

Engaging Students: Retention and Success

Bridging Education in New Zealand

Proceedings of the 6th Conference of the
New Zealand Association of Bridging Educators
5th - 6th October 2006

Compiled by
Catherine Walker
Alexandra McKegg

Held at:
Manukau Institute of Technology
Auckland
New Zealand
5th - 6th October 2006

These Conference proceedings have been published directly from the manuscripts provided by the authors. Several presenters have not submitted manuscripts. While every effort been taken by the editors to ensure accuracy of the text, the editors take no responsibility for the quality of these proceedings.

©Proceedings 6th Proceedings of the 6th Conference of the
New Zealand Association of Bridging Educators, 5th - 6th October 2006.

ISBN 978-0-473-12342-0

Contents

Introduction	4
Conference Programme	6
Key Note Address	8
<i>The Honourable Marian Hobbs</i>	
Understanding and Responding to Adult Classrooms	13
<i>Dr Stephen Brookfield</i>	
Making the biological connection	24
<i>Dr. Nichola Harcourt</i>	
Successful Students Engaging in Quality Programmes	28
<i>Penny Hoy-Mack</i>	
Factors that affected academic achievement of a group of students in the bridging course (Pilot study)	40
<i>Ljiljana M Jovanovic and William Alan Jowitt</i>	
Foundation Mathematics Learners and an Adult Numeracy Project	46
<i>Phil Kane, Lalita Patel and Eugene Rawiri</i>	
Successes and Challenges with Hikitia Te Ora - Certificate in Health Sciences of The University of Auckland	66
<i>Kim Dirks, David Salter, Elana Curtis, Sonia Townsend and Sue Crengle</i>	
Muddling along in the dark: Do peer-mentors need training?	80
<i>Margaret Mackereth and Anne Kennington</i>	
The 'self' I perceive: Learning/Teaching processes towards engaging self in learning	102
<i>Jane Morgan</i>	
Improving retention and student outcomes? Some questions about the retention discourse	108
<i>Nick Zepke and Linda Leach</i>	

Introduction

The New Zealand Association of Bridging Educators (NZABE) annual conference is aimed at all those involved in providing educational opportunities for students who lack the traditional entry qualifications for tertiary education. The conference is of interest to Universities, Polytechnics, Wananga, Colleges of Education, Private Providers of Tertiary Education and Secondary Schools interested in pathways into Tertiary Education.

The NZABE stated objectives are:

- To provide a forum for the presentation and development of innovative research, theory and classroom practice.
- To promote discussion and development of the field of "Bridging Education" in New Zealand.
- To create a networking opportunity for all those with an interest in Bridging Education.
- To publish conference proceedings so that there is a growing body of New Zealand literature on bridging.

These are exciting times to be involved in bridging education. In a review of the Tertiary Education Strategy, the Ministry of Education (2006, p. 26) called for foundation learning to move “from a relatively marginal position within the tertiary education system to being a core activity, underpinned by informed professional practice and improved diagnostic and teaching tools.” Certainly, those working in bridging and foundation education have been aware of the lens of government shifting its focus to look more closely inside the work of practitioners in the sector. The 2006 conference, hosted by Manukau Institute of Technology in Auckland, reflected that focus. With the theme ‘Engaging Students: Retention and Success’, both keynote speakers and presenters provided reflection on the growing standards of bridging education in New Zealand.

Keynote speaker Marion Hobbs called for the sector to engage learners not currently accessing education opportunities and to retain and progress those learners to participate in higher levels of tertiary study. Hobbs highlighted government initiatives to build capability. Phil Kane, Lalita Patel and Eugene Rawiri reported on how the professional development from the Ministry of Education funded Learning for Living numeracy cluster provided a vehicle for the development of their Foundation Mathematics course. The Foundation Learning Quality Assurance requirements are underpinned by the notion that strengthening quality will improve student success and Penny Hoy-Mack urged providers to conduct evidence based self-reviews to ensure their programmes meet quality standards for delivery.

Alongside government initiatives, for those working at the coalface, engaging students, retaining students and supporting their success is what inspires bridging educators. What success looks like is yet to be defined clearly. Engaging learners who have had negative prior experiences of formal education continues to test and challenge the skills of practitioners and

this is another theme which is reflected in this volume. Retention, the perennial issue for bridging and foundation educators, must only be one indicator of success. Zepke and Leach warn against an audit culture that places too much emphasis on retention and completion. Bridging educators have long known the paradox of the student who experiences success yet is neither retained nor completes.

The conference's visiting keynote speaker Dr Stephen Brookfield, a leader in the field of adult education and critical theory, is currently Distinguished Professor at the University of St. Thomas in St. Paul, Minnesota. His latest book titled *The Power of Critical Theory: Liberating Adult Learning and Teaching* and his previous one, *Discussion as a Way of Teaching: Tools and Techniques for Democratic Classrooms*, formed a backdrop for his keynote address, the pre-conference workshop and a round table discussion session. Dr Brookfield cautioned against striving for 'perfect-ten syndrome'. Rather, he suggested, it is important that tutors acknowledge the complexity of the teaching-learning situation and know the perception and reception of the same event is interpreted differently by every student. It is this complexity which underpinned the theme of this conference and informs these proceedings, providing richness and value to support bridging and foundation education practitioners in their work.

Alexandra McKegg

School of Foundation Studies

Unitec

Catherine Walker

Auckland University of Technology

Auckland

June 2007

Conference Programme

Thursday 5th October

9.00 – 9.30 Powhiri

10.00 – 11.00 Key Note - **Stephen Brookfield**: Through the Lens of Learning; Finding out how students experience our classrooms and our actions and what we do with this knowledge

11.15 – 12.15 **Nick Zepke and Linda Leach**: Improving retention and student outcomes? Some questions about the retention discourse

Mary Manderson: What about us? We can get degrees too.

Bruce Horsley and Joy Mylek: Holistic Foundation Learning – The Life Works Story

Anne Kennington: Supporting student learning using Moodle: An action research project

1.15 – 2.15 **Jane Terrell and Bruce Lynch**: Smarter teachers, smarter students? Experiences from a Learning for Living cluster for professional development in reading.

Penny Hoy-Mack: Successful students engaging in quality programmes

Maree Gibson: From the Margins to the Centre: ‘Te Tiriti’ – the development of a new course

Nichola Harcourt: Making the biological connection

2.45 – 3.45 **Kim Dirks, Elana Curtis, Sonia Townsend, and Sue Crengle**: Successes and challenges with Hikitia Te Ora – Certificate in Health Sciences of the University of Auckland.

Chris Coutts: ‘Hot knowledge’: Class, gender and ethnic factors in students choices about further education.

Margaret Mackereth: Muddling along in the dark: Do peer - mentors need training?

Ljiljana Jovanovic: Factors that affected high academic achievement of a group of students in the bridging course.

Anne Abbott: Practical workshop on measurement in unit standards and achievement standards

4.30 NZABE AGM

Friday 6th October

9.00 – 10.00 Key Note - **Hon. Marian Hobbs**

10.30 – 11.30 Key Note - **Syd King** (Education Review Office): The measurement of student engagement: evaluation indicators for student engagement.

11.45 – 12.45 **Stephen Brookfield** (Round Table)

Ingrid Vinkenvleugel and Laloifi Lelaulu: Community Literacy – what works best and what doesn't

Oriel Kelly: Building an eBridge: exploring eLearning possibilities for enhancing Bridging Education – first steps

John Finch: Success Education and Training A bridge too far – surely we're more than a "Clip on" – a PTE perspective.

1.45 – 2.45 **Rae Trewartha:** Innovations in Bridging and Foundation Education in a Tertiary Institution

Jane Morgan: The 'self' I perceive: Learning/teaching processes towards engaging self in learning...

Phil Kane, Lalita Patel and Eugene Rawiri: Foundation Mathematics Learners and an Adult Numeracy Project.

Key Note Address

The Honourable Marian Hobbs

Parliamentary Private Secretary (Tertiary Education)

Address to the Sixth Conference of the New Zealand Association of Bridging Educators 2006.

Speech notes

Good morning. Thanks for inviting me here today. It gives me the opportunity to understand about the opportunities/problems surrounding “bridging education”. I understand it is your 6th conference – with the aim of networking/sharing best practice. Thank you.

And it also gives me the chance to state how ‘bridging education’ fits into our vision for tertiary education – and perhaps more importantly – our dreams for New Zealand-Aotearoa.

Fundamentally we want to see the emergence of strong communities in New Zealand – and maybe it is the re-emergence of those strong communities. We wasted a lot of opportunity/talent on chasing the individual and ignoring the community. We are trying to get the balance right again.

To do this we are focusing on:

- Economic transformation
- Families young and old, and
- National identity

Together these make up a vision for New Zealand of a high income, knowledge-based economy where families have the support and choices available to participate in that economy and where New Zealanders take pride in our culture and history.

This is crucial to building strong communities.

These are goals for all of us here today to work towards - tertiary educators and government education agencies.

For New Zealand to remain competitive in the global market, we need to lift our game and raise productivity. This is not about working harder / or working longer hours. Hours per week are already too long for family health. It is about working more intelligently – Rotaform example – confidence to contribute ideas. New Zealand needs to be a high-income country with a knowledge-based economy in which high value businesses operate. For all of us to contribute, participate in and enjoy such an economy, we need a skilled workforce with a priority on raising literacy, numeracy and language skills as a driver of economic performance and social well-being. Tertiary/ post high school education is the key to achieving this and lifelong learning is more important now than ever before.

A community requires not just economic success, but also greater personal well-being and security and a strong future for our children. We might own a house/car/all the gadgets – but be violent in our personal relationships / or unable to express our feelings / or have poor health.

Good quality teaching and research in the tertiary education system plays an essential role in supporting and developing social outcomes for our families and communities – communication is not just with the boss/not just about productivity.

Tertiary education has a role in caring for our national identity. Tertiary educators act as custodians and guardians of unique and central parts of New Zealand's national identity such as Maori language and culture, our history, our connections to the Pacific and our sporting heritage.

Together we can celebrate the good fortune of living in Aotearoa New Zealand – music/dance/art/stories/natural heritage, etc. If you are proud of your community – you will serve it.

It is our task to contribute to those goals and help more New Zealanders into tertiary education. Many adults in New Zealand left school with few or no qualifications. If they got work it was in low skilled jobs. But the world has moved on and so have those low-skilled jobs – they are off shore – in China, India, Indonesia, and Brazil. We do not want to complete with how low we can go in wages.

By providing the means for more people to participate in tertiary education, bridging education plays an ever more important role in our communities today. I was a secondary school principal – my aim is to be so again – and am very conscious of how we fail about 20% of our students, ECE will help. Primary literacy and numeracy will help. But we need to focus on how students learn / the barriers. So while we have failures – bridging is invaluable – cannot confine people to scrap heap. The tertiary sector has a vital role to play in improving the performance of the economy and contributing to New Zealand's social and cultural development. Enhancing this role is a priority for this government.

Tertiary education's role is to grow, develop and refine the key competencies and specialist skills that school leavers need in order to make a successful transition into the labour market. Bridging education engages learners that have not been successful in school, as well as those wanting to move on to higher-level qualifications.

Now to some of the methods and how bridging education fits into the whole Tertiary strategy.

A Discussion Document for the Tertiary Education Strategy for the years 2007 to 2012 has been released for feedback.

The document notes that school-leavers should be supported effectively to make their transition from schooling into tertiary education and the workforce, particularly given the 'baby blip' generation due to move through the core tertiary 16-25 age range over the next ten years. Based on feedback, the TES 2007 to 2012 will be completed by January 2007.

At a period where the New Zealand tertiary sector faces challenges ahead, the TES discussion document outlines how the tertiary sector can continue to make a crucial contribution to building a stronger community and a stronger economy.

It is important therefore that you take the opportunity to read, understand and comment on the Strategy. Your voice must be heard. Otherwise it will all be about Biotechnology and architecture – and not about how you bridge the gap to there.

The discussion document and the earlier announcements on the tertiary reforms make it clear that the success of the overall Tertiary Education Strategy depends on building genuine partnerships between the tertiary sector and its stakeholders: industry, businesses, research organizations, employers, learners and communities.

As teachers we take pride in focusing on our students. But our students will work..... need to plan together for applied skills.

By providing essential teaching and training in vital skills, tertiary education providers can become an essential component of a community. Programmes such as COMET show how family literacy programmes involve partnerships between tertiary education providers, schools and early childhood centres to engage adults in tertiary learning. COMET is especially effective at engaging learners who are not participating in any other forms of training.

The crucial factor is that the education delivered by tertiary education providers must be of high quality and relevant.

We want all tertiary teaching and learning to be high quality, but good teaching at bridging and foundation level is particularly important. People enrolled in bridging and foundation-learning programmes are clearly motivated and keen to learn. Yet for whatever reason they left school with inadequate qualifications.

For these learners, more innovative teaching methods are required. We need to understand how best to motivate people to enroll, then retain them, teach them and inspire them to progress to higher education. Research indicates that for these people to succeed in their education, they need teachers with a wide range of teaching methods at their disposal – so thanks again for the networking provided by this conference.

To help young people into tertiary education, there are a number of routes that can be taken. There can, of course be a seamless transition from school straight into tertiary education, or through a bridging programme and even through workplace or other foundation learning initiatives.

A number of initiatives are now in operation to help young people move into tertiary education:

- Youth Training offers 16 – 17 year olds with low or no secondary school qualifications (i.e. less 40 credits or less) the chance to gain valuable skills that will help them to get a job.

- About 1,500 young people participated in Youth Training courses in 2005. 50% entered employment and 25% enrolled in tertiary qualifications upon completion of the youth training.

NB: 25% still on the outer – 350 students.

Recognize some PTE's have a problem with 40 credits or less.

- Transition Services assists young people as they move from school to further education, training, work or other activities that will contribute to their long-term independence and wellbeing.
- Nationally, approximately 4,800 young people are receiving support from the Youth Transition Services to ensure a successful transition into further education, training or employment. As at 28 April 2006, the Youth Transition Services had assisted 448 youth into employment and 717 youth into further education or training. Many of these young people continue to be supported by the Youth Transitions Service.

NB: Emphasis on spiral not just on merry-go-round.

- For seamless transitions, the secondary school curriculum should link clearly to tertiary courses. MIT is working with the government on the Curriculum Alignment Project by helping all Institutes of Technology and Polytechnics to collaborate with their surrounding secondary schools to establish clear pathways for students moving from secondary to tertiary education.

Many learners working their way into tertiary education are already in the workforce.

The priority areas for action under the Upskilling the Workforce programme are:

- Shifting workplace practices in key New Zealand industries, sectors and enterprises to help employers improve the literacy, numeracy and language skill levels of their employees and make better use of skills to lift productivity, profitability and pay;
- Developing ways of motivating and assisting individuals to take up and continue literacy, numeracy and language training; and
- Developing the capability and quality of training providers and tutors and increasing the supply of effective and focused literacy, numeracy and language provision that meets the needs of the workplace and learner.

Already measures are in place for building capability within the sector to deliver better quality teaching and programmes. The various government agencies involved can provide full details of the work progressing in this area and in fact officials from NZQA and the Ministry of Education provided details of some of that work at this conference, yesterday. I will just provide a quick overview.

- The Tertiary Education Commission is this month holding workshops around New Zealand to introduce the learning progressions, which provide a comprehensive tool for foundation teaching and learning. The progressions describe the key learning steps taken by adult students as they strengthen their expertise and pathway to higher learning. This tool will help tutors shape teaching programmes that will meet the needs of their students.

- Providers will be able to demonstrate the quality of their programmes by meeting the new Foundation Learning Quality Assurance Requirements developed by NZQA.
- Research tells us that the most effective way to provide better teaching is by having higher skilled teachers. In collaboration with the tertiary sector, NZQA have developed Adult Literacy Educator qualifications for literacy, numeracy and language tutors who wish to raise their skills. Providers have been accredited to offer these qualifications and the TEC is offering study grants to help support tutors in this study.
- In the same vein, the Ministry of Education, is providing a professional development initiative for tutors and managers in clusters tertiary providers around New Zealand.

This is a long-term commitment to improving outcomes for low skilled learners in bridging and foundation programmes. In the years, 2006 to 2007, the focus will be on building capability, infrastructure and knowledge to support New Zealanders to take up and continue training in literacy, numeracy and language in order to meet the needs of employers, families and communities.

This increase in funding means that, by the 2009/10 year, about 20 industry training organizations could be participating in this programme and 8,950 trainees a year will be funded to improve their literacy, numeracy and language skills as part of their training. This funding will be used to:

- Improve workplace practices to support upskilling employees (a total of \$7.5 million over three years).
- Expand the number of professional development clusters for training providers and tutors in the Learning for Living exploratory projects from six to 10 so they can provide more effective literacy, numeracy and language training in a number of settings; and fund 200 additional study grants to increase the number of fully qualified adult literacy tutors (a total of \$7.7 million over four years).
- Fund 200 additional study grants to increase the number of fully qualified adult literacy tutors (\$2.4 million over three years).
- Further integrate literacy, numeracy and language training with industry training (a total of \$15 million over four years).
- Increase the quality of training by supporting some 220 providers to meet the Foundation Learning Quality Assurance requirements (a total of \$0.9 million over four years).

These initiatives underline government's commitment to building a skilled and productive workforce and community contributing and participating in all aspects of New Zealand's social and economic development.

Thank you

Understanding and Responding to Adult Classrooms

Dr Stephen Brookfield

Distinguished Professor
University of St. Thomas
Minnesota

A core tenet of skillful teaching is that the most important knowledge we need to do good work as teachers, is a consistent awareness of how students are experiencing their learning and perceiving our teaching. In the last 20 years an impressive body of work has emerged that fleshes out this assumption by providing examples of classroom research and assessment exercises that teachers can use to gain this awareness. Typical contributions are the work of Anderson (2002), Angelo (1998), Angelo & Cross (1993), Brookhart (2000), Butler & McNunn (2006), Cross & Steadman (1996), Hammersley (1993) and Hopkins (1993). These authors have suggested numerous exercises that yield extremely valuable information concerning student learning yet are quick and easy to administer. Some of the best-known ones are the one-minute paper and the muddiest point.

Classroom research (or classroom assessment - the two terms are often synonymous) describes the regular attempt by teachers to study their classrooms in order to find out what and how students are learning. This kind of research serves the twin functions of alerting us to learning and teaching dynamics we might be missing and of developing students' own reflective capacities. Regarding the first of these functions, classroom research provides a series of cross-sectional snapshots of where students are in their learning and what important dynamics exist in class that are escaping our attention. Are some students behaving in ways that work to block the learning of others? Are teachers doing things they believe are helpful for students that are actually confusing them? Knowing these things helps us take more informed actions as teachers. When we start to see ourselves through students' eyes we become aware of what Perry (1988) evocatively described as the different worlds in the same classroom. We learn that different students perceive the same actions, and experience the same activities, in vastly different ways.

When we know something about the symbolic meanings that our actions have for students, and the way their backgrounds, personalities, cultural traditions and racial identities frame how they experience learning activities, then we're better placed to be able to judge how to behave in ways that have the effects we're seeking. For example, if we know that our silence is never meaningless or innocent to students (they think it either implies tacit approval or signifies condemnation) then we are reminded of the need constantly to say out loud what we're thinking. Without the insights provided by classroom research it is hard to know how to develop exercises that will engage students, encourage them to take on responsibility for their learning, and help them see themselves as co-creators of knowledge. This is why Shor (1992) argues that "The first responsibility of critical teachers is to research what students know, speak, experience, and feel, as starting points from which an empowering curriculum is developed" (p. 202)

The second function of classroom research is to develop students' reflective capacities. When students complete the different exercises outlined in this chapter they cannot help but become more aware of what and how they are learning. If you believe that it is important to develop a student's capacity to be reflective about her learning (to 'learn how to learn' as it is often described), and if you hope that this habit will then be applied across the lifespan, then classroom research is a crucial element in this project. Undertaking classroom research exercises helps students develop the kind of epistemic cognition proposed by King and Kitchener (1994) as the chief objective of higher education. Epistemic cognition is students' ability to say not only what they know, but also why they know it. It involves them providing the grounds for truth that demonstrate why they have confidence in a piece of knowledge. It also requires them to describe the procedures they have conducted that convince them of the accuracy of those grounds. This kind of cognition can only be developed through an intentional and consistent study of one's own learning processes and reactions. Developing such a focus is, of course, at the heart of classroom research. In this chapter I provide a snapshot of one instrument (the Critical Incident Questionnaire) that has been particularly helpful to me in finding out what is really going on in my classrooms.

The Critical Incident Questionnaire

The critical incident questionnaire is the classroom research tool that has most helped me see my practice through students' eyes by helping me embed my teaching in accurate information about students' learning that is regularly solicited and anonymously given. It is a quick and revealing way to discover the effects my actions are having on students and to find out the emotional highs and lows of their learning. Using the critical incident questionnaire gives me a running commentary on the emotional tenor of each class I deal with.

The critical incident questionnaire (referred to from this point on by its initials, the C.I.Q.) is a single page form that is handed out to students once a week at the end of the last class you have with them that week. It comprises five questions, each of which asks students to write down some details about events or actions that happened in the class that week. Its purpose is not to ask students what they liked or didn't like about the class, though that information inevitably emerges. Instead students are requested to focus on specific events and actions that are engaging, distancing, confusing or helpful. Having this highly concrete information about particular events and actions is much more useful than reading general statements of preferences.

The form that students receive has a top sheet and a bottom sheet divided by a piece of carbon paper. This allows the student to keep a carbon copy of whatever she has written. The reason I ask them to keep a copy is because at the end of the semester they are expected, as part of their assigned course work, to hand in a summary of their responses. This summary is part of the end of course participant learning portfolio that documents what and how students have learned during the semester. The portfolio item dealing with the C.I.Q. asks for a content analysis of major themes that emerged in students' responses over the semester. It also asks for a discussion of the directions for future learning that these responses suggested. Consequently, students know it's in their own best interests to

complete these questionnaires as fully as possible each week because they will gain credit for an analysis of them later in the term.

The CIQ takes about five minutes to complete and students are told not to put their name on the form. If nothing comes to mind as a response to a particular question they are told to leave the space blank. They are also told that at the next class I will share the group's responses with them.

The questions are:-

At what moment in class this week did you feel most engaged with what was happening?

At what moment in class this week were you most distanced from what was happening?

What action that anyone (teacher or student) took this week did you find most affirming or helpful?

What action that anyone took this week did you find most puzzling or confusing?

What about the class this week surprised you the most? (This could be about your own reactions to what went on, something that someone did, or anything else that occurs).

Students are given the last five minutes of the last class of the week to complete this form. As they leave the room I ask them to leave the top sheet of the critical incident form on a chair or table by the door, face downwards, and to take the bottom carbon copy with them. After I have collected the C.I.Q. responses at the end of the last class each week I read through them looking for common themes. For a class size of 30-35 students this usually takes about twenty minutes. I look for comments that indicate problems or confusions, particularly if they are caused by my actions. Anything contentious is highlighted, as is anything that needs further clarification. Major differences in students' perceptions of the same activity are recorded as well as single comments that strike me as particularly profound or intriguing. These themes then become the basis for the questions and issues I address publicly the next time we're together.

At the start of the first class of the next week I spend three to five minutes reporting back to students a summary of the chief themes that emerged in their responses. I tell them I've conducted an elementary frequency analysis and that anything that gets mentioned on 3 or more forms (which usually represents approximately 10 per cent of the class) will be reported. I also let them know that I reserve the right to report a single comment if I find it to be particularly revealing or provocative. I also let them know that the only comments I will not report publicly are those in which students identify other students in a disparaging way. I inform students that if such comments are included on the form I will either re-frame them as general observations or problems the group needs to address, or communicate them in a private, confidential conversation with the student concerned. Such conversations are usually with students who are reported on the CIQ's to be dominating the class or generally throwing their weight around in an obnoxious manner.

If I have the time I will type up a one or two page summary and leave copies of this on students' chairs for them to read as they come in. Most times the pressures of other work mean I give a verbal report. If students have made comments that have caused me to change how I teach, I acknowledge this and explain why the change seems worth making. I try also to clarify any actions, ideas, requirements or exercises that seem to be causing confusion. Criticisms of my actions are reported and discussed. If contentious issues have emerged we talk about how these can be negotiated so that everyone feels heard and respected. Quite often students write down comments expressing their dislike of something I am insisting they do. When this happens I know that I must take some time to re-emphasize why I believe the activity is so important and to make the best case I can about how it contributes to students' long-term interests. Even if I have spoken this case before, and written it in the syllabus, the critical incident responses alert me to the need to make my rationale explicit once again.

Using the C.I.Q. doesn't mean that I constantly change everything I'm doing because students tell me they don't like it. We all have non-negotiable elements to our agendas that define who we are and what we stand for. To throw them away as a result of students' opinions, would undercut our identities as teachers. For example, I won't give up my agenda to get students to think critically, even if they all tell me that they want me to stop doing this. I will be as flexible as I can in negotiating how this agenda is realized, but I won't abandon it. I'll ask students to suggest different ways they might show me that they're thinking critically. I'll also vary the pace at which I introduce certain activities and exercises to take account of students' hostility, inexperience or unfamiliarity with this process. But for me to abandon the activity that defines who I am as a teacher would mean that I ceased to have the right to call myself a teacher. So if students use their C.I.Q. responses to express a strong opinion that challenges what you're trying to do, or how you're trying to do it, you owe it to them to acknowledge this criticism. But you don't owe it to them to abandon entirely your rationale for teaching. What you need to do is make your own position known, justify it, and negotiate alternative ways of realizing your aims.

Advantages of Critical Incident Questionnaires

I am such a strong advocate of C.I.Q.'s because of the clear benefits their use confers. Let me describe these briefly in turn.

1. They alert us to problems before they are disasters

I have always prided myself on my conscientious attempts to create a safe opportunity for students to make public anything that is troubling them. I regularly invite them to speak up during the class about anything they find problematic, unfair, ambiguous, confusing, or unethical about the course or my teaching. These invitations are frequently met with silence and serried ranks of benign smiling faces. Not surprisingly, I used to interpret this to mean that things were going along just fine. Indeed, it seemed at times that students were a little tired of this heavy-handed attempt by yours truly to appear fair and responsive. So you can imagine my surprise, hurt and anger when I would receive end of course written evaluations from students that described how my course was of no real use to them, uninspiring, a waste of their time, too fast, or too slow. I had given them ample opportunity

to say these things to me earlier and had assured them I wanted to know about any problems they had so we could work on fixing them. Why had no-one spoken out?

This scenario of silent, smiling happy faces during troubleshooting periods followed by 'take no prisoners' final evaluations happened enough times that I resolved to find a way to detect early on in a course any smoldering resentments students felt. If I knew about them soon enough I could address them before they built up to volcanic proportions. Using C.I.Q.'s has helped me do this very effectively. My teaching has certainly not been without its problems, some of them very serious ones, but I have stopped being taken by surprise when these emerged.

Using C.I.Q.'s helps teachers detect early on in a course any serious problems that need addressing before they get out of hand. The C.I.Q. provides a direct, unfiltered account of students' experiences that is free from the distortions usually caused by the unequal power dynamic between teacher and taught. C.I.Q.'s are particularly helpful in providing teachers with accurate information about the extent and causes of resistance to learning. They also make us aware of situations in which our expectations about appropriate teaching methods and content are not meshing with those held by students. In my own teaching C.I.Q.'s give me good information about students' readiness for a particular learning activity. This, in turn, helps me avoid pushing them too quickly or too slowly. They also help me curb my tendency to equate silence with mental inertia. Let me explain.

Many times in the middle of giving a lecture I have one of those "Beam me up Scotty" moments. This usually happens when I sense from students' body language that I've lost them. They're looking at the table, at the ceiling, out of the window - anywhere else but at me. Faced with this lack of eye contact I feel a rising sense of panic. So I stop and ask students if there's anything I can clarify or if they have any questions about what I've just said. When my invitation is met with silence I feel demoralized and glumly conclude that the session has been wasted. After all, didn't their blank expressions and muteness prove they had no idea what I was talking about? Yet many times after such occasions I have been relieved and heartened to read in students' critical incident responses how particular moments in the lecture were the most engaging moments of the class, or how comments I made during the presentation were particularly affirming. Moreover, my asking if there was anything I could clarify is often reported as the most puzzling or confusing section, or the most surprising aspect of the class. Clearly, then, gestures I interpret as student disinterest (particularly silence) sometimes indicate a grappling with difficult material.

2. They encourage students to be reflective learners

A second advantage of the C.I.Q. lies in its encouragement of student reflection. When the instrument is first introduced into a class, students sometimes find the activity of completing the five questions on the form to be somewhat artificial, a going through of some not very convincing motions. Over time, however, they start to notice patterns emerging in their own emotional responses to learning. They tell me that as they go through a course they have pedagogic 'out of body' experiences. By weeks five or six of the course they are in the habit of hovering above themselves and studying the ways they react to different situations. Throughout each class meeting they start to jot down notes about critical events and their reactions to these as they occur. They tell me that they want

to make sure they include these on their C.I.Q. sheet when the class finishes an hour or so later. A real turning point is reached when students ask for the CIQ to be distributed early so they can complete them as the class is proceeding.

3. They build a case for diversity in teaching

Invariably, when teachers report back to students the spread of responses to the last week's classes, a predictable diversity emerges. One cluster of students writes that the most engaged moments for them were during the small group activity. Typical comments are 'I could recognize what others were saying', 'I learned something important from a group member', 'I felt my voice was being listened to' and 'group members helped me clarify my thinking'. This group of people often reports that the most distancing moments were experienced during my presentation. They write that 'I couldn't see the point of the lecture', 'what you said didn't seem to make sense to me', 'I'd had a long day and was fighting to stay awake'.

Another cluster of responses says exactly the opposite. To these students the most engaged moments in class were experienced during the instructor's presentation. Typical comments are 'What you spoke about related directly to me', 'I enjoy hearing what you think about this', 'I really benefit from having things laid out in front of me'. This same group usually reports that for them the most distancing moments happened in the small group exercise: 'We got off task', 'An egomaniac dominated our discussion', 'One man felt it was his duty to solve our problems though we hadn't asked him to'. Again, in picking out affirming actions, one cluster of responses might summarize people's favorable reactions to a teacher's self-disclosure. Another cluster of responses might report this as too discomforting or irrelevant. One student wrote about a class of mine "Your willingness to be open with us is wonderful. It makes me feel like being open in return". Another wrote of the same class 'Too much psychoanalysis, not enough content - 90 per cent of our class is personal disclosure and only 10 per cent is critical rigor'.

As I read out these responses at the beginning of each new week, students often comment on their diversity. They laugh as they hear how eight people picked out the small group experience as the most engaged moment and how another eight reported the same activity as the most distancing or confusing episode in the class. They say to me that they didn't realize how different students experience the same things so differently. Then we talk about the concept of learning styles or situated cognition and about the ways that culture, race, class, history and personality structure how events are experienced. Seeing a diversity of responses emerge every week is a dramatic way to teach students that different people learn differently.

Each week I emphasize that my recognition of this diversity lies behind my own efforts to use a range of teaching methods and materials. I tell students that I ground my use of different methods in students' reports of their own experiences as learners in my courses. If different people learn differently then I need to use as many different approaches as possible to make sure that for some of the time in class each person feels they are learning in a style that feels comfortable, familiar and helpful. I could write conviction in my syllabus, and explain it at the opening class, but this is often ignored by students who believe that everyone else learns the way they do. Without realizing it students often

universalize their experience as learners, assuming that others exhibit the same reactions and responses as they do. But when they hear, week after week, how people sitting next to them have a completely different reaction to what goes on in class, the reason why I use a variety of approaches starts to make sense.

4. They build trust

The C.I.Q. can play an important role in building trust between students and teachers. Students say that the experience of having their opinions, reactions and feelings solicited regularly, and addressed publicly, is one crucial reason for their coming to trust a teacher. They tell me they are used to filling out evaluations at the end of courses, but that they view this activity as artificial and meaningless since they never hear what use is made of their comments. They know that these might change what a teacher does with another group in the future, but this has little importance to them.

However, with the weekly C.I.Q.'s students wait expectantly at the start of each new week for the report of the responses to last week's classes. They know that during this report, and in the discussion that follows it, the teacher will be talking about what she feels she needs to change or emphasize even more strongly in her own teaching as a result of what she's learned from these responses. Students say that hearing their anonymously given comments reported back to them as part of a commonly articulated class concern somehow legitimizes what had formerly been felt as a purely private and personal reaction. When they see teachers consistently making changes in their practice, and explicitly demonstrating that these are in response to students' C.I.Q. responses, the feeling develops that these teachers are truly responsive, that they can be trusted.

Sometimes teachers quite legitimately feel that they can't change their practice to accommodate students' wishes as expressed in their C.I.Q. responses. But the very fact that teachers acknowledge that they know what those wishes are, and the fact that they take the time and trouble to explain why they feel they can't, in good conscience, do what a group of students wants them to do, builds a sense that the class is one in which open and honest disclosure is encouraged.

5. They suggest possibilities for our development

C.I.Q. responses can be a very effective way of forcing us to confront our own shortcomings and blind spots as teachers. For example, one of the first times I used the CIQ I learned several important and discomfoting things from the set of responses I received. I was alerted me to an ethnic slur I'd made (I made a crack linking the Mafia to an article authored by someone with an Italian sounding name). I became aware of a methodological miscalculation (assuming that in an introductory course students would appreciate my lecturing a great deal and finding out that in fact they were far more engaged during small group work and discussions). I was reminded of an action I needed to explain (why I didn't visit small groups while they were doing a task I'd set). And a distracting behavioral tick of which I was already aware was pointed out to me (looking at the floor while answering questions).

So from just one week's critical incident responses, I had four possible developmental projects suggested, each very different in kind: (1) becoming more aware of and monitoring

my unacknowledged racism, (2) rethinking my assumptions about the pedagogical dynamics of introductory courses, (3) making sure that I explain the reasons why I set up small group activities the way I do, and (4) working to increase the frequency of my eye contacts with students. Of these four items the last two were familiar, but the others took me by surprise. The first - my racial slur - was a real shock. I had always assumed that my care with words, and my awareness of racist language, placed me beyond the kinds of conversational slips endemic to racist speech. Without the C.I.Q. comment I would have continued to congratulate myself on being the embodiment of multicultural sensitivity.

6. They help us model critical thinking

Teachers who, like me, think it's important to get students to think critically can use the CIQ to model their own commitment to that process. Each week as I report the form's responses back to the students I make the point to them that in doing so I am applying critical thinking to my own actions as a teacher. This is because I am using students' perceptions to check the assumptions I am operating under as I set up and then teach the course. As I talk about their reactions to last week's class I reflect publicly on the relative accuracy of the assumptions that informed the activities I arranged for them. I discuss the assumptions informing the assignments I designed and those underlying the specific decisions I made in the midst of the class. I keep telling them that I am trying to demonstrate critical thinking in action – publicly checking my assumptions as a teacher by reviewing them from the different perspectives represented by the students in the class.

If no surprises are evident in the CIQ responses, and it is clear that most people felt the class had gone well, I say that the CIQ responses are still valuable because they allow me to do confirmatory critical thinking. Confirmatory critical thinking is what happens when we research an assumption that we've held uncritically and trusted intuitively, only to discover that it is indeed a good one to follow. Classroom research can be confirmatory as well as challenging and will often illustrate to us the reasons why our habitual assumptions are so well grounded. It's reassuring for students to know that critical thinking can be confirmatory, that sometimes it can lead to us committing even more strongly to assumptions we already hold. If they think that critical thinking only happens when they are forced to change everything they believed up to that point then it is unlikely that many will wish to engage in it.

Using C.I.Q.'s with large classes

Teachers often raise the problem of how to use this method with large classes. The largest group with which I've used this method had about 250 students. Most of my classes have between 30 and 35 people enrolled. If you're teaching classes considerably larger than that, I would still advocate that the method be tried but that you read only a portion of the responses each time. It's not realistic to think that a teacher with a class of 100 or so students can do a weekly analysis of a considerable amount of qualitative data. But asking a fifth of the class (a group of twenty or so students) to complete the C.I.Q.'s at each meeting is much more manageable, and you still get some valuable insight into what's going on.

Another approach is to ask all students to complete the forms individually and then to put them in small groups where they read their responses out to each other. Or, the groups can take each question on the form in turn and anyone who wants to respond to a particular question speaks up. One person from each group then fills in a summative C.I.Q. that contains the main themes that emerged in the group's discussion. This summative C.I.Q. is then handed to the teacher. In this way a class of a hundred students working in groups of five produces twenty C.I.Q. forms for the teacher to read. Another option is to ask 20 students each to collect forms from 4 or 5 other students, to summarize the responses, and then to hand their summaries in to me. Those 20 students then have part of the homework assignment for the week forfeited as a reward for their summarizing work. This means that instead of reading 100 individual forms you end up reading 20 summaries that contain the full range of student opinions.

I use a variant on this approach when I'm working with very small classes or with groups that I have taught for a long period of time. Because it becomes easier in these situations for me to recognize handwriting, or to see the order in which students hand in their forms, there is a risk of students clamming up because they think I will be able to identify individual contributions. To prevent this happening I ask a student to collect the forms and summarize the responses. Again, this student is excused part of that week's homework. Although I know the identity of the student who hands in the summary of group members' responses that person is simply the reporter or conduit for group members' responses. I have no idea who made which of the comments that appear.

A caution

Although I have argued forcefully for the use of critical incident questionnaires as a central component of skillful teaching, I want to acknowledge that my use of these has been bedeviled by one constant problem. I have called this, at various times, the trap of conversational obsession, or the perfect-ten syndrome. Conversational obsession describes the process of becoming obsessed with converting all your students, even the most hostile, to becoming enthusiastic advocates of whatever learning process you are trying to encourage. This trap compels me to think that unless everyone leaves my class bubbling over with exultant expressions of unblemished self-actualized joy, I have wasted my time. The perfect-ten syndrome describes the unreasonable desire to want to collect a batch of critical incident forms at the end of every class that contains no negative comments and a surfeit of compliments. I find myself repeatedly frustrated by not achieving an unblemished record of expressed student satisfaction for every week of the course. Unless the C.I.Q. sheets are returned with the sections on distancing moments and puzzling actions all left blank, or marked 'Not applicable', and unless no negative comments are written in response to the question about surprising aspects of the class, then I feel as if somehow I've failed.

Knowing that this is a stupid, irrational reaction on my part doesn't seem to help me very much. Intellectually and viscerally I know all about the contextual, complex nature of learning, and I am well aware of the contradictions and ambiguities inherent in teaching. I know, too, that the phenomenology of classrooms means that the same event is perceived and interpreted by different students in a myriad of sometimes-antithetical ways. But the

voice of reason is not heard very loudly by whatever emotional demons are driving me to assume the mantle of consistent perfection.

Even after many years of collecting, analyzing and reporting back students' critical incidents, I still die a hundred small deaths each semester as I read descriptions of distancing moments and unhelpful actions. So, if you're thinking of trying out something like the critical incident questionnaire, try to learn from my mistakes. Remember that the point of doing this is not to score a perfect ten of student satisfaction week after week. The point is to situate your teaching in an understanding of the emotional, cognitive and political ebbs and flows of group learning that help you realize why achieving such a score is impossible.

References

- Anderson, L.W. (2002). *Classroom Assessment: Enhancing the Quality of Teacher Decision Making*. Mahwah, NJ: Lawrence Earlbaum Associates.
- Angelo, T.A. (Ed.). (1998). Classroom Assessment and Research: An Update on Uses, Approaches, and Research Findings. *New Directions for Teaching and Learning*, 75. San Francisco: Jossey-Bass.
- Angelo, T.A., and Cross, K.P. (1993). *Classroom Assessment Techniques: A Handbook for College Teachers*. San Francisco: Jossey-Bass.
- Brookhart, S.M.(2000). The Art and Science of Classroom Assessment: The Missing Part of Pedagogy. *ASHE-ERIC Higher Education Report Series*. 27(1) San Francisco: Jossey-Bass.
- Butler, S.M. & McMunn, N.D. (2006). *A Teacher's Guide to Classroom Assessment*. San Francisco: Jossey-Bass.
- Cross, K. P. & Steadman, M.H. (1996). *Classroom Research: Implementing the Scholarship of Teaching*. San Francisco: Jossey-Bass.
- Hammersley, M. (Ed.). (1993). *Controversies in Classroom Research*. Bristol, PA: Open University Press.
- Hopkins, D. (1993). *A Teacher's Guide to Classroom Research*. Bristol, PA: Open University Press.
- King, P.M. and Kitchener, K. S. (1994). *Developing Reflective Judgment: Understanding and Promoting Intellectual Growth and Critical Thinking in Adolescents and Adults*. San Francisco: Jossey-Bass.
- Perry, W.G. (1998). "Different Worlds in the Same Classroom." In, P. Ramsden (Ed.). *Improving Learning: New Perspectives*. New York: Nichols.
- Shor, I.(1992). *Empowering Education: Critical Teaching for Social Change*. Chicago: University of Chicago Press.

Making the biological connection

Dr. Nichola Harcourt

Waikato Museum and the University of Waikato (School of Science and Engineering)

Email nichola.harcourt@hcc.govt.nz

The field of biology is both vast and dynamic, and the sheer number of concepts contained within present a significant learning challenge to the student. For bridging students in particular, the lack of inherent knowledge of basic biological concepts makes it difficult for them to connect new ideas, and to gain an understanding of the subject as a whole. Therefore, experience has shown that it is essential for students to be presented with a mindmap linking the fundamental concepts that will be covered during the course at its outset. This mindmap will both draw on student's existing knowledge and introduce them to new concepts, which will be revisited throughout the course. Through involving students in the mindmapping exercise they are able to apply new concepts to familiar experiences. Of the many students who struggled with the first year general biology course, many have remarked that they could not get their head around the subject as a whole, and that they did not have the basic framework in place upon which to build new ideas. Further, experience has shown that it is essential to contextualize the delivery of the subject matter so that it has relevance to the student group as a whole. This is achieved through incorporation of as much student participation in class discussion as possible, and enabling the students to apply tasks beyond the classroom to their own interests. Within such a diverse group of students there will be a diverse range of experiences to draw upon, and this needs to be embraced. In a subject such as biology which is a mix of tangible and intangible concepts, it is vital that a variety of media are used to convey concepts (e.g. demonstrations, hands-on experiences, visual and audio presentations). The other advantage of using mixed media to deliver concepts to the students is that it ensures that different learning styles are catered for.

The ability to engage and motivate students is indeed a skill, and one that needs to be developed constantly throughout the classroom experience of the teacher. Just as technology is constantly changing, so too is the student dynamic, with external factors such as life experience and delivery of educational content having a dramatic effect on how students relate to each other, to the teacher, and to the teaching environment. It is therefore imperative, that an educator constantly reflects on the success with which they are engaging the students and addressing gaps in their knowledge. This can be achieved through critical review and feedback, as well as networking with other educators working in their field. The prime objective of this paper was to share with others several strategies that have proven successful for engaging and increasing the uptake of knowledge about biology by bridging students at Waikato University, across several foundation level programmes. Much of the information presented in this paper is in agreement with published educational theory (Chaiklin, 2003, & Druger, 2001).

A nationwide trend in the declining number of students opting to undertake biology study after secondary school is of concern to both the scientific education and research communities. The 2002 Auckland University Taskforce on admissions into the Medical and Health Sciences, Science and Engineering faculties showed that a declining number of secondary school students take the five or six Year 13 approved subjects, and that the percentage of students taking the major science subjects has also declined. This means that there are fewer students with adequate pre-existing knowledge of biological concepts leaving the school system. To address the gaps in student knowledge, bridging courses will play an increasingly key role in preparing students for successful outcomes in degree level courses.

The field of biology is both vast and dynamic, and the sheer number of concepts contained within present a significant learning challenge to the student. Undertaking a study in biology requires the student to learn a new vocabulary and to connect disparate concepts together. When this understanding has been obtained, the student can be said to have made a biological connection. Biology is traditionally perceived to be a difficult subject to grasp, due to its technical content, associated vocabulary, and also the manner in which it is delivered to the students. Due to the vastness of the topic, delivery of too much information quickly leads to saturation point for the students and often they cannot appreciate how information fits within the bigger picture. If the information does not relate to a clear overarching framework, it is difficult to retain concepts and make sense of overlapping systems. For this reason, an overview of the course content is presented at the outset of the course and during each session current material is related back to the framework. This ensures that students gain an understanding of how the concepts fit within the bigger picture. The students are also constantly reminded how the material they are learning fits in with the course matter they will be learning in the degree level course.

In order to identify the gap between a student's current knowledge of biology and the minimum required level of knowledge to cope successfully in a degree level course, the students sit a baseline test in the first session. This baseline test is similar in length and format to the final test, and proves useful for the students and teacher alike. Mindmaps are a useful tool to demonstrate relationships between concepts, and has the added benefit of both drawing on student's prior knowledge as well as providing a visual reference. Linked concepts enable knowledge to be recalled more readily than disparate facts, and can readily accommodate new knowledge. Mindmaps require students to think in multiple directions and clarify meaning. Mindmaps are successfully employed in each session and relate concepts back to the overall framework as introduced during the first session.

Creating a learner-centred environment enables students to feel at ease in the classroom and to bring their pre-existing knowledge to the class. By demonstrating that students' existing knowledge and experience is valued in the classroom, it enables students to establish positive networks. Positive relationship building within the classroom in turn enables students to discuss any issues they may have and it will be more likely for them to indicate when they are not keeping pace in the class. Incorporating exercises that help students to create social networks are useful. Presentations held early in the course have proven to be useful for establishing student willingness to contribute in class. The use of class presentations works particularly well when they culminate in a class discussion on the topic. This style of learning activity has the added advantage of encouraging the

student to bring their prior knowledge to the classroom, and to build upon this knowledge.

Relating biological facts to real life help to keep the content relevant to the student and make it easier for the student to make sense of the content. Research shows that understanding concepts within the broader framework of biology aids memory, strengthens mental dexterity and enables students to use their logic and powers of creative thinking when answering questions. That makes it easier for them to produce well-thought-out arguments in an exam situation, instead of trying to reproduce rote-learned facts.

Demystifying technical language by using technical terms alternately with their lay-explanation, and frequent exchange between the two, helps to reinforce student understanding. Encouraging students to do the same increases their familiarity with the terms and comfort with use of biological language. Each session begins with a short quiz consisting of ten questions taken from the previous session. After the quiz papers are collected in the answers to the questions are reviewed as a class, while the content is still fresh in student minds.

As with any subject, it is vital to cater for different learning styles by using multimedia to deliver information to the student and different assessment methods. During any session, multiple delivery methods are employed to convey information. In addition to oral delivery by the teacher, students are exposed to visual presentations (e.g. Powerpoint, whiteboard, audio-visual), tactile objects where appropriate, and interactive activities. These interactive activities routinely include group brainstorming to fulfill a task, role play, and experiences beyond the classroom (e.g. guided tours). Often a topic is presented as part of a scenario, and this is particularly successful in engaging students. Molecular genetics in particular is one such area that students perceive to be difficult. This may be in part due to the high technical content of this subject area but also because much of the information cannot be “seen” by the student. Each group of students may be given one scenario and need to solve the problem and present their conclusions to the class. Alternately, a session may be built around one hypothetical scenario. This has proven to be highly engaging and draws out student prior knowledge and experience. Student assessment styles are diverse to ensure that all students have an equal opportunity to demonstrate their knowledge. These assessments include written tests, a report, an essay, two presentations that may include posters and the short quiz at the beginning of each session.

A number of strategies may be employed to increase student engagement in biology and these include interactive activities and an appreciation of real-world context by students. It is vital that students understand how concepts fit within the broader context of biological theory. To ensure teaching delivery and student engagement continue to improve, success will be monitored through feedback from students, colleagues and participation within the bridging educators network.

References

- Chaiklin, S. (2003). The Zone of Proximal Development in Vygotsky's Analysis of Learning and Instruction. In A. Kozulin, B. Gindis, V. Ageyev, & S. Miller. (Eds.) *Vygotsky's Educational Theory and Practice in Cultural Context*. Cambridge: Cambridge University Press.
- Druger, M. (2001). Creating a Motivational Learning Environment in Science. *Journal of College Science Teaching*, 30(4), 222-224.

Successful Students Engaging in Quality Programmes

Penny Hoy-Mack

Adult and Community Education Advisor
New Zealand Qualifications Authority

Introduction

Strengthened quality requirements for foundation learning programmes will contribute to student success. This assumption underpins the work of the New Zealand Qualifications Authority (the Qualifications Authority)-led Foundation Learning Quality Assurance (FLQA) project.

Improvements in foundation learning quality assurance have been initiated both by Government and foundation learning sector, as part of Learning for Living, an inter-agency strategy to raise the foundation skill levels of New Zealanders. Other Learning for Living initiatives are the Tertiary Education Commission learning progressions project and the Ministry of Education professional development cluster groups. Learning for Living has defined foundation learning as literacy, numeracy and language¹. Foundation learning is often in the context of other learning, for example bridging education.

Since July 2005, the Qualifications Authority has been working with an expert task group and consulting with stakeholders to develop improved quality assurance for foundation learning programmes. The Qualifications Authority expects to publish the final Foundation Learning Quality Assurance requirements in late 2006.

FLQA - the vision

The FLQA vision is that quality assurance supports good quality practice and is evidence based.

The FLQA is in line with research evidence, which indicates gains in literacy, numeracy and language are made when learners engage in programmes that deliberately identify and address their literacy, numeracy and language learning needs. A recent research meta-analysis and observational case-study of effective foundation teaching concludes that

¹ The FLQA project has adopted the literacy taskforce report *More than Words* definition for literacy and applied it to foundation learning: *the application of a complex web of reading, writing, speaking, listening, critical thinking, problem solving, numeracy skills and communication technology so that people can achieve their own goals in meaningful social, cultural, vocational and/or learning contexts.* (MoE, 2001, adapted from Workbase)

‘deliberate acts of teaching’ are needed to improve literacy, numeracy and language outcomes for learners (Benseman, J., Sutton, A., & Lander, J., (2005a & 2000b). The FLQA requires a deliberate focus on literacy, numeracy and language teaching and learners’ needs and progress. The FLQA requirements will assist the proper integration of literacy, numeracy and language skills into foundation learning programmes, by requiring that programmes are consistent with learners’ social, cultural, vocational and learning contexts. Research that shows learner motivation is pivotal to the success of literacy, numeracy and language programmes and is best achieved through integration with contexts and motivations relevant to learners, which include vocational learning. The most important internal and external motivations for learners’ enrolment and retention in literacy, numeracy and language programmes relate to personal context and are frequently employment related (Ministry of Social Development/Lift Education, 2006; Benseman et al 2005a).

The FLQA has a good relationship with professional wisdom as well as research. Its origins can be traced from the quality assurance recommendations in the 2001 More Than Words literacy taskforce report (MoE) to the draft Adult Literacy Quality Mark project in 2004. It resonates with practical experience, reflection and understanding of adult education theory. Practitioners recognize the educational worth of the FLQA requirements, as ‘good work’ for learners and the sector.

Learners’ needs are a central focus of the FLQA, and an informed view of learners’ context is a recurrent theme throughout. Although it has been argued that the FLQA may be costly to implement, benefits for learners are gains in literacy, numeracy and language, along with improved labour market outcomes and income for graduates of foundation learning programmes. For example, research commissioned by the NZ Treasury indicates that higher literacy level has a positive impact on personal income (Johnston, G., (2004). Also, low levels of literacy are a barrier to individuals’ gaining and retaining employment and progressing in the labour market. More general benefits are the contribution made by quality providers to developing a higher skilled workforce and increased productivity and meeting overarching Government goals. One of the key barriers to increases in productivity, identified by the Department of Labour Workplace Productivity Group, is the large number of people with low levels of literacy, numeracy and language skills (DOL. (2004).

The FLQA is intended to enhance established quality assurance specifically for foundation learning programmes. Foundation learning programmes differ from other programmes in that they enhance the literacy, numeracy and language skills of particularly vulnerable learners so that they can fully participate in further learning or work. Research into the 2001 census results shows that people with literacy, numeracy and language are particularly vulnerable to changes in employment status and that indicators of low levels of literacy are disabilities, health impairments and little or no qualifications (Culligan, S., Sligo, F., Arnold, G., Nobel, A., (2005).

Application of the FLQA

The FLQA will apply to foundation learning programmes in tertiary education organizations. This covers institutes of technology and polytechnics, private training

establishments, government training establishments and Wānanga. Adult and community education providers may choose to integrate the FLQA into usual their quality assurance.

The FLQA will fit into established quality assurance, for example it will be integrated into usual scheduled audits by quality assurance bodies. The FLQA falls out of certain areas of Quality Assurance Standard One and the ITP Quality standards, auditors will cross reference to those standards to avoid replication and additional compliance. The FLQA is a lens for self-review and external audit of foundation learning programmes. It provides a deeper level of detail around expectations for quality than the general quality assurance processes and standards.

The FLQA requirements

The FLQA encompasses teaching and organizational practices that have a positive and significant impact on foundation learning outcomes. The practices are:

1. Planning and design: the provider has a planned approach to the overall design of its foundation learning programmes that is consistent with the social, cultural, vocational and learning context of the learner.
2. Resources: the provider has adequate and appropriate resources to support its foundation learning programmes
3. Staff: all staff involved with foundation learning programmes and learners, including voluntary staff, are suitably qualified, experienced and supported by the provider
4. Learners access and entry: learner access and entry to foundation learning programmes is facilitated effectively
5. Delivery: programme delivery supports learners to achieve their foundation learning goals [the use of initial assessment to establish learners' literacy, numeracy and language needs and goals, a negotiated learning plan that incorporates individual needs]
6. Review and development: the foundation learning programme is systematically reviewed and improved.

Each practice has a set of requirements. The full FLQA requirements are in Appendix One.

FLQA consultation and trial

In February - May 2006, the Qualifications Authority completed extensive consultation with stakeholders, using a written survey and a series of six focus groups around New Zealand. From a total of 112 responses, nearly all of which were from a wider group e.g. a provider or a peak body like ITPNZ, 90% agreed that the FLQA was aligned to good quality foundation learning. However providers had some concerns around the implementation of the FLQA: 'It's not the 'what' - it's the how they would be implemented' (focus group response). Some providers were not clear about which programmes or parts of programmes would be covered by the FLQA and some learning support unit staff from larger TEOs felt their activities and funding could be disadvantaged

by the emphasis on programmes. Providers identified increased resources (staffing levels, preparation for external review and audit, professional development for tutors, learning texts and assessment tools) needed to implement the proposed FLQA. Cost implications were a concern to providers, especially the cost of tutor qualifications. The FLQA was 'compliance double up' for some providers. For those providers not currently delivering foundation learning programmes the definition was too narrow and should include other types of learning. Some respondents felt auditors needed to be specialists in foundation learning. For some larger tertiary education institutions, the strong focus on individual learning is difficult to realize in the context of mainstream programmes with diverse learners. Designing programmes for 'target groups' is problematic for some. Providers wanted examples, templates and mentoring to help them implement the FLQA requirements. In June 2006, the consultation summary report was published on the NZQA website at <http://www.nzqa.govt.nz/for-providers/foundation/docs/flqa-summary.doc>

Outcomes of a small-scale trial of the FLQA requirements are another source of information and learning that has shaped the FLQA requirements. The trial with eight providers was conducted by the Accreditations, Approvals and Audit (AAA) Group of the Qualifications Authority and ITP Quality. This was a small sample, as the dALQM had provided some information about providers' readiness to implement the practices. For three ITPs and one PTE, the trial was part of their scheduled audit with AAA or ITPQ. For four PTEs it was a standalone audit of the FLQA. The trial incorporated a provider self-review of foundation learning programmes and trialled the draft Self-review Guide for Providers. A revised version of the Guide will be presented to this workshop.

It was notable that the outcomes of the trial were congruent to results of the consultation. A final FLQA Trial Report will be published on the NZQA website. Its recommendations are to:

Clarify the scope of the FLQA

Too many providers were confused about which programmes the FLQA would apply to. Options relating to specific levels were considered, however it was decided the FLQA should apply to programmes with an identifiable focus on literacy, numeracy and language learning. An 'identifiable focus' means the inclusion of literacy, numeracy and language learning in the programme's content, title, graduate profile or outcomes. It was noted ESOL programmes have an identifiable focus on literacy and language learning.

Change the wording of some FLQA requirements

- insert 'appropriate to their role' requirement 3.3, to clarify that staff will only be required to undertake qualifications appropriate to their role e.g. volunteers, vocational tutors
- the requirement for 'professional supervision' in 3.4 should be deleted because the term is commonly used in social work or counselling and did not seem to apply to adult education) and replaced by 'professional and mutual support'
- the words 'and other relevant parties' be deleted from requirement 5.5, to protect learners' privacy.

Enhance the FLQA Self-review Guide for Providers

The project team and expert task group agreed to undertake clarification of: the scope of the FLQA, the ‘social, cultural, vocational learning context’ (Practice One) and examples of acceptable qualifications to meet requirement 3.3. It was agreed that some overseas qualifications would be acceptable and appropriate for 3.3 and clarifications should be made in the Guide. The project team also agreed to insert into the Guide examples of diagnostic assessments of learners (Practice Five) and ways to identify target groups (requirement 1.2), noting that statistical information about communities’ needs should be accompanied by analysis. These enhancements will be integrated into a revised Guide, which will improve its readability and usefulness

Clarify integration into established quality assurance

Integrating the FLQA into established quality assurance was a key assumption of the project from its outset, however the trial outcomes made is apparent that providers need more detail about how this would be achieved. This would be included in an FLQA implementation plan.

Plan resourcing for quality assurance bodies

Internal and joint AAA and ITPQ meetings and workshops on the FLQA are planned over the next year, as part of ongoing professional development and training for auditors. The audit activities will be resourced by allocations from within Budget 2006

Acknowledge providers’ current level of readiness to implement the FLQA

The project team agreed to work with the Tertiary Education Commission, to clarify resources providers indicated needed to implement the FLQA, the resources identified by auditors and providers were similar to those indicated by the consultation.

Changes to FLQA considered but not recommended

Change the definition of foundation learning. To become more inclusive of different types of learning, the project teams agreed to retain the definition of foundation learning as ‘literacy, numeracy and language’, as it is shared by a growing number of stakeholders. acknowledge the context of holistic foundation learning programmes.

Delete ‘negotiated’ learning plans. The project team and expert group considered that almost all adult learners do have the skills to negotiate learning plans, provided the learning context is appropriate

Change ‘formative’ to ‘ongoing’ assessment. The expert group and project team agreed that formative assessment is a widely understood term that was vital to the FLQA.

Weaken the requirement for foundation skills teaching qualifications or experience for vocational tutors. The steering group indicated that the requirement for qualified/experienced tutors was integral to Learning for Living. However, the introduction of this requirement should be carefully phased in with providers, so there would not be any unfair compliance burden.

Indicate the relative importance of FLQA requirements. Some auditors and providers noted that some FLQA requirements were similar to the established quality standards, and suggested that these requirements given less emphasis. However, it was decided that the FLQA requirements provide a lens for foundation learning programmes than enhance rather than duplicate established standards. It is expected that the implementation process will clarify how the FLQA requirements differ from established quality standards.

Plans for introducing and implementing the FLQA

At this stage, the FLQA is still ‘proposed’, although the Qualifications Authority expects to finalize its approval in late 2006. It would be published in the NZQA website and in hard copy, and stakeholders notified. A series of introductory workshops will start in March 2007. Auditor training and professional development will commence in 2007.

The consultation and trial indicated that considerable ‘capability building’ is needed by some providers to meet the FLQA requirements. A plan for capability building will be developed by Government agencies and will be led by TEC. A number of related projects for example the MoE’s professional development clusters and the TEC’s learning progressions project will help develop the resources and capability needed. However, further time and resources are needed to implement the changes in practice required, therefore implementation of the FLQA would be gradual.

A transitional phase would start in 2007 and there would be no immediate impact on funding or compliance. During 2007 and 2008, the Qualifications Authority would expect providers to conduct ongoing self-review of their foundation learning programmes against the FLQA requirements. The Qualifications Authority expects to assist providers in identifying appropriate programmes. Resulting from their self-review, providers would indicate to NZQA and ITPQ those programmes they consider to be ready for an external audit that incorporates the FLQA. In this transitional phase, there is no additional cost to providers in extending their external audit to encompass the FLQA. By 2009, it is expected that FLQA would become part of ‘business as usual’ for providers and quality assurance bodies.

The exact form of the link between the FLQA requirements and funding will be clarified as part of the current reforms to investment in tertiary education and quality assurance and monitoring.

Self-review of foundation learning

Self-review is an already established part of providers’ strategic planning and is increasingly emphasized as a critical part of quality assurance and monitoring by Government agencies. Tertiary providers are being increasingly expected to set their own strategies and targets and review their own progress. Self-review helps providers to honestly identify their strengths and weaknesses and ways to improve their performance.

Providers will need to identify indicators of good quality performance for their foundation learning programmes and systematically collect information or evidence about their own performance. They should examine a range of evidence that demonstrates to what degree their performance meets the FLQA requirements. Interviews with learners and staff can provide evidence. Documents, records, observations and analysis of performance results are also good sources of evidence. Providers should not simply ‘tick off’ that they have a quality system. The evidence should relate directly to the FLQA, showing how providers’ delivery and quality system addresses the six practices and its requirements.

An accompanying draft FLQA Self-review Guide will be introduced to providers to support their self-review. The Guide has been developed by an expert panel from across the foundation learning sector. This Guide covers each of the six FLQA practices and their requirements. It explains what each practice means and how it helps learners to achieve their goals, including references to New Zealand research evidence. Examples of good quality and possible sources of evidence are given for each practice. References are made to research that is both international and New Zealand based. Following each of the requirements, the Guide lists some key, reflective questions that providers should ask themselves to facilitate the self-review.

Workshop

Workshop participants will be given an opportunity to ask questions about the requirements and to discuss in small groups the expected impact of the FLQA requirements. Feedback will be sought on excerpts from the draft FLQA Self-review Guide for Providers.

Appendix One: Foundation Learning Quality Assurance Requirements

Practice One: Planning and Design

The provider has a planned approach to the overall design of its foundation learning programmes that is consistent with the social, cultural, vocational and learning context of the learner.

Requirements

- 1.1 The provider has, and applies, an explicit foundation learning definition, strategy, goals and objectives, relevant to the provider's context.

The provider's definition is consistent with the definition in the FLQA requirements.

- 1.2 The provider has identified target groups, their potential foundation learning needs and goals and how the design of the programmes will meet their needs.

Practice Two: Resources

The provider has adequate and appropriate resources to support its foundation learning programmes.

Resources may include: teaching and administrative staff, budgets, premises, texts and other learning resources, administration and time.

Requirements

- 2.1 Foundation learning resources are appropriate to the social, cultural, vocational and learning context and programme goals, and they meet adult learners' needs.
- 2.2 Foundation learning resources are regularly reviewed to remain appropriate to the social, cultural, vocational and learning context, the goals of the programme, and adult learners' needs.

Practice Three: Staff

All staff involved with foundation learning programmes and learners, including voluntary staff, are suitably qualified, experienced and supported by the provider.

Requirements

- 3.1 Staff are inducted into the provider's foundation learning definition, philosophy, strategy, objectives and quality systems.
- 3.2 Staff undertake continuing professional development or training to improve the quality of foundation learning delivery.
- 3.3 Tutors delivering foundation learning programmes have, or are working towards, a New Zealand recognized qualification in adult literacy, numeracy or language teaching; or have relevant experience, that is appropriate to their role. Recruitment and selection criteria are applied to ensure this.
- 3.4 Tutors have continuing professional and mutual support, based on provider, tutor and learner needs.

Practice Four: Learner Access and Entry

Learner access and entry to foundation learning programmes is facilitated effectively.

Requirements

- 4.1 The provider identifies barriers to access, including information, language and mode of delivery, and ensures foundation learning programme recruitment and enrolment processes are adjusted in response to foundation learners' needs.
- 4.2 Placement within the organization, or referral to suitable alternative programmes, meets learners' foundation learning needs.

Practice Five: Delivery

Programme delivery supports learners to achieve their foundation learning goals.

Requirements

- 5.1 An initial assessment is undertaken of the foundation learners' needs, strengths and prior learning experiences.
- 5.2 A learning plan, which incorporates initial assessment results, goals, strategies, and clear responsibilities for achievement, is negotiated between the learners and the tutor.
- 5.3 Tutoring methods are sufficiently flexible, varied and appropriate to meet the specific needs of individual foundation learners, are consistent with good adult education practice, and foster lifelong learning.
- 5.4 A range of formative foundation learning assessment tools and processes are used that are suitable for, and integrated with, the adult learners' experiences, culture and learning contexts.
- 5.5 Formative assessment of the learners' progress is reported to the learner and leads to revisions of the learning plan, as appropriate.
- 5.6 On completion of the programme the learner receives a record of their achievements and progress.

Practice Six: Review and Development

The foundation learning programme is systematically reviewed and improved.

Requirements

- 6.1 The foundation learning programme is developed, evaluated, and improved against the provider's foundation learning definition, strategy, goals and objectives.
- 6.2 Review processes include feedback from learners and other key stakeholders, and findings from learners' foundation learning progress.

Bibliography

- Benseman, J., Sutton, A., & Lander, J. (2005a). *Working in the light of evidence, as well as aspiration. A literature review of the best available evidence for effective adult literacy, numeracy and language teaching*. Auckland: The University of Auckland & Auckland UniServices Ltd. Retrieved September 26, 2006, from http://www.minedu.govt.nz/web/downloadable/dl10603_v1/fl-literature-review-final-document-jan-2005-unis.doc
- Benseman, J., Lander, J., & Sutton, A. (2005b). *Pedagogy in practice: an observational study of literacy, numeracy and language teachers*. Auckland: The University of Auckland & Auckland UniServices Ltd. Retrieved September 27, 2006 from http://www.minedu.govt.nz/web/downloadable/dl10929_v1/moe-fl-observation-study---web-version-301105.doc
- Culligan, N., Sligo, F., Arnold, G., Noble, A. (2005). *Interpreting the International Adult Literacy Survey: Predicting indicators of lower literacy performance*. Ministry of Education: Wellington.
- Department of Labour. (2004). *The Workplace Productivity Challenge. Workplace Productivity Working Group Report*. Retrieved September 4, 2006 from <http://www.dol.govt.nz/workplaceproductivity/resources/reports/the-workplace-productivity-challenge.asp>
- Institutes of Technology and Polytechnics New Zealand. (2004). ITPNZ Academic Quality Standards (Revision 2004). Retrieved November 3, 2005 from www.itpnz.ac.nz
- Ministry of Education (2001a). New Zealand Results from the 1996 International Adult Literacy Survey. Appendix to More than Words: the New Zealand Adult Literacy Strategy. Ministry of Education: Wellington.
- Ministry of Education (2001b). *More than Words: the New Zealand Adult Literacy Strategy*. Ministry of Education: Wellington.
- Ministry of Education. (2002). *Tertiary Education Strategy 2002-07*. Wellington, New Zealand: Ministry of Education
- Ministry of Education: Wellington. (2005). *Key Competencies in Tertiary Education: Developing a New Zealand Framework Discussion Document*. Wellington, New Zealand.
- Ministry of Education. (2006). *Assessment for Foundation Learning: The importance of purposeful assessment in adult literacy, numeracy and language courses*. Retrieved September 15, 2006 from http://www.minedu.govt.nz/web/downloadable/dl11359_v1/assessment-for-foundation-learning-w-web-report.doc

- Ministry of Social Development and Lifelong Education, (2006, in publication). *Literature review examining key factors that motivate or impede adult learners to enroll and remain in literacy, language and numeracy initiatives.*
- New Zealand Council for Educational Research (NZCER). (2006) Assessment for Foundation Learning: The importance of purposeful assessment in adult literacy, numeracy and language courses. Retrieved September 27, 2006 from <http://www.minedu.govt.nz/index.cfm?layout=document&documentid=11359&indexid=11194&indexparentid=1028>
- New Zealand Qualifications Authority. (2004). Draft Adult Literacy Mark Demonstration Project Report. New Zealand Qualifications Authority: Wellington. Retrieved August 22, 2005 from <http://www.nzqa.govt.nz/for-providers/foundation/index.html>
- New Zealand Qualifications Authority. (2005). Quality Assurance Standards for PTEs, GTEs and Wānanga (QA Standard One). Version 1.03 (2005): Wellington. Retrieved August 22, 2005, from <http://www.nzqa.govt.nz/for-providers/aaa/docs/qastd1.doc>
- Organization for Economic Cooperation and Development (OECD). (2000). Literacy in the Information Age: Final Report of the International Adult Literacy Survey. Statistics Canada: Retrieved November 2, 2005, from <http://www.statcan.ca/english/freepub/89-588-XIE/about.htm>
- Prebble, T., Hargreaves, H., Leach, L., Naidoo, K., Suddaby, G., & Zepke, N. (2005). *Impact of Student Support Services and Academic Development Programmes on Student Outcomes in Undergraduate Tertiary Study*. Wellington: Ministry of Education: Retrieved August 22, 2005, from <http://www.minedu.govt.nz/index.cfm?layout=document&documentid=10185&indexid=6533&indexparentid=5871>
- Sutton, A., Lander, J., & Benseman, J. (2003). *Foundation Learning in Aotearoa/New Zealand: mapping the nature and extent of provision*. Auckland: The University of Auckland & Auckland UniServices Ltd. /MoE. Retrieved September 27, 2006 from http://www.minedu.govt.nz/web/downloadable/dl11206_v1/mapping-report---web.doc

Factors that affected academic achievement of a group of students in the bridging course (Pilot study)

Ljiljana M Jovanovic

Lecturer, School of Foundation Studies
AUT University

William Alan Jowitt

Senior lecturer, Department of Mechanical and Production Engineering
AUT University

Motivation of students is an extremely important issue in higher education. 12 out of 17 students, who were “striving for excellence”, agreed to participate in the study. The group of students was highly motivated to achieve the goal, to gain entry into a degree. Students were given a questionnaire and a Rosenberg self-esteem Scale Questionnaire to fill out. Descriptive statistics and correlation analysis were used in the analysis of data.

In the study very strong association was found between the goal setting issues and support given to students by their lecturers and family members. The presence of a “safe” classroom environment was emphasized as an important factor in the process of learning, as well as the role of praise.

Aim

The aim of this cross sectional study was to identify the factors that contributed to the high academic achievement of a group of students in the bridging course Certificate in Health Studies, at the School of Foundation Studies, AUT University, and later in a degree programme.

The group consisted of 17 students who were “striving for excellence”, but only 12 students agreed to participate in the study.

After successfully completing the first four semester papers or “core papers” with an average “B” grade students gain an entry into a School of Nursing only, and leave the course. To gain an entry into the other Schools at the Faculty of Health and Environmental Sciences at AUT University, students are required to complete the whole two semester course or eight out of nine offered papers.

Method

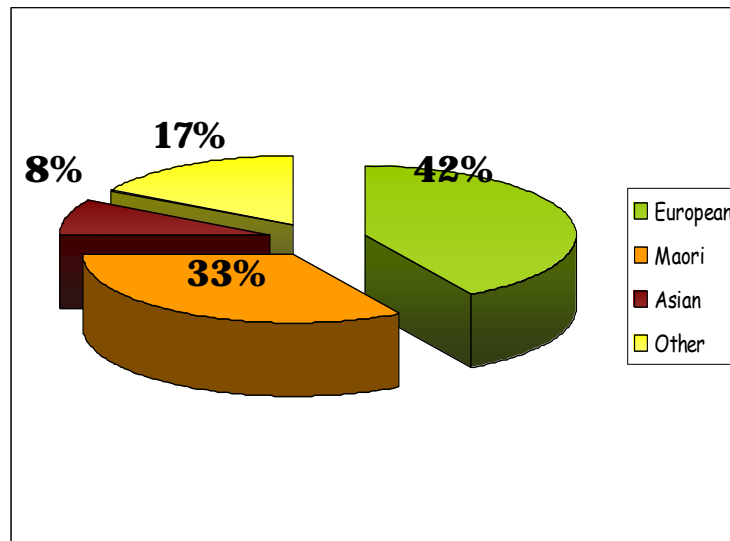
Participants

Participants in the study were second semester students; students were selected using the technique of purposeful sampling.

All students in the group had the highest pass mark in the paper Introduction to Human Structure and Function One which was a prerequisite for the second semester paper Introduction to Human Structure and Function Two in which they gained the same excellent results.

After signing the consent form students/participants were given a Questionnaire and Rosenberg self-esteem Scale Questionnaire to fill out. Confidentiality and anonymity was guaranteed to all participants in the study. All participants (three males and nine females) volunteered to participate in the study.

The age of the sample ranged from 18 to 45. 66% of students were in the range from 18 to 25 years. 42% of those in the sample identified themselves as European/Pakeha, 33% identified themselves as Maori, 17% as Asian, and 8% as Other.



The questionnaire

The Questionnaire consisted of 21 questions, and was designed to cover all areas of interests regarding students' details, family background, living and studying circumstances, self-esteem, attitude, support...etc

The global self-esteem measure used in these analyses is the Rosenberg self-esteem Scale Questionnaire that contains 10 statements. They responded to a 4-point Likert scale from 1=strongly agree through 4=strongly disagree. Maximum score was 30, and cut off point was 15. Participants who scored above 15 were considered to have a positive self esteem.

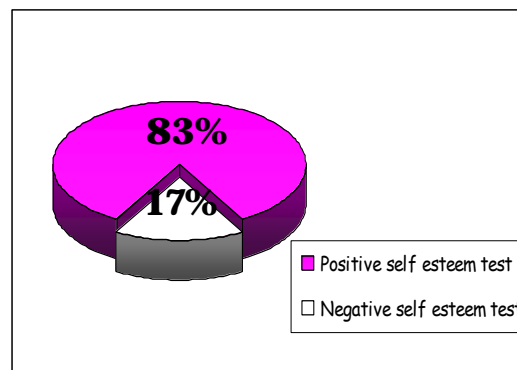
Data analysis

Data had to be coded before they were analyzed. Coding as a process requires a numeric response for each item of interest. Data were analyzed by SPSS (Statistical Package for Social Sciences) statistical software. Descriptive statistics and correlation analysis were used in the analysis of data.

Results

Descriptive statistics analysis presented in the Table 1.

Rosenberg self-esteem Scale Questionnaire has shown that 83% of students had a positive self esteem, and only 17% negative at the end of the course.



Correlation analyses

Pearson product/moment correlation analysis has shown highly significant positive correlation between self-confidence/self- efficacy and support given to students by their lecturers, with the correlation coefficient $r = 0.728^{**}$ ($p < 0.01$).

Self-confidence/self-efficacy correlated positively with the ‘safe classroom environment’ with the correlation coefficient $r = 0.581^{*}$ ($p < 0.05$).

Highly significant positive correlation was found between the family support/ family home environment and motivation, that was of intrinsic nature related to a goal setting issues, with the correlation coefficient $r = 0.800^{**}$ ($p < 0.01$).

Discussion

Self-esteem is described by Rosenberg (1965), as a favourable or unfavourable attitude toward the self. This is the most frequently cited definition. Blaskovich and Tomaka (1991) considered self-esteem as an evaluative component of the self-concept, as a “broader representation of self that includes cognitive and behavioural aspects as well as evaluative or affective ones.”

The correlation between self-esteem and academic achievement do not indicate that high self-esteem leads to a good school performance, but is according to Baumeister and

colleagues (2003) partly the result of a good school performance. Other researchers have different findings.

According to Bandura (1997, p.11) self-esteem and self-efficacy are two entirely distinct concepts. Self-efficacy is concerned with “judgements of personal capability, whereas self-esteem is concerned with judgements of personal worth.” Bandura has claimed that the two concepts are entirely different, but related “to the extent that self-esteem is linked to one’s judgements of capabilities.” Self confidence/efficacy is considered according to Bandura (1986) as one of the most influential motivators and regulators of behaviour in people’s everyday lives, and there is a growing evidence that self confidence “is the central mediating construct of achievement strivings”.

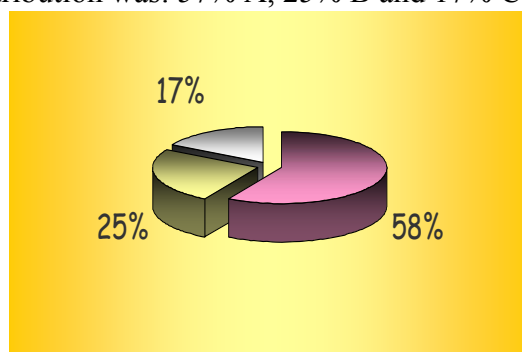
In the present study there was a high positive correlation between students self confidence and support received from their lecturer (s) during the process of learning. The role of praise, as a part of support, has been significant throughout the process of learning. Mueller and Dweck (1998) noted that tutors/lecturers believe that giving praise to students may be necessary for their academic achievement; it would be “essentially good” since criticism may make people vulnerable and hence is unhelpful. On the contrary Ames and Ames (1984) have seen praise as a “positive reinforcement” that can cause students avoiding intellectual tasks or not facing themselves with the difficulties. In the present study praise or “positive reinforcement” appeared to be beneficial in terms of students learning.

Corpus and colleagues (2005) have shown that there was a positive correlation between intrinsic motivation and grades in their study, and also emphasized positive correlation between intrinsic motivation and academic achievement in many studies in the field of educational psychology. On the contrary, extrinsic motivation proved to be negatively correlated.

In this study there was a positive correlation between motivation of high academic achievers and the support they received from their families before and during the learning process. Families or family members have shown the warmth and encouragement to high achieving students.

Tracking

All participants in the present study were enrolled in a degree in the Faculty of Health and Environmental Sciences, AUT, and passed the Human Structure and Function paper in the first semester. Grade distribution was: 57% A, 25% B and 17% C.



Limitations of the study

A limitation of the study was that the Rosenberg Self Esteem Scale questionnaire was not completed before the second semester started. Hence it was not established whether students' self esteem levels were high or low prior to commencing the semester.

In order to obtain more reliable and more comprehensive data it is proposed that further study is carried out on a larger sample of students, perhaps including students in other settings. It is intended that future study would set out to identify factors that contribute to or create a "safe classroom environment".

To establish the relevance of self esteem as basis for successful, and as a consequence of successful study, groups of students should complete the Rosenberg Self Esteem Scale questionnaire before or during the first week of the semester. After the conclusion of the semester students and in particular successful students should be identified and asked to complete the questionnaire again.

References:

- Ames, R. & Ames, C. (1984) *Research on Motivation in Education*. Orlando, FL: Academic Press
- Bandura, A. (1997). Self – efficacy: *The exercise of control*. New York: Freeman
- Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice – Hall.
- Baumeister, R., Campbell, J., Krueger, J., & Vohs, K. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological science in the public interest*, 4 (1), 1-44
- Blascovich, J., & Tomaka, J. (1991). *Measures of self-esteem*. San Diego, CA: Academic Press
- Corpus, J., Lepper, M., & Lyengar, S. (2005). *Journal of Educational Psychology*, 97 (2), 184-195.
- Mueller, C. & Dweck, C. (1998). “Praise for intelligence can undermine motivation and performance”, *Journal of Personality and Social Psychology*. 75: 33 - 52
- Rosenberg, M. (1989). *Society and the Adolescent Self-Image*. Revised edition. Middletown, CT: Wesleyan University Press.
- Wrightsman, S. (1991). *Measures of personality and social psychological attitudes*. San Diego, CA: Academic Press

Foundation Mathematics Learners and an Adult Numeracy Project

Phil Kane, Lalita Patel, & Eugene Rawiri

School of Foundation Studies
Manukau Institute of Technology

In October 2005, the School of Foundation Studies applied to the Ministry of Education for Numeracy development within the Learning For Living Project. Along with four other Auckland providers (AUT and the private training providers, Solomon Group, MSL, and BMETS) we formed an Auckland Numeracy Cluster, to work alongside two developers.

Cluster meetings and a hui were held before the end of the year, where we participants became familiar with what the Project was trying to achieve, who some of the stakeholders were, and to find out what was expected of us and of our adult learners. The initiative gained momentum visibly though, when our students arrived in February 2006, and became a class of Foundation Mathematics students. Our paper describes some of the challenges we faced before the course began, and how the semester unfolded with the Numeracy Project for the students and their lecturers.

We also look at the class's results, and whether the course needs to alter through our work on the Numeracy Project. This experience has influenced how we recognize (and sometimes admire) the innate numeracy which students at this level, and on our other levels of Mathematics, may possess.

The Adult Numeracy Initiative

The Learning for Living Project

In 2004 various research projects were undertaken that included international research examining teaching and learning practices that lead adults to making literacy, numeracy and language gains plus exploratory projects to explore effective foundation learning practice. The findings of both projects and research highlight the importance of appropriately skilled teachers and tutors, plus deliberate sustained acts of teaching, clearly focused on learner needs and using a range of teaching methods.

The Learning for Living Exploratory Project 2005 - 2007

Following the findings of the 2004/05 projects and research, geographical clusters which focussed on Numeracy were set up in October 2005, in Auckland, Whanganui, and Christchurch. Each Cluster was made up of a range of providers in the same region. A national development team, working for the Ministry of Education, and advised by a Specialist team, led the professional development. Two developers worked with each

cluster of providers. In the Auckland Numeracy Cluster, the developers have been Jenny Amaranathan and Janet Coup.

Auckland cluster beginnings . . .

Each provider in the Auckland Cluster needed to have three people on the floor for the Adult Numeracy Initiative. One was to be a manager, and the other two were to be lecturers or tutors. At MIT's School of Foundation Studies, it made a great deal of sense for us to work with learners whom we had initially assessed would start at the lowest level we offered, Foundation Mathematics. Consequently, two lecturers with experience at this level, Lalita Patel and Eugene Rawiri, would take this cohort together. An advantage of this pairing was that both Eugene and Lalita were also Student Advisors within the School, so each had strong backgrounds in learner guidance issues.

At an initial meeting with the then Head of School, David Coltman, and Phil Kane, the two developers, Jenny, and Janet, provided background to the Project, and an insight into what our involvement would be. This gave us time to set things in motion, because there were obvious administrative details such as staff release, timetable considerations, funding, and dates for meetings, to be dealt with. Though these would take time, the School was committed to joining the Project, as previously with the Literacy Team Teaching model.

The first get together for the five providers was at a Cluster meeting at MIT in October 2005. This was closely followed by a one day hui in Papatoetoe, in early November, which had presentations from various government agencies such as the TEC and NZQA. Alison Sutton informed us of the literature review, while Gill Thomas talked about her role as researcher/evaluator for this Cluster, and the tasks of the Specialist Numeracy group. The five providers had several queries about the Project. A major point for the MIT team was attracting students to take part in the Project, and more importantly their staying on the course, for the long term. Also, there was the question of funding, which was common to all providers.

In the first issue, there has been an ongoing concern with the retention of many of our bridging students. Put simply, in November 2005, we could not be certain that we would start with around 25 students in a Foundation Math class, and we could not predict how many of these people would still be there at the end. In the past, we have observed that many adult learners have difficult situations, which challenge their families, their health, their finances, or combinations of these issues. And for several young adult students, the maturity and perseverance needed to finish what is started, still doesn't appear to be a priority, with a six-month horizon perhaps proving too distant for some.

The second major issue of funding-forecasting was dealt with in a comprehensive template called the work plan. Alongside this were administrative and research tasks to address . . .

- Completion of questionnaires/mind maps by the managers and tutors
- Contract between the MOE and each provider
- Ethical approval documentation
- Context evaluations for each provider (managers)

So there were many things to have in place before our learners even arrived. Naturally, we were interested in how many potential students would be at the level we were targeting, and also at how our Foundation Mathematics course would meet their Numeracy needs.

Background to the Foundation Mathematics course

For many years, the Basic Mathematics course had provided students whom we felt were under prepared for the Introductory Mathematics course, with a front end to this course. Upon successful completion of Basic Mathematics, students would then embark on Introductory Mathematics, beginning it in Week 6 of the same (18 week) semester. The same lecturer would teach the class over the semester. Over the last few years however, as the Programme grew, and provided access to more and more students, it was evident that the Basic course had become a “five week sprint” for some. So though it still assisted many students to regain their confidence with numbers, there appeared to be other (less able) students who still struggled at this level, with the pace and the ideas.

Leading into the last two years, we began to tinker with the whole set up of the Basic / Intro courses. Around the same time, or earlier, three other things, which have had some influence, were underway.

- Our “Diagnostic” Assessment had become tired and in need of overhauling. The Mathematics Assessment needed to be less repetitive, to have more contextual questions (with diagrams if possible), to be set in a friendlier format, and to provide prospective students with a broader set of themes to attempt.
- In primary schools, the Numeracy Projects were gaining momentum, with the twin thrusts of Number Strategies and Number Knowledge to the fore.
- In a similar vein, our Preliminary Mathematics course, created for University of Auckland BEd (primary) students who needed some preparation, before taking higher level courses, now began with themes from those numeracy projects.

These each provided us with useful frames to build on, and we hoped what we had learned would assist us in creating a more satisfying course for both learners and lecturers. So in late 2004, the Foundation Mathematics course evolved, replacing the old Basic Mathematics course. We took out the “Basic” title because it was felt that it was a label which made many students in that course believe they were at the bottom of the heap. One of the main aims was to give those students who needed it, more time with number, so parallel classes were started by Phil and Lalita, running at the same time slot, in adjacent rooms.

We felt that many bridging students were ‘mathematically rusty’, and perhaps just needed a little time to (re)gain “momentum with number”. So the new Foundation Math students were given a two-week period of grace, and in this time they explored the four arithmetic operations, alongside Place Value and Number Facts. Then, they were all given a written test that mirrored the first two pages of the “Diagnostic” which they had attempted at interview time. Those who had gained momentum and had improved their scores markedly,

were then invited to become a new Introductory Mathematics class starting in Week 3, with Lalita. Those students who did not manage to show real gains from their previous result were strongly advised to stay in the Foundation Math course, with Phil. This model depended on student numbers, so in the first semester it ran, Lalita began Introductory Mathematics with about fifteen students, and Phil with ten at the Foundation level. Within both classes, there was a range of abilities, from people who struggled along but who took small but significant steps, to others who perhaps surprised themselves with the progress they made.

The Introductory Math course suffered with some later student withdrawals, and this was further exacerbated when it was decided to amalgamate this class with another, which had a falling roll. Though this probably made financial sense as it freed up one staff member to take on other work, in our views, it stretched the loyalties and “class ownership” of these separate groups, in spite of the best efforts of the lecturers. Both courses ran for the semester, with the Foundation course maintaining its shape for the duration. In succeeding semesters, we looked at refitting Foundation Math into one term, so that students could meet the Number theme, and use this to support later themes of Measurement, Proportions, and Data Handling. It was hoped that students could begin the first half of the Intro Math course in their second term with us, providing them with a more flexible (and realistic) suite of courses, and in not such a rushed learning environment. But even with these changes, we felt that there was still room for improvement, so the timing was right for our participation in this Numeracy Project.

The numeracy framework, the learning progressions, and the common measure

In the December Numeracy Cluster meetings, the critical ideas about the Numeracy Framework were planted. In the second meeting, we spent some time defining Knowledge and Strategy Progressions, and the various stages within each of the Progressions. Though this Framework evolved from the School Numeracy Projects, its arrangement and levels were more focussed towards adult learners, in terms of stages, and in contexts.

A critical boundary in the Progressions is the one which separates learners who may only operate by counting, from learners who can break numbers up into parts (known as part-whole thinking, or partitioning). Steinke (2000) suggests that direct instruction of the part-whole concept should be part of adult basic math and algebra classes. She adds that many adult students continue to struggle and continue to fail (since) they do not know that partitioning is the concept that they are lacking, rather than skills.

A paramount relationship which should be seen is the cycle between Knowledge, which underpins new Strategies, and how those Strategies are then used to create new Knowledge. One aspect cannot be in place without the other; therefore the learners who are counters, need a host of those Knowledge concepts around them, so that they then can work on the Strategies which will lead them to become practitioners. Many of us throughout the Cluster were surprised at what our learners knew, or more particularly didn't know, about one of the Knowledge Progressions, Place Value. This was one of those aspects that we assumed was known to them, and for many of our learners, apparently it wasn't all there. It now

comes as no surprise that working within say the Metric System, must be more of a challenge for a learner if Place Value is not understood.

In previous cohorts of Foundation Math students who have been counters, there have been earnest attempts to get them to learn the Number Facts which would have supported other methods. If they drifted back towards counting, then there was a feeling that they were at least solving a problem in their own way. At the hui in October 2005, however, Gill Thomas noted that “the only thing that is wrong for people who rely on counting is that that is the only method they will ever be able to use”. So if working through to partitioning strategies with learners is not successful, then these people are being marooned at that level.

The tables on the following pages show the stages for adult numeracy learners which were constructed by the Specialist Numeracy Group, in late 2005.

Operational Strategy Progressions and Stages (Version 08 / 12 / 2005)

Addition & Subtraction	Stage 2-3	Stage 4	Stage 5	Stage 6	Stage 7
	Count from One	Advanced Counting	Early Additive	Advanced Additive	Advanced Multiplicative
	Counts from one to solve addition problems.	Counts on or counts back.	Solves addition or subtraction problems by deriving from known facts.	Uses at least two different mental strategies to solve multi-digit addition or subtraction problems.	Uses at least two different mental strategies to solve addition or subtraction problems with decimals and simple fractions.

Multiplication & Division	Stage 2-3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8
	Count from one	Advanced Counting	Early Additive	Advanced Additive	Advanced Multiplicative	Advanced Proportional
	Solves multiplication problems by counting all of the objects.	Solves multiplication problems by skip counting or skip counting and counting in ones.	Solves multiplication problems by forming the factors or using repeated addition.	Solves multiplication problems by deriving from known multiplication facts.	Able to use at least two different mental strategies to solve multiplication and division problems with whole numbers.	Able to use at least two different mental strategies to solve multiplication and division problems with decimals and fractions.

Proportions & Ratios	Stage 1 Unequal Sharing	Stage 2-4 Equal Sharing	Stage 5 Early Additive	Stage 6 Advanced Additive	Stage 7 Advanced Multiplicative	Stage 8 Advanced Proportional
	Unable to find a fraction of a number by sharing of the objects into equal subsets.	Finds a fraction of a number by sharing the objects into equal subsets.	Finds a unit fraction of a number mentally using trial and improvement with addition facts.	Finds a fraction of a number mentally using a combination of addition facts and multiplication.	Finds a fraction of a number using division and multiplication.	Uses at least two different strategies to solve problems that involve equivalence with and between fractions, ratios and proportions.

Table 1

In tandem with the Strategy Progressions, are these corresponding Knowledge sections.

Knowledge Question Progressions and Stages (Version 08 / 12 / 2005)

Forwards and Backwards Number Word Sequence	Stage 2-3 Emergent	Stage 4 FNWS and BNWS up to 100	Stage 5 FNWS and BNWS up to 1000	Stage 6 FNWS and BNWS up to 1 000 000
	Cannot produce the number just before and after a given number from 1 to 100 without dropping back.	Can produce the number just before and after a given number from 1 to 100 without dropping back.	Can produce the number before and after a given number from 1 to 1000.	Can produce the number before and after a given number from 1 to 1 000 000.

Note – FNWS = Forward Number Word Sequence

Fractional Numbers	Stage 2-3 Unit Fractions Not Recognized	Stage 4 Fractions Recognized	Stage 5 Ordered Unit Fractions	Stage 6 Co-ordinated Numerators/ Denominators	Stage 7 Equivalent Fractions	Stage 8 Ordered Fractions
	Cannot write symbols for unit fractions.	Can write unit fraction symbols.	Can compare unit fractions.	Describes the size fractions with reference to both numerator and denominator	Names equivalent fractions	Orders fractions with unlike denominators and numerators

	Stage 2-3 One as a Unit	Stage 4 Ten as a Counting Unit	Stage 5 10s in Numbers to 1 000	Stage 6 10s, 100s and 1000s in Whole Numbers	Stage 7 Tenths in Decimals/ Ordered Decimals	Stage 8 Decimal Conversions
Place Value	Finds number of objects in collections by counting all of the objects by one. Does not use ten as a counting object.	Uses ten as a counting unit, knows the tens in numbers to 100.	Knows how many tens are in numbers to 1000 and orders numbers to 10 000.	Knows how many 10s and 100s are in whole numbers, orders whole numbers, and knows that ten tenths make one.	Knows how to order decimals to three places.	Knows tenths, hundredths, and thousandths in decimals, identifies decimals between others. Converts between percentages and decimals

	Stage 0-1 Non-grouping with 5	Stage 2-3 Within and with 5, within 10	Stage 4 Addition with 10s and Doubles	Stage 5 Addition Facts	Stage 6 Subtraction and Multiplication Facts	Stage 7 Division Facts
Basic Facts	Unable to recall instantly groupings within five and within ten.	Instantly recalls groupings within, and with five.	Recalls doubles to 20, and “teen” facts.	Recalls basic addition facts, multiplication facts for 2,5, 10.	Recalls the basic subtraction and multiplication facts.	Recalls the basic division facts, and names factors of numbers to 100.

Table 2

Setting up a Foundation Mathematics class for semester one 2006

At the beginning of Semester One in 2006, many of our courses still had room for new or returning students. As stated earlier, to operate the Numeracy Project we felt we needed about 25 students to run a viable class and consequently, be then able to utilise the skills and experience offered by both Lalita and Eugene. So we returned to the Initial (Diagnostic) Assessment that we used, to place every student at suitable Mathematics or English starting points.

Our Programme has always used some kind of placement testing at interview time for new students. With the rechecking process, we needed to see whether students were placed at correct levels, by looking at what was actually answered, not just their total scores. The people whose assessments were rechecked were either on the Foundation Mathematics list (to ensure that they did test into that level), or at the next level up, Introductory Mathematics.

Almost ninety scripts were visited, and we moved two of the 14 people on the current Foundation Mathematics class up into Introductory Mathematics. In the other direction, we

identified thirteen people who on the evidence they provided in their test, would struggle at the Introductory Mathematics class. So after explaining the result and the benefits to those (seven) who had actually turned up at semester start, we brought them over to the Foundation Mathematics class. There were almost as many more on the cusp between the two classes. Taking student costs and their own views into consideration, we decided to leave them in their current classes. (This process needs to be done reasonably early in a semester, because adults who return to education, can make firm bonds with similarly focussed adults in their classes, and these may be as important to them as their academic well being).

There are always students who start late to a semester, and a couple of these joined the class before the end of the second week. Then with lecturers monitoring their Intro Math classes, or students themselves notifying us of possible subject struggles, other shifts were managed, bringing the Foundation Mathematics class to 23. By the start of the third teaching week, students and classes were settled. And two other students who were completing Intro Math (Part B) in the first term, and who would then undertake the Math for Health Studies course in the second term, were also enlisted for the sample.

The assessment

We were introduced to the Common Measure, the assessment tool(s) that we would be using to estimate our students' places on these Progressions. The Common Measure was made up of two separate assessments, the Strategy Interview, and the Knowledge Assessment. How these would be administered is shown in Table 3, but we quickly realized how well organized we needed to be, to collect useful data.

Once assessed, the stages learners were at were estimated, for each of the above Progressions, then entered on a spreadsheet and sent to the evaluator. The same two assessments would be repeated (in the same manner) near the end of the course.

However, by early December, our students had already departed for their breaks, so trialling it with anyone at the Foundation Math level was not an option. Some learner sample responses had been distributed and these assisted our defining of the levels. We went away to informally try the questions on someone else, and attempt to measure at which stage they were. This was valuable for it gave us a chance to rehearse our deliveries of the assessments, and as teachers, get a feel for how much time each activity would take.

<i>The Strategy assessment</i>	<i>The Knowledge Assessment</i>
<p>There were 20 questions, covering the 3 Strategy Progressions, Additive, Multiplicative, and Proportional, in that order. It was to be given on an individual interview basis and would provide each learner with the same opportunity to explain which method(s) they used to answer the questions.</p> <p>Lecturers or tutors recorded learner responses to each question. If a learner began to struggle with questions at a certain point, and did not appear to be making further progress then the lecturer would ask questions from the next Progression.</p> <p>The assessment could be stopped and restarted at where a learner left off, if needed.</p>	<p>The set had 42 questions covering the four Knowledge segments of Number Sequencing, Fractional Numbers, Place Value, and Basic Facts, in that order. It could be given to the whole class (on OHT's or PowerPoint), or be given on an individual basis.</p> <p>Learners recorded their own answers on an Answer Sheet which was collected later by lecturers. This whole assessment was to be answered in a *controlled time frame, since it tested whether learners knew the answers, or not. In other words, they were not given time to strategize, and they were given all the questions.</p> <p>* Typically, 3 to 4 seconds per question were allowed, or around 45 to 50 seconds for a list of ten questions.</p>

Table 3

Assessing during Semester One, 2006

Once the class had a settled core of students, the Project could begin. Phil spoke to the class about what we were attempting to do, and that we were trying to find out from each person what worked in their learning of Mathematics, and from our teaching. It was important to include a national perspective, since there were students like themselves in Whanganui – New Plymouth, and in Christchurch, also taking part. Though the assessment aspect created some nervousness with a few students, most were curious to see what was going to happen, and the Learner Information sheets prepared for them answered most questions. (see App. 1) The important points that it was not a pass-fail situation, and that the course which they were enrolled on would be business as usual, may also have assisted. We stressed that we needed their permission to forward any results of the survey, and suggested that they went away, and came back to give consent if they wished. However, many signed then and there, and that provided a critical mass for the Project to move forward, and also gave us confidence. Though we are not quite sure what we would have done if they had backed away at this early stage, we remain very grateful to them all for their faith in us, their interest in the Project, and their willingness to participate.

We realized early on that it would take a considerable amount of time to get all the individual Strategy interviews completed. Not only did the process need a definite time allocation, but we needed to make allowances for who was there on the day, or for other Programme events outside the control of the course. There was also the issue of when the best time to chat to individual students was, and probably the Wednesday after lunch session was the most fruitful.

Lalita and Eugene had set up a useful working arrangement in their classroom team teaching. One would teach part of a theme, with the other topping up anything which could aid the learners' understanding. It worked well then that while Eugene usually continued with the whole group, Lalita could withdraw students, one by one, mostly in class time, and spend the first few minutes chatting to them, in her office. The last thing we wanted to avoid was stage fright, so we kept the opening part of the interview as informal as possible. It gave both Lalita and Phil a golden opportunity to ask them about their progress on the Programme. We believed that they were doing us the favour, so we were tried not to rush the process.

The assessment began with four attitude questions, and the learner responses to what they thought of Mathematics, their own ability in Math, and how well they used it, (all graded on a 1 to 5 scale), were recorded. The Strategy questions were next, and we had laminated cards with the questions printed on them, for the learners, plus a second set of questions for the assessing lecturer, to record each learner's methods. With so much paper being used, we found it necessary to set up folders for each learner, initially for our own organization, and subsequently so that we could locate them readily for the second assessment later in the semester. In the earlier interviews, we both tended to over question learners, then quickly discovered that we should stop, and move to the next Progression, if a learner was not making any progress. We didn't give out any paper, as learners were asked to explain what they were doing to us (the assessment has been revamped since, and the use of pen and paper, and calculators is more explicit, after a number of questions have been answered).

We observed people who counted on fingers, or visualized counters just above their heads, for some questions, while other people wrote with their fingers in the air or on the table, of digits and algorithms to vertically calculate more complex answers. A few students could apply some of what had been covered in class, and they produced some useful partitioning and compensating strategies and solutions. As the assessing took us some weeks to complete, the introduction of some of the strategies before the assessment was inevitable. However, we reasoned that in teaching, the show had to go on, so it was simply a matter of luck about which learner got interviewed at which stage of the syllabus. And there is an expectation of adult learners to make an effort to catch up with anything that is missed, using peer help, with lecturer assistance, or at the weekly lunchtime Math tutorials, so we were not surprised these strategies surfaced .

An interesting side was that the class began to sort itself into two groups or communities (within a community) of learners – one cohort was quicker at picking up the concepts, while the second took more time to understand. To provide more flexibility for the class, Eugene and Lalita started working some Introductory Mathematics themes into the course, and the class responded well to this challenge. In fact, some students in the faster group were in a position to attempt the full Intro Math examination at the end of the semester, while everyone was prepared for at least the Part A Intro Math examination.

We administered the Knowledge Assessment almost half way through the first term. Each student was given a one page grid to write on, and then had to answer questions which were on an OHT, and were being read out at the same time. (there were some questions however, which could not be read out as this would have provided clues) We advised them

to write every answer in its correct place, and gave breaks between the Progressions. We felt that doing this with the whole class was the most consistent method, as everyone would get the same amount of time. A few students were absent at this time so these were done later, individually, and care was needed to provide them with the same amount of time as the class had earlier.

The Intro Mathematics course, which had taken over more of the class's learning diet, necessitated the use of calculators. An early emphasis in this course is to anticipate a reasonable answer to a calculated question where possible. Learners take this on board better when their teacher continually models these kinds of estimates, in as many situations as possible. The groundwork on strategies and knowledge had been laid in the first term, and some time had been spent on the Proportion themes of Fractions and Percentages, which almost everyone had struggled with in the first assessment. So we were quite keen to see how well the learners went in the second assessment, with these influences in mind.

The second assessment began in early June, and the above exercises were revisited, with two other considerations. The Knowledge Assessment was repeated in its entirety, with most learners keen "to get a better score". The Strategies Assessment however, would start at where a learner had stopped in the first attempt. This meant that each interview was usually shorter, though the questions that had halted them the first time, were usually more complex, and possibly needed a greater effort anyway. Also, the retaining of students, especially after the two week Semester break, is a continuing challenge for us, so there was an unfortunate likelihood that we would be assessing fewer students anyway. As it turned out, seven students left for various reasons, with some having to deal with issues well outside their respective spheres of control. However, we could still reassess the 16 remaining Foundation Math students, plus the other two, who at this time, were part way through their Math 1 Health classes.

Informal results

The in-depth results for the Auckland Cluster are to be submitted to the Ministry this month (October 2006), and there were some interesting aspects from the learners at MIT. Of the 18 learners who attempted the second round of assessments, 11 were female while 7 were male. Within the group of eleven females, 7 were under the age of 25 years (with five under 20). Of the seven males, there were six under the age of 25 years (with five under 20).

This table summarizes the movements of the 18 learners who completed the two assessment episodes for the Strategy Progressions.

Additive 1st Assess	Additive 2nd Assess	Multiplicative 1st Assess	Multiplicative 2nd Assess	Proportional 1st Assess	Proportional 2nd Assess
(maximum Stage 7)		(maximum Stage 8)		(maximum Stage 8)	
5	<i>same</i> ($\times 6$ learners)	2	up to 4 ($\times 1$)	1	<i>same</i> ($\times 2$)
	up to 6 ($\times 5$)	4	up to 5 ($\times 1$)		up to 2 ($\times 7$)
6	<i>same</i> ($\times 6$)	5	up to 6 ($\times 4$)		up to 5 ($\times 1$)
	up to 7 ($\times 1$)		up to 7 ($\times 1$)	5	<i>same</i> ($\times 5$)
			down 5 ($\times 1$)		up to 6 ($\times 1$)
		6	<i>same</i> ($\times 5$)		up to 7 ($\times 1$)
			up to 7 ($\times 4$)	7	down 6 ($\times 1$)
		7	<i>same</i> ($\times 1$)		

Table 4

Most students moved up the Multiplicative and Proportional progressions, though in the Additive Progression, two-thirds of learners maintained the same levels. Not surprisingly to us, the Proportional Progression had the lowest initial stages with over half of the learners (55.6%) estimated at Stage 1.

Another interesting feature was the range of stages within the Progression assessments. There was a narrow range in the Additive Progression for all learners (either Stage 5 or Stage 6), whereas in the next, the Multiplicative Progression, there was a far greater spread across the stages in the initial assessment.

This table summarizes the movements of the 18 learners who completed the two assessment episodes for the Knowledge Progressions.

Number Seq's 1st Assess	Number Seq's 2nd Assess	Fractions 1st Assess	Fractions 2nd Assess	Place Value 1st Assess	Place Value 2nd Assess	Basic Facts 1st Assess	Basic Facts 2nd Assess
(maximum Stage 6)		(maximum Stage 8)		(maximum Stage 8)		(maximum Stage 7)	
2	up to 4 ($\times 1$)	2	up to 4 ($\times 2$)	4	same ($\times 2$)	2	up to 5 ($\times 1$)
4	up to 5 ($\times 1$)		up to 5 ($\times 1$)		up to 5 ($\times 7$)	4	up to 6 ($\times 1$)
	up to 6 ($\times 1$)		up to 7 ($\times 1$)		up to 6 ($\times 2$)	5	same ($\times 1$)
5	same ($\times 2$)	4	same ($\times 3$)		up to 7 ($\times 1$)		up to 6 ($\times 2$)
	up to 6 ($\times 6$)		up to 5 ($\times 5$)	5	same ($\times 2$)		up to 7 ($\times 2$)
6	same ($\times 7$)	5	same ($\times 1$)		up to 6 ($\times 3$)	6	same ($\times 2$)
			up to 6 ($\times 1$)	6	same ($\times 1$)		up to 7 ($\times 2$)
			up to 7 ($\times 1$)			7	same ($\times 7$)
			up to 8 ($\times 2$)				
		6	same ($\times 1$)				

Table 5

In the Knowledge assessments, almost 39% of the learners were already at the highest Stage for each of the Number Sequencing and the Basic Facts sections. Though two learners made it to Stage 8, for the Fractional Numbers, the highest stage for Place Value remained elusive. With two-thirds of the learners initially being evaluated at Stage 4 in Place Value, perhaps this middle level was too far to go to the top. The initial Fraction result did not surprise though when considering the Proportions/ Ratio Strategy result. However two learners who began at the lowest stage there made very real gains, with one moving three stages, and another moving five stages. In fact, every section had at least two people making progress through two stages or more.

We can be reasonably satisfied with the progress made by these students according to their results. It shows they could make progress in this subject, particularly the Knowledge sections using a combination of what we traditionally do, plus some deliberate targeting of key Numeracy processes and knowledge. Which contributed more or less is not so clear here, though both Lalita and Eugene have and continue to alter what they do with this class.

Unlike some of the other providers, we were in a position to spend more teaching time with our learners.

Each of the courses mentioned (Foundation Mathematics and Introductory Mathematics) offer a regular (daily) diet of learning Mathematics, so every student could attend up to 7½ hours of Mathematics per week. The number of hours of Numeracy of each student in the above cohort, taken between the two assessments were estimated by Lalita and Eugene, then recorded on the spreadsheet for Gill. For the people who completed, these times ranged from 23h to 72h. And there is always variation about what learners do in these “quality times” with their hours. Again, the in-depth Report will examine the influence of instruction time more closely.

Influences and implications

Earlier, we mentioned that we felt there was still room to tinker with our Foundation Mathematics course, so the Adult Numeracy Initiative was a most suitable vehicle to learn how we could help our learners more, within that course. A key component has been the continuous Professional Development which we have been exposed to. The regime of three-weekly Cluster meetings has been valuable, not only to hear from the Developers, Jenny and Janet, but also to learn from other providers. Coben (2003) states that rather than high levels of mathematical qualifications, it is teachers’ engagement in continuing Professional Development in mathematics education that correlates with effective teaching.

For the initial placing of the learners, we need to consider some follow up with regard to their scores on the Placement or “Diagnostic” tool. In Appendix 2, there is a copy of the first 12 questions in the test we used.

The Test is marked out of 30 and there are spaces for students to write their answers on the paper. At a glance the numbers of students in this Numeracy Project, who got the questions correct were :

<i>Question number</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Number of correct responses	14	8	2	3	5	9	13	1	9	2	3	0
Question type	+	–	×	÷	PV	PV	FNWS, PV		+ – Dec	÷ Dec	PV Dec	÷

Table 6

The two learners from outside of the class, who had completed their Intro Math and were now studying Math 1 Health, got 12 and 14 out of 30 respectively. Neither had stage scores in the Numeracy assessments below 5, and each had a fair sprinkling of 6s, with some 7s. Each got the first 7 correct in the “Diagnostic”.

We placed people in the Foundation class, if their total score was less than 5 out of 30, and/or they got 2 or less of the opening four operations correct. There were other questions beyond Q12. which they may have had correct, but some of those could have been worked out from counting. As a predictor of Numeracy Progression stages, there is not enough time

or space left in this paper to devote to that. However, these same people were scoring 5s and 6s in the Additive Strategy Progression, though their Multiplicative stages were more scattered. Most people who had less than 4 out of 30 correct in the “Diagnostic” began at Stage 1 in the Proportional Progression.

Another aspect of this Test is to look at which stages the questions are at. From reading Tables 1 and 2, it appears that most of these questions are pitched at Stage 6, right across the relevant Progressions. It is probable that Q7 would fit at Stage 5, but there are others, particularly the decimal calculations, which are more likely to be at Stage 7 or 8. The result for Q9 where half of the students couldn’t calculate the correct change, is also interesting. A few had found a total, but did not subtract, so this raises issues of reading for understanding, or rechecking, even though it is set in what could be considered a familiar context.

So is this test a useful instrument for determining whether a person should be at Foundation Math level? Though it may not be as definitive as we thought it could be, it does signal that a learner may have weaknesses in certain areas, the often-quoted spiky profiles which many adult bridging students possess.

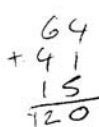
Changing the order and the “strength” of some questions could provide the lower scorers with confidence to try more. Though it still provides a useful indicator to us for students who are placed into higher level courses.

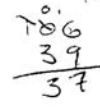
Though Eugene and Phil had worked separately with various parts of the Early Numeracy Project, Lalita had not really visited this current movement, though she had written about content versus process in Science, for a recently completed Masters thesis. Though all of us felt our subject knowledge was good, we still knew we needed to deepen this knowledge base so that we could become better able to meet the Numeracy needs of these learners. We all feel that we are reasonably well armed to look at ongoing improvements, not only to the Foundation Mathematics course, but also to other courses on which we are working, and with the staff in our section. And a new challenge is looming next year, when this Numeracy Initiative is planned to roll out to other sections of this polytechnic, with students and staff in mostly vocational courses.

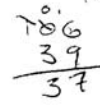
Some final thoughts

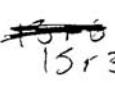
Many bridging students in these early level courses have spent a lot of time in or out of their formal schooling. This has left them with major gaps in their learning, and often at critical points in important subject themes. There are exceptions to these; some learners have worked things out for themselves, or who have had some instruction which has stuck. And there are others who have learned cultural activities which assist people to informally calculate, quite effectively. For example, Lalita has only recently discovered that her mother’s finger counting method is not based on ten, but on 32, and when seen in action, is quite swift.

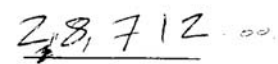
But, the people who arrive here with those major gaps in their learning are the learners who need the most assistance. In the most recent cohort, here is an example of a learner who has displayed some methods on the question paper . . .


1. $41 + 64 + 15 =$ 

2. $106 - 39 =$ 

3. $37 \times 18 =$ 

4. $119 \div 7 =$ 

5. Write this in figures
two hundred and eight thousand, seven hundred and twelve 

6. Write the number in the box to complete the value
 $95716 = 90000 +$  $+ 700 + 10 + 6$

The valiant attempt to answer Q4, $119 \div 7$, began as a tally count, then doubling with repeated addition, and appears to have ended with an answer, which though close to 17, fell short because of key elements being omitted. When considering Q5. and Q6., there appear to be significant gaps in Place Value knowledge. And returning to Q2. (subtraction) and Q3. (multiplication), the learner has bits of these algorithms learned, but not the whole packages. It makes us wonder how frustrating this exercise must have been for this person, and for others who have had similar learning experiences in this subject.

For an adult who has these spikes and gaps in their previous learning, changing their situation may ultimately depend on their recognizing that they need or wish to do something about this. In particular, improving adult numeracy would go some way to assist adult students with more choices. Research by Bynner and Parsons (2006) in the United Kingdom, suggests that adults, and more particularly women with poor numeracy are, among other things, less likely to be in full time work, and if they do work, it is in semi or unskilled jobs. The changing nature of employment (e.g.. traditional managing accounts, using ICT for administrative tasks) demands higher Numeracy skills, and so having poorer numeracy means more limited opportunities for employment, and therefore less or no chance of improving this with work-related training. Unsurprisingly, the research adds that they are more likely to feel they lack control in their lives.

The adult learners who took part in this Research wanted to pathway into Nursing, Early Childhood and Primary Education, Automotive Engineering, Community and Social Work, and Police or Defence work. Perhaps less overtly, but importantly, they have begun to arm themselves with Numeracy methods to move on from their current situations towards those destinations.

Appendix One

Research Learning for Living Projects - Information sheet for learners

Learning for Living

Learning for Living is a Ministry of Education project. This project is about the skills and knowledge used in everyday life at home, at work, for study, and in the community. These include reading, writing, and working with numbers. The Ministry wants to know:

- How can tutors be assisted to develop skills and knowledge that will help learners improve their skills in literacy, numeracy and language?
- This information will help to improve training opportunities for adult learners and their tutors.

Research on exploratory projects

In order to explore what happens in real learning situations, the Ministry of Education has invited a number of training providers to take part in the Learning for Living Project. These projects are based in polytechnics, PTEs, workplaces, universities, and in the community and involve tutors undertaking professional development on either numeracy or reading.

The Ministry of Education has contracted a research team to evaluate the project. The researchers will ask:

- What happens in the professional development?
- What do tutors do to include the teaching of reading/numeracy in their classes?
- Does the professional development make a difference to what tutors do?
- Does the professional development make a difference to what students do? To student learning, to their skills in reading/numeracy and to their results?
- The findings will be written up in a report to the Ministry of Education.

What do we want from you?

In order to see if the professional development leads to improvements in students' numeracy we need information about students numeracy at the start of the project and then at the end of the project. The project uses a numeracy diagnostic assessment that your tutor will conduct with you when you first join the programme and then at the end of each semester. We need your permission to have access to your results on the numeracy assessment, and to other assessment results from your course. We will also be asking for information on gender, age, ethnicity and attendance.

Consent

You need to give permission before we can look at information about you. You are free to say "yes" or "no", and you do not need to explain why. It is your right to have all your questions answered to your satisfaction before you agree to take part. The reports will not use your name or any information that would identify you.

Interviews

You may be invited to take part in an interview. You do not have to agree to an interview. The questions will be about: what you wanted from the course; what you have learned; what made a difference to your learning; and what you intend to do next.

If you have any questions

If you would like to ask any further questions about the project please contact the research project leaders:

Stephanie Doyle, phone 04-463 6657 Email: stephanie.doyle@vuw.ac.nz

Gill Thomas, phone 03 479 2925 Email: gill@nzmaths.co.nz

Thank you

Appendix Two

First twelve questions from FS Initial Assessment

1. $41 + 64 + 15 =$ _____

2. $106 - 39 =$ _____

3. $37 \times 18 =$ _____

4. $119 \div 7 =$ _____

5. Write this in figures
two hundred and eight thousand, seven hundred and twelve _____

6. Write the number in the box to complete the value

$$95716 = 90000 + \boxed{} + 700 + 10 + 6$$

7. Write these in order, from smallest to biggest.

9405 9450 9540 9504 9045

8. Calculate $12 + 6 \div 3$ _____

9. Ivan buys these items from his local service station on Saturday :

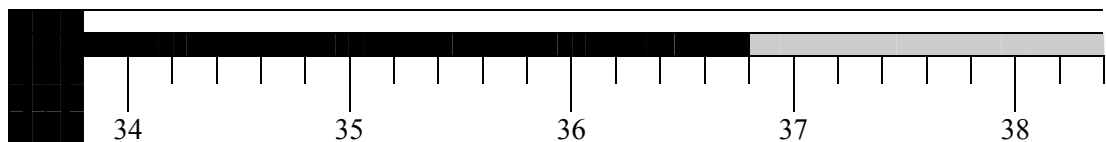
a *Weekend Herald* for \$2.50,
a *Trade and Exchange* for \$2.80,
and \$5.55 worth of petrol for his lawn mower.

If he gives a \$20 note, how much change should he receive? _____

10. If eight large books weigh a total of 19.2 kg
what should *one* book weigh? _____

11. This diagram shows part of a thermometer used to measure
temperatures
in degrees Celsius ($^{\circ}\text{C}$).

Which temperature is shown? _____



12. What is the mean (average) of 7, 11, 14, 25, and 33
? _____

References

- Bynner, J., & S. Parsons (2006). *Does Numeracy Matter More?* Institute of Education, University of London; Funded by National Research and Development Centre for adult literacy and numeracy Retrieved July 18, 2006, from http://www.nrdc.org.uk/publications_details.asp?ID=16
- Coben, D., with contributions by D. Colwell, S. Macrae, J. Boaler, M. Brown, and V. Rhodes, "What do we know and what do we need to know about adult numeracy – and what should we do about it ? In *Adult Numeracy: review of research and related literature* (pp115-8).
- National Research and Development Centre for adult literacy and numeracy* Retrieved September 6, 2006, from http://www.nrdc.org.uk/publications_details.asp?ID=35
- Steinke, D.A. (2001). Does "Part-Whole Concept" Understanding Correlate with Success in Basic Math Classes? In M.J.Schmitt & K. Safford-Ramus (Eds.). *A Conversation between Researchers and Practitioners. Adults Learning Mathematics – 7*. Proceedings of ALM-7 the Seventh International Conference of Adults Learning Mathematics – A Research Forum (pp147-52). Cambridge, MA: National Center for the Study of Adult Learning and Literacy (NCSALL), Harvard University Graduate School of Education, in association with Adults Learning Mathematics – A Research Forum (ALM).

Successes and Challenges with Hikitia Te Ora - Certificate in Health Sciences of The University of Auckland

Kim Dirks

Department of Physiology and Section of Audiology

David Salter

Department of Chemistry

Elana Curtis

Sonia Townsend

Sue Crengle

Te Kupenga Hauora Māori,

Te Whare Wānanga o Tamaki Makaurau,

The University of Auckland

Abstract

This paper presents a summary of the aims and delivery of Hikitia Te Ora – the Certificate in Health Sciences (CertHSc) programme of Te Kupenga Hauora Māori, The University of Auckland. CertHSc is a one-year bridging programme for Māori and Pacific Island students interested in pursuing health-related careers but who lack the necessary educational background to gain direct entry into most tertiary health programmes. The CertHSc is part of The University of Auckland, Faculty of Medical and Health Sciences' Vision 20:20 initiative that aims to increase the number of Māori and Pacific Island professionals within the health sector in Aotearoa New Zealand.

Between 1999 and 2006, the class size has expanded from 35 to 92. The programme currently consists of six courses spanning the health sciences (including Māori and Pacific Health), as well as a course in Personal and Professional Development. Students are also currently required to enroll in an additional Stage 1 elective course of their choice. The aspect of the CertHSc programme that differentiates it from other tertiary foundational programmes is that a major emphasis is placed on increasing students' academic self-esteem and cultural awareness as well as providing significant pastoral support in an environment that actively promotes their cultural heritage.

In implementing this programme, much effort has been put into developing course content and learning techniques that engage Māori and Pacific Island students from a wide range of educational backgrounds while at the same time adequately preparing them for further tertiary study. The history of the programme in the context of education in New Zealand, and in particular, Māori health education, is presented. An emphasis of the paper is on the techniques used to engage learning based on the experience of the educators within the CertHSc classroom. In addition, issues relating to pastoral support activities that have been put in place to promote a sense of belonging and group success within the class are discussed. We conclude with some of the successes, challenges and proposed changes facing this important educational pathway.

Section I – Background: Maori and Pasifika Education in the Tertiary Sector

Māori students in tertiary education

Since 2002, Māori have had the highest participation rate in tertiary education of any ethnic group in New Zealand (Ministry of Education, 2005a). A study into the retention, completion and progression rates of students in formal tertiary education in the period from 1998 to 2002 found that Māori students who started studying at a public tertiary provider in 1998 had similar rates of retention and completion overall to non-Māori (Ministry of Education, 2003a). Also evident was a growth in participation by Māori students at both certificate and degree level qualifications and that in this period, Māori students at certificate level were achieving qualifications and moving on to further study at higher rates than non-Māori.

However, differences in retention and completion rates between Māori and non-Māori students are apparent at the qualification level (Ministry of Education, 2003a). Retention and completion rates for Māori were higher than for non-Māori students in below degree level qualifications, such as certificates, while lower in degree level qualifications. In addition, while nearly half of the Māori students who completed a certificate in 2001 went on to study for a further qualification, only around 1 in 3 went on to study at a higher level. In 2003, the Māori participation rate at degree level was 3.2 percent, compared with 4.1 percent for all students. Thus, Māori participation rates at the higher levels of tertiary education are still lower than those of non-Māori (Ministry of Education, 2005a). These findings indicate that support for Māori students to complete higher-level qualifications at degree level is necessary.

Although enrolments by Māori in tertiary education have risen steadily over the last 10 years, the growth in Māori student numbers in tertiary education has slowed over the last two years (Ministry of Education, 2005b). Most of the growth in Māori student numbers since 1998 has been at certificate level. This is due to Māori entering tertiary education for the first time with few or no school qualifications. The most significant growth has been from Māori students aged 25 and over. Although more Māori students are engaged in tertiary study than a decade ago, for 18 to 24-year-old Māori, participation at a university is still one third that of European, with similar rates for Pasifika students. In 2004, nearly 40% of Māori students were enrolled in Institutes of Technology and Polytechnics and 64% of Māori students were women (Ministry of Education, 2005b). While mixed field programmes constituted the largest field of study (30%) for Māori students in 2004, significant proportions studied society and culture (25%) and management and commerce (20%). Only 10% of Māori students studied in a health-related field. Initiatives that encourage Māori students to enroll in Bachelors degree level qualifications, particularly in health, are therefore essential. One such programme is Hikitia Te Ora (the Certificate in Health Sciences) that is offered by The University of Auckland and is the subject of this paper.

Māori at The University of Auckland

The University of Auckland recognizes its obligations to iwi and Māori, as endorsed in the Treaty of Waitangi, by including in its charter the goal of having Māori presence and participation in all aspects of University life (The University of Auckland, 2003a). The charter also includes principles for improving the participation and success of Māori students in tertiary education. Specifically, the University aims to ensure that Māori are fully involved in the formulation of policies and development of academic programmes that are relevant for Māori and that adequate resources are available for these. In practice, the University endorses affirmative action policies that will provide high quality tertiary education for Māori and accordingly has implemented academic initiatives that support Māori language, knowledge and culture as well as providing points of entry into higher education for Māori students.

One of the target equity groups for The University of Auckland is Māori students. The commitment by the University to providing equal educational opportunities to all students, including Māori, is stated in the Equal Opportunities Action Plan (The University of Auckland, 2003b). This includes Strategic Priorities for 2003-2005. Specifically, Strategic Priority Goal 2.5 is to increase successful participation for Māori and Pacific students in areas where they are under-represented. To achieve this goal, the University aims to provide high quality equity programmes for Māori and Pacific students.

In response to Treaty of Waitangi responsibilities and obligations, Strategic Priority Goal 4.3 is to increase the successful participation and retention rate of Māori students through the provision of pre-entry programmes, where Hikitia Te Ora (Certificate in Health Sciences) is one such example.

Māori education

A fundamental principle of education is that the learning process addresses an individual's learning needs. In practice, this can mean that "empathy and awareness of the learner's needs require the learner to be introduced to their culture or to have their cultural ties strengthened" (Skill New Zealand - Pūkenga Aotearoa, 2001, p 54). In order for learners to achieve their maximum potential, they must be in an environment that is conducive to learning, as well as supportive and challenging, and this environment may be centred on the learner's cultural identity. By ensuring that a student's culture is honoured in the learning environment, a sense of identity is instilled in the student that contributes to self-awareness and self-worth, which in turn, makes the individual more receptive to learning. Thus, developing (or restoring from a history of failure) the mana (respect) of the learner is a critical part of success in learning for Māori students.

Research into Māori pedagogies suggests that traditional Māori education placed the student at the centre of the learning process where learning and teaching were conducted out of students' strengths and involved one-on-one interaction between the teacher and learner (Hemara, 2000). In this way, the learning process became a co-operative endeavour that was valued by the learner. This perspective of education is still relevant for Māori learners.

Meeting the cultural needs of Māori students in the learning process may also be achieved in different ways, such as the inclusion of cultural content in programmes, the use of Māori contexts in the delivery of content as well as individual interaction with their teachers. These approaches should aim to provide Māori students with experiences that strengthen cultural and personal identity.

Māori health workforce education

A constraint limiting the health sector's capacity to deliver appropriate health care to Māori is a lack of Māori doctors and associated health professionals (Health Workforce Advisory Committee, 2002). In 1991, only 2.7% of registered nurses and 0.7% of registered medical practitioners in New Zealand identified themselves as Māori (Wikaira, 1997). By 2001, only 5% of the regulated health workforce was Māori despite Māori comprising approximately 15% of the total New Zealand population (Health Workforce Advisory Committee, 2002).

One of the initial programmes introduced by The University of Auckland in the 1970s to address the ethnic inequalities in the health sector was the Māori and Pacific Admission Scheme (MAPAS) of the Faculty of Medical and Health Sciences. This is an affirmative action programme run since 1972 that originally offered direct admission into Medicine for Māori and Pasifika students who showed a high level of academic potential and active involvement within Māori and Pacific communities. In 1999, the Faculty of Medical and Health Sciences (and therefore MAPAS) expanded to Nursing, Pharmacy and Health Sciences. As well as providing an avenue for admission, MAPAS also provides mentoring support, tutorial support and cultural development programmes for students within the Faculty.

As part of the Government's commitment to improving Māori health, funding was made available through the Māori Provider Development Scheme for the Whakapiki Ake Project in 2003 – a partnership programme between the Faculty of Medical and Health Sciences and 31 participating secondary schools around New Zealand (<http://www.Māorihealthcareers.auckland.ac.nz>). It aims to identify and encourage Māori students wanting to pursue a career in medical or health sciences and raise awareness of careers in health-related areas by providing school visits, offering students work experience through summer work-place exposure (such as at The Liggins Institute), and by providing financial support for fees and textbooks for students enrolled in the CertHSc. In 2005, 56% of Māori students enrolled in the Certificate in Health Sciences came through the Whakapiki Ake Project, with almost half of these students originating from outside of Auckland.

Hikitia Te Ora (Certificate in Health Sciences)

Hikitia Te Ora (Certificate in Health Sciences) was established in 1999 with the goal of recruiting 100 Māori students into a one-year foundational programme that prepared students for success in a range of courses offered by the Faculty of Medical and Health Sciences (such as medicine, nursing and pharmacy). The Vision 20:20 initiative is a long

term strategy of the Faculty of Medical and Health Sciences that seeks to have Māori doctors and associated health professionals comprising 10% of the medical workforce by the year 20:20 and thereby making up a “critical mass” in the health sector.

The Certificate in Health Sciences (CertHSc) provides Māori school leavers who do not meet University Entrance requirements with a “second chance” for entry into the Faculty of Medical and Health Sciences. The Certificate in Health Sciences has more recently given “mature” students who have been away from tertiary study for some time an alternative pathway to develop the necessary background knowledge, skills and confidence to undertake further tertiary study in health-related areas. The CertHSc programme can also be viewed as a ‘booster’ year for students who already have some knowledge of science, math and English from school but who would benefit from having an extra year of focussed tuition to improve their skills and knowledge in subjects relevant to the health sciences, or for those who would benefit from extra time to adjust to the university learning environment before embarking on the first year of their undergraduate programme.

Although the establishment of the Certificate in Health Sciences is intended to increase the number of Māori health professionals and has Māori oversight, admission to the Certificate in Health Sciences has been extended to Pasifika students in the spirit of manaakitanga that acknowledges the high need for Pasifika health professionals within the Pacific community.

The CertHSc does not currently have any academic entry criteria. Students must be eligible for the MAPAS programme and ideally have completed Year 13 at secondary school before applying. On the successful completion of the CertHSc programme, students may apply for entry into undergraduate programmes such as Bachelor degrees in Health Sciences (BHSc), Nursing (BNurs) and Pharmacy (BPharm) that are offered by the Faculty of Medical and Health Sciences or Sport Science offered by the Faculty of Science.

Section II: Hikitia Te Ora – Course Structure and Delivery

The key to the success of the programme (and indeed all bridging programmes) lies in its ability to aid the student’s transition between school and tertiary study. Since 1999 there have been significant changes to both the structure and the delivery of the programme as well as in the nature of the pastoral care provided. This section describes some of the successes and challenges in implementing the programme.

Current curriculum

The current curriculum consists of Māori Health, Pacific Health, Biology, Chemistry, Physics, Math, Social Sciences, Personal and Professional Development and one Stage 1 elective course. As some students’ secondary schooling has ill-prepared them for tertiary study, training in generic learning skills, such as critical thinking and literacy, is incorporated into the programme as well as teaching in subjects identified as educational gaps for many Māori and Pasifika students. In particular, an emphasis is placed on science, of which many students have a poor understanding.

The CertHSc programme was founded in 1999 with an enrolment of 35 students. By 2006, the enrolment increased to 92 students, largely as a result of the introduction of the Whakapiki Ake Project.

The significant increase in class size has presented challenges in terms of maintaining the high level of pastoral care required and the creation of an effective teaching environment that caters for cohorts of students with a widening range of academic histories, interests, abilities and ambitions.

Some students admitted into the CertHSc course have little prior knowledge in science and are keen to pursue careers focussing on the social science aspects of health such as health promotion, health education etc. These students are able to choose from two different streams within the Certificate in Health Sciences programme, where, in one stream, less of an emphasis is placed on science. The more science-orientated stream offers 12 weeks of Physics and Chemistry with the option for students to study either Maori or Pacific Health. The less science-orientated stream offers only 6 weeks of Physics and 6 weeks of Chemistry (as one paper) and students study Maori and Pacific Health. This ensures students have the option to choose a learning environment that is most suited to their abilities and inclinations.

Keeping students engaged in their learning

One of the main challenges of the teaching staff (and indeed the main challenge of any teacher) is to keep students engaged in their learning. In the CertHSc programme, we have found that this can best be achieved by developing an interactive class environment. Transmissive forms of delivery (such as formal lectures) have been shown as ineffective methods of promoting understanding and it is our experience that they are less effective for our students. We have also had good success by varying the types of activities that the students are exposed to (bearing in mind that most people's attention lapses after ten minutes of passive listening (Wolvin, 1983). Techniques such as brain-storming, mind-mapping and group discussions have all been used with success.

One of the strengths of Hikitia Te Ora is that many of the lecturing staff on the programme are also involved in the delivery of lectures in the Stage 1 courses in which the students enroll in their subsequent year. This means that these students have the advantage that they are already familiar with the teaching styles, staff, physical environment, and expectations of the university and faculty upon entering Stage 1.

One of the major challenges facing all of the courses within the programme is the range of student skills backgrounds. For the Biology course, the lack of laboratory skills of some students is the most problematic, while for Chemistry and Physics it is the range of mathematical skills of the students entering the programme, although the introduction of a math course into the curriculum in 2006 has helped to overcome this problem to some extent. For the social sciences subjects (Social Science, Māori Health and Pacific Health), it is the range of literacy skills that is the challenge.

Schools typically do not prepare students for the self-directed learning that is required of them in tertiary study. In the Certificate programme, the students are transitioned into this type of learning environment in preparation for Stage 1.

Biology

Tutorial support, laboratories and the general coordination of the biology course are provided by one senior tutor with the help of laboratory demonstrators. The biology tutorials are organized so there are ongoing opportunities for the tutoring staff to acquire feedback from students about how they are going in the course, what is working for them and what is not in a non-threatening environment. It is often easier (and more appropriate) for students to approach tutors about their concerns in the tutorials rather than in a large more formal lecture setting.

During tutorials, there is ample opportunity for material to be reviewed many times using different teaching styles to cover the different learning styles of the diverse class. This can involve getting the class to get up and act out a concept, redrawing a diagram in three or more ways, getting students to explain a concept to their peers, or working through material in small groups. Sometimes, the students are asked to give short presentations to the class on specific topics in the course. Interactive activities such as cutting and pasting key information, as well as constructing flow diagrams have been found to be particularly effective with this cohort of students. It is the experience of the tutoring staff in this paper that it is necessary for the students to 'experience' information at least three times, preferably in different forms, before it is retained. In general, the students enjoy biology as it is a subject that can be easily visualized and the links with health are more obvious than with other subjects offered by the programme.

Chemistry

The aim of the Certificate Chemistry course is to prepare students for the first-year chemistry course required across the health professional programmes which assumes a good knowledge of school chemistry.

In order to help the students prepare for the Certificate Chemistry course as well as for other students enrolling in first-year chemistry but lacking the background, an additional four-day intensive chemistry summer course is offered to all of the students before the programme begins. Although this course is intended to give the weaker students a boost, it is the experience of the course lecturer that the stronger students from the certificate programme benefit the most from the summer school (they find it is an excellent refresher course) while it is beyond the scope of many of the weaker students. So, rather than aiding to narrow the range of student abilities/backgrounds in the class, it tends to widen the gap.

The course material provided to the students is in the form of a folder with lecture shells included. These consist of course notes with points and spaces left blank for the students to fill in throughout lectures. This ensures that the students 'keep up' in class and remain involved.

One of the most innovative aspects of the chemistry course is the use of an interactive computer-based learning tool called Best Choice (www.che.auckland.ac.nz/bestchoice).

This involves the students working through a series of interactive problem-based exercises related to material covered in class.

An important aspect of this learning tool is that it provides the students with helpful immediate feedback on their learning. The software gives students hints if required and the reasons why answers are wrong rather than just a mark. Many of the students have said that they have benefited a lot from using Best Choice and would like to see it developed for others courses within the certificate programme (for example, for physics).

The intention of the chemistry component is to assist students to generate the mental models employed by chemists to describe the world from a chemical perspective. To help students achieve this, many visual representations and animations are presented during lectures. Similarly, problem-solving strategies adopted by chemists are modelled for students to imitate and become more familiar with. Another aspect of enculturating students into chemical ways of thinking involves providing explanations and meanings for technical terms and jargon used by chemists, such as symbols and formulae, and then providing opportunities for students to practice these ways of communicating. The goal of teaching chemistry to these students is to enable them to engage more freely with chemistry concepts that are presented to them in subsequent courses.

Physics

Many students, even those interested in the health sciences, have generally either avoided physics at school (because it sounded too scary) or disliked the subject when they took it. Most of the students also see the subject as not being relevant to health. One of the important aspects of physics teaching is to show the students that physics is important and relevant to medicine. This is achieved by integrating the medical applications throughout the subject matter rather than teaching the medical applications at the end of each section. The main purpose of the course is to prepare students for the Stage 1 physics course they are required to take if they wish to pursue the medical programme at The University of Auckland.

Developing a positive ‘can do’ attitude towards the subject is very important. Once again, one of our biggest challenges is to provide an effective learning environment for students with a wide range of abilities and backgrounds. It is particularly difficult in a quantitative subject such as physics to challenge the advanced students while ensuring that the weaker students are also able to achieve. This can be overcome to some extent by reminding the students regularly of the easier material as more complicated material is introduced. In order to gauge student learning, class quizzes are carried out on the day’s lecture material. These include questions that should be achievable for even the least able students and also include questions that will challenge the best students. As well as providing feedback to the instructor, it also provides feedback to the weaker students that they have at least learnt something from coming to class. When student engagement is deteriorating, we also get the students to work through a simple problem individually (providing hints and guidance as required) and then run through the solution as a class. This helps to break the attention problems associated with passive listening and gives the student a gauge as to where they are at in terms of their understanding of the subject material.

Math

A course in mathematics was introduced for the first time in 2006 to upskill the students in this area in preparation for the physics and chemistry courses taught in the second semester. It remains to be seen whether there is a marked improvement in physics and chemistry achievement as a result of the introduction of this course.

One of the challenges facing the lecturer was maintaining the interest of the students as math is also perceived as being unrelated to health (although many of the skills that they learnt are central to determining drug doses, for example). It was found that the students did not respond well to the lecturer working through examples in class and were much more responsive to group work.

Māori Health

Māori Health aims to introduce students to Māori models of health, Maori: non-Maori disparities in health, interventions to address Maori: non-Maori disparities in health as well as the role of the Treaty in New Zealand Society and how this impacts on health outcomes within our society. A particular emphasis on issues such as the indigenous rights of Māori, how Māori issues in health are framed from a victim-blame and/or cultural deficit approach are highlighted within examples provided throughout the course.

In the classroom environment, it has been found that the students respond very well to different media and presenters (videos, group activities based around the lectures as well as guest lecturers etc) and enjoy a more interactive class environment.

The Māori Health course is also responsible for providing a cultural component worth 20% of the paper's marks. Until recently, the cultural component consisted of regular Kapa Haka training for enrolled students finishing with a kapa haka performance upon which the students were graded. This year, a new format was used to deliver and assess the cultural component that consisted of compulsory attendance at a weekend cultural wānanga, held over 2 days at Waipapa Marae. This allowed intensive exposure to a number of cultural activities including the process of powhiri and poroporoaki, kapa haka, rāranga, traditional Māori games, Mau Taiaha, kowhaiwhai design, poi, haka, Māori cosmology and hangi and kai hākari preparation. All workshops were highly interactive with a hands-on approach to learning aspects of Māori culture within a safe environment.

Assessment for the cultural component was based on attendance at the wānanga (10%) and a written test held after the weekend to assess information provided within the cultural wānanga handbook as well as that learnt over the weekend (10%). CertHSc staff who attended the weekend wānanga observed students who were actively engaged in their learning and students who did not necessarily excel well in a traditional classroom setting were seen to excel. The students themselves noted how much 'fun' they had (despite this being held over a weekend). A formal evaluation of this wānanga is under way and any lessons learnt from this approach will be incorporated into teaching styles throughout the course where at all possible.

Some of the challenges facing the Māori Health course include the need to increase and expand on interactive methods of delivery for course material as well as increasing the

linkage of course content to other Māori health courses delivered within the Faculty of Medical and Health Sciences.

Pacific Health

The Pacific Health course focuses on Pacific Models of Health, the history of Pacific Health in New Zealand, and epidemiological issues.

Social Sciences

In the Social Sciences course, students learn the important skills of being able to listen, read and talk effectively, as well as being able to both provide constructive feedback on the work of other students in the class and to receive feedback (from both their peers and staff) and to act upon it. In some assessments, the students have the option of getting preliminary feedback on work in progress before submitting their final piece of work.

A key concept in social science is the idea that there are many different ways of thinking about issues. In line with the needs of the student cohort, the course has a strong skills emphasis placed in a social sciences context rather than content being the emphasis.

Student engagement has been aided by allowing students in the programme to experience success, by assigning coursework in manageable chunks (so the students don't feel overwhelmed), and by making the students responsible for their own learning (for example by getting them to explore different learning styles and identifying which work best for them).

Personal and Professional Development

It is believed that the Personal and Professional Development course is one of the most important in the programme as it aims to develop some skills central to success at university such as study skills, essay-writing skills, research skills and presentation skills. One of the aspects of the course that has received the most amount of positive student feedback has been in the teaching of essay-writing as an ongoing process. In this section, the students have the opportunity to submit a draft of an essay on which they receive a considerable amount of feedback for improvement. They also make use of the peer assessment of essays to receive additional feedback. The students then get the opportunity to rework the essay based on these comments before they submit the final version. This has been particularly helpful as the students are able to actually use the feedback to improve a current piece of work.

The elective course

Since 1999, all students have been required to enroll in a Stage 1 elective course selected from BA, BSc, BCom or BHSc schedules, in addition to the courses outlined above. The elective gave the students the opportunity to experience a 'real' Stage 1 course for the purpose of aiding the transition process to a full-time first year.

Many of the students in the programme have found that success in their elective course is a boost to their confidence and gives them a sense of achievement, accomplishment and a 'can do' attitude towards entering tertiary education. However, for others, the elective course proves to be too difficult. This is somewhat incongruent with the CertHSc as a

bridging programme into degree level study as students are expected to be able to achieve at a Stage 1 level half way through their bridging course.

Academic and Pastoral Support activities

Students in the Certificate in Health Sciences receive a level of pastoral care that is significantly higher than what is generally provided in standard bachelor degree programmes at The University of Auckland. We believe that one of the keys to the success of the programme is the strong support that the students receive and their sense of belonging in the programme and sense of group success. This group/whānau culture is initiated with the MAPAS Freshers' Camp for whakawhānaugnatanga, a two-day retreat in which the students get to know each other and the staff on the programme.

The students are also expected to attend a two-day CertHSc orientation immediately prior to the start of their academic year. The main purpose of orientation is to familiarise the students with their new academic environment, their teaching staff, and to outline the important aspects of the programme before the course officially begins. By the end of orientation, the students should have a clear understanding of what is expected of them and also know what they can reasonably expect from university teaching staff in order to succeed in the programme. For many of the students, just being at university, being away from home for the first time, or simply living in a large city for the first time requires a great deal of adjustment. Part of the purpose of orientation is to get students settled into their new environment as much as possible before the programme begins.

The students in the Certificate programme are also part of the Māori and Pacific Admission Scheme (MAPAS) whose purpose is to provide support for Māori and Pacific students enrolled in programmes in the School of Medical and Health Sciences Faculty. The more senior students within the MAPAS programme act as role models for the Certificate students.

One of the significant changes that occurs when making the transition from High School to University is that class attendance becomes optional. In most Stage 1 classes, poor attendance goes unnoticed. It is not uncommon for very able Stage 1 students to be required to repeat the year because they didn't give their studies the attention they needed while adjusting to life away from home and away from the watchful and supportive eyes of whānau. In contrast, in the CertHSc, particularly at the beginning of the year, attendance is closely monitored allowing poor attendees to be identified early in the year. This record keeping, alongside the close working relationships developed with the students during the year, means that it is possible for the staff on the programme to show the students that their non attending matters, and for action to be taken to ensure that these students remain motivated and on track throughout the duration of the programme. These relationships also allow staff to support students through personal issues and situations that may be impacting on their success.

It is hoped that by the end of the year, the students have taken control of their learning, have adapted to university life and that attendance tracking is no longer necessary.

Section III: Successes, Challenges and Recommendations

Successes

Observable outcomes of the Whakapiki Ake Project and the Certificate in Health Sciences include a significant increase in student enrolments in this programme (from 30 in 1999 to 85 in 2005). In 2004, for the first time since the establishment of this course, more Māori students than Pasifika students enrolled in the programme. From the 30 students enrolled in the Certificate in Health Sciences in the initial year 1999, four students graduated with medical degrees in 2006, along with graduates in nursing and pharmacy. These outcomes assist in fulfilling the goal of Vision 20:20 whereby Hikitia Te Ora (Certificate in Health Sciences) has become the pathway for the largest number of Māori students into the Faculty of Medical and Health Sciences.

The CertHSc staff has developed a range of techniques that have been successful in engaging students including interactive methods, various types of group work, repetition of concepts via different methods or media. Pastoral support in the form of attendance tracking, additional tutorials when required, the use of kai/gatherings and the use of MAPAS role models all appear to be effective.

Challenges

There are also a number of challenges facing the programme including the recent high failure rates, a lack of consistent academic leadership and administrative support over the years. There has also been a lack of entry criteria so generally there has been a low level of literacy and math science exposures among the class cohort. We also feel that the students would benefit from more case-based and computer-based learning programmes.

Recommendations

Te Kupenga Hauora Māori is in the process of formally reviewing the CertHSc programme in order to address the challenges that face the course. A number of recommendations for improving the suitability of students entering the course, the structure and delivery of the course as well as academic and pastoral support for students enrolled in the course are outlined below.

Improving suitability of students entering the course

In order to improve the suitability of the student cohort entering the programme, new entry criteria will be introduced in 2007. Also the Whakapiki Ake Project will be expanded to include individual tono, host schools which should provide more effective recruitment.

Academic and Pastoral Support

While many students need considerable support both academically and pastorally in order to successfully complete the Certificate in Health Sciences, (which in turn demands a high level of resourcing), this support is likely to be the greatest contributor to the success of Hikitia Te Ora (Certificate in Health Sciences). Maintaining this high level of pastoral care has also become one of the biggest challenges facing the programme with the ever-increasing class size. To overcome this problem, a position is being created within the MAPAS team with a CertHSc responsibility. This way, the CertHSc students will increase their coverage under the MAPAS ‘umbrella’.

Structure and delivery of the course

Although the streaming options better met the needs of the students currently enrolled in the CertHSc course, there has been recent concern that students enrolled in the less science orientated stream still struggle with the science content and invariably fail a paper and therefore the Certificate as a whole. Furthermore, it is unclear whether a less science-orientated stream is appropriate for a course aiming primarily to facilitate student entry into courses such as Medicine, Nursing, Pharmacy and Health Sciences. In response to these issues, Te Kupenga Hauora Māori is clarifying the aims of the course i.e. to bridge students into ‘hard’ science educational pathways specific to courses offered by the Faculty of Medical and Health Sciences and is currently reviewing the entry criteria into the CertHSc course, and MAPAS as a whole, so that students who gain entry into the CertHSc are considered likely to succeed in this educational pathway rather than fail. It is envisaged that the current streaming will not be provided for the CertHSc once these changes are implemented.

Our experience is that student success in obtaining the CertHSc is largely dependent on the appropriateness of their choice of elective in which the students enroll (which is limited due to timetabling constraints) but more importantly on the extent of extra support they receive, either through the certificate programme or through their peers or other support programmes offered by the Faculties in which the courses are taught (for example support from the Tuākana programme across the Faculties). This is demonstrated by the fact that our students are more likely to be successful in their elective course if there are others in the CertHSc that are also taking the same course. The elective paper has been a requirement of the programme since the foundation year but will no longer be offered in 2007 and will be replaced by a Special Topic paper specific to the CertHSc course. This reflects the need to ensure that all courses taken by our students are at a foundation level with appropriate support provided. In 2007, the Stage 1 elective paper will be replaced with a Special Topic paper. There will be improved alignment of the courses in the programme with those within the Stage 1.

In addition, staff training in techniques for keeping students engaged will be provided along with discussions around the findings of research into successful teaching and learning styles for Maori and Pasifika students.

A formal evaluation of the programme will also be carried out in 2007.

References

- Health Workforce Advisory Committee. (2002). *The New Zealand Health Workforce: A stock take of issues and capacity 2001*. p52. Wellington: Health Workforce Advisory Committee.
- Hemara, W. (2000). *Māori Pedagogies: A View from the Literature*. Wellington: New Zealand Council for Educational Research.
- Ministry of Education. (2003a). *Retention, Completion and Progression in Tertiary Education 2003*. Wellington: Ministry of Education.
- Ministry of Education. (2005a). *Hui Taumata 2005 – Māori in Tertiary Education: a Picture of the Trends*. Wellington: Ministry of Education.
- Ministry of Education. (2005b). *Māori participation in tertiary education – 2004 Tertiary Sector Performance Analysis and Reporting*. Wellington: Ministry of Education.
- Skill New Zealand - Pūkenga Aotearoa. (2001). *Sharing for success: Good practice and issues for Māori education*. Wellington, New Zealand.
- The University of Auckland. (2003a). *The University of Auckland Charter*. Auckland, New Zealand.
- The University of Auckland. (2003b). *The University of Auckland Equal Opportunities Action Plan*. Auckland, New Zealand.
- Wikaira, R. (1997), *Health Care and Informatics Review*, 2(4).
- Wolvin, A. D. (1983). Improving Listening Skills. In R. B. Rubin (ed.). *Improving Speaking and Listening Skills. New Directions for College Learning Assistance 12*. San Francisco: Jossey-Bass.

Muddling along in the dark: Do peer-mentors need training?

Margaret Mackereth

Senior Lecturer in Social Sciences

Eastern Institute of Technology.

Abstract

The peer-mentoring programme attached to the Bachelor in Applied Social Sciences degree has been running for two and a half years. It is part of a cluster of support systems which include both general, polytechnic wide, and discipline based initiatives. All the support systems are designed to encourage students, many of whom enter with low-levels of academic experience, as they begin the degree programme. An action research project has been running since the inauguration of the peer-mentoring to assess its usefulness and adapt it to best suit student needs. Over the last two semesters, peer-mentoring participants have been surveyed to ascertain their perceptions of the usefulness of the programme overall, the particular areas they find valuable and whether they believe the mentors in the programme need to be trained into their mentoring role. In this paper I want to present the students perceptions of the participants as to the need for mentor training and discuss the value of training to fulfill the mentoring role well.

Introduction

Peer mentoring is offered to the students enrolling in the Bachelor in Applied Social Sciences. Peer-mentors are volunteers who have successfully completed at least three courses in the same degree programme. Currently the mentors receive a brief orientation into their role as mentor and are supplied with a booklet containing guidelines on how to manage the mentoring relationship. There is no formal or ongoing training for the mentors. An action research project based on student and tutor reflection and surveys has led to changes in how the peer mentoring programme is organized and implemented. The participants were asked to comment on the need for training for the peer mentors.

This paper will firstly describe the three aspects of the mentoring programme of which the peer mentoring is one important part. Training for the mentors will be discussed through the literature and then linked to the participant responses to the question “What type of training should the mentors receive?”

Description of the mentoring programme

Peer-mentoring is offered each semester to all new students enrolling in the Bachelor of Applied Social Sciences programme. It is a part of a cluster of generic and programme specific support offered to all students. The mentoring programme is specific to the BASS degree and is offered in three ways:

- Tutor mentoring
- Group mentoring
- Peer-mentoring

Peer-mentoring is offered as a support process based on Vygotsky's model of the 'zone of proximal development'. While this model was developed in relation to the way children learn, it seems appropriate to extend its application to adults as they enter higher education; especially so in this particular degree programme. The students entering this programme are often the first in their families to enter higher education. Many of them do not have university entry qualifications and come into this degree programme as adults on open-entry initiatives. This means that their family and cultural background does not equip them with the social, cultural and academic tools needed to achieve their chosen career qualification.

Peer-mentoring is seen as a way of offering adult students a support system which would help 'scaffold' their social, cultural and academic learning so that they can more readily 'fit' themselves into the institutional academic environment. In the mentoring programme described here, peer-mentoring is arranged on entry. Mentors are volunteers who have completed at least three of the first year courses. Mentors and mentees are matched to each other by ethnicity, gender, age and preferred intended vocation. (This degree offers qualifications in counselling, psychotherapy and social work. Students choose their vocation on completion of a generic first year).

Many students, particularly adult students who enter tertiary education with low levels of academic skill, feel themselves to be impostors. As Brookfield (2005) states: 'Impostorship is the sense that many adult learners have that they are not smart enough to be "real" or "proper" students (p. 369).' This sense may spring from their feelings of inadequacy based on previous bad experiences and failures in education. It may be this that the peer-mentoring process will help to overcome. What type of training may be effective in helping the mentors be the most useful if this is the case?

Some perspectives informing the need for training for peer mentors

The literature surrounding the process of mentoring falls into two main areas. The first is that of mentoring within a business context where successful personnel within management act as mentors for protégés who are being groomed for management roles. The second area lies in teacher training where newly trained teachers are mentored by experienced teaching practitioners who help guide and direct the novice. Both of these types of mentoring rely

on very experienced people being prepared to share their knowledge and expertise in a particular work environment (Gagen & Bowie, 2005; Turner, 1993).

Within those contexts it is strongly suggested that mentors need to be trained into their mentoring role. There is also an inherent notion that mentors will have paid time allocated within their workload for the fulfilment of mentoring duties. For these reasons it is debatable whether the training suggested in this context is applicable to the volunteer peer-mentoring programme. The mentors in the programme I describe are not employed but rather volunteer and, while being a mentor is not without rewards, mentoring is an extra activity for students often already struggling with full-time study and other family and work commitments.

Entering tertiary education, particularly for non-traditional students, is seen by some as an opportunity to become more reflective and critical of the dominant ideologies of the society of which they are a part. Brookfield (2005) follows Freire and other critical theorists advocating for democratic classrooms and critical reflection within both the curriculum and the institutional environment. He suggests that critical reflection should be part of both the student and tutor's way of thinking about the educational content and environment. This perspective on the creation of democratic classrooms in the tertiary sector has implications for the training of peer-mentors which I will discuss later.

Training for mentors may take many forms. Gagen and Bowie (2005) suggest that, while mentors will have practical knowledge about what services are available and how to access them, they will need training in effective communication, offering expert feedback, and other areas pertinent to classroom management and instructional strategies (Gagen & Bowie, Sep 2005). This comment is focussed on the mentoring relationship between experienced and novice teachers but, I feel, it is also relevant to the peer-mentoring role under discussion here. While the mentors in our programme have been successful in their study and have obviously become familiar with the academic and physical geographies of the tertiary environment, their role as mentor lies, to a certain extent in the culture of acquiring academic credentials.

As a guide to the content of mentor training Johnson and Ridley (2004) offer the following content. Again, though their focus is on professional mentoring programmes as described for business and teaching career environments, I believe it captures a useful set of aspects to the mentoring relationship which will be fruitfully explored in the context of volunteer peer-mentors. Johnson and Ridley's chapter headings are:

Matters of skill

Matters of style and personality

Matters of beginning

Matters of integrity

Matters of restoration

Matters of closure. (Johnson & Ridley, 2004)

The above set of aspects all impact on the decisions surrounding the inclusion of training for peer-mentors both in terms of whether to include training at all and, if so, what form and content might constitute that training .

The Action Research project

Action research uses a combination of methods to improve practice and is particularly useful in educational settings (Denscombe, 2003, Elliott, 1991, & Zuber-Skerritt, 1991). Evaluative cycles are implemented so that feedback from all participants, including the researcher, can be used to make small changes to the provision of a service. The gathered data is combined with personal reflection to improve a service or programme of study (Clare, 2003).

The action research process began with the implementation of a mentoring programme. Focus groups and reflection have already led to changes in the way the programme and information to mentors and mentees is delivered. The current cycle of the action research process used questionnaires to gather data from students over two semesters.

Participant descriptions of the type of training they thought mentors should receive

All participants receive a booklet describing the peer-mentoring process when the programme is described to them and they are invited to become a mentor or mentee. The booklet has a Frequently Asked Questions (FAQ) section which covers the issues that often arise in the mentoring relationship. It also outlines ways of establishing the boundaries of the partnership and what to do if either the mentor or mentee are unhappy with any aspect of the process. (This booklet was developed as a response to the focus groups formed in earlier cycles of the action research project).

	Focus of training	Mentors (n15)	Mentees (n18)
1	What is expected of a mentor	4	5
2	Ongoing casual supervision	2	1
3	Establishing academic and personal boundaries	4	4
4	Proofreading and how to improve marks	0	1
5	No training needed	3	4
6	No response	2	4

Table 1: Responses by mentors and mentees to: Describe the training mentors should receive.

The strongest response was to suggest that both the mentors and mentees believe the mentors need to be trained. According to the participants, the training needs to focus on the expectations of the activity of the mentors. The other area of concern is that of establishing academic and personal boundaries. Both Response 1 and Response 3 are covered in the booklet distributed and discussed at initial meetings with mentors and mentees. This indicates that written information is not useful to some of our students in that they cannot or do not access it when their questions arise.

Discussion and recommendations

The perspectives described in the section above all have an impact on why and how the peer-mentors in this programme might be trained. To summarize, if I develop a programme of training for the peer-mentors, the form and content of that training will be an attempt to encompass the skills needed to be an effective mentor. It will also include some strategies to help students develop skill in critical reflection.

If the main benefit to the mentors and mentees lies more in the shared culture of developing success in the institutional education environment then the training should contribute to both the mentor and mentee benefiting from it. The training will need to be brief and be perceived as worthwhile; otherwise we will find that potential mentors are not keen to volunteer their services.

The mentoring programme is proving to be an important aspect of the cluster of support strategies offered to students entering the Bachelor of Applied Social Sciences programme. The action research project has helped us develop and improve the mentoring system, refining the information offered and identifying ways in which the administration of the programme can be streamlined.

Getting back to the opening question, “Do peer-mentors need training?”, both the literature and the participants suggest that they do. In light of this I am planning a training programme which will be an attempt at incorporating the aspects of the mentor/mentee relationship identified by the participant survey. This includes information on what is expected of the mentors and strategies for establishing and maintaining relationship boundaries. The training will be informal and short and be student centred. The mentors will be encouraged to collaborate with their mentee to resolve problems. The training will be designed to help the mentors think critically about the mentoring role and to know that the contribution they make to the mentee lies as much in their merely associating with a student who is ‘one step ahead’; someone like themselves who can model the idea that ‘impostership’ need not undermine a student’s chance of success. A new cycle of the action research project will focus on ascertaining the benefits of training to the mentors. In this way we hope that we can bring some light into the darkness for both the mentors and the tutors involved in this programme. Things may not need to be so muddled in the future.

References

- Brookfield, S. D. (2005). *The power of critical theory: Liberating adult learning and teaching*. San Francisco: John Wiley & Sons.
- Clare, J. H., H. (2003). *Writing research: Transforming data into text*. Edinburgh: Churchill Livingstone.
- Denscombe, M. (2003). *The good research guide for small-scale research projects*. Maidenhead, Philadelphia: Open University Press.
- Elliott, J. (1991). *Action research for educational change*. Milton Keynes: Open University Press.
- Gagen, L., & Bowie, S. (2005). Effective mentoring: A case for training mentors for novice teachers. *Journal of Physical Education, Recreation and Dance*, 76(7), 40-45. Retrieved September 4, 2006, from PROQUEST database.
- Johnson, W. B., & Ridley, R. R. (2004). *The elements of mentoring*. New York: Palgrave Macmillan.
- Turner, M. (1993). The role of mentors and teacher tutors in school-based teacher education and induction. *British Journal of In-service Education*, 19(1), 36-45.
- Zuber-Skerritt, O. (1991). Action research for improving and advancing learning and teaching. In *Action research in higher education*. Brisbane Griffith University.

A Brief Summary of an Action Research Project: Supporting Students' Face-to-Face Learning using Moodle

Anne Kennington

School of Education and Social Development
The Waikato Institute of Technology

Introduction

Tutors concerned with supporting students' learning should stop worrying and just use their Moodle. This was the conclusion drawn from an action research project designed to explore current best practice when using Moodle, an online course management system, to support students' face-to-face learning. I undertook this research in collaboration with tutors and students from the Certificate in Introduction to Study, a bridging programme offered by the Waikato Institute of Technology (Wintec) in Hamilton, New Zealand. There were two key reasons for undertaking the research. Firstly, I had just started using Moodle myself, as a Masters' student, and was beginning to see its potential in supporting student learning; and secondly, in 2005, Wintec adopted Moodle as its preferred online course management system therefore I wanted to give my students experience in using Moodle because they would be expected to use it on the Degree programmes to which they were bridging. Tutors and students involved in the programme took part in an action research project, using Moodle for the 18 weeks of the programme. As tutors, we initially met to plan and prepare our Moodle site. At three points throughout the 18 week programme, tutors and students met to discuss what was successful, what was not and what interventions were needed to improve our use of Moodle. The research showed that Moodle helped achieve our goal of supporting student learning, however, there were some issues. The first was ensuring tutors and students acquired the necessary information and communication technology competencies as well as skills that allowed them to work interactively online in the social constructivist ways that Moodle supports. The second was addressing workload issues around the online environment for both tutors and students, and the third was overcoming accessibility and participation issues. We came to the conclusion, however, that used in the right way, Moodle was a powerful tool for facilitating interactive, interdependent and independent learning that supported face-to-face classroom delivery.

Research problem

To explore best practice in using Moodle, an online learning management system, to support students' face-to-face classroom learning.

Research questions:

How effective do students perceive Moodle to be in supporting their learning?

How effective do tutors perceive Moodle to be in supporting students' learning?

What support do students and tutors need in order to maximize their use of Moodle?

In what ways, if any, are tutors and students working within a constructivist framework when working online?

Brief summary of method

Rapua te area tika mou aku
Search for the path that is right for you

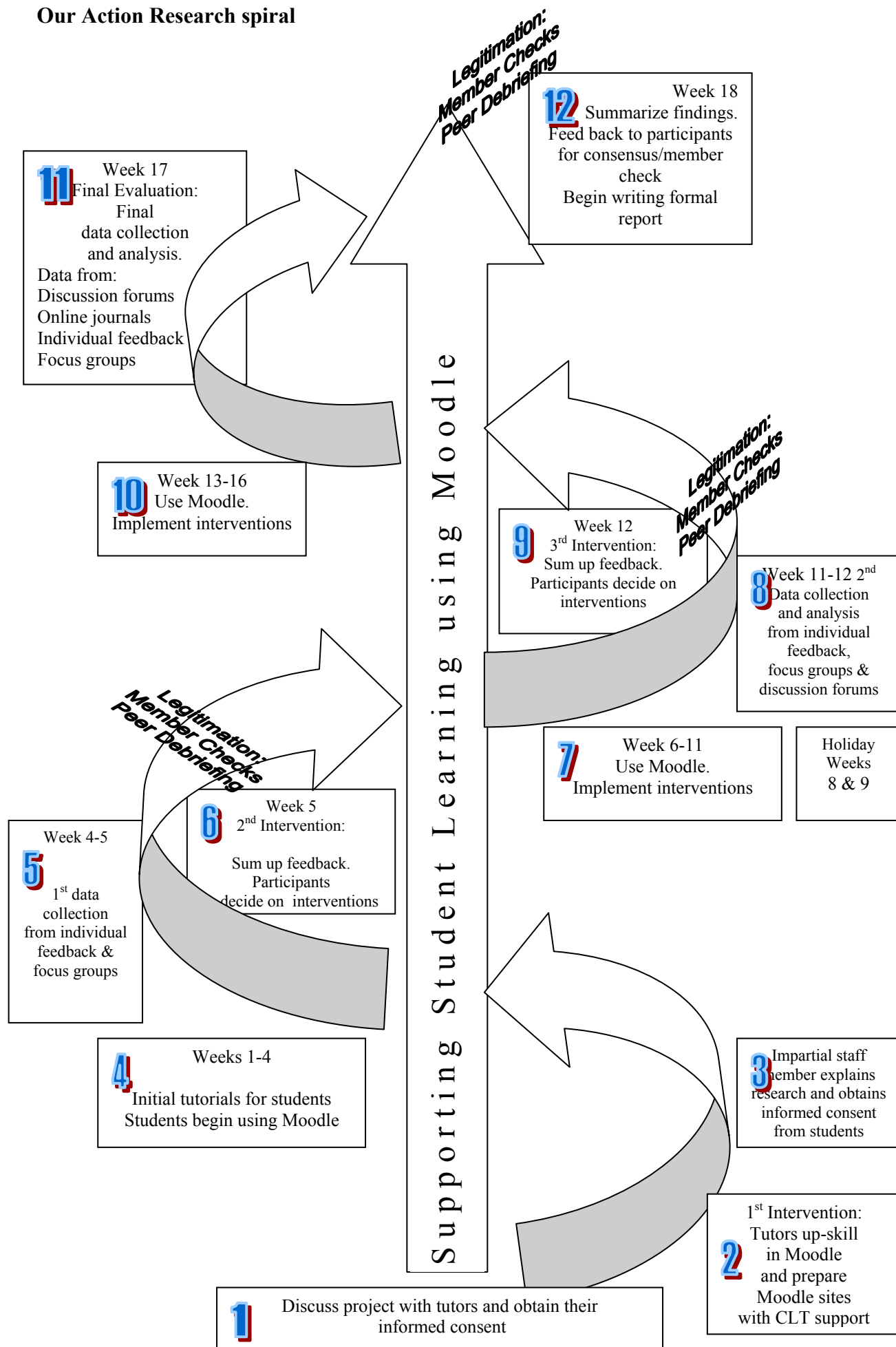
This piece of research was located firmly within the action research tradition of educational research. The cyclical process of action research supports the ongoing exploration of ways to improve educational processes and therefore, was particularly appropriate to this project.

One of the key ethical issues in educational research is the issue of beneficence. Research should go further than just doing no harm. By using action research, participants were empowered to come to a deeper understanding of the issues involved in online learning. Not only were tutors able to evaluate how and what they were making available to students, students were able to self evaluate how and what they were using in Moodle. Action research, then, provided us with a method that allowed us to work collaboratively to find ways to improve our practice.

Duration: 18 weeks

Participants: 3 tutors and 26 students involved with the Certificate in Introduction to Study (Level 4)

Our Action Research spiral

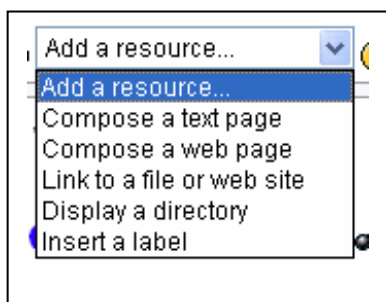


Summary of the Moodle tools we used with our students

Linking to resources:

Once you 'turn editing on' when in a tutor login for a site it is a simple step to add resources by clicking on add a resource and choosing the type you want

Once you 'turn editing on' when in a tutor login for a site it is a simple step to add resources by clicking on add a resource and choosing the type you want



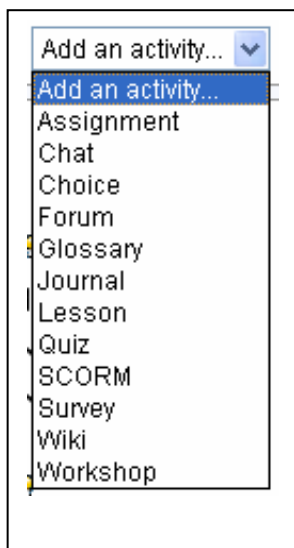
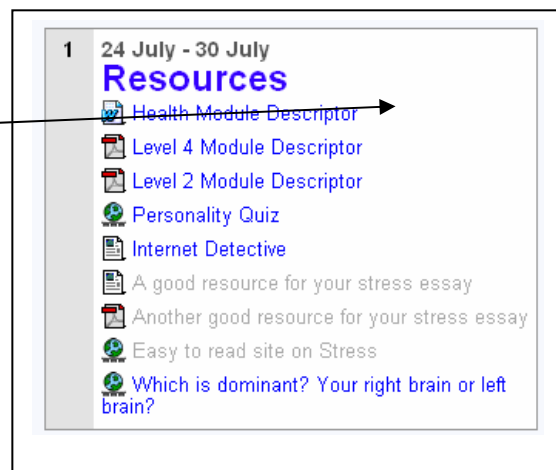
You can add links to

MS Word Files

Internet Pages

PDF files

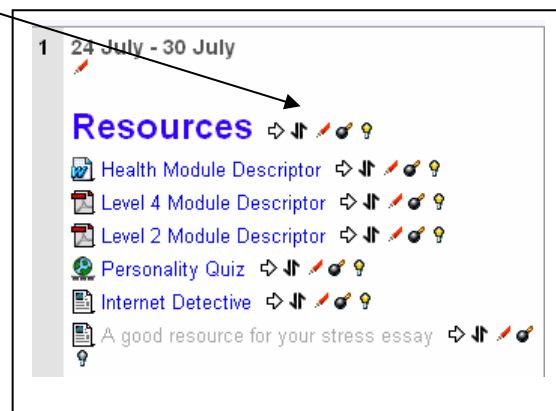
Those in dark ink are accessible by the students, those in the lighter ink are ready but are hidden temporarily and will be activated when they are needed for a particular part of the course. Students can not see the greyed out links in their view



Adding activities

You can also easily add activities such as chat rooms, a place to write a journal entry or to upload an assignment (and several other activities that I have not yet mastered – little steps, little steps!)

You also have editing options at the end of each resource or activity that you have loaded. These allow you to show or hide the activity or move, edit or delete it.



5 Membrane Structure, Cell Transport

Week starting 22 August

After studying this topic, students should be able to:

- describe the structure and functions of the plasma membrane
- name and describe the various ways that materials enter and leave the cell
- explain how diffusion limits cell size

ACTIVITIES

 [Membrane Structure Matching](#)

 [Cell Transport Multiple Choice and True False](#)

 [Cell Transport Matching](#)

INTERNET RESOURCE: Explanations, Animations, Exercises - Well worth a Look

 [Membrane Structure and Transport Explained](#)

CLASS HANDOUTS

 [Lecture 4 Membrane Structure and Cell Transport](#)

 [Lab 4 Membrane Transport](#)

This is an example of a typical weekly block from our Moodle site that we set up to support the students who were bridging onto Nursing and Midwifery.

It held quizzes, matching word games, true/false activities which students could do and redo until they felt confident with those concepts. It also had a link to a relevant internet site and copies of the handout that were given out in class that week. This would have been open and available to the students before they went to lectures and labs so they could preview the concepts prior to hearing them in the lecture.

Our science tutor has developed this site and has made all the quizzes and activities herself using an application called Hot Potatoes.



Discussion Forums

Weekly outline

-  [News forum](#)
-  [FAQ: Frequently Asked Questions Forum](#)
-  [Introduce yourself forum](#)

It is a simple matter to set up forums to allow discussion. Depending on the use of the forum you can set it up so that only the tutor can initiate new discussion topics in the forum but students can reply or you can set it up so that students can initiate discussions

and reply to each other. I generally have one forum called a news forum that only tutors can initiate discussion and I use that for important announcements. I also have one generic forum usually called a FAQ forum where students can initiate discussion on any topic related to study. I also set up separate forums for specific purposes or activities e.g. an initial Introduce yourself forum or a Team Presentation Forum. When students are working in teams you can activate a group facility in Moodle where all students use the same discussion forum link but they only access a part of the forum that is specific to their team members. That way teams can share information and prepare for presentations without the rest of the class being privy to what they are doing. Tutors of course can monitor all group areas of the forum. Other than in a grouped discussion forum, messages posted to forums can be read by everyone.

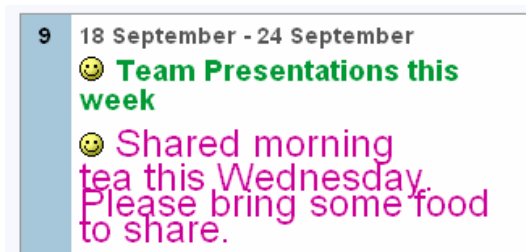


Messages tool

The messages tool allows you to send short individual messages that only the recipient has access to.

Labels for important notices

Another useful tool is the Labels tool that allows you to draw attention to important events with an easy to read label.

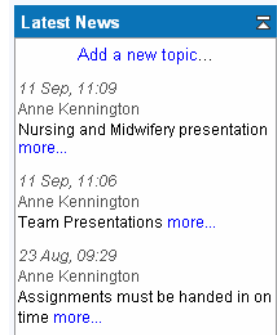


Journal tool (to be replaced with Assignment Tool in version 1.6)

This tool differs from the forum tool in that even though every student accesses it through the same link what they posted here and the feedback given to the student on this journal posting is visible only to the student who posted it and to the tutor.

Latest News block

There are several blocks that you can add to your site. One is the Latest News block. This is directly linked to the tutor controlled News Forum and when you post information to the News Forum, a link to it appears in this block. Students click on 'more' if they want the full message.

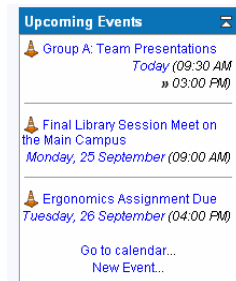


Calendar

Another useful tool is the calendar. When logged in as a tutor you can add course events to the calendar. Students can point and click at a date in the calendar to link through to a reminder or notice you have entered for this date. I generally load all the assessment dates and any changes to normal timetable here so that students have ready access to it. The calendar is also directly linked to the:

Upcoming Events block

This block is an added reminder to students about important deadlines or activities. Students

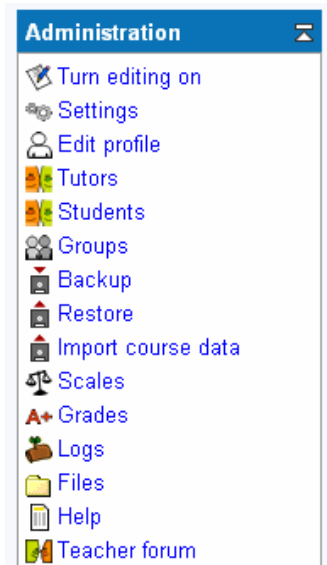


can click on any link in this block and they will be taken to the original calendar entry set up by the tutor. Students can also enter personal deadlines or dates in the calendar and it will show up as reminders in their own log-in but will not be seen by other class members.

Administration tool:

Moodle allows the locus of control to sit firmly with the tutor once the initial site has been loaded by our Centre for Learning Technologies. By using links in this administration block I can

1. Turn editing on so that I can add resources, links, labels, etc to the topic boxes.
2. Change my settings so that I have the number of topic or weekly boxes that I want and that they have the right numbering or right dates etc
3. Alter my own information, add a photo etc (student also have limited access to alter their details)
4. Decide which tutors and students should have access
5. Set up groups for a particular discussion forum
6. Back up my site in case errors, crashes etc
7. Restore my site if it crashes
8. Set up the type of scales or grades I want to assign to online assignments
9. Check the logs to see who is accessing what, how long they are staying on line, when they last accessed the site, which activities they have done



Findings

Students' perceptions

While students identified areas of improvement needed during the eighteen weeks of the programme, and while some students were initially hesitant about participating in discussion forums, by the end of the programme, students overwhelmingly agreed that the use of Moodle had been a positive experience and that it had definitely enhanced their learning. They were very positive about:

- the easy set up and navigation of Moodle
- having a current calendar and upcoming events block with reminders of upcoming topics and assignments
- online access to tutors and students
- resources available online particularly access to additional quizzes, and crosswords to practise for science tests
- asynchronous discussion forums where everyone had a voice, where you could read what others wrote and have time to think before you shared your ideas and where you received positive affirmation to your postings
- having a direct line to the tutor and a private area for feedback with the journal tool
- having separate areas in the forums where teams could contact their team members privately to share ideas or work in progress
- having discussion forums set up for specific assignments

As the above summary shows, students reported positive experiences of using Moodle to support their learning. Whether students were competent computer users, or actively adverse to using computers prior to starting the course, they reported that they were able to use Moodle easily. Justine sums this up vividly:

I have a real lack of knowledge and interest in the area of computing so I was surprised that I have been easily able to move around Moodle without any great difficulties. I have been telling myself that I have no interest in computers and that they are my enemy but within the Moodle site, I suddenly became an expert and found a friend within the walls of the enemy!...it gives me access to not only my tutors and fellow students but calendars informing me of due dates for assignments and forums for asking questions regarding assignment and essay work.

Rob, whose response was typical, was also impressed with the calendar tool:

I really appreciate that it virtually organizes all of my assignment for me. I don't have to buy a calendar to sort out when all my assignments are due; it's all done for me and in a much more efficient way. This helps me focus on doing the assignments rather than spending time organizing my life.

Moodle offered students an extension to the traditional face-to-face classroom environment. Janey explains: “This technology has added another dimension to our learning...Moodle has expanded our classroom environment”. Jessie adds:

On-line learning is great for those who have families or those who live out in the sticks and find it hard to travel into town to the library or to study or to meet up with team members. Being an on-line learner keeps you up to date with the world without you having to be out in the world.

Similar comments were made by many students and were often followed up by reference to the usefulness of the various discussion forums that were established. Janey identified a key area where online learning was not just an adjunct to face-to-face learning but for some students, was actually a much better way to participate in learning than in the traditional face-to-face classroom discussions:

I found them [discussion forums] a good medium for sharing our ideas with the other students and tutors. I think that I get my ideas across better through writing and posting to a forum because I have time to think things through beforehand – so for people like me this type of environment helps to articulate our thoughts. Everyone gets a chance to speak without interruption! The ideas that people have shared have opened me up to different avenues that will help me in my studies and have given me some insight into the way others think. The forums have definitely given voice to the quieter students.

This time to think and time to write that the asynchronous discussion forums offered was also a benefit identified by students for whom English was a second language (ESOL). It was noticeable that while ESOL students may not often voice an opinion in face-to-face classroom discussions, they nearly always posted to forums and made good use of the Journaling tool.

Students were also appreciative of the ease with which Moodle could support their individual needs through a variety of resources. Lesia explains:

The ability to access copies of previous lectures and lab worksheets in case you were absent or you lost your copy was a fantastic backup service; as was being able to download previous years’ tests for self revision. The various links helped me to study, improve my grades and helped me to fully understand the concepts. These different methodologies of learning through the forums, quizzes, resources and links gave me the chance to pick and choose the method that suited me best.

All students saw the access to content based resources such as quizzes, crosswords, and lecture and lab notes as beneficial in supporting their learning. Dana’s comment was representative of all students:

I have found Moodle to be a fantastic tool of the trade. It has been extremely useful to me for my science revision. I do not really think that I would have been able to cope with my science if it had not been for our tutor...putting the information that she did on to Moodle for us.

The study of human biology not only requires the students to significantly increase their vocabulary in a very short space of time, but to learn highly technical language often heavily based on ancient languages such as Latin. Developing the required science-based vocabulary is a challenging requirement for all students but particularly for ESOL students. Using resources in Moodle such as Hot Potatoes quizzes, crosswords, and matching activities proved extremely beneficial in helping students acquire this vocabulary. An ESOL student wrote:

I am very grateful for the use of the Moodle. It has helped me in a number of ways to improve my studies. One way is by doing some activities. This prepares you for the lectures so you have learnt some of the words before you hear them in class. You can also prepare for the tests, by doing the quizzes and crosswords so you can learn more.

They give you an opportunity to check your answer and if the activity that you are doing is not correct - no problem - you can repeat it over and over. So you will learn lots from that. When the test is ready you will be ready too because you have already refreshed your memory.

A final comment from Cara:

Before I came on this course I didn't have a lot to do with computers at all. Having access to a site like this to help me study has been immensely helpful to me. I don't think I would have got the marks I have got so far if I didn't have access to Moodle. It is one of the most efficient study tools I have come across so far. It is easy to access and even easier to understand...it rocks... congratulations to whoever came up with this brainchild.

Tutors' perceptions

Tutors were also very positive about the experience of using Moodle to support their students' learning. One tutor expressed it vividly when she said it was like having a silent partner. She said it took all the pressure off her; for example if she thought she may not have covered something well in the lecture, the pressure was off because she knew there were multiple activities available to the students on Moodle that reinforced that topic/issue. Another benefit of this concept of a silent partner that all tutors could relate to, was that if we forgot to tell the students something in class or if an issue arose between face-to-face classes we could post it on Moodle where everyone had access to it.

In some instances Moodle proved to be both time and effort saving. An example of this was when students came and asked for an additional handout because they had lost theirs; we could just refer them to Moodle and suggest they print a copy for themselves. Although there were some time-saving benefits, we also experienced huge workload issues. These came at all stages: the initial up-skilling and developing of the sites, the day to day maintenance of the sites, and the time required to go online and provide feedback to students or to monitor discussion forums. While some of these, for example the initial up-skilling in developing a Moodle site, were one-off experiences, some of them like the day-to-day maintenance of the sites and giving feedback to students were ongoing. We quickly

realized that we had to find ways to work smarter not harder. We realized that we needed to have a mind shift about how we worked. We no longer had the concrete reminders to complete a task, for example with face-to-face delivery, we would see assignments arrive in our marking box; we would pick them up and put them on our desk and then each time we came into our office we would have a physical reminder that we needed to sit down and mark those assignments. When working online there were no such concrete reminders. There was, however, the notification of Moodle activity that came to our email but they became so cumbersome that we either disabled the notifications so they would not clutter our work emails or we redirected Moodle notifications to a sub folder, often forgetting to check it regularly. Maintaining regular feedback to students became a real issue and although it was the basis of one of our interventions, we were not able to fully solve this during the cycles of the project and decided workload and ways of working online were issues that needed further investigation.

We were really impressed, though, with the way students interacted in the discussion forums. We realized that one of Moodle's strengths was the access it gave students to each other outside of face-to-face classes. Students made good use of the discussion forum to share ideas and information. We also noted that students, who rarely offered comments in face-to-face classroom discussions, were active in the online discussion forums. We also saw a marked improvement in the final written piece of work when students had first shared ideas on the topic in a forum.

Another aspect of Moodle that really impressed us was how flexible Moodle was and how much control we had, as tutors, to add additional information, links and activities or to change its presentation, to add new events to the calendar or to decide on who had access to our site. As tutors, we found it very empowering to be in control of the online learning environment. After initial training we did not need to rely on technical staff to do things for us: the locus of control was with us, which is where it should be.

Conclusions

Supporting our endeavours

Kaua e rangiruatia te hā o te hoe; e kore tō tātou waka e ū ki uta.

Do not lift the paddle out of unison or our canoe will never reach the shore.

A key learning from this research was the understanding of how crucial it was to have the right support, in a timely manner, and in a way that was invitational for all involved. This support came from a multiplicity of sources. Initially it came from the relationships built up in the tutor team that saw us sharing the goal of wanting to ensure our students had a positive learning experience and in particular that students benefited from the inclusion of an online component to our programme. It also came from our tutor team's support of the concept of undertaking an action research project to formalize our exploration of how to meet our goal of providing students with yet another positive learning experience.

Another source of support was the staff at Wintec's Centre for Learning Technologies (CLT) who made themselves available to tutors, providing workshops and individual tutorials in the technical side of developing Moodle sites. CLT extended this support by appointing a specific support person for our programme, who was readily available to us in our initial setting up and day-to-day maintenance of our sites. The CLT staff members were extremely helpful, not only in the way they always made themselves available to us either in person, at the end of the phone or by email, but also on the infrequent occasions when our particular support person was unavailable, other staff members were just as approachable. They assured us that no question was too stupid, and even if we asked more than once for the same information... their patience was limitless. This type and level of support was crucial in the initial stages of developing our sites and in learning to use Moodle, however, experience has shown that, because Moodle is so intuitive and user-friendly, and because the locus of control within Moodle rests significantly with the tutor, the need for technical support should be significantly less in future deliveries using Moodle.

While undertaking this research I was fortunate enough to have a colleague in the adjoining office who had already been using Moodle for six months. This physical proximity of a more experienced tutor who was willing to peer mentor me in my use of Moodle brought another dimension to my experience of using Moodle. From this experience I would suggest that it is advantageous to have the support of a colleague who is also using Moodle in real-life teaching situations.

Students made constant references in their journals and forums to how user-friendly Moodle was. They implied that their success in using Moodle was because Moodle was inherently easy to navigate. However, I would suggest that while Moodle is inherently intuitive, the students' ease of navigation within Moodle was also facilitated by the support they received from tutors. As tutors we provided step-by-step instruction sheets, showing screen dumps, to explain to students how to initially access Moodle, set up their individual passwords and post to the journals and forums and access links and activities. These instruction sheets were also supported with tutorials in the computer lab where students saw, via a data show, these steps being carried out as a visual demonstration. When interventions, decided on as part of our the action research, related to additional features in Moodle, tutors provided short tutorials which included practical hands on sessions in the computer lab to bring students up to date with the new features. This support was important to ensure that students had the skills needed to work within the Moodle environment and, I would suggest, impacted positively on the students' perception of Moodle's ease of navigation.

Support, therefore, is a key element in the successful use of Moodle to enhance student learning. The support needed will change in relation to the skills and experience of tutors and students using Moodle but when support is needed it should to be readily available, invitingly given and structured in such a way as to meet specific, individual needs. The key to this support is the building of relationships and the inclusion in those relationships of the shared goal of a positive learning experience for all.

Workload: A paradigm shift

*E kore e taea e koe te tini i te pūpuhi o te hau, ēngari,
ka taea e koe te tini te māmaru o tō waka*
You can't change the direction of the wind
but you can change the sail of your waka (canoe)

Support alone, though, was not enough to ensure that the inclusion of an online component met our needs of supporting students' face-to-face learning. From the beginning, workload, was an issue that had a huge impact on both tutors and students. This should not have come as a surprise, as workload was identified as an issue in research literature. Prior to undertaking this research, I had read about workload issues including Young and McSporran's (2004), article which clearly stated that facilitating online learning was highly time-consuming. Ragan and Terheggen (2003), were also adamant that without support at management level of the institution, academic staff would struggle under unmanageable workloads and time-consuming learning curves when it came to using new technologies.

While we knew adding the online component to our programme would mean extra work, there did not seem to be a formula for working out how much extra work it would entail. Wintec is still developing a model for assigning workload for online programmes or hybrid/blended programmes that are a mix of both online and face-to-face so at present there are no set rules for workload issues around delivering online. The reality for our tutor group was that while Wintec's management encouraged us to develop an online presence for our programmes and provided excellent technical support through the Centre for Learning Technologies, any work we undertook related to setting up and running the online environment, was on top of our already full-time teaching load. This meant a commitment on our behalf to use our lunch hours to upskill to the necessary level of expertise to be able to set up our sites. We also came to the very early realization that we were not able to keep up with the regular day-to-day feedback and maintenance needed in the online environment. It would be all too easy to blame management for what almost became an unmanageable workload and some responsibility must be laid at their door, but another key conclusion I reached was that some of this sense of being overwhelmed actually came from my own actions.

I was guilty of seeing the online component of my programme as an add-on. Because of this, my attitude was that I would get to it when I had the time and of course, often, I did not have the time. I reached the conclusion that in order to cope with the workload associated with including an online component in my programme, I needed to have a paradigm shift in the way I thought about, and worked, online. I needed to develop disciplined routines in my approach to maintaining the sites and to giving students feedback online. The first strategy I needed was to establish a regular time for going online. The next was to reinstate my Moodle notifications of students' activities and organize my email so that those notifications went directly to a Moodle subfolder. This meant they did not clutter my main work email Inbox, yet, by opening the subfolder, I could still see at a glance, without having to log into Moodle itself, what activity there had been online that day and, if I judged it necessary, I could log on directly through the email links. I also needed to get into the habit of checking this sub-folder daily.

Something I did not overcome during this research but that definitely needs a paradigm shift by both students and tutors for future deliveries, is the importance of adhering to due dates for postings and for the uploading of assignments. It doubles, triples and even quadruples my workload if I leave a journal or assignment link open and allow students to post after a due date. The reality of this is that I must keep logging back in to see if anyone else has added work since I last checked. Blocking students from posting late or failing them if they do not post on time is very much against the invitational theory of education that underpins my work in second-chance, bridging education, so at present I have no real solution for this problem. I will, however, reflect on this dilemma and discuss it with others who have included an online component to their teaching strategies.

It was evident from students' comments during this programme that some of them had already made a paradigm shift in the way they viewed the online component of the programme. They acknowledged in their journals how beneficial the journals, forums and science content were to their learning. Several students stated that they had really only used Moodle confidently towards the latter part of the course and that they regretted not taking part fully, earlier on in the programme. Some also stated that now that they could see the value of using Moodle, they would definitely take advantage of it next year and use all aspects of it when studying on their degree programmes.

Several students' comments showed that they had moved from seeing Moodle as an add-on, to appreciating its real role in supporting student learning.

Building participation and social constructivist ways of learning

Manu kai i te miro, nōnā te ngāhere.
Manu kau i te matāuranga, nōnā te ao
He who feeds on the miro berry, he owns the forest.
He who feeds on knowledge, he owns the world

This research project reinforced my belief of the importance of developing relationships; from the partnership of the original tutor team, to the relationships with support staff in the CLT, to relationships with our students and of course, the students' relationships with each other. Building relationships is a key to building participation. The online journals turned out to be a key tool in the development of relationships between students and tutors. One of the first things I noticed, was how free students were with sharing personal information using the online journals. The knowledge that only their tutors, and not other class members, would be able to access and read what they wrote, seemed to allow students the freedom and confidence to share information about themselves that they probably would not have shared in face-to-face classes. This sharing of information allowed us as tutors to come to a better understanding of issues, problems, and family circumstances that were impacting on our students. We built up a much deeper personal relationship, in a very short timeframe, with students because of our interaction through the online journals. This was different to my past experience in face-to-face delivery even allowing for the fact that in past face-to-face classes we also used written reflective journals; but somehow those written journals never elicited the type of material our online journals did. While journals

were successful in building a relationship between tutors and students, it was also important to build relationships between students in order to encourage participation.

Prior to undertaking the research, I had become aware, from research literature, that getting students to participate online in a way that encouraged shared learning would need careful facilitation. Our students showed that they, too, were stretched along the participation continuum that Salmon (2004), had identified. Some students were very at home and jumped straight into forums, while others were reluctant to share their ideas publicly and needed the safety of seeing what others wrote first.

The strategies we used to overcome students' reluctance to write publicly included making the contribution to a forum compulsory but limiting the task initially so that students only had to make one posting and two replies. We also ensured that initial forum topics were non-threatening by asking students to comment on something within their own experience which required an opinion rather than a demonstration of new knowledge. These forums were followed up by forums where discussion was initiated by students being required to post a response to a statement or question based on a reading and having to read and reply to at least 2 others. This careful facilitation of the task ensured that students had a positive experience of using forums and possibly influenced their attitudes to participation in further forums.

Moodle documentation suggested that the roles of tutors and students would change when participating in an online environment especially when working within a social constructivist framework. Our experience of Moodle showed that this was true. Students began to take responsibility for starting forums which met their own needs. In particular they often used forums to share information with each other about the preparation of assignments and team seminar presentations. As a tutor I would oversee what was being posted, just to make sure students were getting correct information but generally I found that I was not needed in these forums...students were taking responsibility for their own learning and were reliable, current and accurate in what they posted. This finding supports both Shulte-Mecklenbeck (2004), and Lehmann (2004), who were of the opinion that the forums were there for student discussion and that tutor input should be kept to a minimum.

Over the duration of the project, students developed skills that allowed them to work interdependently towards the acquisition of new knowledge. Our experience was that, Moodle was good at supporting a social constructivist model of learning. The tools within Moodle allowed students, to not just acquire knowledge individually, but to work together using connected behaviours to enhance their learning environment. This was one of my aims when I first conceived the project. One of my initial concerns was that we did not just use Moodle as an information repository. I saw that as akin to Dougiamas' dislike of Moodle sites that were like mazes of information that students were left to blunder through (cited in Bowker, 2003, p. 1). Therefore, I was hesitant about loading large amounts of information onto our sites. I have, however, altered my opinion of that, slightly, as a direct result of my experience during this research. I have found that having well presented, relevant information, readily available to students, also has its place in supporting students' learning. During this research project, students constantly referred to how valuable the information the science tutor had made available to them was. Many students saw a direct

correlation between their use of the science quizzes, matching activities and crosswords and the grade they received for Science. Researching this correlation was not part of our project but it may be an interesting topic to explore during future occurrences of this programme. Summing up, it was found that with appropriate support from tutors and with the excellent tools available in Moodle, students were able to work independently and interdependently to support their own learning needs.

Final perceptions of Moodle

Naku te rourou, nau te rourou, ka ora e manuhiri

With my basket and your basket the visitors will have sustenance

The final evaluation from students was overwhelmingly positive. They were unanimous in their belief that using Moodle had empowered them to achieve more than they thought would have been possible with just face-to-face delivery. They agreed that being given sufficient training in Moodle, access to computers outside of class time so that they had access to their tutors, fellow students, resources and tools such as calendars and forums, and ongoing support when issues arose, were key to their success.

Tutors also believed that while there were key issues around workload that still needed resolving, using Moodle had impacted positively on their ability to support student learning. This impact was three fold: as a communication tool for ease of access to students and fellow tutors, as an information repository to give students timely access to useful resources, and as a way to encourage students to build knowledge using interactive, interdependent ways of knowing.

Students and tutors agreed that working together, using Moodle, did provide a positive learning experience which supported face-to-face classroom learning.

The ‘self’ I perceive: Learning/Teaching processes towards engaging self in learning

Jane Morgan M.Ed (Hons), B.A, CLTA

School of Foundation Studies,
Faculty of Health and Environmental Sciences
Auckland University of Technology

The Certificate in Health Studies tertiary pre-entry programme at Auckland University of Technology (AUT) offers a paper that promotes engagement with both content and academic processes towards comprehensive understanding of ‘self’ as a learner. The Foundation in Psychology paper was designed to assist students with the introductory knowledge required prior to commencing Bachelor of Health Science (BHSc) undergraduate study. The academic literacy skills embedded in the paper are academic writing, verbal and visual communication skills. All teaching sessions have been developed to engage students with their own interpretation of concepts, how they apply to self and their interaction with other people. The assessment requires individual students to present a visual demonstration of the psychological interplay which is verbally explained to their tutorial group. Concurrently they are expected to construct an academic essay on the development of their visuals, demonstrating critical thinking on the cognitive processes involved.

Background

Since 1985, there have been foundation or bridging programmes designed and taught at the Auckland University of Technology (AUT). The numerous faculty-wide programmes have targeted students who, historically, would not have accessed tertiary institutional study due to lack of entry qualifications (Hayes, King & Richardson, 1997). The overall goal for each programme type has been to equip students with a ‘bag of tools’ that would assist them in future learning endeavours (Watt, 2002). The aims of these programmes have varied. In certain foundation programmes, specific content and process focuses have assisted students into specialized degree programmes, e.g., The Certificate in Health Studies offered at AUT. The Certificate in Health Studies is a two semester, 120 point programme that provides learning opportunities towards an understanding of ‘self’ as a learner plus experiential processes towards the acquisition of academic literacy skills required in undergraduate study. The certificate is positioned in the Health Faculty and underpins the entry into the 14 majors available in the Bachelor of Health Science (BHSc) degree. The development and subsequent implementation of this programme in February 2003 coincided with an interesting student cohort who enrolled in vast numbers.

At the time those secondary school students who did not achieve a 'Bursary' qualification in their seventh form year were not eligible to enter a New Zealand University undergraduate programme until they were 20 years of age. Unless they achieved an alternative entry criterion i.e. a level four certificate, they had to wait until the designated age to enter a university. In response to this situation, various tertiary institutions offered tertiary pre-entry certificate programmes at level four, guided by the National Qualifications Framework (NQF). Once successfully completed, an 'underage' individual was eligible to enter university.

The numbers enrolling within this group at AUT in 2003 were large, initially nearly double the planned estimate for the first semester of 2003 (Auckland University of Technology, 2003). The post year 13 'group' continues to be the majority of those enrolling in the Certificate in Health Studies even though University entry criteria have altered.

Primarily, these students are focused on getting the required 'grades' to get them into their chosen field of health study (Collison & Drayton, 2002). They do not appear to perceive themselves as adult learners, and retain a 'vessel to be filled' mentality whereby they wish to be directed in the learning activities that lead only to the requisite grades. Any learning / teaching processes that encourage life long learning skills are viewed as superfluous and a waste of student time.

This raises particular challenges for the academic staff. A focus on assisting students to develop their own learning skills, in preparation for entry to undergraduate study is often not well received. The students generally focus on the minimal amount of content that is required to meet assessment criteria. They were loath to participate in learning process activities and this has necessitated an alteration in practice from educators. Collison and Drayton (2002) state that:

School leavers bring with them an expectation that University will be like school and so we need to consciously teach students that learning is their responsibility. This is not the case with adult learners who come with their own motivation for learning (p.72).

The triangulation of student social, cognitive and emotional experience provides both interest and challenges for those adult educators who choose to teach within this area of tertiary education (Collison & Drayton, 2002). The academic staff teaching in the Certificate in Health Studies at AUT constantly strategize teaching / learning methods that do address this triangulation towards understanding 'self' as a student and personalized engagement with learning (Cole, 2004).

Teaching and learning

The interface of teaching and learning is crucial in meeting the needs of students bridging into tertiary education. Generally, teaching practice is guided by a theoretical basis that provides both philosophical underpinnings and strategies (Jarvis, 1992). However, contextualizing adult learning theories within tertiary pre-entry programmes is challenging. All theories are applicable in part, but none appears to contain the absolute essence of adult learners who, if nothing else, are becoming evermore diverse in both orientation and

aspiration as the twenty-first century unfolds. Foley (1995) rationalized this claim by stating that adult educators and adult learners have such varied life experiences and understandings that there can be no single body of knowledge that is appropriate to all.

In line with technological and sociological change, formal learning in tertiary institutions must move forward in a state of fluidity that is guided by sound understanding and expectation of adult learners as individuals that arrive at formal learning with differing expectations and purpose (Foley, 1995). This is evident in the present climate of adult learners in tertiary pre-entry programmes, with varied learning expectations and aspirations, as well as prior learning and social experience (Anderson 2002).

Successful learning within this context may be viewed as intellectual advancement, cultural progression and cognitive enlightenment (Illeris, 2002). Illeris believes that an interaction of social, emotional and cognitive dimensions must be recognized and validated by both educators and adult learners for learning to occur. Illeris's 'Contemporary Learning Theory' (2002) allows for contextualizing individual learning within a broader and validated social environment. In my opinion, this is applicable to the learning environment cultivated within current tertiary pre-entry programmes.

Contemporary learning theory: Illeris (2002)

Illeris (2002) provides a contemporary approach to theory on adult learning that I believe reflects and acknowledges the interacting dimensions that influence student learning in tertiary pre-entry programmes. The premise is that human learning is comprised of an interaction between cognitive, emotional and social dimensions, in two integrating processes that occur simultaneously. An internal acquisition process (cognitive-emotional) integrates with an external interaction process (social) between the learner and material. In stressing the importance of social interaction, Illeris (2002) emphasizes the essential interaction between an individual and their surroundings and concludes that learning is a social process. The three dimensions interact in a triangulation of tension towards acquisition of learning, with social and societal influences spearheading the desire or perceived need to learn.

The triangulation that is both internally and externally channelled from an individual creates the diverse forces that allow for unique adult learning opportunities. This is due to the fact that learning becomes centred within a social context where a mix of past and present experiences 'flavours' learning.

The relevance of this triangulation is paramount to the climate in tertiary pre-entry education. From my perspective as an educator, all three dimensions are acknowledged individually and collectively within the learning environment I currently work in.

I favour the approach taken by Illeris in addressing the needs (not only learning but social and emotional needs) of students bridging into tertiary education. I believe the 'Contemporary Learning Theory' is broad enough to encompass the diverse teaching and learning needs required to assist students in their endeavours. It also clearly recognizes key areas of communication, namely a close interweave of cognition with emotions (which is

crucial to insightful learning) plus the triangulation with social factors that centres learning within an 'everyday' context (Ribbens & Edwards, 1998). The 'everyday' context is the essence of a student remaining true to 'self' throughout the process of bridging into tertiary study.

Four component model of learning: Cantwell (2001)

Cantwell (2001) has described similar interaction processes occurring in a 'Four Component Model of Adult Learning'. The four components; efficacy, disposition, regulation and operation are interactive within broad categories of cognitive and metacognitive processes. The 'operative' component is closely aligned with Illeris's cognitive dimension in terms of sensory memory, i.e. attention and perception and the choice to attend.

Cantwell explains at length the cognitive dimension of learning in this component and in particular, the role of memory in metacognitive processes. At a 'dispositional' level, Cantwell discusses the increasingly important role of socio-cultural knowledge as a determinant of the form and direction of learning behaviour (2001, p.11), in directing learning. I believe this coincides with Illeris's social dimension of learning. 'Efficacy', as viewed by Cantwell, incorporates an affective dimension in terms of perceived awareness of potential success in engaging in a learning interaction. This too relates to Illeris's third triangulation, the emotional dimension.

One area that Cantwell has enlarged on is that of personal control over learning. This has created a fourth component to the learning model. This is a 'regulative' component and is interlinked with metacognitive processes of sifting and selective regulation of cognitive activity (Cole, 2004). Although not overtly emphasized by Illeris, this fourth component would overlap with the tension between the internal acquisition of cumulative, assimilative and/or accommodative knowledge (Illeris, 2002).

Both Illeris and Cantwell provide an arena for discourse on the interactive nature of learning and the importance of both internal (cognitive/operative, emotional/affective) and external (social/dispositional) dimensions in a learning process.

It is heartening to read of contemporary learning theories that acknowledge and incorporate a truly psychological approach, i.e. integrating cognition, emotion and behaviour (in the form of a social environmental interaction). This may be a biased view based on my belief that social, emotional and cognitive determinants interweave to create learning experiences. However, I do agree with Illeris's approach to learning. I believe this is guided by critical analysis of preceding theories plus a practical orientation towards the needs and issues facing students in terms of incorporating social with emotional and cognitive dimensions of learning.

In response to this ethos a Foundation in Psychology paper was developed within the Certificate in Health Studies. The paper provides learning opportunities whereby students are compelled to engage with the content focus towards personalized understanding of cognitive, emotional and social aspects of themselves as learners, within the confines of

Psychology concepts. This understanding is demonstrated in an assessment process encompassing visual, verbal and written academic literacy skills. Each of these literacy skills are interlinked within the assessment so that an individual student can demonstrate their understanding through predominantly one literacy mode and / or across all three. Those students who can demonstrate both their understanding of psychological concepts application to 'self', plus the interlink of communicating this understanding through visual, verbal and written form routinely receive an 'A' grade for this paper. More importantly from a teaching perspective these students demonstrate critical thinking processes that are shown through visual interlinking of ideas, verbal communication of those ideas, and a sound academic written style that can express the cognitive processes that led to the development of the visual presentation. In general the students who receive an 'A' grade in this paper move into degree programmes of their choice and appear to succeed admirably with the critical thinking processes of undergraduate study. They have demonstrated a general understanding of 'self' as an individual, as an interactive individual, and as a learner engaged in the process of academia.

References

- Anderson, H. (2002). *What to teach and how: Pedagogy for bridging educators*. Paper presented to the 2nd Conference of the New Zealand Association of Bridging Educators, Auckland, 2002.
- Cantwell, R. (2001). *Learning theory for academics: An introductory model*. Teaching Guides, Learning and Development Unit, University of Newcastle.
- Cole, P. (2004, March). A snapshot of brain-based teaching. *Professional Educator*, 3(1), 23-25.
- Collison, B. & Drayton, J. (2002). *How different target groups change the way we teach*. Paper presented at 2nd Conference of the New Zealand Association of Bridging Educators, Auckland. September 2002.
- Foley, G. (Ed.). (1995). *Understanding adult education and training*. Australia: Allen & Unwin.
- Illeris, K. (2002). *The three dimensions of learning: Contemporary learning theory in the tension field between the cognitive, the emotional and the social*. Denmark: Roskilde University Press.
- Jarvis, P. (1992). *Paradoxes of learning: On becoming an individual in society*. San Francisco: Jossey-Bass.
- Ribbens, J., & Edwards, R. (Eds.). (1998). *Feminist dilemmas in qualitative research*. London: Sage Publications.
- Watt, H.M. (2002). *The value of oral communication to academic literacy*. Unpublished M.Ed. thesis, University of Auckland.

Improving retention and student outcomes? Some questions about the retention discourse

Nick Zepke and Linda Leach

Massey University

Improving student outcomes like retention in post-compulsory education has become a focus for policy makers and researchers throughout the western world. Governments, including New Zealand's, expect improved learner outcomes for money spent. This has given rise to an extensive research effort to identify reasons for early student departure and for ways to reverse statistics showing that, in countries like Australia, the UK and New Zealand, about a third of students withdraw in their first year of study. While no coherent and universally accepted explanation for retention has emerged, numerous studies have identified practical ways for improving the situation. This research is undoubtedly valuable in helping institutions and teachers improve student outcomes. Yet, we are uneasy with an unquestioning pursuit of practical and quick solutions. This paper poses questions about the dominance retention has achieved on a wide variety of educational fronts ranging from policy to pedagogy. It uses New Zealand research evidence to address questions about the extent institutions can be expected to solve retention problems, the suitability of retention as an indicator of effective teaching and the degree to which the focus on retention sets up a deficit discourse.

Introduction

Governments throughout the western world seem uneasy that many students do not complete the studies for which they enroll in post-compulsory education, including bridging education. In New Zealand a recent Ministry of Education report (Scott, 2005) showed that, from 1998 to 2003, 33% of students dropped out in their first year of study. This seems similar to attrition in Australia (McInnis et al., 2000) and the UK (Yorke, 1999). Braxton (2000) reports that in the USA 45% of college and university students depart before completing their qualifications. As a result various countries have adopted retention as a key benchmark for assessing institutional and teaching performance. In the USA, states monitor performance using indicators. Retention and success rates are considered important for monitoring state and institutional performance with some states coupling retention rates to funding (Yorke & Longdon, 2004). In the UK, retention indicators have been published since 1999. The then minister for the sector expressed her expectations that those institutions with poor retention rates would make serious efforts to improve them (Yorke & Longdon, 2004). In Australia, the federal government uses performance criteria referred to as a Student Progress Unit to measure student success (McInnis & James, 2004). New Zealand's education policy often mirrors international frameworks. So here too government is proposing accountability requirements that threaten financial penalties for institutions near the bottom of a retention league table (New Zealand Government, 2005).

This policy environment has ensured that reasons for, and solutions to, early student withdrawal have been well researched. Major syntheses have been completed over the last three decades, primarily in the USA (Tinto, 1975, 1988, 1993; Pascarella & Terenzini, 1991, 2004; Astin, 1993, 1997) but also in Australia (McInnis et al., 2000) and New Zealand (Prebble et al., 2004).

Major retention studies have also been completed in the UK (Martinez & Munday, 1998; Yorke, 1999). Until recently, New Zealand literature on retention was sparse. But research activity has picked up markedly since the turn of the century (Grote, 2000; Wilson, 2002, 2005; Dewart, 2003; Trembath, 2004; Scott, 2005; Coltman, 2005; Zepke & Leach, 2005; Zepke, Leach & Prebble, 2005; Wilson 2005-2006, Benseman, et al., 2006). Most New Zealand studies have followed an integration discourse credited to Vincent Tinto (1993). This suggests that retention improves where institutions successfully integrate students, socially and academically, into their prevailing cultures. Some studies diverge from this explanatory stance. Purnell (2002) acknowledges Tinto's contribution, but explains her research in terms of Nicholson's transition cycle. Zepke and Leach (2005) and Zepke, Leach and Prebble (2005) add an adaptation discourse to Tinto's integrationist explanations. Here institutions attempt to recognize, value and accept learners' diverse cultural capital by adapting their cultures to meet diverse learner needs. Bennett and Flett's (2001) research into the role of Maori cultural identity in student success mirrors this adaptation discourse as do Benseman et al. (2006) working with Pasifika learners. Fraser (2004) reports another approach - ensuring students have the necessary academic skills upon entry.

We have no doubt that such research is important and valuable in helping institutions and teachers improve student outcomes. Many practical and useful suggestions of what works have emerged from the research. Findings from the international literature suggest ways to engender student success, for example, making sure learners enroll in courses that are right for them, that they are properly orientated to the social and academic opportunities on offer, that teachers are learner centred and available beyond the classroom, that workloads are reasonable, that learning support services are available, that discrimination is absent and that the cultural environment recognizes the diverse needs of class and ethnic background, age and gender, ability and location (Zepke & Leach, 2005).

Yet, we are uneasy with an unquestioning pursuit of practical solutions. This paper poses questions about the dominance retention has achieved on a wide variety of educational fronts ranging from policy to pedagogy. It first examines whether accountability is a suitable driver for improving student outcomes. Next, it uses New Zealand research evidence to ask questions about the extent institutions can be expected to solve retention problems. Third, it explores whether the focus on retention sets up a deficit discourse that is harmful to achieving improved student outcomes. In the concluding section we reflect on these enquiries, suggesting that the current focus on student outcomes might not achieve its intended outcomes.

The problem with accountability as audit culture

In its Statement of Tertiary Education Priorities for 2005 to 2007 the New Zealand government announced a suite of instruments, including auditable performance measures,

to improve the quality of institutional performance and the effectiveness of teaching and learning. “Funding will be affected in cases where poor performance persists” (2005, p.11). Such policies do not appear out of thin air. They are developed from assumptions about how the world works or ought to work. Accountability is one of the anchoring ideas for these policies. Charlton (2002) sees accountability as having two relatively distinct meanings, one general and the other technical. It can refer to the general (mutual) responsibility that people have for each other or to performances that can be audited.

However, Biesta (2004) finds that the latter meaning has taken root and that an ‘accountability culture’ has emerged. He argues that this becomes a system of governance that results in an audit society. He links the emergence of the audit society to neo-liberalism and the marketisation of education. This has re-conceptualized the relationship between government and citizens from the political to the economic. It is a relationship between consumers and providers, with government as provider and educational institutions as consumers on one level; institutions as providers and students as consumers on another. Government creates and manages this complex, layered market using indicators providing the auditable evidence to maintain it (Olssen, 2001). This technical, audit-focused meaning of accountability is one underpinning for the policy framework governing student outcomes, such as retention and completion, in New Zealand as elsewhere.

Assumptions about the kind of evidence needed to support an accountability culture also underpin government thinking. One assumption is that auditable statistics will provide transparent, fair and objective information about outcomes. Another is that such evidence will provide the information from which improvements can be made. A third assumption is that evidence must be practical, informing both policy-making and practice. This focus on practicality has given rise in the United Kingdom to the mantra ‘what matters is what works’ (Sanderson, 2003). What works must be established using experimental research or syntheses of such research. Evidence gathered using these methods is the best evidence. In New Zealand too, evidence-based policy plays an important role. In its third Statement of Intent 2005-2010, the Ministry of Education put its faith in best evidence that aligns policy and practice to improve student achievement. Such evidence

...must be informed by, and respond to, information about what works. The increased evidence leads to a clearer transparency and understanding of the critical influences that operate throughout the education system. The analysis of evidence to inform policy and practice creates a way to drive continuous improvement (Ministry of Education, 2005, p.13).

An “evidence-based approach to teaching” is also embedded (ibid, p.18). The Statement of Intent pictures a comprehensive, evidence-based process linking high level goal setting and direct remedial intervention. The Ministry commissioned major research syntheses (Prebble et al., 2004; Benseman et al., 2006) on institutional effects on student outcomes, conducted its own research into completions (Scott, 2005) and the Government, through the Teaching and Learning Research Initiative (TLRI), funded a New Zealand study on retention (Zepke et al., 2005).

But will an accountability driven policy framework improve student outcomes? A small overall reduction in attrition since 2003 has been noted by the Ministry of Education (2006). But it seems unsound to attribute this gain to the accountability framework. The overall improvement is small and uneven across the tertiary landscape and no causal connection can safely be attributed to the reductions. Indeed, the evidence may run in the opposite direction. Sanderson (2003), a cautious supporter of evidence-based policy and its accountability frameworks, fears that the ‘best’ evidence produced “will continue to provide limited purchase on causal mechanisms and present serious problems of external validity” (p. 342). It will fall short of expectations.

The evidence we have sampled supports this. The evidence from accountability-based policy frameworks is often uncertain or even problematic. For example, in the USA, Linn (2005), using a statistical modeling technique, found that valid and reliable inferences of whether measurable outcomes for reading and mathematics were achievable, could not be made from the evidence base available. Yet, such evidence was used to assess institutional performance. Also using statistical modeling, Carnoy and Loeb (2004) studied the effect of evidence for accountability measures on a variety of policies including retention and progression. They found no significant evidence that American states with strong accountability regimes had better outcomes in retention and progression than states that did not. In the UK, Boaz and Pawson (2005) examined five best evidence research syntheses on whether mentoring for at-risk youth would provide consistent evidence that mentoring achieved good outcomes. Their conclusions are cause for some pessimism. They found that:

... many different viewpoints flow from the reviews. Indeed there is a whole range of incompatibilities and, at their heart, some seemingly contradictory advice on whether mentoring can be recommended for at-risk youth (p. 176).

These three ‘case studies’ do not sink the argument that outcomes will be improved by accountability regimes using evidence-based policy. They do, however, suggest that such regimes need to be treated with caution. Regimes that punish institutions for not meeting evidence-based outcomes may be ineffective. They may not improve student outcomes, except perhaps in a very narrow instrumental sense. Providers and teachers could set off in pursuit of outcomes that are simplistic, economically driven and non-educational.

Assessing the effect of institutional influences on student outcomes

If the effectiveness of high-level accountability regimes on student outcomes is uncertain, the onus put on institutions to deliver better student outcomes may also be questionable. There is evidence that the decision to withdraw early may not be due to institutional practices. In Australia McNinnis et al. (1995, 2000) found that students sometimes withdrew early for reasons not associated with institutional performance. He and his colleagues discerned changing patterns of student engagement in their studies, brought about by increasing economic and social activities away from the institution. In particular, they noted the impact of increasing levels of part-time work on student retention. McNinnis (2001, p. 5) suggests that students having to work part-time “are more likely to seriously consider deferring at an early point of their student experience”. In short, student outcomes

are influenced by factors other than institutional performance. In a major study carried out in the UK, Yorke (1999) also found a number of non-institutional factors influencing student outcomes - for example, needs of dependents, emotional difficulties with others, personal health problems, demands of employment while studying. In our New Zealand study we also reported strong evidence of the importance of non-institutional factors in early student departure (Zepke et al., 2005).

In a Teaching and Learning Research Initiative (TLRI) project we surveyed and interviewed students enrolled for a first time in tertiary study in two universities, four polytechnics and a college of education. We asked respondents whether they had considered full or partial withdrawal; whether they actually withdrew or had never considered withdrawing.

What emerges clearly from their data is that the major factor influencing students' consideration of full withdrawal is non-institutional (Zepke, Leach, & Prebble, 2005). 'Too much going on in my life' was rated as important by 49% of all those considering full withdrawal. Life factors were rated highly in each of the seven institutions – as the principal factor in five, one of two principal factors in one and as the second factor in another. The non-institutional factor 'there was too much going on in my life' also emerged as the primary factor for students considering partial withdrawal. It was the prime factor in six institutions, being rated by as many as 73% in one institution and 60% of students in another. In the seventh institution the non-institutional factor occupies equal top spot with an institutional factor – 'the course did not suit the way I learn'. The data from students who actually withdrew from their studies confirms the picture that emerges from those considering withdrawal. In four of the five institutions reporting actual withdrawals 'too much going on in my life' is the most important factor. It was rated by 81% of the withdrawn students in one institution, 67% in two others and 56% in yet another.

As a way of triangulating the data from students who had withdrawn or considered withdrawal we asked students who had not considered withdrawing what factors helped them to stay committed to their studies. Three factors stand out in these data across all of the institutions – 'I was really determined to succeed', 'I was achieving my goals' and 'I felt I was in the right course'. Determination to succeed was rated as the most important factor in every institution. We judge this to be, in the main, a non-institutional factor in student success. It denotes personal motivation and circumstances that encourage student success – aspects that originate most obviously in environments outside the institution. The second most frequently chosen factor, 'achieving goals' may also include non-institutional aspects as goal setting probably occurs outside the institution as well as within it. The third success factor, 'being in the right course', is similarly the consequence of decisions taken outside the institution as well as advice given within it.

There are two caveats attached to these findings. The first concerns the questionnaire item 'too much going on in my life'. When we designed the questionnaire we wanted to focus primarily on factors that institutions could influence, while recognizing the role of non-institutional factors. The item 'too much going on in my life' was a 'hold all' for non-institutional factors. That it has emerged as the single, most important factor may be an effect of the structure of our questionnaire - institutional factors were itemised; non-

institutional factors conflated. Further research needs to be done to ‘unpack’ the non-institutional factors and evaluate their importance in relation to institutional ones. There is a second caveat. Following suggestions by Tinto (1993) and McInnis et al. (2000), the survey was intended to identify factors in individual institutions. Students from some institutions rated ‘too much going on in my life’ as a more important factor than students in other institutions. Where this factor was less important, institutional factors were more important. Despite this caveat, the evidence is strong enough to question the punitive accountability systems envisaged by the government.

We explored non-institutional attrition and success factors in more detail in the interviews and focus groups (Leach, Zepke & Prebble, in press). A range of non-institutional factors impacted on these students, some causing barriers to learning and persuading them to withdraw; some helping them to stay.

Individual circumstances determined which factors were most influential in their decisions. Families were seen as a mixed blessing. They could be endlessly supportive and a key factor in decisions to stay or the major stumbling block, causing some students to withdraw. Depending on the student, ‘family’ may mean parents, siblings, spouse/partner, children, grandparents, cousins, in-laws. For many of these students families were the most important supporters of their study: My mum's been really helpful actually. She doesn't know anything about it but I'll kind of tell her and in telling her I'm telling myself and I realize I do get it ... She helps heaps (G1:535); I have a lot of support, being a single parent, my parents are in [city] so I can ring them, and say I need a break for an hour or half an hour, or three hours ... But I also have my son's other grandparents who are close by ... they are very supportive (A1:101); The help of your partner is huge (D2:177); Lucky for me my parents saved for my financial side, a savings account. They've been my backbone, my parents, and I've had no problems (B1:145).

However, having that support can create its own pressures: Personally, like, I've got my family behind me in total support, which is absolutely essential, and quite frankly, everything else aside, I'd feel really horrible if I let them down ... The easy option for me would be to walk out the door, get myself a job and start earning money again and paying the bills, but I'd be letting my family down as much as anyone else (E2:105-109).

But unsupportive families create huge issues for students, and can trigger decisions to leave: I find my family quite a hindrance. They don't approve of me being here... They have no interest in what I'm doing ... but they have no appreciation for the amount of effort that it actually takes (G1:545); Whereas I'm trying to better myself they're trying to hold me back (B1:71); I think the only struggle I had was balancing work with looking after my son as well as tech. I've had to give up tech because I just don't have the time and I don't have the patience anymore ... I only worked one day a week but I didn't have the support from my partner (B1:133-137).

Some students' jobs relate well to their study, aiding their learning and retention: My job. It relates to lots of the stuff that I'm doing. Like this semester since doing accounting I've been able to rework the annual reports. I can understand it (G1:533). For some students employers and bureaucrats in welfare agencies were not supportive of their study. For

example : I'm on a benefit so I say Income Support ... I'm trying to further my education and they just don't help out with anything. I'd say that would be an issue for me (B1:125).

Retention as deficit discourse

This paper asks whether the strong emphasis on retention in current policy and educational discourses is justified. While we think it vital to improve student outcomes and to value research that helps educators do so, we have asked whether punitive accountability systems will achieve better student outcomes and whether institutions have major responsibility for improving those outcomes. We now turn to the third question fuelling our enquiry. This asks whether the retention discourse is a deficit discourse. According to Foucault (1972, p. 49) discourses “systematically form the objects about which they speak”; they shape how people are categorized and treated. This shaping results in power-knowledge relations that enable some to decide what is true and what is not; what is deficient and what is not.

The power to decide what counts and should be valued gives rise to the common-sense rules used by governments to define themselves and others. Deficit discourses involve overwriting others’ cultural attributes and artefacts, such as language and knowledge, with our language and knowledge, the knowledge and language of a dominant culture. In education they represent thinking that cultures and languages other than those of the mainstream represent a deficiency, a shortfall (Lawrence, 2002). The retention discourse seems to assume that either students or institutions are deficient in ways that encourage the student to leave early. For a number of reasons we want to critique and change this discourse.

Our first reason is that the current retention discourse regards students who leave early as having failed. New Zealand government’s policy framework expects tertiary education to build relevant skills and competencies for productivity, innovation, social and cultural development.

Funding, planning and quality systems will look to support a culture across the system that takes responsibility for ensuring that teaching is effective, real learning happens and students achieve to their potential (Ministry of Education, 2006, p.11).

As McWilliams & Singh (as cited in McCormack, 2005) observed, in such a culture of knowledge production or performativity, non-completion constitutes a failure to perform. However, McInnis et al. (2000) and Brunsden et al. (2000) found that non-completion does not necessarily amount to failure. Indeed, where students leave to go to a job, travel or change lifestyle, withdrawal can indicate a successful outcome for the departing student. McCormack (2005) found that her postgraduate students, abandoning their study, overcame negative perceptions of their decisions and reframed their non-completion as a new beginning. In short, evidence for the assumption that early departure amounts to a deficit for either the student or the institution is not strong. From a student’s point of view early departure may seem a success and, as outlined above, institutions may not be a factor in that decision and may not be able to influence it.

Another reason for thinking that the retention discourse may be a deficit discourse centres on how diversity is perceived by governments. There is no debate that New Zealand is a society made up of diverse peoples, cultures, abilities and educational institutions. In a recent discussion document canvassing views on its future tertiary education strategy, the New Zealand government (2006, p.8) acknowledged:

The tertiary education system needs to recognize and reflect the diverse range of ways and settings in which people learn ... The government's actions in the sector will acknowledge and support this diversity, and encourage the distinctive roles of different tertiary education organizations.

However, diversity is not an uncontested concept. As Siegel (2003, p.7) suggests, "diversity is talked about everywhere as a bromide, as salvation, as justice, as social uplift ... but on the other hand, it is considered social engineering, the destruction of standards and values, Balkanization, and the like". Government rhetoric seems to construct diversity as a positive. However, its policy priorities suggest that diversity is a barrier to achieving its overarching goal – economic transformation. People identified as diverse, are perceived to have a deficit that impedes the achievement of the economic transformation. Education and completed qualifications will overcome this barrier. While the document acknowledges in passing the needs of Maori, Pasifika people, the elderly and various other minorities living in a diverse society, it overwrites their interests and capabilities in favour of economic transformation. The document lists as possible priorities the need to ensure that young New Zealanders achieve qualifications before they reach 25 so that they can be useful members of the workforce; that they be literate and numerate so that they can contribute to the work force; that institutions must deliver skills to meet regional and national industry needs and, to support economic transformation, research must expand academic knowledge so that firms will be globally competitive (New Zealand Government, 2006). This view of diversity supports a deficit discourse. It suggests that people who do not have work-ready skills able to support an economic transformation, are deficient.

A third reason, also centering on diversity, emerges from an analysis of data from our survey of teachers of first time-enrolled students in our TLRI study (Zepke & Leach, 2005). Our sample of 137 teachers, asked how they dealt with diversity, was split in its views between integration (assimilating students into the culture of the institution) and adaptation (changing institutional policies and practices to better match the students attending). A slender majority recognized diversity in socio-cultural terms and acknowledged that they should adapt their practice to value other groups' cultural capital. But a significant minority saw diversity as individual difference. While these teachers were prepared to help any individual student who needed support, they rejected the notion that they did so to recognize socio-cultural diversity. However, when we examined the data for methods and approaches used to deal with diversity, we found that both groups of teachers came up with similar strategies and we cannot say that either group was more or less involved in supporting students in their diverse needs. For example, regardless of their attitudes to diversity, many assumed an active mentoring and pastoral care role, made themselves available after class for informal discussions, gave students the opportunity to ask questions and discuss issues, and operated an open-door policy. The difference between the groups relates most to their intentions – whether they set out to fix students' deficits so they fitted

into the academic culture; or to value and legitimate the students' socio-cultural identity, their existing knowledge and ways of working, in short, their cultural capital.

We are clear in our own minds that the intention of the integrationist discourse is to fix deficits in learners' backgrounds and experiences. In his longitudinal interactionist model of student departure, Tinto (1993) argues that when students enter higher education, they leave their culture of origin to enter a new, an academic, culture. If they do not acquire the necessary skills, attributes and ease needed to succeed in the new culture, students could leave early. We are not so clear about the intention of the adaptation discourse. But we now wonder whether it also assumes deficits in learners. Our questions result from the nature of power-relationships that govern the teaching-learning situation. Diversity is not only a powerful concept; it is a concept of power. It separates the 'us' from the 'other'; privileging the 'us', in this case the teachers, the content they teach and the institution. We found many teachers in our sample, adopting a socio-cultural perspective on diversity, wanted to honour socio-cultural differences, yet felt a need to overwrite them.

Despite their use of students' first language when they could, particularly for greetings, their attempts to explain concepts by using practical examples from other cultures including appropriate protocols such as *karakia* and *waiata* (prayer and song), did they assume that they needed to use these methods to overwrite diverse discourses with an academic one? Because students' socio-cultural background did not prepare them for higher education, this deficit had to be made up. Such views, according to Lawrence (2002), represent conceptions of teaching that regard diversity as a deficiency, rendering non-mainstream cultures and languages as inferior. It seems to us that this conception maintains differences between 'us' and 'others' and inhibits the improvement of student outcomes. Indeed, Bishop (2003, p.234), writing about power relations Māori experience in schools, argues that "... teachers in mainstream contexts have traditionally denied the authenticity of Māori experiences and voice, through control over curriculum and pedagogy ... In this manner epistemological racism is perpetuated".

A concluding reflection

We have used three pathways to explore our question whether the importance given to retention and completion as an auditable accountability measure is warranted. Our investigation finds a lack of justification for retention looming so large in the policies of national and institutional policy-makers and teachers. Overseas research suggests that the audit culture is not likely to improve performance of institutions. Moreover, our own research supports that of others (e.g. Tinto, 2003; McInnis, et al., 2000), that institutions cannot be assigned total responsibility for student retention as personal circumstances have a major impact on whether students leave early. Finally we found that policies built on foundations of diversity, can easily turn into deficit discourses. We illustrated this by examining government policies and the views of teachers who taught students enrolled for a first time.

But do these findings mean that any emphasis on retention is misplaced? Our answer to this question is an emphatic 'no'. Students deserve the best possible education, and institutions and teachers have a professional duty to do their best and to be constantly on the lookout to

improve their work. Research into retention issues and practical suggestions arising from such research can, and does, support this effort. It is not the need to improve student outcomes that is in question, but the way that compliance requirements will forge a narrowly-based approach that focuses solely on easy remedies to address a very complex issue.

What alternative approach then is possible? In previous papers we have argued that the best way forward may be by way of the adaptation discourse (e.g. Zepke, et al. 2005, 2006). Our re-interpretation of the findings from our teacher survey, suggests that power relations in this discourse must be clarified if adaptation is to play a realistic part in addressing the retention question. Government, teachers and institutions must learn not to overwrite the experiences of the 'other'. We think that the voices of Bishop (2003) and Ludema (2001) offer a starting point. Bishop proposes a new pedagogy that "... recognizes that all people who are involved in the learning and teaching process are participants who have meaningful experiences, valid concerns and legitimate questions" (Bishop, 2003 p.236). This new pedagogy fits within an adaptation discourse that uses a 'vocabulary of hope' rather than a vocabulary of deficit and creates different, mutual power relations between learners and teachers (Ludema, 2001).

References

- Astin, A. (1993). *What Matters in college? Four critical years revisited*. San Francisco: Jossey Bass.
- Astin, A. (1997). The changing American college student: Thirty year trends, 1966-1996. *The Review of Higher Education*, 21(2), 115-135.
- Bennett, S. & Flett, R. (2001). Te Hua o te Ao Māori, He Pukenga Korero: *A Journal of Māori Studies*, 6(2), 29-34.
- Benseman, J., Coxon, E., Anderson, H. & Anae, M. (2006). Retaining non-traditional students: Lessons learnt from Pasifika students in New Zealand. *Higher Education Research and Development*, 25(2), 147-162.
- Biesta, G. (2004). Education, accountability, and the ethical demand: Can the democratic potential of accountability be regained? *Educational Theory*, 54(3), 233-250.
- Bishop, R. (2003). Changing power relations in education: Kaupapa Māori messages for 'mainstream' education in Aotearoa/New Zealand. *Comparative Education*, 39(2), 221-238.
- Boaz, A. & Pawson, R. (2005). The perilous journey from evidence to policy: Five journeys compared. *Journal of Social Policy*, 34(2), 175-194.
- Braxton, J. (Ed). (2000). *Reworking the student departure puzzle*. Nashville: Vanderbilt University Press.
- Brunsdon, V., Davies, M., Shevlin, M., & Bracken, M. (2000). Why do HE students drop out? A test of Tinto's model. *Journal of Further and Higher Education*, 24(3), 301-310.
- Carnoy, M. & Loeb, S. (2004). Does external accountability affect student outcomes? A cross-state analysis. In S. Fuhrman & R. Elmore. (Eds.). *Redesigning accountability systems for education*. New York: Teachers College Press.
- Charlton, B. (2002). Audit, accountability, quality and all that: The growth of managerial technologies in UK universities. In S. Prickett & P. Erskine-Hill. (Eds). *Education! Education! Managerial ethics and the law of unintended consequences*, pp.18-28. Exeter: Imprint Academic.
- Coltman, D. (2005). *New Zealand education system: A comparative analysis of practices and strategies for traditionally underrepresented students*. Paper presented at the Kellogg Institute Appalachian State University, 13th July.
- Dewart, B. (2003). *Towards a model for student retention*. Unpublished paper. Universal College of Learning, Palmerston North.

- Fraser, C. (2004). *Setting and assessing entry criteria: To do or not to do? Building bridges: diversity in practice*. Proceedings of the ATLAANZ Conference, New Plymouth.
- Foucault, M. (1972). *The archaeology of knowledge*. Trans A. Sheridan-Smith. New York: Harper Row.
- Grote, B. (2000). *Student retention and support in open and distance learning*. Lower Hutt: The Open Polytechnic of New Zealand.
- Lawrence, J. (2002) *The 'deficit discourse' shift: University teachers and their role in helping first year students persevere and succeed in the new university culture*. Paper presented at the 6th Pacific Rim First Year in Higher Education Conference, 2002: Changing agendas – Te Ao Horihuri, University of Canterbury, Christchurch, New Zealand, 8th to 10th July, 2002.
- Ludema, J. (2001) From deficit discourse to vocabularies of hope: The power of appreciation. In D. Cooperrider, P. Sorensen, T. Yaeger, D. Whitney. (Eds). *Appreciative Inquiry: An Emerging Direction for Organization Development*. Champaign IL: Stipes Publishing LLC. Retrieved June 6, 2006, from <http://www.stipes.com/aichap29.htm>]
- Leach, L., Zepke, N. & Prebble, T. (in press, 2006). Now you have got them, how do you keep them? Relationships and the retention puzzle. *New Zealand Journal of Educational Studies*.
- Linn, R. (2005). Scientific evidence and inference in educational policy and practice: Implications for evaluating adequate yearly progress. In C. Dwyer. (Ed.). *Measurement and research in the accountability era*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Maharey, S. (2004). *New measure gives students a voice in tertiary education*. Media Statement 29 October. Retrieved January 9, 2006, from http://www.minedu.govt.nz/web/downloadable/dl8754_v1/performance-measure-2910041.doc
- Martinez, P. & Munday, F. (1998). 9,000 voices: Student persistence and drop-out in Further Education. *Further Education Development Agency Report, 2(7)*. London: Further Education Development Agency.
- McCormack, C. (2005). Is non-completion a failure or a new beginning? Research non-completion from a student's perspective. *Higher Education Research & Development, 24(3)*, 233-247.
- McInnis C., James, R., & McNaught, C. (1995). *First year on campus: Diversity in the initial experiences of Australian undergraduates*. Melbourne, Australia: Centre for the Study of Higher Education, University of Melbourne.

- McInnis, C. (2001). *Signs of disengagement? The changing undergraduate experience in Australian universities*. Inaugural Professorial Lecture. Melbourne, Australia: University of Melbourne.
- McInnis, C., Hartley, R., Polesel, J. & Teese, R. (2000). *Non-completion in vocational education and training and higher education: A literature review*. Canberra: DEETYA.
- McInnis, C. & James, R. (2004). Access and retention in Australian higher education. In M. Yorke & B. Longden. *Retention and student success in higher education*, pp.32-45. Maidenhead, UK: The Society for Research into Higher Education and Open University Press.
- Ministry of Education. (2005). *Statement of Intent 2005-2010*. Retrieved January 10 2006, from: http://www.minedu.govt.nz/web/downloadable/dl10361_vi/statement-of-intent-2005---2010.pdf
- Ministry of Education. (2006). *Developing the second tertiary education strategy*. Wellington: National Office, Ministry of Education.
- Ministry of Education. (2006). *The system in change. Monitoring report 2005*. Wellington: Tertiary Sector Performance Analysis and Reporting.
- New Zealand Government. (2005). *Statement of tertiary education priorities 2005-2007*. Wellington: Office of the Minister of Education.
- New Zealand Government, (2006). *Developing the second tertiary education strategy 2007-2012*. Wellington: Ministry of Education.
- Olssen, M. (2001). *The neo-liberal appropriation of tertiary education policy in New Zealand: Accountability, research and academic freedom*. New Zealand Association of Research in Education (NZARE) 'State-of-the-Art' Monograph No 8. Palmerston North: NZARE
- Pascarella, E. & Terenzini, P. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco: Jossey Bass.
- Pascarella, E. & Terenzini, P. (2004). *How college affects students: A third decade of research*, Vol. 2. San Francisco: Jossey Bass.
- Prebble, T., Hargreaves, H., Leach, L., Naidoo, K., Suddaby, G. & Zepke, N. (2004). *Impact of student support services and academic development programmes on student outcomes in undergraduate tertiary study: A synthesis of the research*. Wellington, New Zealand Ministry of Education. Retrieved from: <http://www.minedu.govt.nz/index.cfm?layout=document&documentid=10247&data=1>

- Purnell, S. (2002). *A map, a bicycle and good weather: The transition to undergraduate study*. MEd Thesis. Wellington, Massey University.
- Sanderson, I. (2003). Is it 'what works' that matters? Evaluation and evidence-based policy-making. *Research Papers in Education*, 18(4), 331-345.
- Scott, D. (2005). Retention, completion and progression in tertiary education in New Zealand. *Journal of Higher Education Policy and Management*, 27(1), 3-17.
- Siegel, D. (2003). *The call for diversity: Pressure, expectation, and organizational response in the postsecondary setting*. New York: Routledge Falmer.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89-125.
- Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. *Journal of Higher Education*, 59(4), 438-455.
- Tinto, V. (1993) *Leaving college: Rethinking the causes and cures of student attrition*. (2nd ed.). Chicago: The University of Chicago Press.
- Tinto, V. (2000). Linking learning and leaving: Exploring the role of the college classroom in student departure. In J.M. Braxton, (Ed.). *Reworking the student departure puzzle*, 81-95. Nashville: Vanderbilt University Press.
- Trembath, V. (2004). *'Finally it was all too much': Reasons for leaving early from initial teacher education*. Unpublished MEd thesis. Auckland, Auckland College of Education.
- Wilson, S. (2002). *Retention and success: A practical approach*. Paper presented at the Adult Learning Conference, Wellington.
- Wilson, S. (2005). *Why students succeed*. WELTEC students' views. WELTEC Research seminar, 5th August, 2005.
- Wilson, S. (2005-2006). Improving retention and success: A case study approach for practical results. *Journal of College Student Retention*, 7(3-4), 245-261.
- Yorke, M. (1999). *Leaving early: Undergraduate non-completion in Higher Education* London: Falmer Press.
- Yorke, M. & Longden, B. (2004). *Retention and student success in Higher Education* Maidenhead, UK: The Society for Research into Higher Education and Open University Press.
- Zepke, N. & Leach, L. (2005) Integration and adaptation: approaches to the student retention and achievement puzzle, *Active Learning in Higher Education*, 6(1), 46-59.

- Zepke, N., Leach, L. & Prebble, T. (2005). Now you've got them, can you expect to keep them? Factors that influence student departure and persistence. *New Zealand Journal of Educational Studies*, 40(1&2), 181-199.
- Zepke, N., Leach, L., Prebble, T., Campbell, A., Coltman, D., Dewart, B., Gibson, M., Henderson, J., Leadbeater, J., Purnell, S., Rowan, L., Solomon, N. & Wilson, S. (2005) *Improving tertiary student outcomes in the first year of study. A Teaching and Learning Research Initiative Project*. Retrieved March, 9, 2006 from: <http://www.tlri.org.nz/NickZepkefullreport.pdf>
- Zepke, N.; Leach, L. & Prebble, T. (2006). Being learner-centred: One way to improve student retention? *Studies in Higher Education*, 31(5), 587-600.

Unitec New Zealand
Private Bag 92025
Auckland
New Zealand

ISBN 978-0-473-12342-0
Date: June 2007

©Proceedings 6th Proceedings of the 6th Conference of the
New Zealand Association of Bridging Educators, 5th - 6th October 2006.

