THE UNIVERSITY OF MELBOURNE

Nine Principles Guiding Teaching and Learning

The framework for a first-class university teaching and learning environment

Nine Principles Guiding Teaching and Learning is a statement on the scholarship of teaching and learning in the University of Melbourne and a reference guide to good practice. It was developed on behalf of the Academic Board by Richard James and Gabrielle Baldwin of the Centre for the Study of Higher Education and originally adopted by the Academic Board in 2002. It was revised in 2007 by Kelly Farrell, Marcia Devlin and Richard James.

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Maintaining an environment for first-class higher education

Nine educational principles underpin the University of Melbourne's teaching and learning objectives. These principles represent the shared view within the University of the processes and conditions that contribute to first-class higher education.

The nine principles were first adopted by the University's Academic Board in 2002. This renewed edition of the document reflects the bold changes the University has undergone since then with the implementation of the Melbourne Model.

Many elements of the nine principles are embedded in the philosophy of the Melbourne Model. The provision of a cohort experience, the breadth component, research-led teaching, attention to the physical and intellectual learning environment, knowledge transfer opportunities: these features of the Melbourne Model incorporate the nine principles on a structural level, reinforcing their importance and the University's commitment to them.

Aspects of the principles guiding knowledge transfer with regard to teaching and learning are the most significant additions and while they are embedded throughout the document, they are particularly concentrated in principles two and seven. In principle two the interrelations between research, knowledge transfer and teaching and learning are described while in principle seven the practical elements of embedding knowledge transfer in teaching and learning are discussed.

Nine guiding principles

1. An atmosphere of intellectual excitement
2. An intensive research and knowledge transfer culture permeating all teaching and learning activities
3. A vibrant and embracing social context
4. An international and culturally diverse learning environment
5. Explicit concern and support for individual development
6. Clear academic expectations and standards
7. Learning cycles of experimentation, feedback and assessment
8. Premium quality learning spaces, resources and technologies
9. An adaptive curriculum

The nine guiding principles are interrelated and interdependent. Some relate to the broad intellectual environment of the University while others describe specific components of the teaching and learning process.

Together, these principles reflect the balance of evidence in the research literature on the conditions under which student learning thrives. Each principle has a direct bearing on the quality of students' intellectual development and their overall experience of university life and beyond as they embark on a process of lifelong learning, regardless of whether they come to the University as undergraduate, postgraduate coursework or postgraduate research students.

Generic statements of beliefs, values and practices cannot completely capture the diversity and variation present in a large and complex University. However, the underlying principles presented in this document hold true despite variations across the disciplines in traditions of scholarship and in philosophies and approaches towards teaching and learning.

Indeed, the nine principles described here support the process of interdisciplinary learning encouraged by the Melbourne Model: they provide a framework under which teachers from different backgrounds and disciplines can work together to plan, develop and provide coherent interdisciplinary learning experiences for students.

The ultimate objective of the University of Melbourne's teaching and learning programs is to prepare graduates with distinctive attributes — described in the next section — that enable them to contribute to our ever-changing global context in a meaningful and positive way. The purpose of the present document is to guide the maintenance and enhancement of teaching and learning standards that serve this end. It is a statement of what the University community values. As such, it has aspirational qualities and the suggestions for good practice offered provide laudable benchmarks to which the University is committed within the availability of resources.

Responsibilities

The maintenance of the University of Melbourne's teaching and learning environment is the responsibility of the whole institution. This document identifies various University, Faculty and individual responsibilities, though not all of the detailed implications apply equally to all members of the University community.

The **Academic Board** is responsible to the University Council for the development of academic policy and the supervision of all academic activities of the University of Melbourne, including the preservation of high standards in teaching and research. It has core quality assurance functions, including the approval of selection criteria, the monitoring of student progress, the approval of new and changed courses, and the monitoring of the quality of teaching and learning.

The **Provost** is responsible to the Vice-Chancellor for the conduct, coordination, and quality of the University's academic programs and the planning of their future development. The Provost provides academic leadership, working in close collaboration with the Academic Board, deans and professional staff to ensure the alignment of accountability, budgets and initiatives in the delivery of academic programs and consistent, high quality student support.

The Academic Board and Provost together ensure that the University:

- recognises and rewards excellence in teaching through its policies in staff recruitment, selection and promotion criteria;
- provides extensive opportunities for professional development in teaching and learning;
- supports and promotes research-led teaching;
- develops and maintains high quality teaching and learning spaces and resources;
- places high importance on the place of knowledge transfer activities in making its degrees relevant and distinctive and supports its staff and students in pursuing such activities;
- encourages and supports innovative approaches to teaching and learning, including through the application of advancements in information and communications technology; and
- provides mechanisms for on-going curriculum review involving all stakeholders (students, community, industry, professional associations, and academics) of the content, structure and delivery of courses and the learning experiences of students.

The University is committed to the scholarship of teaching in the belief that academic staff in a research-led environment should apply scholarly principles to teaching and to the leadership of student learning. In practice, the scholarship of teaching involves academic staff being familiar with and drawing on research into the relationship between teaching and student learning. It also involves evaluating and reflecting on the effects on student learning of curriculum design, knowledge transfer activities, teaching styles and approaches to assessment. The present document is designed to support consideration of the University's obligations in terms of the scholarship of teaching and to assist in the review and enhancement of the quality of personal teaching practices.

Students have responsibilities as well for the quality of teaching and learning. The effectiveness of a higher education environment cannot be expressed simply in terms of the challenge, facilitation, support and resources provided by teaching staff and the University as an institution. Students have complementary responsibilities. Students have responsibilities for their personal progress through their level of engagement, commitment and time devoted to study. Students also have obligations to contribute to the creation and maintenance of an effective overall teaching and learning environment. These obligations include:

- collaborating with other students in learning;
- contributing to the University community and participating in life beyond the classroom;
- developing a capacity for tolerating complexity and, where appropriate, ambiguity;
- respecting the viewpoints of others;
- being reflective, creative, open-minded and receptive to new ideas;
- actively participating in discussion and debate;
- seeking support and guidance from staff when necessary;
- accepting the responsibility to move towards intellectual independence;
- being familiar with the Graduate Attributes and consciously striving to acquire them;
- respecting and complying with the conventions of academic scholarship, especially with regard to the authorship of ideas; and
- providing considered feedback to the University and its staff on the quality of teaching and University services.

The Attributes of University of Melbourne Graduates

The University of Melbourne Graduate Attributes are more than simply an aspirational vision of what the University hopes students might become during their candidature. They can be used practically to guide the planning and development of teaching, knowledge transfer and research to ensure the University's students acquire the experience, skills and knowledge necessary for graduates in today's complex global environment.

Graduate Attributes

The Melbourne Experience enables graduates to become:

Academically excellent

Graduates will be expected to:

- have a strong sense of intellectual integrity and the ethics of scholarship
- have in-depth knowledge of their specialist discipline(s)
- reach a high level of achievement in writing, generic research activities, problem-solving and communication
- be critical and creative thinkers, with an aptitude for continued self-directed learning
- be adept at learning in a range of ways, including through information and communication technologies

Knowledgeable across disciplines

Graduates will be expected to:

- examine critically, synthesise and evaluate knowledge across a broad range of disciplines
- expand their analytical and cognitive skills through learning experiences in diverse subjects
- have the capacity to participate fully in collaborative learning and to confront unfamiliar problems
- have a set of flexible and transferable skills for different types of employment

Leaders in communities

Graduates will be expected to:

- initiate and implement constructive change in their communities, including professions and workplaces
- have excellent interpersonal and decision-making skills, including an awareness of personal strengths and limitations
- mentor future generations of learners
- engage in meaningful public discourse, with a profound awareness of community needs

Attuned to cultural diversity

Graduates will be expected to:

- value different cultures
- be well-informed citizens able to contribute to their communities wherever they choose to live and work
- have an understanding of the social and cultural diversity in our community
- respect indigenous knowledge, cultures and values

Active global citizens

Graduates will be expected to:

- accept social and civic responsibilities
- be advocates for improving the sustainability of the environment
- have a broad global understanding, with a high regard for human rights, equity and ethics

Principle 1: **An atmosphere of intellectual excitement**

The excitement of ideas is the catalyst for learning

Intellectual excitement is probably the most powerful motivating force for students and teachers alike. Effective university teachers are passionate about ideas. They stimulate the curiosity of their students, channel it within structured frameworks, and reveal their own intellectual interests. While students have strong vocational reasons for enrolling in courses of study, unless they are genuinely interested in what they are studying their chances of success are low. Pascarella and Terenzini's (1998) meta-analysis of research on the effects of university education concluded that the evidence unequivocally indicates that greater learning and cognitive development occur when students are closely engaged and involved with the subjects they are studying.

The research evidence shows that most undergraduates commence university with a strong interest and curiosity in the field they have selected, providing a strong foundation on which to build. A Centre for the Study of Higher Education study of applicants for university places (James, Baldwin & McInnis, 1999) showed that intrinsic interest in the area of knowledge was among the most important influences on their choice of a university course. University of Melbourne graduates confirm these sentiments. When asked for their views of their educational experience at the University some time after graduation, graduates consistently stress the influence of staff who were excited about ideas, and the importance to them of studying in an atmosphere of intellectual stimulation and discovery.

Part of fostering an atmosphere of intellectual excitement in students includes providing them with stimulating experiences that enable them to realise the value and knowledge of their skills in external settings. Some of these experiences will involve activities in the classroom – such as problem and project-based approaches and involvement of community and industry participants in class activities – but many will take students beyond the University's campuses, to include such activities as field and industry placements or internships, on-location subject delivery and student exchange programs.

As well as providing students with a vibrant intellectual experience, embedded knowledge transfer activities allow students to understand and analyse the social, cultural and economic contexts in which their own knowledge acquisition is situated as well as help them realise their capacity, responsibility and opportunity for current and future knowledge transfer.

Implications for practice

- Subjects are planned and presented in terms of ideas, theories and concepts.
- Conflicting theories and approaches are incorporated into courses to stimulate discussion and debate.
- Courses are designed to foster an understanding of the legal, political, social, economic, cultural and environmental contexts for practice in national and international settings, and of codes of conduct and the ethics of practice.
- Knowledge is presented in terms of broader contexts — intellectual, social, political, historical — to help students understand the significance of what they are studying.
- Students' personal engagement is fostered by teaching which encourages them to relate their learning to their own experiences.
- Staff convey enthusiasm for the subject matter and work to provoke students' curiosity.
- Courses and subjects are revised regularly to incorporate new theories and approaches.
- Staff model the excitement of intellectual exploration when working with students.
- Students are given opportunities to make discoveries for themselves and creativity is rewarded.
- Innovative approaches to teaching and learning are incorporated into existing courses so that necessary, 'base-line' learning is revitalised.
- The University provides resources and activities to allow students to develop their interests beyond the experiences provided within their courses.

Principle 2: **An intensive research and knowledge transfer culture permeating all teaching and learning activities**

A climate of inquiry and respect for knowledge and the processes of knowledge creation and transfer shapes the essential character of the education offered by a research-led University

It is a basic conviction within the University of Melbourne that the University's research activities and research culture must infuse, inform and enhance all aspects of undergraduate and postgraduate teaching and learning. Across all disciplines and across all study levels, education in a research-led university develops its distinctive character from an understanding of and respect for existing knowledge and the traditions of scholarship in particular fields, recognition of the provisional nature of this knowledge, and familiarity with the processes involved in the ongoing creation of new knowledge.

Historically, research and teaching have always been considered in symbiotic relationship at the University of Melbourne; however, the Melbourne Model introduced a crucial third strand to this relationship: knowledge transfer.

In the context of teaching and learning, knowledge transfer experiences "underpin the development of high levels of skill and flexibility in problem-solving, in creative contributions in the workplace, in understanding, assessing and initiating innovative contributions to community needs and in promoting and developing egalitarian ideals and social, civic, ethical and environmental responsibility" (Curriculum Commission 2006: 35).

Research thus lays the foundations for knowledge transfer, but knowledge transfer, in turn, elucidates the significance of research by placing the knowledge it produces in context. The process of knowledge transfer is also inherently two-way: as students engage in activities such as substantial field-based projects or placements and internships, so too they engage with industry, the professions and the broader community, taking their knowledge – which has its origins in research - and experiences to the world.

Not all students are directly involved in research activity, but the University has a strong commitment to the teaching-research nexus, and aims for all undergraduate and postgraduate students to benefit from being taught or supervised by active researchers, from studying a curriculum informed by the latest research developments, and from learning in a research-led environment.

Training in research skills is fundamental to students acquiring the skills of critical thinking. As Baldwin (2005) has shown, there are myriad opportunities and methods for teachers to incorporate research in teaching, a process fundamental to students 'learning how to learn'; that is, how to effectively process and apply both their present understandings and giving them a framework and skills for using the knowledge they will acquire in future. It is essential, therefore, that teaching staff are learners too and that their teaching is infused by their learning and their love of research and scholarship.

The particular benefits for undergraduate students of an intensive research culture derive from experiencing the 'latest story' — curricula underpinned not only by the corpus of human knowledge in the particular field but also by the latest research and scholarship — and from learning in an educational climate in which knowledge claims are viewed as fallible, ideas are questioned and inquiry-based learning is given a high priority. Knowledge transfer adds yet another dimension, giving students the opportunity to see knowledge at work in social, economic and cultural context.

Interdisciplinary learning and teaching can also provide students with unique perspectives and solid understandings of how knowledge is created and used. However, while interdisciplinarity should be embraced — underpinned by the maintenance of established quality assurance and evaluation processes — a strong disciplinary focus should, nonetheless, be preserved (Davies and Devlin 2007).

A climate of respect for ideas and spirited inquiry in which theories and ideas are actively contested supports the development of critical thinkers and heightens student sensitivity to the history of the evolution of knowledge, the provisional nature of knowledge and the processes of knowledge renewal.

Knowledge transfer adds a significant new dimension to curriculum design and delivery, encouraging innovation and dynamism in approaches to teaching. It is essential, however, that the overriding principles of coherence and appropriateness – within both a subject and the broader course of study itself – are maintained; that is, that knowledge transfer activities are embedded, relevant and targeted to the overarching goals of the degree.

Ultimately, exposure to the interdependence of research, learning and teaching and knowledge transfer provides students with the opportunity to acquire the graduate attributes (see page 4), and to use them in practice.

Implications for practice

- Teachers model intellectual engagement in the discipline, including an approach of analytical scepticism in the evaluation of all research.
- Current research and consultancy experiences are directly incorporated into teaching content and approaches.
- Teachers demonstrate that they value lifelong learning, and foster in students an awareness that it will be essential in their professional and personal lives.
- Students are trained in the research skills of particular disciplines, but that they are also aware of the possibilities for and challenges in interdisciplinary and multidisciplinary research;
- Students are made aware of the traditions of scholarship in particular fields, the history of knowledge development, and the body of existing knowledge.
- Teachers keep abreast of current developments in their own and related disciplines and incorporate this knowledge into their teaching.
- Evidence-based or scholarship-informed practice is emphasized, and students gain experience in critically evaluating and contributing to the evidence base, or in critically assessing and contributing to the scholarly discourse on practice.
- Research students are exposed to current research through involvement in staff seminars and conferences.
- Students are made aware of the questioning of paradigms that is central to the development of knowledge.
- Staff demonstrate a commitment to professional values and ethical practice in the conduct of research.
- Students conducting research are made to feel part of the community of researchers while they are being trained in its procedures and values.
- Staff adopt a scholarly, evidence-based approach to the decisions made about curriculum design, teaching approaches and assessment methods.
- As appropriate, staff conduct research into the effects of teaching on student learning.
- Staff demonstrate a willingness to revise their own views and admit error, and encourage this attitude in students.
- Students are enabled to see the relevance of research to current practice through exposure to experienced practitioners, e-enabled case experiences, field trips and other in situ learning experiences.

Principle 3: **A vibrant and embracing social context**

Premium quality higher education is an intensely social activity that extends beyond classroom interactions

The quality of the day-to-day interaction between staff and students and between students themselves, whether structured or incidental, is at the heart of the Melbourne Experience. The University of Melbourne is strongly guided by a belief in the importance to student development of a stimulating and encompassing social context that spills over from the classroom into the broader life of the University.

Educational research points to three compelling conclusions about the importance of the social environment for learning. First, when students reflect on the quality of teaching and their overall university experience they invariably focus on the respect they are shown by staff and the availability, approachability and personal integrity of staff. Second, students benefit from learning from each other. Activities that bring students together for the purposes of study, such as collaborative team projects and peer tutoring, have been shown to enhance learning. Finally, international research, as well as studies conducted here at the University of Melbourne, show quite clearly that involvement in the full university life within comprehensive on-campus universities is an important determinant of student persistence and overall learning outcomes (McInnis & James 1995, Pascarella & Terenzini, 1998). The University recognises the long-lasting social and professional significance of relationships forged with peers at university and for this reason strives to provide students with a cohort experience to facilitate these important networks and connections.

Students' experiences in external settings as they engage in knowledge transfer activities can also add significantly to the vibrant social context offered by the University. Their experiences in knowledge transfer activities in industry, the professions and the community are an important element of the Melbourne Experience and serve to broaden and strengthen networks with these important groups for both the individual student and the University.

For these reasons, the University of Melbourne is committed to learning being embedded within a strong social context and to providing a rich social and cultural environment. There are many challenges in achieving this objective. Large campuses can be lonely places for some students and there are students who do not engage in the broader aspects of university life. The University recognises that some groups of students, including students from rural Australia, interstate and overseas, require particular consideration and social support, especially in the early stages of their University experience. Maintaining the quality of the social environment for learning, encouraging all to participate in it, and ensuring respect for others involves mutual responsibilities on the part of all staff and students.

Implications for practice

- Students are recognised as active participants in the education process.
- Courses and subjects provide for interaction among participants — in whatever form — as a central activity so that students collaborate in their learning.
- Students have opportunities to articulate their own views and responses, and those views are treated with respect.
- Staff have opportunities to collaborate in their teaching.
- Students have opportunities to assist and lead others in learning.
- Students have opportunities to work together inside and outside the classroom and develop a cohort identity.
- Students have opportunities to broaden their social and professional networks and experiences through knowledge transfer activities in communities, professions and industries.
- Students have an opportunity to be involved in multidisciplinary project teams and/or inter-professional practice settings.
- Some staff are readily available to assist students on a one-to-one basis.
- Students conducting research can frequently and regularly confer with their supervisors, and are welcomed as members of departments' research communities.
- Students are offered extensive opportunities to participate in the broad intellectual and cultural life of the University and are encouraged to see this as an essential part of the Melbourne educational experience.

Principle 4: **An international and culturally diverse learning environment**

Learning requires openness to difference and challenge

The University of Melbourne seeks to ensure that the Melbourne Experience is an international and intercultural experience. The achievement of this objective requires the University to maintain a richly diverse staff and student community, and to offer an international, culturally sensitive curriculum. This includes a curriculum which values other cultures, languages and ways of understanding.

While there are many contemporary imperatives for fostering an educational milieu in which explicit attention is given to international and intercultural perspectives, a major educational benefit can be captured in a single educational maxim: learning requires openness to difference and challenge. This is true of learning in any context; however, an international and culturally diverse setting provides special opportunities for intellectual broadening and requires students to have particular openness to their viewpoints and assumptions being questioned.

This international setting is enriched by the inclusion in the university community of students from a range of national and cultural backgrounds whose expectations, abilities and interests are as broad as domestic students but who may experience particular challenges inherent in learning in a foreign university context and/or learning while developing English language skills. Attention to teaching strategies and approaches to address the specific needs of these students can aid significantly in addressing and alleviating some of these challenges (Arkoudis 2006).

A feature common to virtually all educational theories of individual development and growth is that developmental movement requires the experience of intellectual tension or conflict, the awareness of a challenge to the learner's existing cognitive state (Pascarella & Terenzini, 1998). Whether growth occurs depends on the nature of the individual's response to this cognitive dissonance. It is the university teacher's responsibility to create this dissonance and then to manage it so that it produces beneficial outcomes for individual students. Some of the most significant outcomes are: awareness of complexity and ambiguity, scepticism about absolute claims, a relativism that allows for commitment, awareness of one's own limitations and respect for the perspectives of others.

This process is uniquely aided at the University of Melbourne in several ways. These include the incorporation of a breadth component in each new generation degree that provides all students with a wealth of opportunities to see how knowledge in different disciplinary milieu is produced and applied, and knowledge transfer experiences that include a variety of opportunities for students to investigate alternative ways of applying and practicing knowledge. The sheer diversity of cultural background of their peers also gives students at the University of Melbourne the opportunity to understand how other cultures and countries use and value knowledge and how their own learning is situated within a global knowledge economy.

Experience of diversity at the University of Melbourne, however, is not confined to the University's campus but extends to opportunities to, for example, study and learn in institutions around the world, or to volunteer in activities with communities in local, national and international settings.

In recent years, it has come to be understood that the discussion and debating of ideas and values does not take place in a disembodied sphere, but that individuals bring to intellectual debate a very broad range of cultural backgrounds and experiences, which vary according to factors such as ethnicity, gender, and socio-economic status. Educational activities that do not respect and value these multiple perspectives are limited and narrow. The challenge for teachers is to manage educational processes so that individuals feel supported and learn to explore difference with civility, honesty and fairness.

Implications for practice

- The curriculum is international and incorporates intercultural perspectives as appropriate.
- Students are encouraged to examine and question their beliefs and confront challenging intellectual perspectives.
- Students are exposed to the widest possible range of perspectives.
- Staff emphasise and model the need for open-mindedness while fostering the development of critical analysis.
- Students are expected to develop a capacity for tolerating ambiguity, in the disciplines where this is appropriate, and complexity.
- Civility in the airing and debating of differences is insisted upon.
- Staff make assumptions, beliefs and values explicit, with the clear understanding that these are open to challenge.
- Staff respect and value the diverse backgrounds and perspectives of students and insist that respect of this kind governs students' interactions with each other.
- Learning resources incorporate the experiences of a wide range of cultures and the assumptions of the dominant culture are the subject of scrutiny.

Principle 5: **Explicit concern and support for individual development**

Learning requires openness to difference and challenge

Students learn in different ways and at different rates, and their understanding varies considerably according to personality, background and particular talents. This variation contributes to creativity and the generation of new knowledge. Within this variation, however, all students benefit from individual attention and deserve to receive assistance in developing their understandings. Such assistance must be based on insights into student backgrounds, what they are aiming for and the nature of any difficulties they encounter.

Research in the United States indicates that informal, friendly contact with academic staff is a significant factor in students' engagement and academic success (Pascarella and Terenzini, 1998). Some studies indicate that contact with only one staff member can be quite influential for many students— a conclusion borne out by the comments of many graduates of the University of Melbourne who, when surveyed about the best aspects of their experience of their university experience, focus on the personal impact of a single staff member. In an era where many university classes are large, such interactions are difficult to establish and maintain. But the University of Melbourne is committed to providing appropriate opportunities for one-to-one interaction, through provisions for out-of-class consultations.

In a university setting, concern for individual development is primarily a concern for intellectual development, but must encompass factors such as the personal circumstances that impinge on, and perhaps hamper, student progress. Academic staff play a crucial role in advising students across a variety of dimensions, including but not limited to academic progress, career options and the impact of personal concerns on academic work.

The Melbourne Student Advisor Model places students at its centre, and provides a framework for a networked and integrated model that supports both academic and professional staff in their roles as advisors.

Implications for practice

- Students are treated as individuals with particular abilities, aspirations and concerns.
- Staff attempt as far as possible to accommodate students' different learning styles and approaches within the curriculum, the classroom, and learning resources.
- Staff respond sympathetically to the problems and demands experienced by students and provide appropriate assistance and support to individuals as they develop their own strategies form overcoming difficulties.
- Opportunities are provided for students to consult individually with teaching staff.
- Provision is made for students to pursue their own intellectual interests and to be challenged and stimulated in this process.
- Feedback is timely and focused on student development.
- Feedback is tailored to the individual student's performance as well as the performance of the cohort overall.
- The effectiveness of teaching is evaluated by seeking evidence about how much students have learned and modifying approaches accordingly.
- Students who experience academic difficulties are identified and offered assistance.
- The institution regularly monitors students' needs for support and assistance, and responds quickly to new concerns that may arise.
- Different study environments are provided in libraries and other spaces to meet the individual needs of students, including group study areas, carrels for individual study and services for students with disabilities.

Principle 6: **Clear academic expectations and standards**

Students study most effectively when they understand what is expected of them

Clarity of expectations is the first stage in the learning cycle, an essential precursor to the provision of feedback on individual progress and the assessment of learning. Students benefit from an understanding of the journey and destination that lies ahead, including both the subject-specific and generic skill development that is anticipated. The provision of clear expectations in higher education does not imply, however, that student development or creativity should be constrained by overly detailed prescriptions, or requirements narrowly formulated only in terms of tasks to be completed.

In most universities, student diversity has re-focused attention on the need to inform students explicitly about what is expected of them and of what they can do to be successful. In practical terms this attention has meant not merely providing students with lists of aims and objectives, but also permeating the day-to-day teaching and learning with discussion of intentions, purposes and desired outcomes. While an excessive focus on assessment requirements is undesirable, assessment tasks that are designed and scheduled in appropriate ways are an especially powerful means of confirming the expected learning outcomes.

Explicit efforts to clarify objectives involves treating students as active participants in their learning. A body of research has established the efficacy of assisting students to be aware of how they learn. This involves an attention to the processes of learning in the context of clearly articulated goals, and self-evaluation of the effectiveness of learning strategies. In technical terms this is the concept of meta-cognition – not just knowing, but being aware of what we know and how we come to know it. Such a capacity is invaluable for lifelong learning beyond graduation, when individuals must assume the major responsibility for deciding what they need to learn and how best to do so.

Needless to say, clarity of explanation is also a primary responsibility of classroom teachers. While learning by discovery is a vital part of students' mastery of areas of knowledge, they are also entitled to clear instruction and guidance from experts, particularly with central concepts that may be difficult to grasp. The art of clear explanation depends on an ability to 'read' and understand the source of students' confusion and to search for formulations and illustrations that will clear the blockage, including strategies such as the use of analogy or simplified schema.

Implications for practice

- Students are provided with clear statements of subject objectives, couched in terms of student learning outcomes.
- Students are provided with clear statements of anticipated generic skill outcomes.
- Students are provided with clear statements of assessment requirements, particularly the criteria by which their work is judged.
- Subject content is presented in a coherent manner and at an appropriate level.
- Learning experiences are designed to be consonant with course objectives and assessment criteria.
- Courses are structured so that students can plan their learning effectively.
- All administrative details of courses are conveyed in a timely, accessible and unambiguous fashion.
- Research students are supported by procedures which require them to clarify the nature of their projects, methodological procedures, schedules and research outcomes early in their candidature.
- Assessment is congruent with the subject objectives and teaching and learning methods.
- Students are provided with explanations of their rights and responsibilities and those of their teachers.
- Students are informed about procedures for dealing with disputes and complaints.

Principle 7: **Learning cycles of experimentation, feedback and assessment**

Learning requires feedback on understanding and the freedom to experiment with knowledge

Research into cognition has established that learning requires the organising, structuring and integration of new information into existing cognitive systems. Learners are never empty vessels who can be filled with knowledge: they are involved in the process of constructing meaning, even when apparently passive. But such constructions may be mistaken, confused or incomplete. They have to be tested against existing knowledge and the experience and the understandings of others.

For effective learning to occur, students need the opportunity to articulate and test their understandings and to receive informed and constructive feedback. The process of learning in higher education involves iterative loops of this kind and is enhanced by both the frequency and quality of the feedback given. During these learning cycles, students need some freedom to experiment with knowledge without the educational process in its entirety becoming one of 'trial and error'.

The act of articulating understandings should be, in itself, a clarifying process. A slogan of 1970s progressive education, 'How can I know what I think until I see what I say?' may be an exaggeration, but contains an important kernel of truth. Another vital way of consolidating new knowledge is to attempt to use it in new situations, either in theoretical argument or practical application. Embedding knowledge transfer in teaching and learning can aid significantly in this process. This may be done on several levels, including:

- At the within-subject level, where the specific subject objectives might include core knowledge transfer capacities or core knowledge about the context and process of knowledge transfer, and where a variety of practices might be utilized, such as problem- and project-based approaches in teaching and learning, use of case studies and field trips, experiential learning, involvement of community and industry participants in class activities, and consultation with industry, professional and community stakeholders;
- At the whole-subject level, where the subject objectives might have knowledge transfer as a primary objective, such as through field and industry placements or internships, on-location subject delivery, student exchange and study abroad programs, community-based projects, and applied research projects;
- At the level of a sequence of subjects, such as a major, where the systematic development of knowledge transfer skills is an objective of the sequence, and the demands for knowledge transfer skills might become increasingly sophisticated across the sequence, for example, beginning with small design, analysis or performance projects, and culminating in a "capstone" knowledge transfer experience.

An effective learning environment provides frequent opportunities for learners to expose their understandings to the scrutiny of others — both experts and peers. Students benefit from thoughtful, supportive and challenging feedback, in both formal and informal contexts. They also benefit from a structured framework, where assessment requirements are designed to give them the opportunity to learn from feedback as they progress (Harris, 2005). A framework of this kind should gradually transfer responsibility for monitoring learning to students themselves, thus equipping them for ongoing independent learning throughout life, careers and further study.

Implications for practice

- Students learn in supportive environments where they can try out explanations and ideas without fear.
- Students are given opportunities to receive feedback from each other as well as from staff.
- Feedback on submitted work is regular, prompt and at appropriate times is detailed.
- Students are exposed to case-based, problem-based or experiential approaches to learning, and hence to an integrated process of analysis, discovery, and application.
- Subject schedules are structured so that students have the opportunity to learn from feedback before progressing to other assignments.
- Courses and subjects are designed on the understanding that feedback encompasses all opportunities for students to develop their understanding in the light of others' responses and is a much broader concept than simply comments on submitted work.
- Students have an opportunity to analyse increasingly complex cases, to solve more difficult and realistic problems, and to undertake more demanding projects, and thereby acquire sophisticated skills in generating and testing hypotheses about underlying principles, and in applying theoretical expectations to particular instances.
- Communities, professions and industries are engaged where relevant in advising on course objectives.
- Students are taught how to monitor and review their own learning.
- Courses are planned so that students have early feedback and regular assessment tasks on which they can test themselves.
- Assessment tasks are varied and measure the full range of desired learning outcomes.
- At appropriate stages, assessment tasks allow scope for student creativity and individuality.
- Student workloads are considered when designing and scheduling assessment.
- Students have an opportunity to develop knowledge and skills in the analysis of the social and environmental systems relevant to effective knowledge transfer.
- Students are given an opportunity to develop relevant generic knowledge transfer skills, including communication with non-academic audiences, teamwork and collaboration skills, leadership, literacy in relevant non-academic information resources, and core commercial and business skills.

Principle 8: **Premium quality learning spaces, resources and technologies**

State-of-the-art information resources and electronic learning technologies are central to the development of independent learners

The imaginative renewal of teaching and learning spaces is an ongoing priority for the University of Melbourne, including the renewal of both 'in-class' and 'out-of-class' spaces. The effects of teaching and learning spaces on the nature and quality of both student-student and staff-student interactions are recognised. The University also recognises the important educational role of the social spaces in which students meet informally.

The University is committed to designing and experimenting with new learning spaces that go well beyond traditional thinking in higher education. This includes developing flexible teaching and learning spaces that encourage and allow a wide range for teaching and learning methods, which accommodate different approaches to teaching and learning across the disciplines, and which have seamlessly integrated electronic technologies.

Information and communication technologies are constantly and rapidly evolving. In many fields these technologies strongly influence and shape the character and day-to-day practices of research, scholarship and teaching. Similarly, students use up-to-date information and communication technology increasingly in their everyday lives.

These technologies bring both challenge and opportunity for university teachers. There is no doubt developments in technology dramatically enhance the possibilities for conceptualising and designing educational activities. The challenges lie in integrating entirely new modes of learning into the curriculum: designing and selecting the best teaching and learning resources and activities for particular occasions; and supporting students as they experience new forms of learning and transform the information before them into knowledge.

At the University of Melbourne, the provision of state-of-the-art electronic technology and leading-edge resources is grounded in three beliefs:

1. information and communication technologies are an integral part of the process of knowledge development and dissemination in all fields;
2. information and communication technologies provide previously unimaginable learning experiences and can greatly assist in exposing students to the frontiers of knowledge in particular fields;
3. it is essential for Melbourne graduates to develop the skills of independent information searching, evaluation and utilisation using all available sources of information.

The latter belief is congruent with the view that one of the most important objectives of modern university education is to develop graduates with the attitudes and skills needed for independent learning throughout life (Candy, Crebert & O'Leary 1994). These qualities are essential in a world in which the workplace is both international and global and where knowledge is growing and being renewed at a rapid rate. The quality of learning technologies and resources, of all kinds, is a prominent indicator of the overall quality of a higher education learning environment.

The ways e-learning strategies and their accompanying resources are deployed within the curriculum should reflect the educative principles of the present document. The effectiveness of technologies for teaching and learning can be measured therefore by the extent to which they enhance the excitement of learning, facilitate communication and discussion between students and staff and provide students with greater opportunities for practice and feedback — for, as Laurillard (1993) argues, multimedia and educational technologies in the hands of expert university educators greatly expand the opportunities for students to rehearse and articulate their knowledge.

Implications for practice:

- Students are able to learn using state-of-the-art educational technologies.
- Students have ready access to comprehensive and up-to-date information.
- Students are assisted in developing the skills to use these resources to their greatest advantage, including technical but more importantly analytical skills.
- Students are assisted to become increasingly independent explorers of these resources, using them to follow their individual interests and concerns.
- Independent, resource-based learning is incorporated into all courses, with the goal of establishing an appropriate balance of teacher-directed and self-directed learning.
- Staff provide sufficient structure and guidance for students to find their way through the masses of information available to them.
- Research students are provided with access to the resources necessary for the completion of their projects and, wherever possible, with the means to participate in activities of the research community, such as conferences.
- Students are made thoroughly familiar with the ethical considerations involved in the use of printed or electronic materials.
- Students are consulted on the quality and accessibility of book and other information collections of the University.

Principle 9: **An adaptive curriculum**

The higher education curriculum must be grounded in the accumulated body of human knowledge yet responsive to the growth of knowledge and social change

The need for universities to offer socially relevant curricula is self-evident. However, there is growing complexity in achieving this objective. The undergraduate curriculum in Australia and elsewhere is under intense pressure to be responsive to a changing society. Students are expected to master a rapidly growing body of specialised knowledge, develop generic, transferable skills for a global workplace and benefit from a foundation of general education. Course structures throughout the Australian higher education system increasingly reflect market expectations for customisation to personal preferences and needs, including flexible and online delivery, modularisation, and opportunities for accelerated completion.

The Melbourne Model is a considered and confident response to the need for curriculum adaptation in Australian higher education. The Melbourne Model's pedagogical emphasis on a broad undergraduate education reflects international trends and the University's assessment of the best way in which to serve students and the wider community. The Melbourne Model establishes an inherently adaptable undergraduate curriculum, one that can be tailored to the needs of individual students through the subjects chosen for the breadth component in partnership with coherent clusters of subjects that provide a relevant discipline-specific education delivered using contemporary and innovative teaching modes.

The breadth subjects of the new generation degrees offered under the Melbourne Model are excellent examples of adaptive curricula at work, particularly the interdisciplinary University breadth subjects. Informed by recent research and with curricula spanning disciplines and contexts, these subjects provide students with knowledge characterised by both its currency and its global relevance. Flexible and responsive to change these subjects may be, yet they still reflect the University's primary objective of academic excellence, are closely aligned with the University of Melbourne Graduate Attributes and are complementary to disciplinary subjects undertaken by students. The need for an adaptive curriculum extends to postgraduate programs and here the Melbourne Model has required extensive review of programs to provide alternate educational pathways to meet current and emerging diversity in student needs for professional, executive, specialist and advanced research training.

Underpinning the University's curriculum are an unwavering respect for the accumulated body of human knowledge and a concern for the coherence of the overall educational experience. In this context, coherence refers to the integrity in the articulation of the core knowledge base that is being studied and in the sequencing and structuring of student learning. The weight of evidence emerging from longitudinal studies, largely conducted in the USA, is that fragmented and disjointed curricula can limit student learning. In contrast, coherent subject sequences and integrated academic experiences are positively associated with higher order learning outcomes (Pascarella & Terenzini 1998, Gaff, Ratcliff & Associates 1996).

At the University of Melbourne coherence is achieved not only through in-classroom delivery of curricula, but by embedding knowledge transfer activities within degrees, providing students with a unified educational experience in which the relevance of each element is made explicit

Curriculum decision-making at the University of Melbourne involves multiple constituencies, operating across faculty and disciplinary boundaries, that are in dialogue on five interrelated curriculum elements: the evolving knowledge base that is to be taught, the desired student learning outcomes, the teaching and learning experiences to achieve these outcomes, the appropriate knowledge transfer activities embedded to bridge knowledge and practice, and the forms of assessment. Academic staff, especially subject coordinators, have responsibility to build linkages between subjects and to convey to students the relevance of individual subjects and activities within the degree overall.

The University of Melbourne is committed to rigorous quality assurance. Through its Evaluation Cycle, the University of Melbourne collects feedback from a range of stakeholders on the quality, relevance and accessibility of its courses, programs and services and uses this information for the purposes of quality assurance and improvement. The University is also committed to providing staff with opportunities to develop and enhance their personal teaching practice through high quality professional development opportunities.

Continued overleaf

Implications for practice

- The University and its constituent parts (faculties, schools, departments) maintain structures and procedures for regular consultation with stakeholder groups – including employers, the professions, government, the broader community, graduates and prospective students.
- There are systems of regular curriculum review in the light of responses from stakeholders.
- The University monitors employment outcomes and other measures of graduate success in order to ensure that its courses are providing graduates with skills and knowledge appropriate to their lives after graduation.
- Courses develop in students an awareness of the social and global context in which their knowledge and skills will be employed and the social responsibilities they will carry as global citizens.
- The University has procedures for ongoing liaison with other sectors in the educational system, to ensure coherence of objectives and practices.
- There is regular evaluation by enrolled students, to provide staff with feedback to inform the design of subjects and courses and to identify needs that are not being met.
- There are professional development opportunities for staff to enhance their teaching practice.

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