



The University of Sydney

Report of the ACE Working Party – a Response to the DEST Report “Australian Certificate of Education – Exploring a Way Forward”

Table of Contents

Response to ACE Report	2
1. Background.....	3
2. Basis for the Working Party’s Work.....	3
3. Some general comments on the Report	5
4. Specific comment on the Key Capabilities Assessment (KCA) component of the proposed ACE	7
Appendix 1: Executive Summary from “Australian Certificate of Education – Exploring a way forward”	9
Appendix 2 – Advice to Year 10 students on Assumed Knowledge	18
Appendix 3 – Executive Summary from “Employability Skills”	24

Response to ACE Report

Having examined the report “Australian Certificate of Education – Exploring a way forward”, released by the Australian Government in May 2006 for comment by August 4, 2006, the Working Party advises the Academic Board that:

- 1) of the four proposed options for implementing an Australian Certificate of Education (ACE), only one – that based on evolving an ACE from existing exit credentials – appears to have the capacity to improve upon e.g. the present NSW HSC, as a basis for the University’s admissions policy for school-leaver applicants;
- 2) this option could, however, adversely impact upon the University’s admission policy if its implementation mandated, or indirectly resulted in, less flexibility in subject choice at Year 12 than the policy currently requires, or if its implementation reduced the availability of academically demanding HSC courses to aspiring Year 12 applicants for admission; and
- 3) the proposal to introduce an additional summative Key Capabilities Assessment (KCA) in Year 12 could adversely affect the ability of prospective university students, to derive maximum benefit from the present HSC curriculum, by impacting directly upon the teaching and learning time available to them within Stage 6 of schooling.

The Working Party recommends that the Academic Board:

- i) endorse the following statement made by the Chairs of NSW & ACT Academic Boards:

“A national certificate would appear to improve consistency and comparability around Australia, have more international appeal than separate State-based certificates, and improve confidence in standards. It was felt that, even if the process of evolving State-based certificates to a national certificate is not fully realised, the process itself would be beneficial in providing a basis on which the issues can be discussed. Nevertheless, any national certificate must be able to ensure that students can articulate readily into university courses, and while addressing issues of consistency it must also address the issue of the diversity of student needs. One possibility is to have agreement on standards, but flexibility in content. This may be a useful approach, given that state contexts have become hardened over the years.”;
- ii) endorse the current admissions policy of the University;
- iii) oppose any implementation model for an ACE that would reduce the flexibility of subject choice within, e.g., the NSW HSC, available to Year 12 students aspiring to enter the University;
- iv) oppose any implementation model for an ACE that would adversely affect the availability to, e.g., NSW HSC students, of academically challenging subjects or courses within subjects, suitable to those aspiring to enter the University; and
- v) express its concern over the potential impact of a KCA, introduced as a separate, additional assessment into the final years of schooling, upon, e.g., students’ general achievements in the NSW HSC, and support development of a curriculum model that would embed the KCA into existing HSC subject areas.

1. Background

In late June, the Chair of the Academic Board established a small working party with the following Purpose, Membership, Terms of Reference and Timeline:

Purpose: To assess the proposed Australian Certificate of Education (ACE) in terms of its potential impact on the admission of recent school-leavers to undergraduate courses at the University of Sydney.

Membership:

Associate Professor John Mack (Chair)
 Mrs Margaret Varady (Fellow of Senate)
 Mr David Bowan (Director, Student Services) or nominee
 Dr Rachel Wilson (Faculty of Education and Social Work)
 Dr Jacqueline Manuel (Faculty of Education and Social Work)
 Professor George Cooney (Australian Centre for Education Studies, Macquarie University)

Terms of Reference:

The Working Party will consider and assess the proposed Australian Certificate of Education (ACE) with particular regard to its potential impact on:

- the current admission policies and practices of the University of Sydney;
- the ability of the University and Faculty to identify and select students on the basis of merit, and to rank such students for the application of admission quotas; and
- the current use of assumed knowledge and recommended studies as admission criteria.

Timeline:

Submissions on ACE are due with DEST by Friday 4 August 2006. It is proposed that the working party will meet between Monday 26 June and Friday 14 July with a report to the Chair of the Academic Board due on Friday 14 July.

The Working Party met on three occasions: 28 June, 5 July and 12 July and presented this Report to the Chair of the Academic Board on 14 July. The Working Party Chair thanks all Working Party members for their interest in and contributions to the consensus position conveyed in the Report, and thanks Ms Megan Kemmis for her assistance with meetings of the Working Party, with maintaining efficient e-mail communication among its members, and for her contribution to the preparation of this report.

2. Basis for the Working Party's Work

The principal document available to the Working Party was the report from the Department of Education, Science and Training (DEST), dated May 2006 and entitled "Australian Certificate of Education – Exploring a way forward". The Executive Summary from this 200+ page report is attached as Appendix 1 to this Report.

The working Party draws special attention to the following two paragraphs of this summary, found on page iii of the Report:

Senior secondary arrangements of the future also must allow the development of local curriculum solutions. Diversity of provision, innovation and experimentation will be important not only in meeting local student needs, but also in ensuring continuous improvement in curricula, teaching and learning. An Australian Certificate of Education must provide a framework within which diversity, innovation and local responsiveness are possible and encouraged.

Finally, we believe that any planning for the future must recognise and build on to excellent practices that already exist within the various senior certificates. Any future arrangements must add value to what exists and certainly must not lead to any reduction in quality or standards. It also is important that future arrangements do not impose unnecessary additional demands on students, teachers and schools.

The Working Party is strongly in support of the views expressed here, and consequently has kept these in mind during its deliberations.

The Working Party noted also the following comment, found on page 20 of the Report:

There was almost universal support for a broad certificate that would address the needs of all students in the senior secondary school rather than a narrow certificate aimed at some subgroup of the student population (e.g., those students seeking university entrance)¹. Such a certificate would meet the educational needs of students by recognising the multiple pathways that students take, encouraging participation, meeting diverse needs, and building life- and work-relevant skills. There was support for flexible assessment processes and appropriate assessments for different types of students.

Finally, the Working Party notes and endorses the thrust of the extract, published on page 24 of the Report, taken from the minutes of the NSW & ACT Committee of Chairs of Academic Boards meeting on 11 August 2005:

In discussion, the Committee noted that, of the three options, 1, 2 and 4 are add-ons to the existing State-based system, and that as such they could be a significant imposition on poorly funded schools. The Committee felt that the resource implications at the school level must be seriously considered. Option 3 (a national certificate which evolves from the existing State and Territory SSCEs) is the only one of the four that does not impose a separate, parallel system on schools.

Further, a national certificate would appear to improve consistency and comparability around Australia, have more international appeal than separate State-based certificates, and improve confidence in standards. It was felt that, even if the process of evolving State-based certificates to a national certificate is not fully realised, the process itself would be beneficial in providing a basis on which the issues can be discussed. Nevertheless, any national certificate must be able to ensure that students can articulate readily into university courses, and while addressing issues of consistency it must also address the issue of the diversity of student needs. One possibility is to have agreement

¹ A number of participants supported this view by citing statistics on the minority of Year 12 students who go on to university and the significant number of university students who do not come directly from Year 12.

on standards, but flexibility in content. This may be a useful approach, given that state contexts have become hardened over the years. The development of an Australian version of the IB was seen as being counter-productive.

Option 1, as proposed and discussed in the Report, involves the implementation of an ACE based on a new curriculum and assessment framework yet to be developed and tested, and which would stand as an independent alternative to existing exit credentials at Year 12 level.

Option 2 proposes that an ACE be modelled on the International Baccalaureate Diploma Program (IB). This program is currently offered in a small number of Australian schools, as an alternative to the normal local exit credential, and is accepted as a basis for admission to university via an agreed comparison basis between its results and, e.g., the UAI obtained from the HSC in NSW.

Option 3 examines the possibility of a developing an ACE based on current exit credentials by obtaining a national consensus on a common curriculum core and on comparable methods of summative assessment.

Option 4 explores the possibility of modelling an ACE on a scholastic aptitude test, such as the US SAT. The discussion of this Option highlights the known disadvantages of using a test of this type and effectively examines how such a test might be used as a moderating device to be used as a basis for comparing the state-territory based exit credentials used for ranking or selecting applicants for university admission.

3. **Some general comments on the Report**

The Working Party notes that Options 2 and 4 are more clearly directed at developing a national basis for university admissions than proposing an ACE to serve well as a national exit credential for the entire national Year 12 student cohort.

These two Options are at variance with the position quoted above, confirming general support for a broadly based, satisfactory and effective national exit credential. There is no evidence known to the Working Party that demonstrates the viability of an IB-type curriculum in addressing well the needs of the entire Australian Stage 6 (Years 11 to 12) cohort, and much would need to be done before this Option could be shown to be feasible for this purpose.

SAT-type tests are generally used in Australia as a moderating device to compare school-based results, rather than as a basis for university admission. The Working Party considers that the use of school-based assessment, moderated by a common external comprehensive assessment, such as is the case with the NSW HSC, is preferable to SAT-type tests, principally because the process of school-based assessment is both formative and summative, whereas SAT-type tests are purely summative and are often accompanied by training programs designed specifically to improve performance in this one test.

The Working Party can see no benefit at all in proceeding with Option 1. The cost of implementing an entirely new national curriculum and assessment program, as an alternative to existing exit credentials, would be great, and the result would do little to improve existing concerns regarding perceived lack of comparability among the present Year 12 exit credentials.

The Working Party, while endorsing the feasibility of developing a program based on Option 3, nevertheless has serious concerns with regard to the possible impact of

such a program on current University admissions practice. These concerns can only be addressed when more details of a proposed program framework are made available.

It is simplest for the Working Party to express its concerns in relation to the use made by the University of the NSW HSC exit credential and the calculation of a UAI based on HSC data.

1. The present HSC curriculum does address the needs of Year 12 students aspiring to enter the University. In particular, the diversity of subject choice, and the academic breadth of the curriculum (e.g. as expressed by courses available in English and Mathematics) caters well for the talented students attracted to the University.

No ACE should diminish this aspect of the NSW HSC.

2. The University's admissions policy, for over 20 years, has been based on "assumed knowledge" requirements for most courses, apart from some where specific skills or knowledge of talent must be demonstrated (e.g. in Music). There is only one subject area, English, in which a student's HSC result must be included in the UAI calculation, and English is a mandatory subject requirement for the award of an HSC. A copy of the information to Year 10 students regarding course admission requirements is attached as Appendix 2.

This means that complete flexibility of HSC subject and course choice is available to all aspiring Year 12 applicants for admission.

A further advantage of the "assumed knowledge" basis is that students, who, towards the end of Year 12, realise that their preferred university course choice has changed, are not prevented from applying for entry to their new choice by discovering that they now do not have a mandated prerequisite HSC course. Instead, they have the option of making up the assumed knowledge, e.g. by taking a bridging course or by private study.

The University's current admissions policy has served it well and continues to do so. Decisions on this policy are the responsibility of Senate, on advice from the Academic Board, and the Working Party recommends that the Academic Board strongly endorses the present admissions policy.

No ACE should restrict the flexibility of HSC subject choice currently available to Year 12 students aspiring to enter the University.

3. A further argument advanced in the Report is that an ACE would provide an internationally accepted end-of-schooling exit credential that would also serve as a basis for an admission application to higher education institutions world-wide.

The Working Party reminds the Academic Board that the current NSW HSC is an internationally accepted exit credential, that does serve as a basis for an international admissions application for higher education. The NSW HSC also provides a Standards Reference based assessment and reporting system and serves the needs of NSW school-leaver applicants to this University via the UAI ranking system.

The Academic Board might well consider proposing to DEST and the Minister that the NSW HSC, in its entirety, become a national ACE.

4. Specific comment on the Key Capabilities Assessment (KCA) component of the proposed ACE

In addition to proposals relating to general curriculum and assessment issues exemplified by current state-territory exit credentials, the Report strongly supports the introduction of a new exit-level assessment, called the KCA.

The Report is unambiguous in tracing this proposal back to the 2002 Report by the ACCI and others on “Employability Skills”. The proposals in this report are linked to the previously-developed “Mayer Key Competencies” and claim to recognise the changes in employer requirements for employees due to changes in business practice and to the growing influence of globalisation on the Australian economy.

Rather than provide extracts from this Report, the Working Party considers that it is more informative to attach, as Appendix 3, the Executive Summary from the above “Employability Skills” Report.

The Working Party considers that, as suggested in the present Report, many of these “skills” could only be evaluated in a school or workplace setting, and would require considerable effort to do so.

The Report identifies a subset of these skills (Reading Literacy, Mathematical Literacy, Written English and ICT Literacy) which it suggests forms the basis for an additional Year 12 national assessment task. Until a specification of the scope and range of each KCA component becomes available, it is not possible for the Working Party to advise the Academic Board on matters such as:

- a) the relationship of the KCA to existing assessment tasks in Years 7 to 12 (for example, NSW has just introduced a Year 10 ICT Competency test);
- b) whether or not the Capabilities of the KCA could alternatively be assessed via inclusion of them across relevant subject areas (for example, an assessment of Mathematical Literacy [which would not be a test of what is taught in senior secondary mathematics] that resembled, e.g., a test of capability to interpret and use data presented by Diagrams, Tables and Maps, as found in the SweSAT, might be suitable for inclusion in multiple HSC subject areas, such as Geography, Economics/Business Studies, the Sciences or the Histories);
- c) an intention for the KCA to be supported by prior formative assessment appropriate for it, so that it is not seen as a test that offers no opportunity for improvement of student learning.

Noting that the KCA is seen to have applicability across all three education sectors, and for employers, the Working Party suggests that the Academic Board propose for it an alternative implementation strategy to that proposed in the Report. This is:

- i) that the KCA be an elective assessment that may be required to be taken by applicants for employment or further learning at the discretion of individual employers or education and training institutions;
- ii) that it be available, say twice a year, to school students post Year 10 and to any other person wishing (or required) to take it; and
- iii) that an individual may elect to take it more than once, with feedback provided each time the KCA is taken.

There are suggestions in the Report that a KCA might usefully be used to moderate different state-territory rankings of school-leaver applicants for admission to higher education. The Working Party proposes that the Academic Board seek advice, via the Technical Committee on Scaling of the NSW Vice-Chancellors' Committee, regarding the present comparison systems used and the role of the KCA in either establishing or auditing inter-state equivalences.

The Working Party sees merit in suggesting to the Academic Board that a broadening of KCA Reading Literacy and Written English components into a test of English language communication skills (Listening and Speaking, Reading, Writing, Comprehension and Understanding), of sufficient scope for it to be usefully used by educational institutions and employers, may well benefit the higher education sector in a specific way, namely to provide it with a common instrument for use in assessing the English communication skills of native and non-native applicants for admission. This would provide, for the first time, an equitable and useful test of these skills, independent of the form of prior English language training, enabling, e.g., international applicants for admission to be measured on a par with domestic school-leaver (and other) applicants in terms of their possession of suitable communication skills.

This would be usable only if the proposed modified KCA component extended to a testing base at least equivalent to an IELTS score of 8.0, and, in order to accommodate the full range of communication skills that may be required by various end-users, may well require say a three-level version of the test instrument to be developed.

In terms of the potential impact of a KCA on University admissions policy, the Working Party believes that the inclusion of an additional summative assessment task, such a KCA, into Year 12, must affect the capacity of HSC student to apply themselves to the academically challenging courses in the HSC, typically chosen by those aspiring to enter the University.

The Working Party consider that these students would be better served by the incorporation of components of the proposed KCA into the present HSC curriculum, in context within each subject area.

Appendix 1: Executive Summary from “Australian Certificate of Education – Exploring a way forward”

Executive Summary

In May 2005 the Department of Education, Science and Training (DEST) commissioned the Australian Council for Educational Research (ACER) to investigate and report on models and implementation arrangements for an Australian Certificate of Education (ACE) for the final years of secondary school.

A key question in this investigation was whether an Australian Certificate of Education would best be introduced as a new certificate that would sit alongside existing state and territory senior secondary certificates, or whether the objective should be to establish in this country a single Australian Certificate of Education for the final years of secondary school. We have investigated both these possibilities. Within each possibility there are alternative ways of proceeding, and we have investigated and reported on some of the more obvious alternatives.

On balance, we have reached the conclusion that the most desirable long-term outcome would be the emergence of a single Australian Certificate of Education awarded by each of the Australian states and territories in place of the existing nine certificates. We believe the framework of a single senior certificate is more likely to promote consistency in senior secondary arrangements, to provide comparability of student results across Australia, and to ensure nationally consistent high standards of curriculum provision. The addition of a tenth senior certificate is unlikely to address concerns about inconsistencies, lack of comparability and unnecessary duplication among the existing nine certificates or schools’ concerns about the likely complications and resource implications of offering yet another senior certificate. A single certificate also is more likely to be consistent with, and to support, the broad purposes of senior secondary schooling than a certificate designed for only some students during these years.

We recognise that achieving a single Australian Certificate of Education may be more difficult than introducing a tenth certificate to sit alongside existing state and territory certificates. A single national certificate inevitably will require time to implement, and may have to be achieved in stages. Nevertheless, we believe the introduction of a single Australian Certificate of Education is a desirable long-term objective, and in the course of our investigations we have explored ways of implementing such a certificate.

A number of considerations have shaped our recommendations. Foremost among these is our belief that the final years of secondary school should provide students with a high quality education that equips them for learning, work and life beyond school. All students stand to benefit from high expectations. Throughout Australia, curricula in the final years of school should be of the highest calibre internationally, and students’ levels of achievement should be benchmarked against international standards of excellence.

We also recognise the challenges in providing quality learning experiences for the broad range of students now participating in the final years of secondary school. The keys to increasing student participation and engagement in senior secondary education are quality curricula appropriate to students' talents, interests and needs. For many students, learning now takes place not only in classrooms, but also in workplaces and other community settings. Curriculum and assessment arrangements of the future must be designed to meet the diverse needs of senior secondary students, at the same time keeping open and facilitating pathways to further education, training and work.

Senior secondary arrangements of the future also must allow the development of local curriculum solutions. Diversity of provision, innovation and experimentation will be important not only in meeting local student needs, but also in ensuring continuous improvement in curricula, teaching and learning. An Australian Certificate of Education must provide a framework within which diversity, innovation and local responsiveness are possible and encouraged.

Nevertheless, our analyses of existing senior secondary arrangements have convinced us that many current differences across Australia are difficult to explain or justify. It is clear that present differences between states and territories do not reflect differences in student needs and are not always in students' best interests. In some cases these differences—for example, differences in the ways in which results are reported in different states and territories—may disadvantage some students. Added to this, there is significant duplication of effort across bodies responsible for senior curricula and assessment. It is not difficult to imagine ways in which less duplication and more collaboration could lead to more efficient uses of national resources.

Finally, we believe that any planning for the future must recognise and build on to excellent practices that already exist within the various senior certificates. Any future arrangements must add value to what exists and certainly must not lead to any reduction in quality or standards. It also is important that future arrangements do not impose unnecessary additional demands on students, teachers and schools.

Proposal

Our vision is for a single Australian Certificate of Education, undertaken by senior secondary students throughout Australia and within which students are able to pursue a range of pathways, including academic and vocational studies in schools, workplaces and other community settings. We envisage this national certificate being awarded by all state and territory authorities (the ACACA agencies).

An essential feature of the proposed ACE would be the development of nationally consistent high standards. We are proposing that a national standards body be established to set nationally consistent standards of several kinds. First, the national standards body would set minimum requirements for the award of the Australian Certificate of Education. Second, curriculum

essentials would be established in key subject areas. Curriculum essentials would spell out a core of curriculum content (fundamental knowledge, principles and skills) to be taught in an ACE subject across all awarding bodies offering that subject. We envisage curriculum essentials being established in the first instance for a number of nominated senior school subjects. Third, achievement standards would be set in these nominated subjects. Achievement standards would provide a nationally consistent framework of levels (we are recommending five levels labelled A to E) against which students' performances would be reported, thus allowing results in a subject to be compared across awarding bodies.

Under the Australian Certificate of Education, schools and awarding bodies would be encouraged to develop, assess and report on general skills required for life and work beyond school. The employability skills framework of the Australian Chamber of Commerce and Industry and the Business Council of Australia identifies eight such skills. We are recommending the introduction of a national test of a small number of these skills: initially, reading literacy/verbal reasoning, mathematical literacy/quantitative reasoning, written English and ICT literacy. We are proposing that this component of the ACE be known as the Key Capabilities Assessment (KCA).

Because the Australian Certificate of Education would be a broad certificate available to all students in the senior secondary school, we see value in recognising and rewarding excellence within the ACE. We are proposing the introduction of an ACE Award of Excellence: a certificate awarded to students throughout Australia who meet high standards of achievement in their studies.

The following six recommendations summarise our proposal. These six recommendations are elaborated in Chapters 9 to 14. A proposed implementation timeline is provided in Chapter 13.

Recommendation 1: Curriculum essentials

A widely held view among participants in our national consultations was that, regardless of where they live in Australia, students in the senior secondary school should have similar opportunities to engage with the fundamental knowledge, principles and ideas that make up school subjects. There was general agreement that students in different states and territories taking particular subjects—such as Economics or Biology—should be able to engage with those subjects in similar depth and with similar academic rigour. Some participants drew attention to disadvantages and inequities that could result from differential access to fundamental learning within a discipline.

We are recommending the identification of curriculum essentials: fundamental knowledge, principles and ideas that should be taught in a subject, regardless of jurisdiction. In the first instance, these essential curriculum elements would be developed for a number of nominated mathematics, English, science and social science/humanities subjects. They would spell out a core of common content to be taught in all states and territories, but would not determine the entire curriculum in a subject and so would not constitute a ‘national curriculum’.

We are recommending that a national ‘subject panel’ comprising subject matter and assessment specialists and members of the relevant professional subject association/s be responsible for identifying essential curriculum content in a subject. This process should include some international benchmarking to ensure that curriculum content is consistent with international best practice in the senior years of school.

Recommendation:

That curriculum essentials be identified—at least in some nominated mathematics, English, science and social science/humanities subjects—to ensure that all Australian students have opportunities to engage with the fundamental knowledge, principles and ideas that make up these disciplines. Essential elements of subject curricula should be identified by national subject panels comprising subject matter and assessment experts and members of the relevant professional subject associations.

(see Chapter 9)

Recommendation 2: Achievement standards

At the present time, students' achievements in individual school subjects are not comparable across states and territories. For example, it is not possible to compare levels of achievement in mathematics or levels of proficiency in Japanese from one jurisdiction to another. A score of 85 in Accounting in one state does not necessarily represent the same level of Accounting knowledge as a score of 85 in another state. Added to this, ways of reporting student achievement vary from one state to another. Some students receive scores out of 100; some receive scores out of 50; and still others receive an achievement level (e.g., 'Very High Achievement'). Employers sometimes commented that the lack of comparability across jurisdictions and the different systems used to report student achievement complicate the interpretation and use of senior school results.

We are recommending that national achievement standards be developed in those subjects for which curriculum essentials are identified. The purpose of achievement standards would be to provide a common method of reporting achievement in a subject across all states and territories. Our recommendation is that there be five nationally-established standards in each subject, labelled A to E. Each of these standards would represent a described and illustrated level of achievement in the subject and would enable the direct comparison of students' results across states and territories. In states that also report results on numerical scales, there would be an annual task to interpret students' scores in terms of the national achievement standards.

The national subject panel would be responsible for developing achievement standards for a subject. In setting standards, it is desirable that some international benchmarking be undertaken to ensure that high standards (e.g., an 'A' in a subject) are broadly consistent with high performance standards internationally.

The development of achievement standards for a subject leaves open the question of how evidence of student achievement is assembled and evaluated. In some jurisdictions, evidence might be assembled at the school level. In other jurisdictions, the evidence also might include results on external examinations. Our proposal also leaves open the possibility of jurisdictions sharing assessment processes and materials. For example, some or all of the examination materials developed for a subject could be shared by states/territories that use external examinations.

Recommendation:

That achievement standards be developed—at least in some nominated English, mathematics, science and social science/humanities subjects—to ensure that students' results in these subjects can be compared throughout Australia. Achievement standards should be benchmarked internationally and could take the form of A to E grades in a subject.

(see Chapter 10)

Recommendation 3: Key capabilities assessment

The senior years of school have an important role to play in developing the skills and attributes young people need for life and work beyond school. Alongside subject-specific knowledge and skills, senior secondary schools have a responsibility to develop understandings and skills that will prepare young people to function as informed and engaged members of society and productive members of the workforce. Employers, in particular, have an interest in the development of ‘employability’ skills, including skills in communicating and working with others. In our consultations, there was widespread recognition that the final years of school have a crucial role to play in developing general, cross-curricular skills for life and work.

We are recommending that schools and education authorities give priority to developing, and recognising young people’s progress in relation to, the eight employability skills developed by the Australian Chamber of Commerce and Industry and the Business Council of Australia. Further work is required to investigate the most effective ways of assessing and reporting on the eight employability skills. For some skills—such as self management, teamwork, initiative and enterprise, and planning and organising— valid assessments may depend on direct observations and judgments of young people’s performances in workplaces, schools and community settings.

We also are recommending the introduction of national tests of a number of key skills:

- reading literacy/verbal reasoning
- mathematical literacy/quantitative reasoning
- written English
- ICT literacy

The assessment of these ‘key capabilities’ could be administered part way through Year 12; might eventually be expanded to include other skills; and in some states and territories, might replace existing generic skills tests. We envisage students’ results on the Key Capabilities Assessment being reported alongside their subject results.

As well as providing universities and employers with additional information that should be useful in selection decisions, the Key Capabilities Assessment will assist efforts to ensure the comparability of students’ subject results across jurisdictions, and may improve the equating of ENTER scores.

Recommendation:

That, as part of the Australian Certificate of Education, all students undertake a national Key Capabilities Assessment part way through Year 12. This assessment would provide information about a number of capabilities important to life and work beyond school. Students’ results on the Key Capabilities Assessment would be reported alongside their subject results. (see Chapter 11)

Recommendation 4: ACE award of excellence

An Australian Certificate of Education must meet two basic purposes: it must provide a wide variety of courses and learning opportunities to meet the diverse needs of the growing number of students now participating in the final years of secondary school, and it must encourage and recognise excellence in student achievement at the highest international standards.

To support the second of these two purposes we are recommending that the Australian Minister for Education, Science and Training provide an annual ACE Award of Excellence to students who meet high standards in their school subjects and in the Key Capabilities Assessment. State and Territory authorities would identify students in each jurisdiction meeting these nationally specified high standards. We envisage perhaps 10 per cent of all students receiving an ACE Award of Excellence.

We also are recommending that the current Australian Students Prize, provided to 500 students annually by the Australian Government, be awarded as the 'ACE Prize' to students achieving outstanding results in the Australian Certificate of Education. As at present, ACE Prize recipients would be identified by state and territory authorities.

Recommendation:

That an ACE Award of Excellence be introduced. This Award would be issued by the Australian Minister for Education, Science and Training to students who meet international standards of excellence in their school subjects and on the Key Capabilities Assessment. (see Chapter 12)

Recommendation 5: A national standards body

The identification of essential curriculum content for nominated ACE subjects, the development of nationally consistent achievement standards, and the annual development and administration of the Key Capabilities Assessment would require a level of national coordination. It is desirable that a single national body take responsibility for coordinating national consistency and comparability in senior secondary arrangements and for setting standards for the Australian Certificate of Education.

We are recommending that a national standards body be established for this purpose. The Board of Directors of the national standards body would be appointed by the Australian Government Minister for Education, Science and Training. Ideally the work of the national standards body would be funded by all Australian governments.

The national standards body would not award the Australian Certificate of Education (this would be the responsibility of each of the state and territory authorities), but would be responsible for establishing, convening and overseeing the work of national subject panels in nominated school subjects. Each subject panel would propose essential curriculum content and achievement standards for a subject, for endorsement by the Board. The national standards body also would manage the annual development and administration of the Key Capabilities Assessment and prepare and distribute the ACE Award of Excellence to students identified by state/territory authorities.

Recommendation:

That a national standards body be established. This body would not be an awarding body, but would be responsible for identifying essential curriculum content in nominated school subjects, developing achievement standards and managing the annual Key Capabilities Assessment. (see Chapter 13)

Recommendation 6: A common national certificate

There was considerable support among participants in our national consultations for the idea that there should be a single qualification in the final years of secondary school, to be known as the Australian Certificate of Education. Supporters of this idea envisaged an ACE eventually replacing the existing state and territory certificates (e.g., Tasmanian Certificate of Education; NSW Higher School Certificate) and being provided through seven or eight awarding bodies (e.g., Tasmanian Qualifications Authority; NSW Board of Studies).

We believe it is desirable that, following agreement to incorporate essential curriculum content, to report against common achievement standards in nominated subjects and to incorporate the Key Capabilities Assessment, each of the existing state certificates become the Australian Certificate of Education. Under this scenario, each awarding body would continue to offer or accredit a variety of subjects and courses that would count towards the Australian Certificate of Education. In other words, there would continue to be diversity and responsiveness to local needs—under the umbrella of a single national qualification.

The introduction of a single Australian Certificate of Education would provide an opportunity not only to achieve greater consistency of senior secondary arrangements across Australian awarding bodies, but also to make more efficient use of limited resources. For example, with all awarding bodies issuing the Australian Certificate of Education, it could be decided that, rather than developing seven separate syllabuses/curriculum frameworks for a particular subject, it would be more efficient for awarding bodies to share some syllabus and assessment materials.

Recommendation:

That all students in the final years of secondary school be given access to the Australian Certificate of Education. Following agreement to incorporate essential curriculum content in nominated subjects, to report against common achievement standards, and to incorporate the Key Capabilities Assessment, each of the existing senior secondary certificates would be eligible to become the Australian Certificate of Education.

(see Chapter 14)

Appendix 2 – Advice to Year 10 students on Assumed Knowledge

UNIVERSITY OF SYDNEY

www.usyd.edu.au

Enquiries

Marketing & Student Recruitment Unit
Baxter's Lodge F02
University of Sydney
NSW 2006

1300 362 006

In Person: Marketing & Student Recruitment Unit
Baxter's Lodge
Cnr Parramatta Rd and Derwent St
or The Student Centre
Level 1, Carlaw Building
(enter from City Road gate)

MAIN AREA OF STUDY

Major Studies

(Areas of study are generally offered as Bachelor degrees unless Dip, Adv Dip or Assoc Deg is shown in brackets)

P = Prerequisites
A = Assumed Knowledge
R = Recommended Studies
N = None

ABORIGINAL HEALTH AND COMMUNITY DEVELOPMENT

N None

AGRICULTURAL ECONOMICS

Agribusiness Management, Agricultural Economics, Agricultural Policy, Agricultural Science, Commercial Law, Econometrics, Economics, Finance, Geography, Government, International Trade, Marketing, Modern Languages, Natural Resource Economics

A Mathematics

AGRICULTURAL SCIENCE

Agribusiness, Agricultural Chemistry, Agricultural Economics, Agricultural Entomology, Agricultural Genetics, Agricultural Microbiology, Agronomy, Animal Production, Biometry, Cereal Science, Farming Systems, Horticultural Science, Plant Pathology, Resource Economics, Soil Science

A Chemistry and Mathematics

ANIMAL SCIENCE

Animal Genetics, Animal Production

A Mathematics and Chemistry
R Biology

ARCHITECTURE/DESIGN

Architecture

A Mathematics and English Advanced

ARTS AND SOCIAL SCIENCES

Arts

Arts (Advanced)

Arts (Asian Studies)

Arts (Informatics)

Arts (Languages)

Arts (Media and Communication)

Arts (Orange campus first year)

Social Sciences

Aboriginal Studies, Ancient History, Anthropology, Arabic Language and Literature, Arab World, Islam and the Middle East, Archaeology (Classical, Near Eastern, and Prehistoric and Historical), Art History and Theory, Asian Studies, Australian Literature,
Majors continued on next page

A Knowledge required or assumed depends on the first year subjects selected. In most cases where a subject has a level of assumed knowledge there is an alternative course available with no knowledge assumed

MAIN AREA OF STUDY

Major Studies

(Areas of study are generally offered as Bachelor degrees unless Dip, Adv Dip or Assoc Deg is shown in brackets)

P = Prerequisites
A = Assumed Knowledge
R = Recommended Studies
N = None

ARTS AND SOCIAL SCIENCES (cont'd)

Australian Studies, Biblical Studies, Biology*, Chemistry*, Chinese Studies, Classical Civilisation, Computer Science*, Economics*, Education*, English, European Studies, Film Studies, French Studies, Gender Studies, Geography*, Geology*, Geophysics*, Germanic Studies, Government and International Relations*, Greek (Ancient), Greek and Roman Literature, Hebrew (Classical and Modern), Heritage Studies, Hindi-Urdu, History, History and Philosophy of Science*, Indonesian and Malay Studies, Informatics*, Industrial Relations and Human Resource Management*, Information Systems*, International and Comparative Literary Studies, Italian Studies, Japanese Studies, Jewish Civilisation Thought and Culture, Korean Studies, Latin, Law*, Linguistics, Management*, Mathematics*, Media and Communications*, Medieval Studies, Modern Greek Studies, Music, Pali, Performance Studies, Philosophy, Physics*, Political Economy*, Psychology*, Psychology for Social Work*, Russian, Sanskrit, Social Policy, Social Sciences*, Sociology, Spanish, Studies in Religion, Statistics*, Thai, Yiddish

available under certain condition*BEHAVIOURAL HEALTH SCIENCE****N** None**BUSINESS (AGRICULTURAL COMMERCE)**

Entrepreneurial Management, Environmental Studies, Financial Management, International Business Management, Market Management

N None**COMMERCE**

Accounting, Business Information Systems, Commercial Law, Economics, Finance, Industrial Relations and Human Resource Management, Management, Management Science, Marketing. Additional majors can be undertaken in Econometrics, Government and International Relations, Political Economy, and in other areas outside the Faculty of Economics and Business

A Mathematics
For Business Information Systems:
 HSC Mathematics Extension 1

Commerce (Liberal Studies)

As listed for Commerce above plus Agricultural Economics, Computer Science, Financial Mathematics, Mathematics

A Mathematics
For Business Information Systems:
 HSC Mathematics Extension 1

COMPUTER SCIENCE AND TECHNOLOGY

Computational Science, Computer Science, Digital Design Multimedia Technology, Information Systems, Networks and Systems, Principles of Computer Science, Software Development

A Mathematics or HSC Mathematics Extension 1 (depending on subjects chosen)
For Computer Science and Technology (Advanced): HSC Mathematics Extension 1

DESIGN COMPUTING**A** Mathematics

MAIN AREA OF STUDY

Major Studies

(Areas of study are generally offered as Bachelor degrees unless Dip, Adv Dip or Assoc Deg is shown in brackets)

P = Prerequisites
A = Assumed Knowledge
R = Recommended Studies
N = None

ECONOMICS

Economics and Econometrics. Additional majors can be undertaken in Accounting, Business Information Systems, Commercial Law, Finance, Government and International Relations, Industrial Relations and Human Resource Management, Management, Management Science, Marketing, Political Economy and in other areas outside the Faculty of Economics and Business

A Mathematics
For Business Information Systems:
 HSC Mathematics Extension 1

ECONOMIC AND SOCIAL SCIENCES

Economics, Government and International Relations, Industrial Relations and Human Resource Management, Political Economy. Additional majors can be undertaken in Accounting, Business Information Systems, Commercial Law, Econometrics, Finance, Management, Management Science, Marketing and in other areas outside the Faculty of Economics and Business

A Mathematics
For Business Information Systems:
 HSC Mathematics Extension 1

EDUCATION

Primary

A Any two units of English and any two units of mathematics

Secondary – Design and Technology, Humanities, Human Movement, Mathematics, School Counselling, Science, Social Sciences

A Knowledge required or assumed depends on first year subjects selected within individual degree programs

ENGINEERING

Aeronautical, Biomedical, Bioprocess, Chemical, Civil, Computer, Construction Management, E-Commerce, Electrical, Environmental, Geotechnical, Mechanical, Mechatronics, Process, Project Management, Software, Space, Structural, Telecommunications

A Chemistry and Physics and HSC Mathematics Extension 1

EQUINE BUSINESS MANAGEMENT

P You must participate in a two day orientation program and satisfy health requirements as determined by the University.

EXERCISE AND SPORT SCIENCE

Includes Exercise and Sport Science, Exercise and Sport Science/Nutrition

For Exercise and Sport Science:
A Chemistry and Mathematics
R Physics, Biology, HSC Mathematics Extension 1 and PDHPE
For Nutrition:
A Chemistry and (Biology or Physics), Mathematics or HSC Mathematics Extension 1 (depending on subjects chosen)

FARM MANAGEMENT

P Students need to have basic farm skills so it is advised that you gain 12 months practical farming experience before starting the course. Contact the Faculty of Rural Management for more details.

MAIN AREA OF STUDY Major Studies <i>(Areas of study are generally offered as Bachelor degrees unless Dip, Adv Dip or Assoc Deg is shown in brackets)</i>	P = Prerequisites A = Assumed Knowledge R = Recommended Studies N = None
HEALTH INFORMATION MANAGEMENT	N None
HEALTH SCIENCES	R Chemistry
HEARING AND SPEECH	R English Advanced and Chemistry
HORTICULTURAL MANAGEMENT	N None
HORTICULTURAL SCIENCE	A Chemistry and Mathematics
INFORMATION TECHNOLOGY <i>For subject areas see Computer Science and Tech.</i>	A HSC Mathematics Extension 1
LAND AND WATER SCIENCE Agricultural Chemistry, Agronomy, Hydrology and Catchment Management, Soil Science.	A Chemistry and Mathematics
LAND MANAGEMENT (ECOLOGICAL AGRICULTURE)	N None
LAW (COMBINED) The following combined law courses are offered: Arts/Law Commerce/Law Economics/Law Economic and Social Sciences/Law Engineering/Law Science/Law	A/R For Law: none For the other area of study: refer to the relevant entry
LEISURE AND HEALTH	R Chemistry
LIBERAL STUDIES Includes Liberal Studies, Liberal Studies (International), Liberal Studies (Advanced) and Liberal Studies (Orange Campus first year) <i>For subject areas see Arts and Science</i>	A Mathematics. Other assumed knowledge depends on subjects chosen.
MANAGEMENT Contemporary Management, Entrepreneurial Management, Environmental Studies, Financial Management, International Business Management, Marketing Management	N None
MEDIA AND COMMUNICATIONS	N None
MEDICAL RADIATION SCIENCES Diagnostic Radiography, Nuclear Medicine Technology, Radiation Therapy	R Mathematics plus one of Biology, Chemistry or Physics

MAIN AREA OF STUDY

Major Studies

(Areas of study are generally offered as Bachelor degrees unless Dip, Adv Dip or Assoc Deg is shown in brackets)

P = Prerequisites
A = Assumed Knowledge
R = Recommended Studies
N = None

MEDICAL SCIENCE

Anatomy and Histology, Biochemistry, Biology, Cell Pathology, Genetics, Immunology, Infectious Diseases, Microbiology, Molecular Biology, Pharmacology, Physiology

A Mathematics and Chemistry, plus one of Biology or Physics**MUSIC**

Composition, Jazz, Music Education, Musicology, Performance

P Interview and/or audition
A Music 2**NURSING**

(Including combined degrees and Indigenous Australian Health Nursing)

A General Mathematics and either Biology or Chemistry or Personal Development, Health & Physical Education**OCCUPATIONAL THERAPY****R** Chemistry or the completion of a chemistry bridging course**ORAL HEALTH** *(subject to final approval)*

Clinical Oral Health Practices, Life and Behavioural Science

R Chemistry**ORTHOPTICS****A** Two of Chemistry, Biology, Physics**PHARMACY****P** All applicants must sit a Special Tertiary Admissions Test (STAT)
A Mathematics plus either (Chemistry and Physics) or (Chemistry and Biology)**PHYSIOTHERAPY****A** Physics and Chemistry
R Mathematics**PSYCHOLOGY****A** Depends on degree subjects chosen, but mathematics is compulsory in the degree
A Mathematics**REHABILITATION COUNSELLING****N** None**RESOURCE ECONOMICS**

Biology, Economics, Resource Economics, Environmental Sciences, Geography, Geology, Marine Science, Plant and Animal Ecology

A HSC Mathematics Extension 1 and Chemistry
R Biology or Earth and Environmental Science

MAIN AREA OF STUDY

Major Studies

(Areas of study are generally offered as Bachelor degrees unless Dip, Adv Dip or Assoc Deg is shown in brackets)

P = Prerequisites
A = Assumed Knowledge
R = Recommended Studies
N = None

SCIENCE

Advanced Science
Advanced Maths
Bioinformatics
Environmental
Marine Science
Molecular Biology and Genetics
Molecular Biotechnology
Nutrition
Science
Science (Orange campus for first year)

Agricultural Chemistry, Anatomy and Histology, Biochemistry, Biology, Cell Pathology, Chemistry, Computer Science, Computational Science, Financial Mathematics and Statistics, Geography, Geology, Geophysics, History and Philosophy of Science, Immunology, Information Systems, Marine Sciences, Mathematics, Medicinal Chemistry, Microbiology, Nanoscience, Neuroscience, Pharmacology, Physics, Physiology, Psychology, Statistics, Soil Science

NB: most majors offered at Orange campus (first year only)

Depends on degree subjects chosen, but mathematics is compulsory in the Bachelor of Science degrees

A Mathematics or HSC Mathematics Extension 1, plus
For Advanced Maths: HSC Mathematics Extension 2
For Environmental Science: HSC Mathematics Extension 1 and Chemistry
For Molecular Biology and Genetics and Marine Science: Chemistry and Mathematics
For Bioinformatics and Molecular Biotechnology: Chemistry and Biology, Mathematics or HSC Mathematics Extension 1 (depending on subjects chosen)
For Nutrition: Chemistry and (Biology or Physics), Mathematics or HSC Mathematics Extension 1 (depending on subjects chosen)

R Study in at least one major science area, particularly for students intending to study at advanced level. **Note:** Senior Science is not regarded as adequate for university studies in science

SOCIAL WORK

A Knowledge required or assumed depends on first year subjects selected

SPEECH PATHOLOGY

R Chemistry

VETERINARY SCIENCE

A Chemistry and Physics and Mathematics
R Biology

VISUAL ARTS

Ceramics, Electronic and Temporal Arts, Glass, Jewellery and Object, Painting, Photomedia, Printmedia, Sculpture

P Interview and portfolio
R Visual Arts

VITICULTURAL MANAGEMENT

N None

COMBINED AND DOUBLE DEGREES

It is also possible to combine many of the above areas of study. If you intend to take a combined degree you will need to check the assumed knowledge and recommended studies for both degrees. Many degrees are flexible and allow you to take studies from across a range of faculties.

Appendix 3 – Executive Summary from “Employability Skills”

Executive Summary

and Recommendations

Introduction

Australia is the 14th largest economy in the world. It has achieved this position through a decade of change and economic growth and a strong focus on productivity improvements (International Monetary Fund, 2001). Australian enterprises, in recognition of the economic challenges and globalisation, have implemented a range of strategies to support growth and increase their international competitiveness. Allen Consulting (2000) advised that such strategies included:

- multiskilling;
- greater automation; and
- workforce restructuring.

Three recent government reports, *Backing Australia's Ability* (2001), *Knowledge and Innovation* (1999) and *Investing for Growth* (1997), highlight the positioning of Australia as an international player in the knowledge economy and the need to continue building Australia's capacity to effectively operate in the 'global knowledge-based economy'. They outline a series of government initiatives targeting research and development, commercialisation, venture capital and technology diffusion.

These reports discuss how Australia will effectively respond to globalisation and the knowledge economy. They note the importance of knowledge work and knowledge workers to Australia's economic success. Significantly, the authors discussed the need to ensure the Australian community understands the broad issues underpinning globalisation and the knowledge economy, but more particularly they considered the need to create a community equipped to understand and participate in ongoing change. Education and training providers will have a key role in equipping the community for this challenge.

Enterprises continue to focus on adaptation, cost reduction, increased productivity and new markets and/or new products and services. Enterprise choices with regard to recruitment and training are largely being driven by these business strategy directions. In this environment, there is an increasing requirement for employees to be able to support increased competitiveness, innovation, flexibility and client focus.

Enterprises are increasingly seeking a more highly skilled workforce where the generic and transferable skills are broadly distributed across the organisation.

There has been broad agreement that all young people need a set of personal attributes and skills that will prepare them for both employment and further learning. It is also recognised that the ongoing employability of individuals is dependent on them having a set of relevant skills, as well as a capacity to learn how to learn new things.

However, what has been less clear is what these attributes and skills should be in the context of challenges facing Australian industry.

The Business Council of Australia (BCA) and the Australian Chamber of Commerce and Industry (ACCI) judged that it was timely to obtain the views of industry to assist in the development of a comprehensive framework of employability skills. They sought assistance from the Department of Education, Science and Training (DEST) and the Australian National Training Authority (ANTA). It was recognised that such a framework of employability skills would need to be relevant to small, medium and large enterprises and able to support the future needs of Australian industry.

Purpose of the Project

DEST commissioned the project to provide advice on:

- possible new requirements for generic employability competencies that industry requires, or will require, in the foreseeable future, since the Mayer Key Competencies were developed;
- clear definitions of what Australian industry and leading business enterprises mean by 'employability' skills and the consistency or otherwise between the various terms similarly used;
- a proposed suite of employability skills, including an outline of assessment, certification and reporting of performance options that suit both industry and education;
- industry (small, medium and large business) reactions to the proposed suite and reporting options;
- a report on the case studies involving 13 large enterprises; and
- a report on focus group research with small and medium-sized enterprises.

The project was established in recognition of the changing nature of work and skills required by enterprises to ensure long-term economic growth. The project has sought the views of employers with regard to the set of employability skills relevant to Australian industry for the future.

The focus of the research was to identify the set of employability skills that employers sought in their employees. The project did not examine the skills required for self-employment although it can be imagined that there would be strong similarities.

Project Methodology

Research in this area is complex. Factors contributing to this complexity include the lack of clarity in language and definitions, the capacity of enterprises to predict their future and the changing nature of the workplace. Consequently, it was decided to use largely qualitative research tools and attempt to capture the detailed views of a sample of enterprises.

There were four main components of the research. The first step in the project was the commissioning of a comprehensive literature review that informed the two industry research components – focus groups and individual interviews with a sample of 40 small and medium-sized enterprises and 13 detailed case studies in large enterprises.

Enterprises selected for the qualitative research (interviews, focus groups or case studies depending on size and location) were located in both metropolitan and regional Australia across a range of industry sectors. Interviews were undertaken with key senior managers to determine the views of individual enterprises on necessary employability skills, approaches to developing, tracking and assessing employability skills and how educational providers could play a more effective role in developing employability skills. Enterprise size ranged from enterprises with two employees through to those with over 1000 employees.

The fourth step was a validation process following the completion of case study, focus group and interview research. The draft Employability Skills Framework, developed as part of the project, was assessed by another 150 enterprises and employer groups. This provided feedback and acceptance of the framework. This step was used to help offset any skewing from the sampling in the qualitative research.

This report to DEST, *Employability Skills for the Future*, provides details of the outcomes of these three research components and proposes a new framework of employability skills for the future from the perspective of the employer.

Project Management

The project has been jointly managed by BCA and ACCI.

A reference group was established at the commencement of the project to provide guidance.

Members of the Reference Group were:

ACCI – Steve Balzary

Australian Industry Group (AiG) – Brian Curtin

ANTA – Paul Byrne

BCA – Maria Tarrant, Chair

DEST – Murray Judd

National Centre for Vocational Education Research (NCVER) – Chris Robinson

National Farmers' Federation (NFF) – Richard Calver.

The Reference Group provided strategic advice on the areas for research and key issues that required consideration. The Reference Group then considered the draft reports resulting from each stage of the research. Members of the Reference Group provided advice on the issues emerging from the research that should be considered in the final report to DEST.

The members of the Reference Group have endorsed this report, *Employability Skills for the Future*.

Terminology

Many terms are used in different environments to describe general skills that all employees may have. Similarly, education and training providers use a range of terms to represent concepts relating to learning and learning outcomes.

The Australian Council of Educational Research (ACER) review (2001) identified a range of descriptors for the characteristics learners are expected to acquire. These are included in the table below.

Descriptor	Definition
Skills	<i>Skills</i> are commonly understood to refer to an ability to perform a specific task.
Competencies	<i>Competency</i> is used to refer to an observable behaviour performed to a specified level and therefore provides a basis for the assessment of performance.
Attributes, qualities and characteristics	These refer to those capabilities of an individual in most instances although “ <i>characteristics</i> ” is sometimes used to describe a workplace/ job-specific requirement.

The Reference Group decided to use the term *skill* as it was generally used in enterprises where it has a broader definition than other terms in the literature. However, as there was a need to differentiate between technical skills, job specific skills and the more general skills and personal attributes related to employment, the Reference Group developed the following working terminology and definition for the project:

Employability skills are defined as ‘skills required not only to gain employment, but also to progress within an enterprise so as to achieve one’s potential and contribute successfully to enterprise strategic directions’.

This approach was reinforced by the literature review completed for this project by ACER, which also noted that there was a greater use of the term employability when describing certain skill sets. They argue:

Employability is more attractive as a descriptor than employment-related since it conveys a greater sense of an individual's long-term capacity to build a career and to prosper in a dynamic labour market. Employability implies qualities of resourcefulness, adaptability and flexibility, whereas employment-related suggests an orientation to the current state of the labour market. As such, employability has more potential as a term to signal the qualities needed for success not only in paid employment but also in other domains of life. (ACER review, p. 6)

The literature review also provided an international overview highlighting the similarities in both the need for employability skills in a range of developed economies and the range of skills governments and enterprises see as a priority. The table below from the ACER review (2001, p. 38) provides a comparison of the skill frameworks in place.

Comparative table of generic employability skills by country

Australian key competencies (Mayer Key Competencies)	United Kingdom (NCVQ) core skills	Canada employability skills profile	United States (SCANS) workplace know-how
Collecting, analysing and organising information	Communication	Thinking skills	Information Foundation skills: basic skills
Communicating ideas and information	Communication Personal skills: improving own performance and learning	Communication skills	Information Foundation skills: basic skills
Planning and organising activities	Personal skills: improving own performance and learning	Responsibility skills Thinking skills	Resources Foundation skills: personal qualities
Working with others and in teams	Personal skills: working with others	Positive attitudes and behaviour Work with others Adaptability	Interpersonal skills
Using mathematical ideas and techniques	Numeracy: application of number	Understand and solve problems using mathematics	Foundation skills: basic skills
Solving problems	Problem solving	Problem-solving and decision-making skills Learning skills	Foundation skills: thinking
Using technology	Information technology	Use technology Communication skills	Technology Systems
Post-Mayer additions: Cultural understandings	Modern foreign language	Manage information Use numbers Work safely Participate in projects and tasks	

Source: Adapted from Werner 1995.

The Employability Skills Framework identified through this research project includes a number of similarities to the overseas frameworks.

The Employability Skills Framework developed through the research includes three key terms that are described in the table below and used in this report.

Term	Explanation
Personal attributes	Term used to describe a set of non skill-based behaviours and attitudes that employers felt were as important as the employability skills and other technical or job specific skills.
Skills	Term used to describe the learned capacity of the individual. <i>Skills</i> has been used instead of <i>competencies</i> reflecting the language of the enterprises interviewed and to avoid any definitional confusion with the different ways <i>competencies</i> is used.
Elements	<p>The elements are the facets of the skill that employers identified as important.</p> <p>The mix and priority of these elements would vary from job to job.</p> <p>The list of elements is not exhaustive but rather reflects the information provided by the specific enterprises interviewed for this study.</p> <p>The list of elements is indicative of the expectations of employers.</p> <p>The level of sophistication in the application of the element will depend on the job level and requirements.</p>

Overview of Project Findings

The project has identified those key generic employability skills that enterprises argue individuals should have along with the job-specific or relevant technical skills. The project also identified the ongoing relevance of the Mayer Key Competencies but confirmed that employers now required a set of personal attributes in all employees and a set of additional skills. These additions are seen as essential by the enterprises participating in the research. Finally the project has identified an Employability Skills Framework that can contribute to the thinking and curriculum development of the Australian education and training system.

Chapter 5 of this report provides details of the personal attributes and employability skills that enterprises identified as critical.

In summary, there are a number of critical aspects underpinning this framework.

- The framework identified by employers through the research with enterprises builds on the Mayer Key Competencies.
- Employer recognition and integration of the Mayer Key Competencies in their discussion of the nature of jobs and skills are strong.
- Employers have identified the importance of what have been termed 'personal attributes that contribute to employability' and indicate that these are required as part of the set of employability skills.
- Small and medium-sized enterprises and large enterprises have identified the same critical mix of skills as being relevant to the employability and ongoing employment of individuals.
- The skills identified as critical to employability are broadly consistent across industry sectors, all are important, though the elements would depend on the industry and workplace context.
- The priority of these employability skills (and their respective elements) vary from enterprise to enterprise subject to the context of the job level and requirements.

- The employability skills identified are as relevant as job-specific or technical skills.
- The employability skills identified are mostly relevant to entry-level and established employees. What is also recognised by employers is that the elements and level of complexity of the skill will vary with both the job type and classification.
- There is a strong recognition of the role of lifelong learning in skill development and response to change.
- Employer views with regard to leadership have emerged in this research differently from in other research. Some employers have suggested that the skills identified in the framework underpin an employee's capacity to lead.
- It is recognised that customer service of itself is not an isolated skill but rather the outcome of the integration of a range of different skills of an individual, e.g. communication and problem solving.
- Throughout the project interviewees also argued that the employability skills identified had a much broader application. The skills were as important to effective participation in the community as they were to effective participation in the workforce.

A critical feature of this research has been the comment by many employers that the elements related to the skills will change both in their nature and priority in line with the business activity of enterprises and that flexibility needs to be maintained in dealing with generic skills. New work and production processes, new threats and opportunities, and new technology will continue to have an impact on the elements in the Employability Skills Framework.

The Employability Skills Framework consolidates the outcomes of the research with enterprises and takes into consideration the Australian context and overseas trends. There are significant areas of commonality with the outcomes of this research and the international research as discussed in Chapter 3 of this report.

The configuration and content of the Employability Skills Framework, however, more closely reflects the language and trends in thinking in Australia. The Mayer Key Competencies have provided both Australian industry and the Australian education and training system with a useful starting point and tool for understanding and applying the concepts of generic employability skills.

Enterprises participating in the research placed a strong emphasis on the need for both entry-level and ongoing employees to exhibit a broad range of personal attributes. Employers suggested that entry-level and ongoing employees needed to reflect attributes that were acceptable to the rest of their working peer group and the customer and in line with the company's approach. The employers participating in the research stressed the need to ensure future employees developed these personal attributes, as they are an integral feature of an employable person and a key component of the Employability Skills Framework.

The identification of personal attributes as critical to employability will require further consideration by education and training providers regarding how they can assess these attributes and provide advice to the individual.

A number of enterprises and organisations in the research also suggested that there would be benefit in reviewing and redeveloping aspects of the current documentation and practice used by education institutions to record student attainment so that the documents better reflected the personal attributes and skills attained by the student.

The Employability Skills Framework incorporates the following personal attributes that contribute to overall employability:

- loyalty
- commitment
- honesty and integrity
- enthusiasm
- reliability
- personal presentation
- commonsense
- positive self-esteem
- sense of humour
- balanced attitude to work and home life
- ability to deal with pressure
- motivation
- adaptability.

There is no doubt that enterprises saw the inclusion of these attributes as a new and essential component of employability skills.

The key skills identified in conjunction with the personal attributes to make up the Employability Skills Framework are:

- **communication** skills that contribute to productive and harmonious relations between employees and customers;
- **team work** skills that contribute to productive working relationships and outcomes;
- **problem-solving** skills that contribute to productive outcomes;
- **initiative and enterprise** skills that contribute to innovative outcomes;
- **planning and organising** skills that contribute to long-term and short-term strategic planning;
- **self-management** skills that contribute to employee satisfaction and growth;
- **learning** skills that contribute to ongoing improvement and expansion in employee and company operations and outcomes; and
- **technology** skills that contribute to effective execution of tasks.

The following table provides a consolidation of the personal attributes, skills and elements that make up the Employability Skills Framework.

Employability Skills Framework

Personal attributes that contribute to overall employability	<ul style="list-style-type: none"> • Loyalty • Commitment • Honesty and integrity • Enthusiasm • Reliability • Personal presentation • Commonsense 	<ul style="list-style-type: none"> • Positive self-esteem • Sense of humour • Balanced attitude to work and home life • Ability to deal with pressure • Motivation • Adaptability

Skill	Element– (facets of the skill that employers identified as important, noting that the mix and priority of these facets would vary from job to job)
Communication that contributes to productive and harmonious relations between employees and customers	<ul style="list-style-type: none"> • Listening and understanding • Speaking clearly and directly • Writing to the needs of the audience • Negotiating responsively • Reading independently • Empathising • Using numeracy effectively • Understanding the needs of internal and external customers • Persuading effectively • Establishing and using networks • Being assertive • Sharing information • Speaking and writing in languages other than English
Teamwork that contributes to productive working relationships and outcomes	<ul style="list-style-type: none"> • Working with people of different ages, gender, race, religion or political persuasion • Working as an individual and as a member of a team • Knowing how to define a role as part of a team • Applying teamwork skills to a range of situations, e.g. futures planning, crisis problem solving • Identifying the strengths of team members • Coaching, mentoring and giving feedback
Problem solving that contributes to productive outcomes	<ul style="list-style-type: none"> • Developing creative, innovative solutions • Developing practical solutions • Showing independence and initiative in identifying problems and solving them • Solving problems in teams • Applying a range of strategies to problem solving • Using mathematics including budgeting and financial management to solve problems • Applying problem-solving strategies across a range of areas • Testing assumptions taking the context of data and circumstances into account • Resolving customer concerns in relation to complex project issues

Initiative and enterprise that contribute to innovative outcomes	<ul style="list-style-type: none"> • Adapting to new situations • Developing a strategic, creative, long-term vision • Being creative • Identifying opportunities not obvious to others • Translating ideas into action • Generating a range of options • Initiating innovative solutions
Planning and organising that contributes to long-term and short-term strategic planning	<ul style="list-style-type: none"> • Managing time and priorities – setting timelines, coordinating tasks for self and with others • Being resourceful • Taking initiative and making decisions • Adapting resource allocations to cope with contingencies • Establishing clear project goals and deliverables • Allocating people and other resources to tasks • Planning the use of resources including time management • Participating in continuous improvement and planning processes • Developing a vision and a proactive plan to accompany it • Predicting – weighing up risk, evaluating alternatives and applying evaluation criteria • Collecting, analysing and organising information • Understanding basic business systems and their relationships
Self-management that contributes to employee satisfaction and growth	<ul style="list-style-type: none"> • Having a personal vision and goals • Evaluating and monitoring own performance • Having knowledge and confidence in own ideas and vision • Articulating own ideas and vision • Taking responsibility
Learning that contributes to ongoing improvement and expansion in employee and company operations and outcomes	<ul style="list-style-type: none"> • Managing own learning • Contributing to the learning community at the workplace • Using a range of mediums to learn – mentoring, peer support, networking, information technology (IT), courses • Applying learning to 'technical' issues (e.g. learning about products) and 'people' issues (e.g. interpersonal and cultural aspects of work) • Having enthusiasm for ongoing learning • Being willing to learn in any setting – on and off the job • Being open to new ideas and techniques • Being prepared to invest time and effort in learning new skills • Acknowledging the need to learn in order to accommodate change
Technology that contributes to effective execution of tasks	<ul style="list-style-type: none"> • Having a range of basic IT skills • Applying IT as a management tool • Using IT to organise data • Being willing to learn new IT skills • Having the occupational health and safety knowledge to apply technology • Having the appropriate physical capacity

The framework is discussed in detail in Chapter 5 of this report.

Recommendations

This report provides a comprehensive picture of the views of a significant sample of enterprises with regard to the employability skills needs of industry.

Recommendation One

That DEST refer the report, *Employability Skills for the Future*, to relevant agencies including:

- Transition from School Task Force of the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA);
- Australian Vice-Chancellors' Committee (AV-CC); and
- National Training Quality Council (NTQC).

That these agencies be requested to respond to DEST regarding:

- implications for policy development and programs in schools, vocational education and training and higher education; and
- strategies and timelines for implementation of the framework in schools, vocational education and training, and higher education.

Recommendation Two

That at their meetings during 2002, MCEETYA and the ANTA Ministerial Council note the report, *Employability Skills for the Future*, as the employer view of the employability skills necessary for the future success of Australian business, industry and employees. That they also note advice from the relevant agencies about possible strategies and timelines for the implementation of this framework in an integrated manner across the three sectors of education and training.