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The Networked Solution Project: Evaluation of the Graduate Diploma of Education (GDE) at the University of Wollongong (UOW)—A focus on renewal for a sustainable future.

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Globally there has been considerable discussion on the quality of teacher education over the past decade (Allen, 2003; Cho, 2008; Cochran-Smith, 2004; Darling-Hammond, 1998, Levine 2006). The plethora of literature investigating teacher education programs agrees that improvement in teacher quality requires a re-conceptualisation of the preparation for the new generation of teachers. In essence, teacher education institutions have to re-think their core assumptions and processes (Levine, 2006) in the hope of equipping future teachers with appropriate knowledge, skills and professional values for 21st century teaching (Cho, 2008; Cochran-Smith, 2004; Farrington, 2008).

Given the complexity of developing successful teachers for the 21st century classroom, teacher education programs must move towards becoming more evidence-based by means of a stronger connection to research (Grossman, 2008; Grossman & McDonald, 2008). The report by the International Alliance of Leading Education Institutes (2008), *Transforming Teacher Education: Redefining Professionals for 21st Century Schools* verifies the need for continual review of teacher education programmes. Clearly, evidence-based evaluation is needed to assist tertiary institutions in making well informed decisions about their teacher education programs.

In 2008 the University of Wollongong attracted federal funding from the Department of Education, Employment & Workplace Relations (DEEWR) to review and further develop the Graduate Diploma of Education (GDE) across four campuses: Wollongong, Shoalhaven, Batemans Bay and Bega. The Networked Solution Project has adopted a research, evidence-based approach to evaluate the GDE program, which informs the implementation of new delivery modes, re-organisation of course work and content for flexible, blended delivery.

This paper:

- provides an overview of the Networked Solution Project
- describes the delivery of the new GDE program
- outlines an evidence-based approach for the evaluation of the GDE program
- reports the first phase of the project, the initial findings of student's perceptions of the GDE Program.

During the GDE orientation, primary and secondary scholars were invited to voluntarily participate in the project. The first phase of data collection involved an online questionnaire of the scholar's perceptions of confidence, knowledge and experience at the commencement of the program. As well, students were asked to identify skills and knowledge most important to a beginning teacher.

The findings of the first phase of the project supports the need for teacher educators to examine the wider concept of teacher knowledge (IALEI, 2008) and engage in discussions on re-defining, what it means to be a professional teacher in the 21st century ? (Whitty, 2006).

Key words

Sustainable, teacher education, evaluation, evidence-based, networked interactive whiteboards

Introduction

UOW is a multi-location, regional institution with campuses and educational centres at Wollongong, Shoalhaven, Bega and Bateman's Bay. The five multi-location sites serve the south eastern quarter of the state of New South Wales and the teacher education course will be offered at three of these as well as the Wollongong campus. The challenge for UOW exists with the delivery of a high quality, sustainable, integrated teacher education program across four sites. A key element for the delivery is the mixture of new technologies via videoconference and networked interactive whiteboards, providing a shared digital canvas. The mixture of these technologies is the same as technologies currently being installed in all New South Wales government schools. A research evidenced based approach is presently supporting the renewal of the GDE program until 2011.

Overview of the Networked Solution Project

The Networked Solution project addresses the shortfall in teachers in rural and regional areas of Australia. The migration of many professionals to the capital cities coupled has created a shortage of teachers (as well as doctors and lawyers) in rural and regional areas. The shortage is predicted to increase with the vast number of retiring baby-boomers over the next five to ten years. To meet the challenge of training teachers and retaining them in the rural and regional areas a teacher training course was designed to be offered in these areas. University of Wollongong has a well established network of campuses in south-east New South Wales which has provided many regional students with undergraduate qualifications.

An additional consideration was to support learning through flexible access, in view of the fact that students are demanding greater flexibility to enable them to study while also managing their work and family commitments (McInnis & Hartley, 2002). A report from the Australian Vice-Chancellors' Committee (2007) on student finances confirmed that 78% of students paid employment impacted on their studies, and 40% felt that their universities did not cater for their financial necessity to work and study.

In 2009 the Networked Solution Project commenced, with the goal of creating and evaluating an innovative model of effective but also sustainable networked teaching and flexible learning across multiple sites. The pilot course for the project is the Graduate Diploma in Education (GDE).

The Graduate Diploma in Education

The GDE is a ten month, intensive, postgraduate teacher education program available to students who have successfully completed an undergraduate degree and aim to pursue a career in primary or secondary teaching. The program is popular with recent scholars and professionals who wish to utilize their skills and knowledge in a particular area and train to become teachers. The GDE involves lectures, seminars, tutorials, individual assignments, group exercises and blocks of supervised professional experience in schools. The structure of the program combines the practical and theoretical elements of teaching by engaging students in professional aspects, including methods and classroom practice (Caladine, Bavaro, Tindall-Ford, 2010).

Underpinning and integrated within the professional aspects are curriculum studies and the "foundation" disciplines of education. Each component is intended to contribute to the development of concepts and skills relating to an understanding of, and competence in, teaching. The program provides a teaching qualification that is recognized by the following accrediting authorities: the Australian, NSW Institute of Teachers; the NSW Department of Education and Training; the Catholic Education Office; the Association of Independent Schools and employing authorities in other states and international teaching accreditation bodies (Caladine, Bavaro, Tindall-Ford, 2010).

In 2009 it became evident that the existing GDE needed to be substantially modified and redesigned, firstly to meet NSW Institute of Teachers requirements and secondly to facilitate the delivery of the program to Wollongong campus and three of the University of Wollongong's multi-location campuses, Shoalhaven, Bateman's Bay and Bega which are located one, three and five hours drive from the Wollongong campus. See below Figure 1.

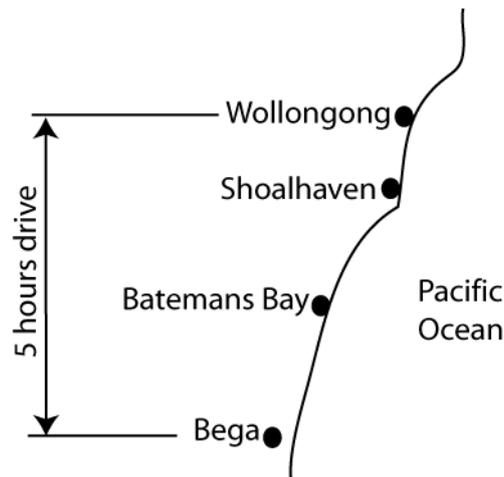


Figure 1. Map indicating the Multi-Location Campuses of UOW

Moving from a one-way transmission of information - The new GDE Program 2010

The Networked Solution Project provided the opportunity to revise the way in which teacher training was provided. In 2010, a new model for the GDE was created and the implemented. This involved the use of videoconference facilities to allow interaction between lecturers and students of the foundation primary and secondary method classes by connecting Wollongong and the other locations (Figure 2). It was seen as an initial step towards developing an integrated program across the four campuses.

Traditionally, the foundation lectures were delivered face-to-face to Wollongong students and via audio podcast to the other locations. Often students at regional centres and campuses experienced a psychological as well as physical distance from students and lecturers at other campuses. Even though, primary and secondary method tutorials were delivered by specialist methods teachers who worked in the local educational community. Moore (1995) refers to this as Transactional Distance in his theory of the same name. In the Networked Solution project the effects of this distance were addressed by communications technologies and through the structure of the course.

Collaborative videoconference now paves the way for an enhanced, integrated learning experience for regional students reducing transactional distance and making the difference between face-to-face and videoconference attendance marginal at worst. Further the introduction of networked interactive whiteboards into the videoconference equipped rooms now facilitates interactions between teachers and students that previously were only undertaken face-to-face.

No longer does the technology just permit one-way transmission of information. Now the lecturers at one videoconference site can initiate a learning process, such as the development of a concept on the interactive whiteboard which is networked with the whiteboards of all campuses. Therefore, creating a digital canvas that is shared between the connected campuses. In this way students at different campuses can interact with the concept and share the learning experience. Figure 2 provides a diagrammatic representation of the two parallel technologies.

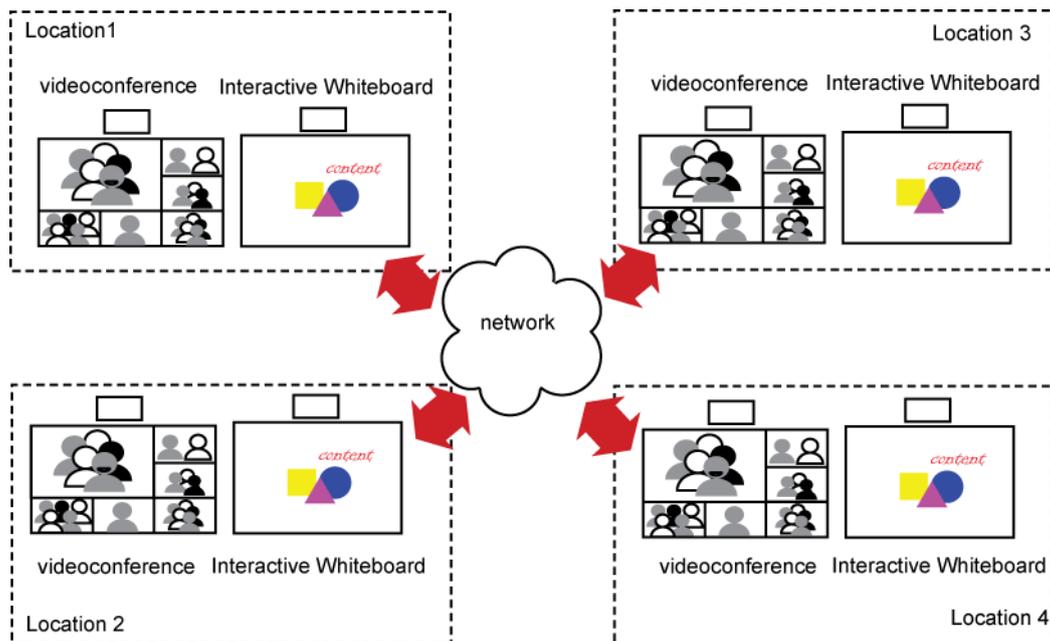


Figure 2. Collaborative Videoconference and Networked Interactive Whiteboards (from Caladine, Bavaro & Tindall-Ford, 2010)

Evidence-based approach for the evaluation the GDE program

Given that, the Networked Solution Project has adopted a research evidence-based approach. Data will be drawn from several sources in order to triangulate the perspectives of all participants in the GDE program i.e. students, academics, sessional lecturers and tutors from all sites over the next ten months. As a result of using multiple modes of inquiry from questionnaires, focus group discussions, observations, semi-structured interviews and student evaluations the validity of the evaluation is increased.

The main purpose for the evaluation is to improve the program under study. Accordingly, evidence has identified strengths of the program and revealed issues, challenges, and areas that required creative solutions. Upon determination of the above informed decisions can be made about the future sustainability of the program.

A multi-level research approach has been devised entailing three distinct phases. The evaluation incorporates both processes and outcomes to examine both the program's current processes and whether or not the outcome of an integrated program has been achieved. Vigilant, systematically organised data collection has commenced with thoughtful but objective data analysis (Patton ,1990).

The first phase of the project has involved documenting all aspects of the GDE, such as new modes of delivery utilising networked technologies, re-organisation of subjects and a re-designed Learning Management System. Initial training and ongoing collaborative support has been afforded to the academic staff in the use of videoconferencing and interactive whiteboards (Caladine, Bavaro, Tindall-Ford, 2010).

The second phase of the evaluation will be both investigative and developmental. The project will continue collecting evidence to further build upon the strengths of the GDE program and implement solutions to minimise the factors and conditions that impede sustainability. The final phase will be summative evaluation, reporting on the innovative “good” practices developed during the project.

Report : Phase One of the Networked Solution Project

At the commencement of the academic year, autumn semester 2010 an invitation was extended to all GDE students to participate in the project and complete the online GDE “entry” questionnaire. The instrument acknowledged the graduate’s perceptions and provided data on general demographics.

A high response rate indicated an enthusiastic cohort. Two hundred and twenty students commenced the survey and one hundred and eighty students responded to the question regarding their emotional state at the beginning of the program. Fifty seven percent of the cohort indicated they were interested and motivated at the commencement of the GDE Program. Furthermore, when asked about why they want to be a teacher, seventy eight percent of students responded overwhelmingly, “*to make a difference*”. An “exit” questionnaire will be administered at the end of the program so that a comparison can be made with the entry data.

The first phase of data collection involved surveying the graduate scholar’s perceptions of confidence, knowledge and experience. Later, in the year further data will be collected from focus groups, to enable students to elaborate on their responses in the questionnaires. This will add depth and insight to the focus group discussions. Focus groups allow for a non threatening environment where students can share ideas and perceptions, and to influence and be influenced by others ideas and the synergy of the group. This process will be repeated at the end of the program with semi structured interviews with students and academic staff.

The “entry” questionnaire required students to identify the skills and knowledge most important for a beginning teacher. The initial data analysis identified many recurring themes, see Table 1 below.

Skill and or knowledge for a beginning teacher	Number of Respondents	Percentage
Subject or Content Knowledge	60	33%
Patience	56	31%
Understanding	31	17%
Communication	29	16%
Professionalism	28	16%

Table 1. The initial findings, student’s perceptions, of knowledge and skills needed by a beginning teacher. As expressed as a percentage of 180 respondents.

“*Subject or content knowledge*” was reported as the most important knowledge for a beginning teacher. While content mastery is imperative for pre-service teachers, the research literature affirms the need to develop different kinds of knowledge, such as : pedagogical; curriculum; pedagogical content knowledge and knowledge of learner’s and their characteristics. 21st century teachers need to learn how to use the different kinds of knowledge appropriately in a variety of contexts (IALEI, 2008).

A significant theme that also emerged was that of, “*professionalism*”. High ethical standards together with co-operation and group rather than individual orientation are important components of re-defining professionalism for the 21st century teachers (IALEI, 2008). It is during initial training that the foundations need to be laid. This is when confidence develops as values are modelled, experienced and nurtured.

Conclusion

The Networked Solution Project aims to provide a quality, face-to face, integrated, authentic postgraduate teaching program in rural and regional areas supported by flexible learning. An evidence-based approach presented in this paper provides an opportunity not only for quality assurance but improvement of the effectiveness and efficiency of networked teaching and learning at UOW. The project is in accordance with the Australian Universities Quality Agency (AQUA) an independent national body that audits and reports on quality assurance in Australian Higher Education. Confirmation of the strengths of the GDE program are documented as the evaluation progresses into phase two. Issues relating to networked multi-location teaching will be investigated and further strategies and solutions developed.

21st century teacher training needs to be characterised by collecting evidence i.e. data to inform the improvement of teacher education programs. Arising from this research project will be an evaluation model that can be used by other institutions as they develop and enhance their own teacher education programs. The wider impact of the project will be the recognition of innovative practice for teacher education programs, nationally and internationally.

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