

ROBO4192

TEACHERS AT THE INTERFACE: A MODEL OF IMPLEMENTATION

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ABSTRACT

Using self-declared metaphors to examine the personal practical theories of four TAFE teachers, this paper applies Basil Bernstein's construct of recontextualisation to develop a model that describes how teacher's negotiate the integration of online technology into their classroom practice. It is argued that the model provides a means to operationalise the interaction of the Official Recontextualising Field (ORF) and the Pedagogic Recontextualising Field (PRF) in determining the way in which teaching is conducted in the context of the implementation of online technology into classroom practice.

INTRODUCTION

The use of online technology in education has been widely promoted by governments. In Vocational Education and Training in Australia this promotion is represented at a national level in *Flexible Learning for the Information Economy. A Framework for National Collaboration in Vocational Education and Training 2000-2004* (EdNA VET Advisory Group, 2000, p4). Similar strategy documents are also found at a state level, for example *Flexible Learning Strategy for TAFE in Victoria: Towards a Learning Society* (October, 2000). ANTAs interest in researching the implementation of online technology is demonstrated by funded research (Brennan, McFadden, & Law, 2001; Cashion & Palmieri, 2002; Choy, McNickle, & Clayton, 2002; Harper, Hedberg, Bennett, & Lockyer, 2000; Hill et al., 2003; McKavanagh, Kanis, Beven, Cunningham, & Choy, 2002).

This paper represents work in progress towards a Doctor of Education degree at Monash University. The doctoral research investigates the impact of the implementation of online technology on the teaching practices of practitioners employed in Technical and Further Education (TAFE). The specific purpose of the current paper is to report on the development of a model that describes how teacher's negotiate tensions between official and pedagogic concerns when integrating online technology into their classroom practice.

METHOD AND DATA COLLECTION

Data was collected from four teachers in metropolitan TAFE colleges in Victoria, Australia. The participants are qualified teachers with classroom experience who have integrated the use of online technology into their teaching practice. For the purposes of this research, online technology is defined as computers that are networked, involving the

use of an intranet or the Internet. As a consequence, the use of stand alone computers is not considered here.

Using semi-structured questions, interviews collected biographical information such as how the individual came to teaching, how they came to use online technology and how they use online technology in their practice. An attempt to elicit the teaching principles that underpin the informants teaching practices was made by asking participants to respond to a scenario that placed them in the position of developing 'the best' teaching program that they could. Then asking questions such as what would the program look like? What questions would you ask in the development process? And, what issues you were most concerned about? Informants were also asked to describe a metaphor that most typified their preferred teaching practice. In the analysis phase, interview data was aligned with evidence of the teacher's application of online technology to examine congruence and incongruence between the teacher's practical theories (Marland, 1997) and their implemented use of online technology.

Interviews took 40-50 minutes, were audio-taped and transcribed. Transcripts of interviews were notated and coded to identify themes that captured recurring patterns of meaning that were relevant to the research (Merriam, 1998). The transcript and thematic analysis were returned to each informant for validation.

The current paper focuses on the metaphors identified by each participant. The author's interpretive analysis of the metaphor against each teacher's personal practical theories, as elicited at interview, is used to establish a model that describes the ways that teachers implement online technology into classroom practice. At a second level of analysis, Bernstein's construct of recontextualisation is used as a means to describe and analyse the relationship between aspirational and implemented teaching practice.

TEACHER'S PERSONAL THEORIES AND INNOVATION

Before engaging in a discussion of teacher's personal practical theories it should be acknowledged that the literature is characterised by a lack of clarity about the definitions of constructs such as values, beliefs, conceptions and perspectives (Chan, 2001; Pajares, 1992).

Despite this limitation, 'It is now widely accepted that what teachers do is shaped by their own practical theories of teaching' (Marland, 1997, p.7). Teacher's practical theories are described as intensely practical, individual and context-specific, and, partly implicit. Personal theories guide professional practice and therefore influence the ways that teachers implement innovation, including online technology. Marland proposes a model to describe the structure of teacher's practical theories, it incorporates a number of constructs that are used by other authors. In this model 'teachers values and beliefs permeate the other elements and provide a framework within which the other elements are set' (Marland, 1997, p.40). Schoenfeld (1998) describes a model which provides some notion of how models such as Marland's might play out in dynamic circumstances.

In this model the teacher's decisions and choice of actions are responsive to the immediate context, the teacher's personal history, the teacher's history with the students, and the teacher's active beliefs, goals and action plans (Schoenfeld, 1998).

Given that teachers have difficulty in explicating practical theories, which are often implicit and routinised (Marland, 1997), it is necessary to find a means to make them explicit. An analysis of 13 largely independent studies on the conceptions of teaching of university academics notes that all papers appeared to work within an open naturalistic framework. There were no preconceived hypothesis of the conceptions of teaching, and, descriptions and classifications were expected to emerge from the data (Kember, 1997). Much of the questioning was indirect using open-ended questions within a semi-structured framework. This focus of qualitative research methods is consistent with Chan (2001) who observes that there are few quantitative studies that examine teachers' or teacher education students' conceptions or personal theories.

Two examples of studies that explore teacher's beliefs and personal theories from a quantitative perspective are cited here. Chan validated a personal theories questionnaire with teacher education students. Personal theories, are distributed on a continuum between the two extreme polarities of traditional and constructivist conceptions (Chan, 2001). Pratt and Collins have developed a Teaching Perspectives Inventory (TPI) which classifies the dominant perspectives of teachers as nurturing, apprenticeship, transmission, developmental and social reform (Pratt & Collins, 2000).

In terms of qualitative methods, it has been suggested that metaphors provide 'alternative or different ways of representing significant chunks of practical theories' (Marland, 1997, p.40). Others describe metaphors as a means to represent understandings and conceptions about teaching (Bullough, 1991), 'an imaginative strategy that carries with it other nuances, shadows and tinges that are not (well) articulated in the experience and description of the actual, factual phenomenon' (McShane, 2002, p.3), and a means to uncover alternative forms of representation for accessing personal understandings (Sumision, 2002).

METAPHOR AS A RESEARCH METHOD TO INVESTIGATE TEACHERS BELIEFS AND PERSONAL THEORIES

A formative publication that considers the use of metaphors in linguistic terms defines metaphors as 'devices for making sense of one experience or phenomena in terms of another' (Lakoff & Johnson, 1980, p.117). These authors argue that human thought processes are largely metaphorical and that the human conceptual system is metaphorically structured and defined. Metaphors highlight certain features whilst suppressing others. They sanction actions, justify inferences and help in setting goals (Lakoff & Johnson, 1980).

In an exploratory study on the use of metaphor as a device for research into teaching,

Munby noted the appearance of metaphors in the data collection from 17 interviews. He concludes that ‘the study of teachers’ metaphors is a compelling alternative to conventional and formalistic approaches to the study of teacher cognitions’ (Munby, 1986, p.197). The emergence of metaphor from the data, rather than the explicit engagement of research participants in offering metaphors, is typical of much of the published research that uses metaphor as an analytical tool (Marland, 1997; McShane, 2002). A weakness of this approach is that ‘Another’s account of what a teacher says may not carry the same emphases, nuances, feelings or qualities as those intended by the teacher’ (Marland, 1997, p.11).

Examples of studies that use metaphor as a means to explore the practice of teachers cover pre-service, school and university level teachers. To date, I have been unable to find examples of studies that have used metaphor in studying the teaching practices of TAFE or vocational education teachers.

Metaphor analysis has been used to help three pre-service students examine and refine their conceptions of teaching (Bullough, 1991). One case study of Sarah, from pre-service training to teaching concludes that the sequence of Sarah’s metaphors portray how she became increasingly conscious of and disturbed by her lack of agency beyond the personal-professional landscape of her classroom (Sumison, 2002). An analysis of 13 largely independent studies on the conceptions of teaching of university academics categorises metaphors into the dimensions of imparting information, transmitting structured knowledge, teacher-student interaction/apprenticeship, facilitating understanding and conceptual change (Kember, 1997). Interviews with 12 Australian academics that teach in different disciplines and in online and face-to-face contexts revealed 11 metaphors. Another used the idea of metaphor to explore academics understandings of research, teaching, learning and knowledge and the research/teaching relation (Robertson, 2003).

Given that the research reported here uses teacher’s self-declared metaphors to investigate the personal practical theories of teachers. And, that this data is set against the construct of recontextualisation used by Basil Bernstein to develop a model that represents how teachers negotiate the integration of online technology into their practice. The next section provides a brief overview of the notion of recontextualisation.

BASIL BERNSTEIN’S RECONTEXTUALISATION

Bernstein’s pedagogic device is described as a symbolic ruler of consciousness that provides the intrinsic grammar, in a metaphoric sense, of pedagogic discourse. This grammar is mediated through three interrelated rules. Distributive rules distribute different forms of knowledge to different social groups. Recontextualisation rules construct the thinkable or official knowledge, and, the what and how of pedagogic discourse. Evaluation rules construct pedagogic practice by providing the criteria to be transmitted and acquired. Different constructions of realisation of the pedagogic device have the capacity to restrict or enhance the legitimacy of potential pedagogic discourses

and are not ideologically free. Those who control the device own the means of perpetuating their power through discursive means and establishing, or attempting to establish, their own ideological representations (Bernstein, 1996, 2000).

Bernstein's notion of recontextualisation has been used to describe the digitisation of school knowledge as a reaffirmation of the strength of rationality, quantitative differentiation, effectiveness and efficiency of the official educational system (Lamnias & Kamarianos, 2000). The take-up of communications and information technologies by adolescents as interactive and wearable technologies has been described as a paradigm shift, a recontextualisation of existing education and cultural practices (Holmes & Russell, 1999). These authors describe this change as the development of a 'new space' in which to operate. They note that technologies are not neutral in nature but have a history based in particular social, cultural and political biases, an issue that has been considered by others (Bowers, 1988; Bromley, 1998).

Bernstein argues that recontextualisation is influenced by two fields: the Official Recontextualising Field; and, the Pedagogic Recontextualising Field.

Through the Official Recontextualising Field the state and its delegates operate at a generative level to legitimise official pedagogic discourse. This field is found represented in national and state policy, institutional arrangements, in centrally endorsed curriculum and in dominant subject epistemology. At an institutional level, the nature of support for the use of online technology can influence the degree to which change will be facilitated by teachers (Errington, 2001), this is an example of the Official Recontextualising Field in action. It should also be acknowledged that different subject areas vary in their pedagogic traditions and subject epistemologies. These will influence what is seen as a legitimate use of online technology in teaching. Bernstein acknowledged such differences and characterised them through the idea of pedagogic codes (Bernstein, 2000).

Whilst the state legitimises the principles of distribution of social power and control through the official pedagogic discourse these undergo further recontextualisation in the teaching-learning relationship (Neves & Morais, 2001). This occurs through the Pedagogic Recontextualising Field when policy is interpreted and implemented by those who are directly involved in teaching. Firstly, at the level of the construction of the transmitters' discourse. Secondly, at the level of acquisition (Soloman & Tsatsaroni, 2001, p.296).

The Pedagogic Recontextualising Field is found represented in the personal practical theories of those who influence the pedagogic transaction. In the case of traditional classroom-based teaching, agents of the Pedagogic Recontextualising Field include teachers and authors of texts that are used by students. What differentiates the introduction of online technology is the influence of programmers and software manufacturers on the Pedagogic Recontextualising Field. This is achieved through values and preferences that are 'invisibly' embedded in the operating systems and learning management systems on which the online environment is dependent (Jackson & Anagnostopoulou, 2001).

The next section of this paper presents four case examples. It demonstrates the use of teacher's self-declared metaphors to describe their personal practical theories. This analysis is used to develop a model to describe the ways that teachers make decisions about the implementation of online technology into their personal practice in the classroom.

CASE EXAMPLES: TEACHER'S IMPLEMENTING ONLINE TECHNOLOGY

Interviews were conducted with four full-time teachers at metropolitan TAFE colleges. These are qualified teachers with at least 8 years experience who have integrated the use of online technology into their teaching practice in a hybrid or blended model. That is, online technology complements face-to-face sessions. The programs that they teach are competency-based. The teachers have self-initiated the integration of online technology into their teaching. They work in organisations where the use of online technology is promoted but not obligatory. These teachers teach students who vary in relation to age, gender, prior educational level, cultural background, and the vocational area of study.

Susan teaches in the nursing/health care area. Her students are largely female with an average age of about 30 years. They are studying full-time. She uses the metaphor of the 'Ripening Bud' to describe her preferred teaching principles. She promotes transformative learning with a focus on personal as well as professional development. Susan espouses teaching practices that promote a community of learners, self-managed learning and development of the individual. She describes her teaching approach as 'flexi-mode' which incorporates a mixture of face-to-face sessions and a self-managed assessment component.

Lim teaches English as a Second Language (ESL), basic numeracy and basic computing. Her students range from 18 years of age upwards, they are new to Australia and studying full-time. Lim uses the metaphor of 'Being a Friend' to describe her preferred teaching principles. Lim arrived in Australia as a refugee and seems to be conscious that her students are in a period of transition. They need support and pastoral care. She promotes social interaction, meeting the needs of individual learners, reduction and repetition.

Jenny teaches in business (e-business). Her students are largely school leavers and international students who are studying full-time. She uses the metaphor of a 'Conduit Between Two Lamp-Posts' to describe her preferred teaching principles. Jenny aims to provide the means and the direction for students to learn and to progress. She promotes social interaction, meeting the needs of individual students, developing strategies for successful learning and self-directed learning.

John teaches in business (marketing). Like Jenny his students are largely school leavers and international students studying full-time. The institution where John teaches has adopted a lecture-tutorial model of teaching. Staff are required to work within this framework. Lectures are seen as a means of delivering content, tutorials as a means of

undertaking practical activities. John likens his teaching principles to ‘Mission Control’. He promotes learning through discussion and interaction, meeting the needs of individual learners and a teacher-centred approach.

INITIAL ANALYSIS OF CASE EXAMPLES

Susan has adopted a flexi-mode approach to her teaching. Course outcomes are comprehensively addressed in assignments which embed internet searches, and are completed by students in their self-managed time outside of the classroom. This approach allows Susan to use classroom time to explore issues and ideas without the restraints of needing to achieve specific outcomes in this time. Through the explicit separation of instructional and assessment practices Susan manages to meet the mandated requirements of the curriculum whilst providing an opportunity to move her teaching practice beyond skill based development. Using this approach, Susan encourages students to develop skills in self-management and to develop as individuals through transformative learning. These strategies are consistent with Susan’s espoused teaching metaphor of ‘The Ripening Bud’. They provide space for personal and professional development as well as meeting the outcomes dictated in curriculum. Susan rarely uses online technology to support her face-to-face group sessions. The use of online technology is largely restricted to the completion of assessment and communication outside of classroom time. Group emails are used for the distribution of notices to her student groups. They are also used by students to post notices to each other. This strategy is consistent with her expressed desire to establish a community of learners.

Lim uses instructional materials, self-marked tests and text based assignments that are located on an online learning management system (WebCT) (see <http://www.webct.com> for details). Whilst students have access to online learning and assessment materials at any time, they are primarily used in a teacher-directed manner in a classroom (computer laboratory). Lim’s overall practice is consistent with her espoused teaching principles of ‘Being a Friend’. She does not use the communications capacity of online technology to develop relationships. Her espoused desire to encourage social interaction is not embedded in her use of online technology. However, her description of moving between teacher-directed instruction and the directed use of online learning content where students work individually and collaboratively in using the online component suggest that this teaching principle is embedded in her classroom teaching practice. Classes are teacher-directed with a mixture of teacher-centred instruction and group work using the computers. She has not allowed the potential of isolation and disarticulation that are inherent in some technology based teaching to impose on her practice. Lim also uses online technology for computer marked assessment items such as multiple choice questions. This is consistent with her desired teaching principle of reduction and repetition. She has consciously embedded audio into her online teaching materials in her desire to accommodate a variety of learning styles.

Jenny uses course materials located on a web based learning management system (WebCT). Her teaching approach requires students to use online technology for some of

their instruction and assessment. These materials can be described as content light. They provide some information, assignments direct the activities that students need to complete, and these require some exploration on the part of the student. They may be asked to search web sites or undertake a task that involves interaction with individuals outside of the classroom. Like Lim, Jenny's teaching approach is to orchestrate activity in the classroom, selecting which activities are to be conducted, the sequence and pace. Teacher-directed activities include teacher presentations, questioning and group discussions. These activities are interspersed with the use of computer-based resources which is also teacher-directed. Jenny's use of online technology is consistent with her espoused metaphor for teaching 'Conduit Between Two Lamp-Posts'. She provides the means and the direction for students to learn and to progress. Like Lim, the online materials show evidence of scaling, with easier activities being replaced with more difficult activities as her student's progress. These activities are initially supported with examples and additional support. This reduces over time.

John's metaphor of 'Mission Control' is consistent with his preferred teaching approach which is teacher-directed. John uses online technology as a repository for comprehensive notes, presentations and links to useful web sites. Review notes are also provided. Student use of these resources is optional. Course materials that are required are also photocopied and distributed to students so that access to online technology is not a requirement. In comparison to the previous three case examples where the employing organization has no strong mandate for a particular teaching style, in John's case teaching practice is dominated by his organisations directive to use a lecture-tutorial model. Lectures involve up to 120 students, tutorials small numbers of students who engage in a range of individual and group activities. Using online technology John is able to access and use course materials such as presentations in the lecture room and to project these onto a screen. John also has many international students who may arrive in Australia a few weeks after the program has commenced. Online resources allow students to view presentations that would have been used in missed lectures. While students can email John on an individual basis this is an ad-hoc arrangement rather than systematically embedded in the program. John uses a bulletin board function to lodge notices and directives to students. This one-way communication device and his distribution of program content using online technology is consistent with his espoused metaphor.

These case examples demonstrate that teaching staff implement the use of online technology in different ways. In each case the implementation is consistent with the teacher's espoused teaching principles as expressed as a metaphor. This finding may not be surprising when we consider that teachers often have firm views about teaching and learning. This results in a natural tendency to reproduce the same kinds of pedagogical approaches regardless of the media employed (Errington, 2001). The way that technology is incorporated into pedagogical patterns is dependent on the impact that it has on the epistemological and personal theories of the teachers deploying the technology in their classrooms. Teachers prefer to integrate technology into their established subject and personal pedagogical style rather than surrender to the technology (John, 2002).

SYNTHESISING THE CASE STUDY OUTCOMES

This section of the paper presents a model that describes how teachers implement online technology into their classroom practice. I bring together the outcomes of the case examples reported with Bernstein's constructs of the pedagogic device and recontextualisation. In summary, the model proposes that the teaching approach that emerges from the implementation of online technology is drawn from a pool of possible pedagogic models. The Pedagogic Recontextualising Field is operationalised through three broad strategies and three principles that govern the application of these strategies. This is set against a background of the Official Recontextualising Field. The model is graphically depicted in Figure 1.

The Pedagogic Recontextualising Field is represented in the espoused teaching principles of those who influence the pedagogic transaction. I propose that, in the Pedagogic Recontextualising Field, teacher's adopt three strategies in determining the teaching approach employed, these are the

1. Selective adoption of different aspects of online technology.
2. Selective application of online technology to teaching and assessment practices.
3. A variable level of integration of online technology into practice.

It is proposed that three principles govern the application of these strategies.

1. Aspects of online technology may be adopted, applied and integrated if they are supportive of the teacher's preferred practice.
2. Aspects of online technology may be adopted, applied and integrated if they do not have a negative impact on the teacher's preferred teaching practice.
3. Aspects of online technology will not be adopted, applied or integrated if they have a negative influence on the teacher's preferred teaching practice.

The selective adoption of features of online technology is demonstrated by the selective use of group email, bulletin board and computer marked assessments by individual teachers in this study. Group email is used by Susan to support the development of a community of learners. A bulletin board is used by John to provide direction to learners. Computer marked tests are used by Lim to support reduction and repetition as a teaching strategy. These features would appear to support the individual teacher's preferred teaching practice.

In addition to the selective use of online technology, all four teachers provide links to useful web sites and embed internet searches into their assignments. They use individual email on an ad-hoc basis and provide an option for the submission of assignments online. I propose that whilst these features of online technology may not have a positive influence in all cases, they do not have a negative impact on the teacher's preferred teaching practice

The selective adoption of online technology into teaching and assessment practices is demonstrated by Susan who uses online technology in assessment but not in her teaching practice. Alternatively John uses online technology primarily for his teaching practice. Lim and Jenny have integrated online technology into both their teaching and assessment.

The level of integration into teaching practice is also variable. In John's case the use of online technology is entirely optional whereas it is required in the other three cases.

In addition to the influence of the Pedagogic Recontextualising Field in which teacher's are active, the teaching approach adopted is also dependent on the influence of the Official Recontextualising Field. Official influences are found represented in national and state policy, institutional arrangements, centrally endorsed curriculum and dominant subject epistemology.

The impact of the Official Recontextualising Field is most obvious in the cases of Susan and John. In Susan's case, there is an explicit separation of her instructional and assessment practices. Susan's approach ensures that spaces where the Official Recontextualising Field is dominant and the Pedagogic Recontextualising Field is dominant are separated. The Official Recontextualising Field dominates the assessment component of the program where centrally determined learning outcomes are evaluated. The Pedagogic Recontextualising Field dominates the face-to-face component which allows Susan to pursue her desire of a teaching approach that is transformative, promoting personal and professional development.

In John's case teaching practice is dominated by his organisation's directive to use a lecture-tutorial model. This is an example where the Official Recontextualising Field of institutional arrangements dominates the Pedagogic Recontextualising Field, teachers are limited in their discretion. They must implement teaching practices which are consistent with the legitimated approach of the lecture-tutorial model as dictated by the employing organisation.

Based on the case examples and the model presented in this paper, it appears that four possible scenarios emerge.

1. In cases where the Official Recontextualising Field dominates, the impact of Pedagogic Recontextualising Field is minimized. As a result, the strategies and principles employed to determine the teaching approach adopted are dominated by concern for the Official Recontextualising Field.
2. In cases where the Pedagogic Recontextualising Field dominates, the impact of Official Recontextualising Field is minimized. As a result, the strategies and principles employed to determine the teaching approach adopted are dominated by concern for the Pedagogic Recontextualising Field.
3. In cases where there is tension between the Official Recontextualising Field and the Pedagogic Recontextualising Field, the relative dominance of these influences will vary depending on the relative dominance of the influences at any particular time and space.

4. In cases where the concerns of the Official Recontextualising Field and the Pedagogic Recontextualising Field are in agreement the teaching approach employed will be consistent with the concerns of both.

In Bernsteinian terms, against a backdrop of the Official Recontextualising Field, the practices of the teachers presented as case examples in this paper recontextualise online technology through the Pedagogic Recontextualising Field to support their personal practical theories.

CONCLUSION

Using data from semi-structured interviews with four TAFE teacher's who have integrated online technology into their classroom practice, this paper finds that self-declared metaphors are a useful device in revealing the personal practical theories of practitioners. Analysis of data was used to develop a model that describes how teachers negotiate the implementation of online technology into their practice. Set against a background of Bernstein's Official Recontextualising Field the model proposes that teacher's operationalise the Pedagogic Recontextualising Field through three broad strategies which are governed through the application of three principles.

The next phase of my research will examine the validity of the proposed model and investigate the complexity of how the model operates. It will also explore any implications for professional development and policy development within the institutional arrangements of vocational education and training.

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Figure 1: A model for the implementation of online technology in classroom teaching

