, the actions of faculty concurred with Bates’ direction that: “There is certainly an element of that, but there appears to be at least enough good reasons to go with the flow, and try to steer things in what we believe to be the right direction” (Bates, 1996, p.10). The integration of IT began in courses for on-campus students and employed in an adjunct mode with traditional face-to-face teaching. Its use was alongside existing FTF teaching and learning. It did not

aim to replace the existing model or function as a distance education course; however, such possibilities did arise. The description of these possibilities follows below.

Faculty began with a clear sense that education was changing and that there was a need for a new model appropriate to the emerging realities. In the context of the times of the planning for the new model, McNaught has identified these epistemological shifts facilitated by technologies:

- From object-focussed to process oriented views of knowledge.
- From individual ownership of knowledge to community ownership of knowledge,
- From a transmissive to a transformative view of student learning,
- An increasing legitimization of collaborative processes,
- Towards a public process of peer refereeing,
- Towards a greater focus on associational thinking over linear thinking. (McNaught, 1998, pp.1-2).

It was these possibilities that the chosen model aimed to address and demonstrate to pre-service teachers.

The chosen model also aimed to develop communications, in fostering more articulate and reflective learners, which was later evidenced by the online artefacts. The benefits to students were seen as offering:

- Improved productivity of learning,
- Improved quality of learning,
- Improved access to learning, and,
- Improved student attitudes to learning. (Alexander, McKenzie, & Geissinger, c.1996, p.2).

Again, as backdrop to making decisions about the new model, these were motivators for pressing on with the possibilities. Above all, the direction was about pedagogical soundness, drawing from the emerging theories of web-based instruction, and evidenced in subsequent research on WBI:

It is also pedagogically sound because it allows teachers to spend more time working with students in small groups and individually. WBI can begin to offer a variety of paths through the curriculum and offers students a self-paced learning environment, thus providing students with a sense of control over their own learning. (Mathew & Dohery-Poirier, 2000, p3.).

The Model

The model created a *deliberate* juxtaposition of traditional teaching with adjunct online learning. The design of the online activities did not intend to replace all traditional lectures and tutorials, which are still parts of the present-day course. There is even yet an expectation that face-to-face lectures remain compulsory, as are the occasional physical meetings of the 'syndicate groups', which are sub-groups of a main tutorial group formed for the purpose of online collaboration and work towards a group (syndicate) assessment paper. This unit has integrated online learning in an 'adjunct mode' (Harasim, 2000, p.9) as a compulsory component for on-campus students.

Lectures are live and also available on web site. This is a deliberate choice and even though there are many 'live' (and even compulsory) lectures, the material on the website is adequate input, except in the case of some pragmatic/organisational lecture experiences.

The syndicate groups were formed as sub-groups of 2-4 students from the tutorial groups. They were 'voluntary' associations in the sense that students could elect peer syndicate members: Interactivity in this case is viewed as having a..." strong positive effect on learning", as detailed by Najjar (1996, p.2). The choice of friends would sometimes create groups but more commonly they were chosen based on a pre-selected interest topic, which would form the basis of the syndicate paper.

Online asynchronous discussion groups became available for syndicate groups, whole tutorial groups and the whole enrolment group (all with separate password protections). Most students used all the three levels. This discussion was preferred over simple email communication and enabled the development of

online syndicate papers. Research has indicated that... "Students prefer either synchronous or asynchronous forms of communication such as web-based forums... (and that)... Educators using online discussions as a replacement for the traditional face-to-face tutorial have experienced both positive and negative responses" (Dixon, 2001, p.4). Students evidenced this range of responses suggested by Dixon in the later evaluations.

Regular face-to-face tutorials became increasingly rare, being replaced by syndicate group meetings, which met with the tutors in half-hour time slots at least four times per Semester. The syndicate meetings were also supplemented by online discussion groups that enable... "all students to participate; something not possible in a face-to-face classroom, even with small numbers, and certainly impossible in large undergraduate classes" (Harasim, 2000, p.11).

Syndicate groups collaborate on a single 'syndicate paper' a constructivist model on a subject within the field chosen by the syndicate group. Characteristics of constructivist learning are described as having emphasis on the following aspects:

Authenticity: learning is located within actual contexts and related to real tasks;

Group work: social interaction and feedback are instrumental in communication and higher order thinking processes;

Learner control: learners are active in defining and negotiating the learning task;

Scaffolding learning: learners are supported as they progress from novice learners to self-regulated experts. (McLoughlin & Luca, 2001, p.518).

It is the experience of faculty and students that the constructivist learning described by McLoughlin and Luca does in fact occur. This is supported by student comments in the final syndicate paper:

The process in developing the syndicate paper proved overall to be an exceptional learning experience. Through actively compiling resources and then contributing to the group paper via means of electronic communication, I was able to gain insight into the development of learning as well as to the process itself. (R.Q.).

The model has evolved: through trial and error, through adaptation of 'what works best', and by using the steadily increasing capacities of the technologies available. By 2002 it had achieved an excellence as a model – both for tertiary teacher education and as a model for teachers-to-be in schools of the future. In summary, some of the evolutionary steps in the process have included:

- Making available all lecture materials in web format,
- Providing additional online resource materials, with extensive hyperlinks, to supplement course learning.
- The formation of syndicate groups, as sub-groups of traditional tutorial groups, for the purpose of constructivist group assignment work.
- The decline of all organised whole group tutorial meetings.
- The move to make attendance at some lectures compulsory, especially where they served as a vehicle for the explanation of technical procedures and for the articulation of the learning process, within a professionally orientated context.

In all of this, the only claim to originality is that it emerged from local initiative and a process of trial and error leading to an understanding of what works best in pre-service teacher education. Those familiar with technological innovations in recent years will find little in the elements of the model that is new. The focus of this paper is not so much to report on the model but to examine the reasons for compelling on-campus students to use these elements. It will also consider some of the unexpected, serendipity effects of the initiative.

Student reactions

Why do we have to do this? (If we can see each other most days anyway?). "Why do we have to swallow this silicon snake oil?" Previous research has indicated that online discussion groups generate ... "mixed responses from students" (Dixon, 2001, p.5). Other research has shown that students prefer to stay with

what they are familiar, rather than move further down the path to computer-assisted learning (Viskovic, 2000, p.707). In many ways, students are reluctant participants in the process. This is as much a product of their disinclination to extend themselves as a naiveté about the emerging educational possibilities. Only a few years removed from the experience of traditional secondary schools, many of the teacher education students struggle with the concept of imagining their own teaching career to be any different from the 'solid state' models they have known themselves as school students. This scenario is rapidly changing, as not only the students themselves mature, but also as field experience reveals very different models from those known to themselves in former days. This paper is a response to the "Why?" question asked by students.

Students themselves are aware of the public debate over the merits of technology in education, which includes this range: "Proponents ooze with blind adoration, declaring that online learning can resolve all the problems confronting traditional education. Opponents insist that courses taught on the net are incapable of living up to the standards of the traditional bricks and mortar classroom" (Phipps & Merisotis, 2000, p.vii). In the context of this debate, students bring a high degree of scepticism about the probable benefits of what is offered by the chosen model. For on-campus students, traditional models would be the organisation of choice for most.

Technophobia remains in evidence, perhaps as high as 50%, as observed in research elsewhere (Todman, 2000). Many students offer anecdotal responses such as "I'm not sure if I can do this", "I still can't log on", and "You can't be serious, right?" The technophobia of students is very real as they approach the compulsory and assessable elements of the course. Typical students' reactions are indicated by these quotes from final reflection papers:

During the organisational period of the assignment I learned that I had to familiarise myself with the computer technology that this subject had adopted. I am not very computer literate at the best of times so this was the first challenge that I faced. However, after using it for the first and second time, I began to realise what a useful tool the computer can be. (M.T.).

My initial reaction to use the internet for the progress and process of this course was shock and anger, as in my four years of study I have only had one use for the computer and that is to type up my assignments, yet despite this, I reluctantly forced myself to use the virtual-campus site to communicate the various stages in the formation of our syndicate paper. (C.P.).

Students in this course observed the changing role of the teacher. While focusing on the distance factor and technology may take the emphasis off the '...dialectical relationship between the teacher and the student', which Shale feels is the foundational principle in the educational process (Shale, 1985), it is arguable that the model offered here includes a dialectical relationship better than, if not equal to, what has been offered in the past. The combination of live lectures, some tutorial group meetings, live syndicate group meetings and the triple level of online discussion forums, as well as email communication enabled to and from both tutors and the lecturers, presents a more comprehensive dialectical relationship than that experienced in the past.

Students came to appreciate the applicability of skills, especially for senior secondary teaching. Teaching the teachers, that at the most basic level: "Teachers use new technologies for the same reason they use books, worksheets and other teaching tools to help students learn" (Mathew & Dohery-Poirier, 2000, p.4). Undergraduate student teachers are able to recognise that the use of technology has potential that may be applicable to their own school teaching, in many other ways than expected.

In this sense, the chosen model serves to prepare beginning teachers for the educational context of the future, which will be enhanced by the use of technologies to assist learning. Towards the end of the process, students come to appreciate what the point of the whole model is for them. One student offered this comment in a final reflection paper:

In a society where the use of the Internet and Information Communication Technologies are becoming ever so prevalent, applying what was learnt will be in the context of students' everyday experiences. It is a high hope of mine, that as a teacher, I will be able to educate my students by using a method similar to that which I experienced. (S.T.).

Experience for faculty and students

The use of the model for both faculty and students constitutes a more adult learning experience. According to research, web-supported instruction offers the following advantages, it:

- Expands opportunities for students to contribute to the course through the use of asynchronous communications tools;
- Encourages students to contribute to the course because it is readily accessible and amenable to all schedules;
- Encourages active learning through the use of just-in-time learning resources and online, threaded discussions;
- Facilitates peer review and collaboration on group projects. (Dabbagh, 2002, p.1).

Faculty and students using the model positively experienced all of the features outlined by Dabbagh. The model aims to achieve a flexibility of learning system, for the best operation of individual learners. Other researchers in the field have identified this possibility:

Online technologies have functionalities that enable display and sharing of ideas, open discussion of solutions and articulation of strategies by participants. Such functionalities support greater visibility and openness in the learning process, which in turn foster reflection and conceptualisation among learners. (McLoughlin & Luca, 2000, p.524).

The chosen model is about the business of future proofing teachers. This future is envisaged by the MCIE, of an Australia where:

...The education and training system is able to produce high-quality information professionals with up-to-date skills. More generally, the education and training system aids the development of a citizen body, which can confidently take advantage of the benefits of online technology. (MCIE, 1998, p.8).

It is preparation for the 'real world'. Teachers today need to be prepared for a world of constructivist learning that is markedly different from their own experience of adolescent learning. Such a preparation is increasingly demanded in the rhetoric of Commonwealth documents: "If the goals of ICT ...are to prepare students for, and capitalise fully on the opportunities offered by the information age, then it is necessary to go much further and aim for more radical transformations of schools to meet 21st century needs. This transformation includes a comprehensive integration of ICT's into the curriculum" (Moran, Thompson, & Arthur, 1999, p.8). In the final reflection papers, the students demonstrate an appreciation of this kind of integration:

I intend to further research technology and its place in schools, and apply these findings in my own personal pedagogies and approaches to teaching, fostering and enhancing their implementation, as well as being more aware of my own learning style and ensuring my focus stays on task. (C.J.).

The model also encourages students to appreciate that individuals learn differently, as with Myers Briggs type preferences (Soles & Moller, 2001). Students come to understand better their own learning style and to understand how online learning can be better suited to some learning styles than to others.

The style of this model sets the locus of control within the learner. The use of technology is empowering in that it offers students greater autonomy and control over both teaching and learning: the time frame for lecture inputs, the discussion and direction towards the completion of the syndicate paper.

The model offers students an opportunity to develop their skills in communications. They become more articulate and reflective learners, as evidenced by the online artefacts. The quality of student journals and syndicate papers is of a high standard – certainly better than would be expected in traditional units.

The organisation of the model is better suited to post-modern organisations (Bates, 1996). The organisational style of the model is more appropriate to the kind of organisation teachers will find in schools of the future. Small group interaction with tutors is more formative, as opposed to the economic

rationalism of larger tutorial groups (which can be groups of up to 25). The large groups are seen as too large for much meaningful interaction. This student comment in a final reflection paper is typical:

Working in groups has enhanced my learning not only in terms of the time taken to learn subject matter but I have also experienced *a higher level of understanding* on the chosen subject. By discussing and reflecting within our groups the retention and quality of knowledge through peer discussion and a supportive coach (*name of tutor*) far surpasses an individual reading from a book approach. (S.J.) (My italics).

The EDFD 204 model succeeds because it concurs with the previous finding that using the web effectively in on-campus teaching entails the need to:

- integrate it with other teaching;
- ensure assessment is integral to content;
- utilise the website for what it is best used for, e.g., multiple perspectives, activities and tasks, self-directed learning, and drawing on multimedia components.(Gilbert, 1999).

Inasmuch as the chosen model addresses these areas, it is an effective model.

Besides all of the above, there are also observable serendipity effects. Contrary to expectations, the adjunct model of EDFD 204 provides some other noteworthy learning features:

- Functions as a distance education course for students who are ill or unable to attend, thereby assisting student completion rates (even though it is not offered as a distance course).
- Promotes better attendance at the less frequent face-to-face lectures.
- Facilitates the continuation of syndicate group communications beyond the completion of the unit, establishing a potential conduit for professional and life-long learning.
- Models a 'facilitative' learning process, where tutors are viewed as 'the guide on the side' rather than the 'sage on the stage'.

Future and recommendations

Teacher education in the mainstream will never be the same. Harasim has observed the magnitude of change generated by new changes in technology in education:

There has been a sea change in attitudes, a phenomenal level of investment, and a frenzy of (often unrealistic) expectations, despite the (often glacial) progress in changing institutional and pedagogic strategies. Online learning is no longer peripheral or supplementary; it has become an integral part of mainstream society. (Harasim, 2000, p.33-34).

The direction for teacher education in the university has been to usher in online learning in the mainstream – recognising its future impact on mainstream school education.

The benefits of mainstreaming online learning in teacher education are obvious. It is an empowerment of teachers for their professional future. The purpose of integrating technological possibilities into the mainstream for teacher education is to model for them the possibilities they will encounter in their professional future. It invites teacher education students to participate in teacher roles, which are only beginning to be understood:

Technology may change some of the traditional teacher roles, but it will also require them to engage in more powerful ones – roles that include not only using technology appropriately such that it opens new pathways to learning not previously available, but also require teachers to find ways to build in meaning, purpose, connections, and relationships to the larger world and community outside the school building. (McCombs, 2000, p.5).

Training teachers to operate in network-distributed environments, where the operation is collaborative, provides a more level playing field model for human interaction. As such, it is a model suited to the post-

Fordist management models that teachers increasingly are more likely to encounter in their experience of school organisation and leadership. The emphasis on collaborative decision making in schools today, the devolution of authority and the rapidly changing hierarchical structures require that even beginning teachers who are able to operate with some experience in these modes.

And why swallow the silicon snake oil? The reason is akin to the more dubiously founded parents' dictum of times past: "Because it's good for you". For aspiring teachers, the mainstreaming of online learning provides them with a sound foundation for their own future in the education of the future.

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