DEVELOPING A CULTURALLY RESPONSIVE CURRICULUM: AN ELECTRICAL ENGINEERING EXPERIENCE

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Abstract

Developing student-centred culturally responsive curriculum is a complex process requiring lecturers willing to adapt and change, as well as appropriate support services to help their efforts. It is not just about content or learning formats. It challenges lecturers to become guides and mentors in a reconfigured and enhanced teaching and learning process.

Introduction

Lecturers who adopt student-centred, culturally responsive approaches are constantly evaluating and readjusting their teaching and learning practices (Osborne, 1989). They need to choose and adapt content, instructional materials, and evaluation instruments to reflect and respond to the rich and complex diversity of the students they teach. This includes their own communication styles, in oral, hard copy and electronic forms. This paper reviews the changes made in a Digital Communications unit in the Engineering degree at the Queensland University of Technology, combining the experiences and reflections of the lecturer and the staff developer whose unit in curriculum design provided the impetus for the process. Wageeh Boles has taught “Digital Communications” for a number of years at QUT. He already continually modified the unit content to accommodate rapidly changing technology. However, he wanted to improve the quality of teaching and learning for students from a wide range of different backgrounds and cultures, and to design assessment components and methods to support and enhance the first goal. His assignments for a unit in the Graduate Certificate of Education, (Higher Education) (EDP604) led him to identify a number of potential areas for change. This paper explains why he chose these and outlines and justifies the strategies he used to implement them.

1. Understanding culture

Understanding what culture means is the first step in dealing appropriately with cultural issues. Cultures are always dynamic, shifting and changing. Harry Irwin (1993:72) argues that inter-communal studies take as a central concern the study of how communities identify and understand their shared experiences and values, and how a sense of communal identity is shaped through communication with other communities. Wageeh's interviews with students and others helped him realise the importance and the complexities of communication across different cultures, even in the small scale of the

classroom. Handling intergroup issues in the classroom may stimulate instructor anxiety (Weinstein and Obear, 1992). Ellsworth (1989:312) asserts that 'any individual student's voice is already a "teeth-gritting" and often contradictory intersection of voices constituted by gender, race, ability, ethnicity, sexual orientation, or ideology'. This is equally true of teachers. Wageeh acknowledges his responsibility as a role model of a life-long learning and possibly *unlearning* process. 'It is the way I talk and respond to issues in the classroom and outside it; the way I deal with people in general; my attitude towards the students, my concern for their learning experience and for them as individuals'. Research supports his approach. ' [T]he role played by staff in the implementation of multicultural teams is …crucial, as lack of cultural awareness and sensitivity on the part of a staff member would discourage students to accept [sic] mandatory multicultural teams' (Sharda (1995) in Volet & Ang, 1998:20).

2. Strategies for developing a culturally responsive curriculum

2.1 Creating an appropriate atmosphere in the classroom

Effective human relationships and an encouraging atmosphere are crucial for improved learning outcomes and students' success and retention rates (McInnes & James, 1995). Wageeh's strategies aim at informing the students that he cares about their individual backgrounds as well as their learning outcomes and include:

- Using mid-lecture breaks to get each student to talk to a student sitting next, in front of, or behind him or her in the class. They are to choose one they do not know well. They will be asked to introduce themselves and talk about some personal or unit related issues, such as interests, background, expectation of this unit, etc.
- Conducting informal surveys of students' previous educational experience, career goals.
- Making a real effort to pronounce names correctly.

Using the breaks effectively is one way of helping to create a supportive learning environment for all students. Well-planned introductory activities are a necessity not an optional "extra". They help students to cross social and cultural barriers. They value and build on their previous experiences, and they are relevant to their progress in the subject. Such activities play a critical role in putting "global education" and "global citizenship" into action, since 'opportunities for inter-cultural learning are seldom taken spontaneously' (Volet & Ang, 1998:21). This is a sensible response to the many teachers who say they can't spare time from their "content" to do this kind of activity. Group activities do become more difficult as student numbers increase but the value of that effort is shown by the following two student comments from the first lecture in a large, (200+ students) first year Engineering unit (1999) that included one such introductory activity.

> I learnt from the…week one lecture that the lecturers are on my side and I should consult them if I am having any problems. Breaking the barriers between the other students, lecturers and myself will start the communication process. (female student)
>
> As the lecture continued on, we participated in an exercise to help us meet other people so that we could form a project group. I think we all felt in the discomfort zone at first, but when we showed each other our page of happiness and distress, you could feel the relief in the air as

people began to shake each other's hands and to introduce themselves to each other. (male student)

2.2 Responding to students' different learning styles

There is a range of cognitive styles which affect the ways in which individuals learn best (Riding, 1994). Differences do not imply inferior intellectual capacities (Badger, 1994). We often assume that students come to higher education *knowing* about their own learning styles, so the responsibility is theirs to learn in ways that suit them. Ideally we should include information on this early in their course. There are many easily administered tests that help students to work out what sort of learners they are. This can help them to learn more effectively. For example, highly visual students can be encouraged to use concept maps, using colourful pens, rather than trying to make themselves rote-learn pages of notes. Concept map software programs can be useful to teachers as well. Concept mapping is very effective in introducing students to the "Big Picture" of a unit or any aspect within it. Unfortunately, the students who could benefit most may be those least able to afford such programs.

Wageeh gathered information about the students' learning styles and used it to match them with one of four computer based components of the unit, which are designed to fit the four main categories of learning styles. Figures 1 and 2 below show that students responded positively.

Figure 1: Students' responses to the survey item: **My choice of which style(s) to use was because:** (a) this helped me learn better, (b) this helped me learn faster, (c) this helped me learn easier, (d) this helped me learn more.

Figure 2: Students' responses to the survey item: **Using the cognitive styles approach to prepare the material of this session:** (a) improved my understanding of the material, (b) allowed me to learn better than the use of lectures alone, (c) was not helpful because I prefer lectures, (d) improved my learning but only because material is also discussed in class.

2.3 Lecturer/student communication

Another strategy for making the unit culturally responsive is to discuss and set limits on student behaviours that may impinge on the rights of others. Evaluation comments from students criticise actions such as students putting their feet up on the seats. For some cultures, for example, the Thais, this shows extreme disrespect. Wageeh's strategies include establishing agreements on appropriate behaviour. (One possible model for doing this can be found in the on-line QUT Faculty of Information's Tutors' Guide, 1999). He makes it clear at the first lecture that everyone is valued and should be treated with respect. Wageeh models this behavior through his inclusive language, respectful listening and respectful speaking as well as offering and giving reasons for consultation hours; encouraging the use of e-mail and examining all material for racial, cultural and gender bias. The changes are embodied in the Unit Outline, which has grown from a one page to a five page document and has changed dramatically in style and tone. Figure 3 below demonstrates these changes.

Original unit outline headings	**Revised unit outline headings**
1. Unit outline and title	1. Introduction
2. Pre-requisites	2. Classroom atmosphere
3 .Synopsis	3. Prerequisite
4. contents	4. Mission Statement
5.Assessment	5. Outcomes
6 Texts and References	6. Content
7 Unit Coordinator	7. Presentation
	8. Assessment

	9. Feedback and consultation hours
	10. Texts and References
	11. Unit Coordinator

Figure 3: Comparisons between original and revised unit outline headings

Compare the effect of the original synopsis (A) with the revised Introduction (B) and the way in which the latter values, makes visible and welcomes the diverse experiences of all students. In each case this is the first written section of the document. This sets the tone for the reader.

(A) Synopsis

This unit aims at providing the students with an in-depth understanding of the theory and applications of digital communications systems and technology. This will involve topics such as baseband digital signals, digital radio systems, computer networks, error control in digital networks, communication link analysis and ISDN (Unit outline, EEB667, 1997).

(B) Introduction

Welcome to EEB967, Digital Communications, one of the third/fourth year units offered to students enrolled in any of the following courses… It will make use of, and build on your prior learning, formal or informal, in Australia or overseas, in the various areas of electrical engineering, electronics, communications and signal processing.

2.4 Language issues

Students may face difficulties in obtaining lecture notes when the language of instruction is not their first language (Shaddock, 1996), or if they have poor note-taking skills, or for whatever reason or a combination of reasons. Wageeh makes notes available ahead of lecture times and directs students with language needs to appropriate services. This is not "spoon-feeding" but a way of "scaffolding" learning: ie. providing forms of support 'to help students bridge the gap between the current abilities and the intended goal', (Rosenshine & Meister, 1992:26). In addition, lecturers need to *take time* to direct students to language advisers and other relevant services. Many students see seeking help as a source of shame and will leave it until they are desperate. Lecturers can help by advising students to seek help early and by emphasising that this is an appropriate and effective thing to do NOT an admission of stupidity. Wageeh's revised unit outline included the following under the heading, "Feedback and Consultation Hours".

> Your enquiries, comments and suggestions are very valuable to me. Through these, different aspects of teaching and learning in this unit can be improved…. I will do my best to assist you or at least refer you to the appropriate QUT services such as Learning House and International Student Services.

3. Designing inclusive assessment

3.1 Examinations

Based on his consultations with an Indigenous adviser, students and evidence from research, it was clear that students from cultures other than the dominant one often feel that they are disadvantaged in examinations by time restrictions (Barnett, 1994). Wageeh sought student feedback on the time they actually took to complete assignments and exams. He then used this information to ensure that the allocated time for assessment tasks is sufficient for all students. In order to avoid misunderstanding of exam questions, he specifies the necessary information about the length and depth as well as the format of the required answer for each question and follows up by presenting past exam questions and their model answers in the classroom. Other strategies include offering students a choice of assessment methods.

3.2 Marking strategy

Answers which seem to respond to points other than those requested, may be the result of misunderstanding a key word or the wording of the question. Similarly, poor handwriting or spelling may not necessarily mean an uninformed answer. In marking assessment items, Wageeh focuses on accommodating cultural differences without compromising academic standards. He also tries to use Plain English.

The promotion of Plain English marks a significant shift of responsibility from readers to writers (in this context, from students to academic staff) in the information exchange (Solomon, 1994:1). While the same standards should be applied to all students in evaluation and assigning results, plain English involves trying to avoid using complicated grammatical constructions in exam questions). The principles are equally applicable to on-line materials and communication. Inaccessible English is no more accessible simply because it appears on-line. 'There is an assumption that traditional higher education is the paragon of quality and any deviation from that model represents "less" quality' (Phipps, 1998:2). Futurist Inayatullah is more critical, asserting that " sophisticated curriculum has yet to come on line except in fetishised formats, that is, without any change in content, form or approach" (1999: 595). We should dare to do better, taking up Phipp's point that technology mediated learning should allow us to challenge and improve every aspect of communication with learners.

3.3 Student evaluations

Wageeh continues to administer the University's Student Evaluations of Teaching (SET) and Student Evaluations of Units (SEU), choosing the optional questions to reflect current aspects. He also uses the Harvard one-minute evaluation, a simple, effective and non-threatening means of monitoring. This evaluation can be carried out at end of each lecture. The main responses are discussed at the beginning of the following lecture as a revision device, a way of quickly identifying problems and a time to acknowledge progress and achievements.

4. Where to from here?

This paper reflects only two of a number of issues and needs that Wageeh identified through the situational analysis and stake holders' interviews (in addition to the literature reviews and readings) required by his Graduate Certificate unit. He intends systematically focusing on one or two of these at a time and incorporating them in each cycle of the future reviews. Other identified goals include to:

- Produce and distribute lecture outlines.
- Talk about his own thinking style in order to help students think about theirs.
- Plan 10-minute slots at the end of each lecture for individual students to bring any special problems they have with the material taught, tutorials or assignments.
- Bring to the classroom his overseas experience about the interaction between the technical material and social and environmental issues. (In line with UNESCO's vision of Educating for a Sustainable Future, 1997).
- Design assessment items, including final exams, to facilitate understanding and avoid complexities arising from the language.
- As a member of the School's Teaching and Learning Committee and the School representative in the Faculty Teaching and Learning Committee, to encourage other teaching staff in the Faculty and School as they respond to University requirements to address cultural and internationalisation issues in their units and courses.

Conclusion

Wageeh believes he has come a long way since he completed the Graduate Certificate. Practice-based professional development can challenge lecturers to change but also provide support and a safe environment within which they can experiment. 'As a human being who happens to be a lecturer, I am culturally conditioned. My assumptions and beliefs will be regarded as absolutely true facts, as long as they are not challenged. Challenging my own culture allows me to learn more, and to understand other cultures' values and practices. This will be reflected in my attitudes, behaviour and practice, in general, and certainly in the teaching and learning contexts of any unit I teach'. These are

the kinds of personal and professional attitudes needed to realise the changing roles of lecturers in learner-centred environments (Swain in Phipps, 1999:2). The same qualities are needed to answer the increasingly urgent calls relating to global education. The International Association of Universities (1998) recently called for 'the curriculum of the university [to] reflect the preparation of international citizens, through facilitating language competence; and understanding of global, international, and regional issues; preparation of experts in areas needed for such fields as information technology and science, peace and conflict resolution, and sustainable development, as well as the special curricular needs of international students'.

References

Badger, L. (1994) "A case study of reciprocal student learning", in Barnett, J. (ed.) *Working with Student Diversity: Context, Issues and Strategies in University of South Australia*, Centre for University Teaching and Learning, University of South Australia.

Barnett, J. (1994). "Learning experiences among second Language students", in Barnett, J. (ed.) *Working with Student Diversity: Context, Issues and Strategies in University of South Australia*, Centre for University Teaching and Learning, University of South Australia.

Ellsworth, E. (1989) "Why doesn't this feel empowering? Working through the repressive myths of critical pedagogy". *Harvard Educational Review*. 59(3), 297–324.

Inayatullah, S. (1999) "Reorienting future studies", in Ziauddin, S. (ed.) *Rescuing All Our Futures: The Future of Future Studies*, Praeger Studies on the 21st Century, Connecticut: Westport, pp. 49–61.

International Association of Universities "Towards a Century of Cooperation: Internationalisation of Higher Education" *IAU Statement 1998* http://193.242.192.2/ngo/iau/tfi_statement.html

Irwin, H. (1993) "Intercultural communication and identity: Beyond the anthropology of manners". *Australian Journal of Communication*, 20(3), 72–75.

King, R. (1981) "How shall they be judged? notes and sources on assessment'. *Journal of Geography in Higher Education*, 5(1), 61–72.

McInnes, C. and James, R. (1995) "*First Year on Campus: Diversity in the Initial Experiences of Australian Undergraduates*", Centre for the Study of Higher Education, University of Melbourne, for the Committee for the Advancement of University Teaching (CAUT).

Osborne, B. (1989) *Towards an Ethnology of Culturally Responsive Pedagogy in Small-Scale Communication: Native American and Torres Strait Islander*, 10th Annual Ethnography in Education Research Forum, Philadelphia, PA: Feb.

Phipps, R.A. (1998) *Quality Assurance for Distance Learning in a Global Society*. http://www.bc.edu/bc_org/avp/soe/cihe/direct1/News13/text3.html

Riding, R. (1994) *Cognitive Styles Analysis: Users' Manual*, Learning & Training Technologies, USA.

Shaddock, A. (1996) *Teaching for Cultural Diversity*, Centre for the Enhancement of Learning, Teaching and Scholarship, University of Canberra.

Solomon, N. (1994). 'Beyond plain english', *Australian Style*, 2(2), June, 1.

Rosenshine, B. and Meister, C. (1997) "The use of scaffolds for teaching higher level cognitive strategies". *Educational Leadership*, 49(7), April, 26–33.

Cheah, S. and Kelly, P. (1999) *Towards Good Practice for Tutors*. Faculty of Information Technology, QUT. http://www.fit.qut.edu.au/tutor/index.html

UNESCO (1997) *Educating for a Sustainable Future*: *A Transdisciplinary Vision for Concerted Action*, EPD-97/CONF.401/CLD.1

http://unesdoc.unesco.org/images/0011/001106/110686eo.pdf

Volet, S. and Ang, G. (1998) 'Culturally mixed groups on international campuses: an opportunity for inter-cultural learning'. *Higher Education Research and Development*, 17(1), 5–23.

Weinstein, G. and Obear, K. (1992) "Bias issues in the classroom: encounters with teaching self", *New Directions For Teaching and Learning*, No. 52, Jossey-Bass Publishers, 39–50.

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