

## WHAT HAVE I LEARNED?

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### **ABSTRACT**

*The title of this paper is meant to be interpreted in many ways. The paper documents the evolution of teaching and learning processes during the teaching of a large, compulsory, first-year subject in the Faculty of Education at the University of Wollongong – Education 1: Child Growth and Development, a subject with a well-deserved reputation among students as a ‘horror’ subject. What began as a collaborative project aimed at improving learning outcomes for Aboriginal students enrolled in the subject, ‘ended’ as a reflective process affecting the pedagogical practices for all students. What was learned? As lecturers in the subject, we learned a lot about alternative modes of teaching and learning; some of the innovations we implemented as a response to student feedback involved, among others, establishing a web-site for the subject and concept-mapping during lectures. The deployment of the world wide web was a key ingredient in addressing the problem, furnishing a solution and providing a platform for the evolutionary development of the subject in terms of its delivery and pedagogy. We learned that the concerns expressed by the Aboriginal students were true for the majority of ‘mainstream’ students as well. Aboriginal students’ learning needs became key resources for the reconfiguration of the curriculum for the benefit of all. Most importantly, we became collaborative learners with our students and, in the process, we all enhanced our learning. This paper describes the reflective process we undertook and includes data from the students themselves in which they reflect on their learning in the subject, particularly the ways in which the Web-based materials assisted that learning.*

### **KEY WORDS**

Pedagogy, reflection, web-based learning, aboriginal, collaboration, curriculum, outcomes.

### **1. INTRODUCTION**

In most faculties at most universities, there are compulsory subjects that must be undertaken by all students to meet the requirements of the course. The Faculty of Education at the University of Wollongong offers such a subject that typically enrolls 350-380 students per year. Despite a number of course restructuring moves, the subject – Child Growth and Development – has been offered for decades in one form or another but has predominantly utilised a pattern for each student of two mass lectures of one hour duration per week, one hour of tutorial led by students per week, and a comprehensive textbook to provide reading material. The subject has gained a reputation for being a difficult subject to pass because of the vast amounts of content and jargon within it. In addition to the significant numbers of mainstream students experiencing difficulties with the subject, the failure rate of Aboriginal students undertaking the subject was close to 100%.

In 1998, an initiative of the Aboriginal Education Centre (hereafter termed AEC) became a catalyst for significant changes in the subject's delivery and outcomes. As a direct result of the observations of a lecturer from the AEC, feedback from students, and regular reflective and collaborative dialogues of a team of interested parties (subject coordinator, the tutor of the group which included the Aboriginal students enrolled in the subject, and the AEC lecturer), the subject's delivery was reconfigured over the course of the semester in the following manner. Lecturers' notes were placed on a specially-created website for the subject; focus questions were provided each week as the stimulus for group discussions in tutorials; concept maps were drawn by lecturers as other lecturers delivered their lectures; the discussions of some tutorial groups were summarised and added to the website; students were organised into small study teams who met in their own time to support each other's learning; and, video materials were provided as additional resources for the students. In terms of outcomes, the lecturers and tutors involved in the subject for a number of years observed marked improvements in the quality and quantity of the understanding of the students. The failure rate for the subject overall was lower and there were far more students scoring in the Distinction and High Distinction range than in previous years. Student competence across all topic areas was also greater. For example, in previous years, a typical student's examination paper would reflect a good knowledge base for one or two topics (generally those topics on which they completed essays) and marginal understanding in other areas and frequent total misunderstandings. This year's examination revealed a highly different pattern as the majority of students answered questions well, across all the topic areas covered by the examination. Finally, the success rate of Aboriginal students in 1998 in this subject was 100%, a dramatic reversal on previous years' figures.

This paper represents a collaborative process that resulted in enhanced pedagogical practices and learner outcomes in a large, compulsory undergraduate subject at the university level. The WWW was utilised as one tool in an armoury that will continue to reconfigure the subject in future years. Further, the collaborative process demonstrated the ways in which the learning needs of marginalised students, such as the Aboriginal students involved in this subject, can be the catalyst for changes in pedagogical practices to enhance the learning of mainstream students. The four authors of this paper are the AEC lecturer, the co-ordinator of the subject, one of the tutors whose group included the Aboriginal students, and the Web-site creator from the faculty's Interactive Multimedia Learning Laboratory (IMMLL). Each author brings a different perspective to this paper and, in the following sections, those perspectives will be given their own voice. The paper will conclude with our conclusions and recommendations arising from the triangulated data of our observations.

## **2. THE AEC LECTURER'S STORY**

Aboriginal students, historically, have had an horrific run with this subject. Students' past experience with the learning environment had previously been presented to the Faculty (Gluck & Draisma, 1997, pp.101-106). Appointment of a new subject coordinator, the landing of a grant by the AEC lecturer and shared intent of improving learning outcomes for Aboriginal students was central to the evolution of a learning process that benefited all learners. A shared commitment to collaborative processes enabled the reflections of the AEC, Aboriginal students, the coordinator and tutor to use past and current experiences of Aboriginal students as a catalyst for the redevelopment of the subject for the benefit of all. Teachers learned to integrate Aboriginal students' knowledge from their experience of the learning environment into the curriculum process. Turning students' tacit knowledge into the explicit by embedding it in the curriculum process was dependent on shared reflection, large amounts of serendipity, trust and a willingness to fuse reflections with theory.

I attended all lectures as an observer. For the first three weeks I took notes as if I was a student. I had never taken a course in the subject, however, I had done a good deal of reading in the area and used it in my previous research. I am fascinated by Vygotsky, one of the key theorists studied in the subject and whose theory of the zone of proximal development epitomised our collaboration: in essence, the project lent itself to the development of relationships among the coordinator, tutor, Aboriginal students and lecturer that facilitated a group zone of proximal

development. At the end of the lectures I would, if time permitted, ‘hang about’ and talk with the students, the coordinator, tutor or the lecturer. Occasionally, we would discuss my perceptions of the teaching or I would raise learning issues that students had identified.

Once a week I met individually with Aboriginal students to facilitate their reflections on the learning processes and experience of the subject’s learning environment. This information was recorded and a hard copy was given to students at the beginning of the following week’s reflection. After reading and verification of what had been recorded, the document provided a basis for students to continue to address their learning issues, plan and undertake work for assignments and acknowledge progress and celebrate success.

**Student:** What you wrote on 11 May is okay. Yeah it’s good. It lets me look back because I can’t remember everything. It’s like a reflection.

**Russell:** Yeah. It’s a reflection. It will tell you something about your own learning.

When students identified learning issues in the learning environment or teaching process, I obtained their permission to discuss those issues with the coordinator and the tutor. When individual student specific learning needs arose, I worked with the student or linked them with the subject tutor or another resource so that the need was addressed. Consequently, reflective sessions were frequently used by students to work toward meeting course requirements, taking responsibility for their own learning and practice in effective use of Faculty consultation hours.

I also met on a regular basis with the coordinator and the tutor to discuss the students’ progress. As time progressed, a relationship developed that enabled the three of us to openly share our reflections on the course. Students’ perceptions of the teaching and learning environment frequently provided the catalyst for joint reflection and future action.

The idea for concept maps came as a result of one lecturer asking the coordinator to summarise or represent what she was saying as she delivered the lecture and students commenting on the value of the drawings and the process. Students’ comments on the value of the drawings and the potential for a website came out of the students’ weekly reflective process:

**Russell:** How are you going with the language (used in lectures)?

**Student:** It’s full on writing during the lecture. Not enough time to listen – just full on writing. Particularly if the lecturer is talking and writing at the same time.

**Russell:** Did Wilma’s drawing help?

**Student:** Yes, diagrams and glossary and its connection to focus questions really helped tie it all together. The lecture was just not a pile of words. It made it easier to take in. I could see how it all links together. Glossary/words/concepts/ideas/questions.

Another student commented that there were so many overheads and talking going on all at once during lectures that they were “flat out writing and never got time to process what was being said.” A further student said he “listened to what was being said and followed the drawings and their relationship to focus questions.”

These discussions led to the idea of reducing the amount of writing by posting the text of the overheads to a course email group. This seemed a good possibility because all students had an email account. Students were keen for this to occur because they wanted to spend the lecture time processing information. I discussed the idea with the coordinator at the end of a lecture and it was decided that it was an idea worth pursuing. I volunteered to do the leg work.

I contacted the University’s Information Technology Services and discussed what I wanted to do and the reason. ITS suggested I set up a website instead of an email list. Due to my lack of skills, an email group was established. ITS then suggested I contact the Interactive Multimedia Learning Laboratory (IMMLL). A phone call to IMMLL resulted in an agreement from John

Larkin to do the work at no charge because the subject was part of the Education Faculty. The deal was for me to collect the text of overheads from lecturers, put them into Word 5.1 and forward by email to John. I scanned diagrams and cartoons into photo shop and John posted everything to the web a week ahead of lectures. After the site was operational some staff who had already presented lectures offered their materials to the site. This offer coincided with student requests for retrospective posting.

The process of following my nose and leads across campus until I met up with IMMLL took twelve working hours. The site was operational within a week. Sounds simple and easy! It reminded me of my community development work in squatter camps. The total 'cost' for John's time to the Faculty was \$760, which equates to approximately \$2 per student!

In addition to text, students were particularly keen for diagrams and drawings:

**Student:** I like the situation where lecturers lecture and Wilma draws the pictures. Picks out the important parts. Often just a mass of information is thrown on us. The pictures help get key information and expresses how it all hangs together – relates. Then I can work on it myself.

**Russell:** What are the maps/Wilma's pictures to you?

Student: They are a good way of splitting information, organising, categorising theorists and theory, stages of theory and what's involved. Good visual way. I am a visual person.

**Russell:** What would happen if your work group used butcher's paper and prepared a mind map of how you would answer the focus questions?

**Student:** This could then be used for each group to present their way of answering the focus questions. I'll look at the focus question but won't know how to verbalise. So other's views and their exchange is great. They push me further. The map is a good concrete way of putting down what the study group thinks the answer to the focus question is. So if every study group shared their maps we would have many ways and views of approaching and concretely answering the focus questions. Study groups presenting their maps to other study groups. It's the exchange! Other people will look at ours, and us theirs, and then discussion. Different points of view and more verbalising. The more I verbalise the more I learn. I learn by talking. Processing as talking. Yeah it all goes in.

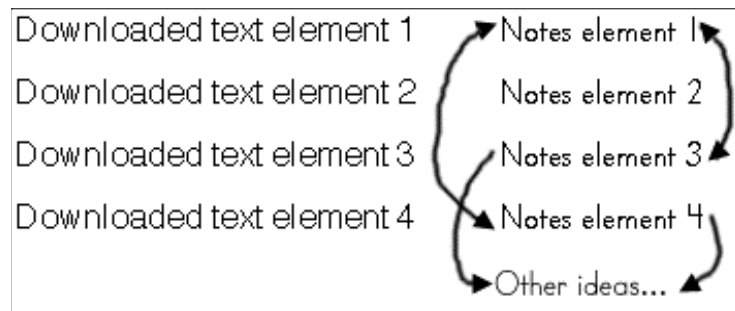
One student's comments on the value of website notes:

I can have the notes the day before, read them, think about the notes and have an idea of the direction of the lecture before it happens. So when the lecturer gives information it falls into place. I've found some other people get notes and don't go to the lecture. I think it has to be both. Until someone (lecturer) justifies what the internet notes say you (I) don't really get it. The notes taken on overhead by Wilma during the lecture were like a flow diagram. They were good. When Pauline and Peter did it they rewrote (website) notes (with bits added from the lecture). So not really useful. Overhead notes taken during the lecture would improve if people doing them looked at the notes before and they came up with ideas on how to summarise and present. If they present in form of a concept map it would be better because it would tell me about how they think about the subject and fit it all together. It would be good to know how many pages are on the net each week so I know how much money to put in for printing.

Discussion with the coordinator and tutor has opened the possibility to incorporate instruction for the development and use of concept maps by students to facilitate their learning in lectures and tutorials. In 1999, lecturers will be encouraged to use concept maps at the beginning of each lecture and at the top of website notes as an aid to help students organise and process the content of lectures (Ferry, 1997).

Russell's observation of a mainstream student's use of downloaded notes during a lecture.

The student wrote in the space around the downloaded text. Arrows and lines were used to connect the areas. By the end of the lecture the student's notes appeared as follows:



The student I observed commented:

Material is presented in blocks and chunks and so are my notes. It helps do away with the idea that "If I just get everything down that is said I will be okay." My focus is now on processing, making meaning. I get to listen to what is being said, write less and think more during the lecture.

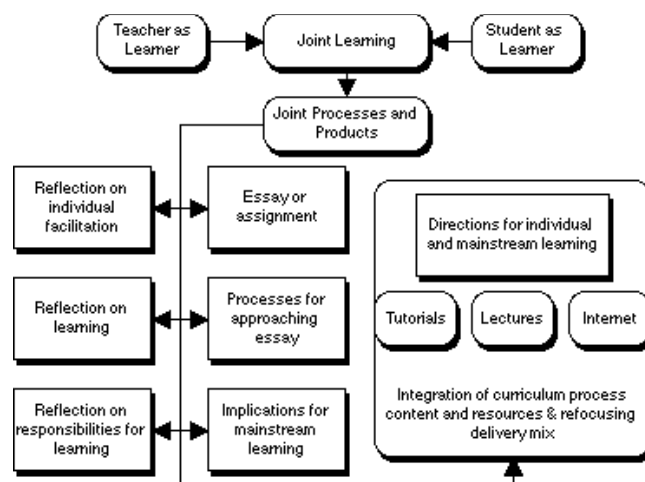
Once the website was posted, students began to make suggestions on connecting the site to other theoretical sites, so I approached John and he said it was not a problem. I then searched and vetted a range of sites with a lecturer, supplied the URL addresses to John and he embedded them in our site.

During weekly reflective sessions, I asked students how they were finding the focus questions. They replied that they were not sure how to use them because it was not clear what breadth or depth of answer would be required. A similar issue with focus questions arose in my work with 'Acute Care Nursing' (Gluck & Draisma, 1997). I raised the students' concern with the lecturer and tutor and it was decided to have a student record their tutorial group's answer to the questions and forward it to me to format so John could post them to the site. Due to discrepancies between what was developed in the tutorial and the student scribe's interpretation, it became necessary for the tutor to vet the record before posting.

Students' use of information and, in particular, diagrams contained in tutorial groups' answers to focus questions during exams, verified a valuable contribution of the web to learning. The students demonstrated their learning by taking a diagram posted to the web and incorporating it in their answers to questions.

Attempts were also made to scan the concept maps that were recorded during the lecture and post them to the site. This was not possible because of the download time required.

Students knew that we were listening, evaluating and acting on their tacit knowledge to enhance the learning environment. As students' reflections were turned to suggestions recognised as tacit knowledge and integrated into the curriculum process, my relationship with students developed a positive feeling that cannot be described (see Figure 1).



**Figure 1: The Collaborative Process**

### 3. THE WEB-SITE CREATOR'S LINES

As indicated in the previous section, it was agreed that the subject's focus questions and lecture notes could be converted to html format and placed on the web server belonging to the IMMLL. A simple web site was established and hosted at the following address:

<http://www.immll.uow.edu.au/ug/eduf111/>

The process of converting the lecture notes, overheads and graphics employed during the lectures was kept as simple as possible due to time constraints. Documents and graphics were usually received by the IMMLL in Microsoft Word format via email.

The text was converted to html via the use of the software application Claris Home Page. Graphic files were converted to gif files, suitable for display on the world wide web, with the application Graphic Converter. Page layout and text formatting tasks were kept to a minimum. Appropriate internet links were created between the home page (Figure 2) and the respective web pages (Figure 3) and the completed files were then copied across to the IMMLL web server. When time was at a premium the Microsoft Word files were converted to html via the use of the application Terry Morse Myrmidon 2.0.

The EDUF111 web site has evolved over time with the addition of web pages displaying Key Ideas (Figure 4) generated during the tutorials and internet links. There are plans to develop the web site further (Figure 5).

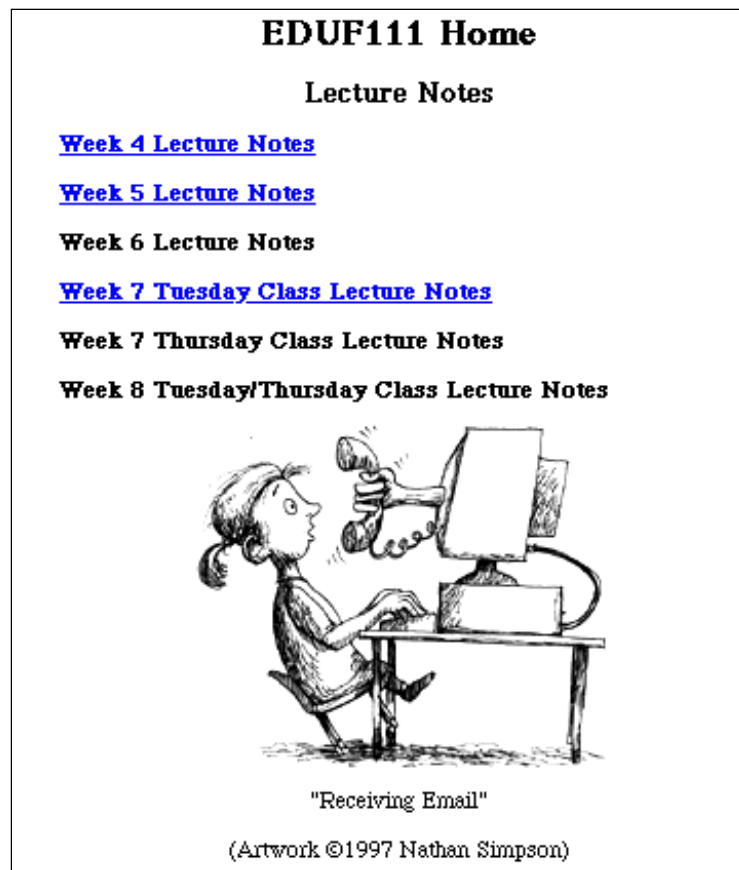


Figure 2: Initial EDUF111 Home Page

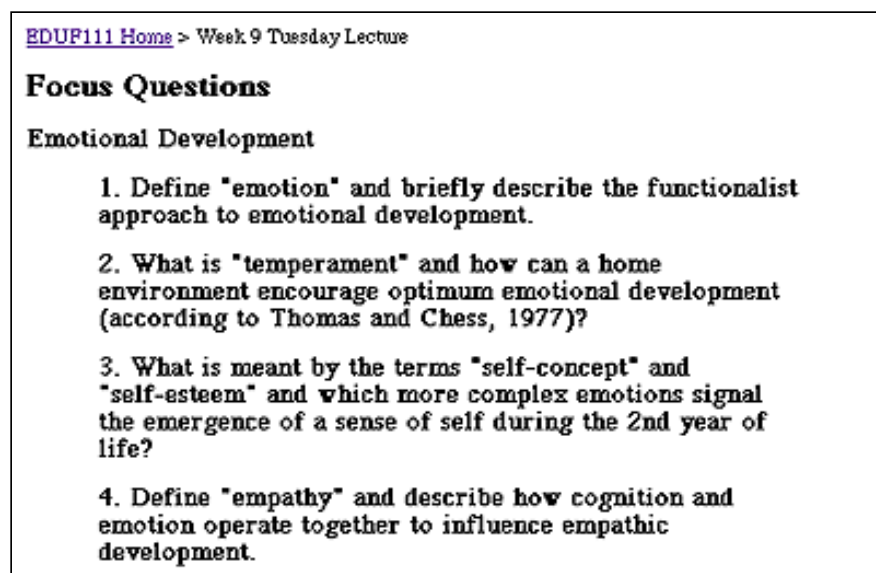


Figure 3: Typical Lecture Notes Web Page

[EDUF111 Home](#) > Week 10 Key Ideas


**SOCIAL DEVELOPMENT - Week 10**  
Contributed by tutorial groups 5,13,15

1. What is the difference between moral reasoning and moral behaviour? How can teachers support prosocial programs?

**MORAL:**









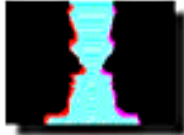

- \* reasoning = thinking - understanding the difference between right and wrong
- \* behaviour = translating thinking into action - eg. belief that people who speed or drink when driving should have their licences taken away. Except when running late - then it is O.K. to speed (behaviour does not agree or correspond with reasoning)

Figure 4: Key Ideas Submitted by Tutorial Groups

*Faculty of Education* University of Wollongong 

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**Education 1: Child Growth and Development**  
**EDUF111**

 <a href="#">What's New?</a>	 <a href="#">Introduction</a>	 <a href="#">Lecture Notes</a>	 <a href="#">Key Ideas</a>
 <a href="#">Staff</a>	 <a href="#">Participants</a>	 <a href="#">Resources</a>	 <a href="#">Online Help</a>
<a href="#">The Discussion Place</a>		<a href="#">Course Evaluation</a>	

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| [Staff](#) | [Participants](#) | [Resources](#) | [The Discussion Place](#) | [Online Help](#) |

Figure 5: Proposed EDUF111 Home Page



#### 4. THE TUTOR'S TALE

Teaching within a subject that has developed an abhorrent reputation is daunting for students and teachers. Students in past years have frequently voiced the criticism that they could see little relevance in the content of the subject for what they perceived as their future practice as teachers. From a teaching perspective, the content was defensible on the basis that it provided the theoretical foundations for later teaching practice and any marked reduction of the content would result in a lowering of academic standards. My challenge as a lecturer was to help to forge links between theories and practice by ensuring that the lecture content was both relevant and stimulating. In addition, as a tutor it was essential to provide support for effective student learning.

The experiences of students undertaking the newly structured course appeared markedly different when compared with those of students in past years. Previously, although approaching the work with interest and energy, most students completed the course with expressions of relief that an obligation had been fulfilled, but with little of their initial enthusiasm intact. This was certainly not the case for the majority of students completing the reformed course, with several commenting that they wished it could be extended. Their enthusiasm was also evident through their participation in tutorials, where they demonstrated a confidence to question and debate a variety of theoretical and practical issues, introducing evidence gleaned from a range of sources. Even their answers to exam questions demonstrated an increased depth and quality of understanding than had previously been the case, with a confident use of terms and a greater ability to support ideas with practical examples as well as research evidence. This degree of commitment to the subject had been missing in past years and appeared to be due, at least in part, to their participation in 'study teams', where they supported their learning by actively challenging one another intellectually. In addition, the support extended to a level of personal concern for each other that had also not been apparent before. Perhaps this also reflected support we gave one another within lectures, as well as an obvious concern for improving the conditions of learning for the students.

Access to a defined web site for this subject was invaluable. Within tutorials, students indicated a gradually increasing use of this facility as the subject progressed. Often, those who did not access it directly would 'tap' into it, either through their study groups or within the networks they had set up independently, through those who were making use of it. Evidence of the use of this material came from a number of sources. Within tutorials, and at times in lectures, discussions would arise on the basis of information drawn from the web site. This information consisted of the overheads to be used in the lectures, which were placed on the web site before the lecture was given, so that students could actively prepare for the presentation of the material.

Further evidence of access to the web site came through responses to the exam questions. These were drawn from a range of focus questions based on the information presented within each lecture. They were directly addressed within tutorials and provided a good basis for asking questions and discussing points of interest. Answers to the focus questions were developed by three tutorial groups and scribed by different students volunteering each week. These notes were then added to the web site. During the exams, however, it was noted that particular responses, generated by these three groups, were evident in the answers given by students from other groups.

The level of satisfaction in teaching, both within lectures and tutorials, was very rewarding personally and the enthusiasm of the students was contagious, with two lecturers forming their own 'study group' when particular topics proved a challenge! In addition, the value of drawing support and feedback from others operating outside the course cannot be underestimated, with practical suggestions helping to redirect and consolidate progress within tutorials and lectures. Lecturing to a large group of students is generally not regarded as being the most desirable way to stimulate learning, yet the success of the strategies introduced during this subject suggests that, with continued collaboration and improvement in future courses, both teaching and learning will become increasingly effective.

## **5. THE COORDINATOR'S CONCLUSIONS**

I have taught on this subject for six years and have co-ordinated it for the past two years. Throughout that time, I have been concerned by the general lack of understanding that students have at the completion of the subject. For example, many of the students undertaking this subject, also complete a subject on cognitive development in the third year of their program. In teaching that third year subject, we have found that we need to repeat all the content that we have supposedly covered in first year because the students remember so little of it. I strongly believed that we were sacrificing deep understanding for the sake of coverage. Some changes were made to the subject, alternative textbooks were trialled, but these changes were fundamentally cosmetic in nature and didn't get to the heart of the problem: improving student knowledge and comprehension of the concepts covered by the subject. I therefore welcomed the AEC initiative as an opportunity to reflect on our pedagogical practices. I was willing to try anything that might improve our student outcomes in the subject. The process we undertook has been amply described by my colleagues, so I shall confine my comments to my perceptions of the effect of those changes.

First, it was interesting to lecture to students who sat with printed copies of your overheads in front of them. I noted much greater involvement of the students in the lectures through their willingness to engage in questions and answers during the lectures – and the quality of questions and answers was also noteworthy. In my judgement, the outcomes of students in the subject in 1998 far outweigh those of previous years. The failure rate this year was lower (4.9%) than in previous years (averaged approximately 10%–15%), but more importantly, there were many more students performing at the top end of the distribution. Four and a half percent attained High Distinctions and 25.9% attained Distinctions. This contrasts with the lower percentages of previous years (in 1997, 1% and 9% respectively). From a qualitative perspective, the examination questions were even more satisfying because students demonstrated an ability to answer all twelve questions on the paper equally well (ie. all topics included in the subject) as opposed to previous years where students typically answered some questions very well and others very poorly. The incidents of term confusion that were common in previous years (assimilation and association instead of accommodation; Vygotsky's Zone of Prenatal Development instead of Proximal Development) were practically non-existent.

The use of the WWW, concept-mapping in lectures, focus questions as the central organiser of the content, the student study teams, all contributed to the improved student outcomes for this subject but they remain tools in a process that will continue to evolve in future years. The human element in this equation is equally important to contemplate. Tools are only as good as the people who wield them and people differ in their ability to make use of the tools that will enhance their performance (Vialle & Perry, 1995). In future years, we will have to ensure that all our students are able to access the information on the WWW, particularly as we make the site more interactive. My estimate is that approximately 30% of our students directly accessed the information on the website but through the study teams, this information was spread much more widely. Finally, what was the most significant for me as a teacher was the opportunity to spend time each week reflecting on my teaching and my students' learning with my colleagues. It is a process I will continue to use to enhance my effectiveness as a teacher.

## **6. LESSONS LEARNED**

The process of collaboration described in this paper is a model for the improvement of university teaching. It demonstrates the importance of reflecting on our teaching practices and listening to our clients, the students. It highlights the differing learning styles of students and honours that diversity through the application of multiple forms of presenting information. It "practises what it preaches" through providing students the opportunity to construct their own meanings rather than rote memorising and regurgitating a list of 'facts'. It places all participants as collaborative learners in the process. It recognises that Web-based learning, concept-mapping, study teams and so on are alternative tools that may be utilised in the quest for understanding. Following the success of this serendipitous experiment this year, our team intends to enhance

the website in 1999, utilise the concept-mapping as an integral part of each lecture, reduce the number of lecturers to ensure that links are more easily forged across topics, and continue with the focus questions and study teams. Finally, we are confident that our continuing reflective practices will enhance the educational outcomes for all students in future years; we will certainly be monitoring our progress carefully.

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