A preliminary report on an investigation of technologically mediated reforms to post-secondary education

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Abstract

Governments, industry and the public are urging post-secondary education to adopt computers and new communication technologies to reform teaching processes. In recent years there has been an increasing interest in technological solutions to problems associated with teaching and learning in post-secondary education. This is exemplified by the successful applications of the first three rounds of the Committee for the Advancement of University Teaching's (CAUT) National Teaching Development Projects. A few innovators in universities and TAFE colleges are advancing this cause, especially those involved in non-conventional forms of delivery such as open and distance education.

This paper introduces an ARC project which analyses such reforms, and their proponents and opponents, in two post-secondary institutions with a view to informing future policy and practice. The paper outlines the aims and background of the project and discusses some of the preliminary findings of the project.

Introduction

Through government policy and initiatives, and through industry, media and public forums more broadly, post-secondary education institutions and practitioners are being urged to adopt new computer and communication technologies to reform teaching and learning processes. A few innovators in universities and TAFE colleges are advancing this cause, especially those involved in non-conventional forms of delivery embraced in open and distance education (which includes, for us, all those terms which are used to signify other than traditional, classroom-based, teacher-centred education, especially, but not exclusively: flexible delivery, networked learning, distributed training, open learning, extramural studies, extension studies and independent learning).

This project, funded by the Australian Research Council (ARC), analyses such reforms in two post-secondary institutions by studying policies and practices and their proponents and opponents. The project spans three years and consists of an intensive study of the policy development, implementation and practice of post secondary educational reforms, principally concerning new educational technologies. Evans and Nation are the joint Chief Investigators, and Renner and Tregenza are the Research Associates.

The research builds on recent investigations, theorising and publication by Evans and Nation (Evans, 1989a; Evans, 1989b; Evans & Nation, 1987; Evans & Nation, 1989a; Evans & Nation, 1989b; Evans & Nation, 1993c; Evans & Nation, 1993d about alternative forms of

educational delivery, distance education, educational technology, open learning and the quality of teaching in post-secondary education. The general aim of the study is to understand the processes which assist and inhibit the work of people who are initiating technological reforms in teaching and learning. This includes broader shifts in the higher education agenda over the past decade or more (which may be seen to be influenced by global and national economic and political pressures). A related objective focuses on the processes through which students engage positively and/or negatively with new educational technologies. The project thus has scope to address issues of policy, and pedagogy, but also to inform social and educational theory.

Research scope, strategy and methodology

Two post-secondary institutions in Victoria have been selected for detailed study. Both institutions possess TAFE components and provide occupational training beyond their campuses. As is common to most post-secondary institutions in Australia, the selected institutions pursue information technology policies to encourage and support educational innovation. Such institutions are large and complex, and therefore the study needs to be broad enough to map the extent of policy and practice initiatives, whilst at the same time having the capacity to explore the detail of those initiatives. Therefore, a research strategy was developed containing several phases and strategies through which different organisational layers could be explored.

The research methodology incorporates three distinct phases, each spanning roughly a year. The first phase, now nearing completion, focuses on collecting historical and contextual material on the institutions, involving document collection and analysis, interviews with key informants, observation of educational practices etc. A detailed and comprehensive record of the use of new educational technologies in each institution is being established, with particular attention to teaching methods such as those developed by distance

educators, and to computer based technologies, audio-visual technologies and telecommunication technologies.

The second phase (1996) will involve observation, recording and analysis of two sub-studies within each institution. The sub-studies will focus on particular subject areas, units or courses and will employ ethnographic methods (Hammersley & Atkinson, 1983) located within the broad framework of the institutional case-studies (Morgan, 1991; Walker 1986). This fieldwork will involve interviewing teachers and students about their educational experiences, views and outcomes, and will draw on student assessment data to record and analyse learning outcomes. Observational work will be used to record teaching and learning in action and, where appropriate, policy development, decision-making and implementation activities, meeting etc. Current document collection and analysis will continue during the year.

The third year (1997) will focus primarily on (re)interviewing key informants at both the institutional and sub-study level about matters which are raised by the sub-studies and required by contextual changes, such as those a governmental or institutional policy level. Current document collection and analysis will continue during this final year. A key aspect of the work will be dedicated to collating, analysing and writing-up the data from the entire project in a form which can be drawn upon for publication and information distribution purposes.

Significance of the project

In recent years, there has been an increasing interest by governments in educational reform through new technology. Spearheading this focus was the (then) Minister responsible for higher education publishing a Statement in 1991 which helped to introduce and reinforce terms such as 'state of the art technology', 'technological innovation', 'alternative delivery', 'video-conferencing' and 'information technology infrastructure' into mainstream educational discourse (Baldwin, 1991). The Statement announced the establishment of the Committee for the Advancement of University Teaching (CAUT) as part of several initiatives to enhance the quality of teaching in higher education. CAUT has further prioritised research and development in the area of computer and communications technologies by funding a large number of projects which involve the application of such technologies to the teaching process (CAUT, 1993: v). Educational innovation through technology has ceased to be a marginal activity within the distance and open learning sector. Indeed, it can be argued that from its earliest days and across all sectors-the Schools of the Air are icons in this regard (see, for example,(Ashton, 1971; Motley & Starr, 1990)-forms of distance education have been inextricably linked to media and communications technologies (Bolton, 1986). Despite the former Distance Education Centres' (DECs) traditional dominance in educational technology and the entrenched resistance by some sectors of the

academy, new approaches to teaching 'on-campus' students are slowly beginning to gain a foothold in some of the country's more traditional institutions. Indeed, some are shifting to include and recognise forms of 'off-campus' teaching and learning, including international 'delivery' of courses or aspects thereof.

Evidence of slow uptake and resistance outside the former DECs has not dampened the enthusiasm of policy makers for initiatives in this area. Assuming attitudinal, structural and cultural impediments can be overcome, new educational technologies have the potential to revolutionise on-campus university teaching. Just as innovators in open and distance education strive to provide courseware solutions to the problems of distance and time, innovators in on-campus provision are developing similar products to support 'independent study' and to reduce pressure on limited educational resources (Brewer, 1985). In both modes, educational technologies offer new ways to provide students with the flexibility to study at a convenient time and place, while effectively addressing issues of educational quality, equity and budget considerations. Of course, the impact of these changes on the nature of academic work and on the industrial conditions of all educational employees cannot be assumed to be either beneficial or benign. Indeed, the related effects of global economic and educational market forces, mass-higher education, quality and accountability measures, and public expenditure parsimony, politicises such educational changes.

New educational technologies are closing the gap between on and off-campus modes of teaching. This does not mean a convergence, in the sense that education is becoming focussed on a particular form of educational practices which suits both on on-campus and off-campus education. Rather, it is more as if they are both diverging into common educational spaces which are being created by new computer and communications technologies. Furthermore, distinctions between institutions and modes of study are becoming increasingly blurred with new efforts to improve credit transfer arrangements and the integration of TAFE and university components. Each of these developments draw heavily on communications technologies to help coordinate the sharing and flow of information and to increase opportunities for communication among administrators, general staff, academic staff, students and outside parties. Educational technologies are seen within this context as fundamental aspects of reforming and integrating post-secondary education.

Theoretical Orientation

The study builds on theoretical work advanced by two of the present researchers (Evans and Nation, 1987; 1993c). Educational technologies are viewed from a critical sociological perspective and thus cannot be separated from the knowledge, values and practices which underwrite

their use. In this sense, educational technologies are socially constructed to meet the pedagogic and political assumptions of their creators, developers and implementors. In prior writing, Evans and Nation (1987; 1989a 1989b, 1993d) have been critical of the dominant paradigm in distance educational theory and practice, which they refer to as 'instructional industrialism'. Adherents to this paradigm rely on learning theories derived from behavioural psychology which uncritically advocate the use of high technologies and programmed learning texts within large industrial organisations which exercise economies of scale and task specialisation.

In contrast, the alternative approach advocated by Evans and Nation is one which places 'dialogue' as a central theme in educational theory and practice (Evans & Nation, 1989b; Evans & Nation, 1992; Evans & Nation, 1993b). Rather than separating the functions of curriculum development, teaching and learning, the 'dialogic approach' advocates an integrated communications flow between each of these activities. The dialogic approach emphasises the need to extend concepts of 'flexibility' based primarily on time and place considerations to include, for example, a recognition of the diversity of students contexts, circumstances, needs, aspirations and learning styles (Evans, 1994b pp. 122-133). Dialogue, a student-centred orientation and academic control over curriculum should help ensure educational provision which enhances levels of equity, flexibility and quality.

An important conceptualisation within this project concerns seeing educational technologies, not as the (computer and communications) tools which educators use, but rather as the pedagogical knowledge, skills and values which they use and construct in order to make the use of such tools into an educational endeavour (see, (Evans, 1994a; Evans & Nation, 1993a; Evans & Nation, 1993b; Evans & Nation, 1993c) In this project, the processes which impede and facilitate educational reform through educational technology are studied, not just in terms of the reforms themselves, but also in terms of the active construction of educational technologies by educators.

Progress

Two institutions were approached and agreed to participate in the study. Establishing the first phase of the project proved to be quite time-consuming. Before the institutions could be approached ethics clearance had to be obtained through both Monash and Deakin Universities. Careful preliminary work was required before selecting and approaching each institution. The post-Dawkins mergers and the increasingly competitive spirit between universities, meant that we feared our project could founder at the outset if permission to undertake the research was refused on the grounds that 'commercial advantage' could be gained by our own universities from the 'inside knowledge' we would obtain. Thus institutional access and consent required considerable care and diplomacy, in order to establish our

bona fides and ensure confidence in our intentions to maintain the confidentiality of the institutions involved. Once this had been achieved, the main concern manifested by both institutions is the need to shield staff and students from being 'over researched'. Both

institutions are now satisfied that the benefits of the research-to themselves and to the public-counterbalance the intrusion intrinsic to this type of research. The research team has agreed that neither institution will be identified in published or unpublished reports from the project, unless prior permission has been obtained, something we have no intention of seeking at this stage.

Once permission was granted, then access to documents, some of which are not available for public scrutiny, flowed easily. The cooperation has increased as the project has continued and the people involved come to know each other better. Most staff who are approached these days are very willing to contribute and some are intrinsically interested in the project itself.

During this first year of the research historical and contextual material on the institutions has been compiled and analysed. Some of these materials consist of the publicly distributed material from the institutions for their own marketing and public relations purposes. Documentary methods are employed to identify the key agents within the two sites initiating reforms in educational technologies and to understand the structures and processes which assist and inhibit their work. The focus of this work is on the unfolding uses of educational technologies in the institutions, their processes of educational innovation and change (including forms and processes of opposition) and the institutions' policy directions.

Detailed literature searches were conducted using on-line databases to identify relevant information, journal articles and further research in the field. Similarly, searches were conducted to locate relevant articles in newspapers, gazettes and reviews. 'In house' publications were also collected in order to see how the two institutions represent themselves in terms of educational change issues and information technology to their staff generally and to their communities more publicly .

From information attained from the document, policy and literature searches, the project team has been working towards identifying possible sub-studies to be pursued in detail. The sub-studies will provide a comprehensive record of the use of new educational technologies in each institution. Working towards selecting the sub-studies for detailed study, special attention has been paid to subject areas, ranges of media use, forms of innovation and approaches concerning educational dialogue.

These sub-studies of innovation and reform to teaching, learning and educational technology will focus on particular subjects, units or courses spanning one semester, however, the research design will identify and cope with sub-studies which fall outside of this pattern.

The two institutions have both largely nominated CAUT funded projects focussing on the use of information technology and reforms to post-secondary education as potential sub-studies for the research. A number of people have been contacted and subsequent discussions held regarding the nature and background of their CAUT project, aims, progress and willingness to be a potential sub-study for the research. Further work is being done to identify other innovative developments of educational technology which exist outside of the CAUT-inspired activities. This information will be used in determining which sub-studies to pursue in 1996.

Emerging Key Themes

Preliminary analysis of documentary evidence reveals the important role information technology plays in formulating organisational goals and in constructing institutional image. In each institution under study, the use of new technologies in teaching and learning are central components of mission statements and faculty plans. They assume the focus of discussion in a wide range of faculty and board committees. Whilst it may be observed that such an emphasis is responsive to government initiatives, such as CAUT, and an emphasis on the 'Quality agenda', in at least one of the institutions under study, formal acknowledgment of educational technology as an important medium of change predates such initiatives. Pioneers within each institution have therefore been able to use this focus on teaching innovation to advance their positions, gain funding and secure institutional support.

Educational technology is clearly an effective marketing tool as public attention focuses on the information revolution. Institutional image is now heavily influenced by high technologies such as the so called 'information superhighway'. Indeed, in a seven page document released as the principal marketing device for one of the institution's open days, there were in excess of fifty separate references to the use of technology in education. Terms such as 'interactive multimedia', 'world wide web', 'cybersurfing', 'technology and teaching', 'computer assisted learning' and 'the internet' were used liberally. Other slogans and headlines include: 'changing the way we learn and teach: interactive multimedia', 'state of the art technology to deliver high quality education programs for students', 'teaching into the 21st century with technology', 'students... now learn from multimedia computer-based educational materials', 'morph yourself with high-tech software and the internet!' and 'using the world wide web to support teaching and research'. Educational technology has assumed a high-profile role in constructing organisational image and in leading

marketing campaigns.

The policies and processes of CAUT have been very influential in both institutions' engagement with new educational technologies. Innovative projects that were unsuccessful in their bids for CAUT grants have often been supported by the institutions themselves. The CAUT grant recipients seem to have received good publicity 'bursts' in the institutions' media releases and publications. Certainly, the legitimacy attached to CAUT funded projects is evidenced by the senior managements' readily nominating CAUT projects to us as potential substudies for the present research. It certainly seems as if CAUT is the teaching equivalent of the ARC in these respects and, indeed, may be of greater marketing use than ARC funded projects in attracting students (and their parents) at open days and the like.

Most of the key individuals involved with teaching innovation through CAUT and other funding sources are also involved research and/or consulting work. In some instances, research has entered teaching in the form of multimedia lectures and interactive courseware, involving digital video or animation which would otherwise be difficult to present. It is possible that the grant-submission strategies learned, for example through the ARC process, are deployed successfully for CAUT grant applications.

The nature of the relationship between departments and faculties on the one hand, and universities' information technology centres on the other, contributes substantially to nature of information technology policies and practices at an organisational level. For example, in one of the institutions, tension between academic and technical staff has resulted in centralised information technology policies which focus on administrative and research support, and are antipathetic to teaching

and learning uses. In contrast, technology policy in the other institution has much greater emphasis on pedagogic uses of technology through a focus on client-server, distributed networking and an acknowledgement of academics (and to a lesser extent students) as principal clients.

Final comment

The main purpose of the paper has been to communicate with the AARE community and beyond about the existence of this project. We welcome communications from people interested in the project to the addresses at the head of this paper.

Bibliography

Ashton, J. 1971 Out of the silence. Adelaide: Investigator Press.

Baldwin, Peter J. 1991 Higher Education: Quality and Diversity in the 1990s Canberra, Australian Governement Publishing Service
Bolton, G. 1986 The opportunity of distance. Distance Education, 7(1), pp. 5-22.
Brewer, I M. 1985 Learning More and Teaching Less: a decade of innovation in self-instruction and small group learning. Guilford, The Society for Research into Higher Education and NFER-Nelson
Committee for the Advancement of University Teaching (CAUT) 1993 Improving University Teaching 1994: National Teaching Development Projects. Canberra: Committee for the Advancement of University Teaching, December.
Evans, T. D. 1989a Fiddling while the tome turns: reflections of a distance education development consultant. In M. Parer (Ed.) Development, design and distance education, Churchill: Monash University, Centre for Distance Learning, pp. 117-126.
Evans, T. D. 1989b Taking place: the social construction of place, time and space and the (re)making of distances in distance education. Distance Education, 10(2), pp. 170-183.
Evans, T. D. 1994a Constructing educational technologies: interactive television for teachers' professional development. Proceedings of theWindows on the future: International Council for Distance Education regional conference, Wellington, New Zealand.
Evans, T. D.1994b Understanding learners in open & distance education. London: Kogan Page.
Evans, T.D. & Nation, D.E. 1987 Which Future for Distance Education? International Council for Distance Education Bulletin 14, pp. 48-53
Evans, T.D. & Nation, D.E. 1988 Apprentices to Professionals?: distance education in the continuing education of teachers. Journal of Teaching Practice 8(2), pp. 50-63
Evans, T. D., & Nation, D. E.1989a Critical reflections in distance education. In T. D. Evans & D. E. Nation (Eds.) Critical reflections on distance education, London: Falmer Press, pp. 237-252.
Evans, T. D., & Nation, D. E.1989b Dialogue in practice, research and theory in distance education. Open Learning, 4(2), pp. 37-43.
Evans, T. D., & Nation, D. E.1992 Theorising open and distance education. Open Learning, 7(2), pp. 3-13.
Evans, T. D., & Nation, D. E.1993a, Adapting classroom technologies for distance education: telematics in Victoria. Paper presented at the Distance education futures: the proceedings of the Australian & South Pacific External Studies Association biennial forum, Adelaide.
Evans, T. D., & Nation, D. E.1993b Distance education, educational technology and open learning: converging futures and closer integration with conventional education. Paper presented at the Distance education futures: the proceedings of the Australian & South Pacific External Studies Association biennial forum, Adelaide.

Evans, T. D., & Nation, D. E.1993c Educational technologies: reforming open and distance education. In T. D. Evans & D. E. Nation (Eds.), Reforming open & distance education, London: Kogan Page, pp. 196-214

Evans, T. D., & Nation, D. E.1993d Theorising open and distance education. In A. W. Tait (Ed.), Key issues in open learning,London: Longman, p.pp. 45-62.
Hammersley, M. & Atkinson, P. 1983 Ethnography: principles into practice London: Tavistock.
Morgan, A.R. 1991 Case-study research in distance education. Geelong: Deakin University.
Motley, C. & Starr, B. 1990 Bush tracks and radio waves: a history of Port Augusta School of the Air, 1958-1990. Adelaide: Tread Softly Publishing.
Walker, R. 1986 The conduct of educational case studies. In M. Hammersley, (Ed.)Controversies in Classroom Research Milton Keynes: Open University Press.