Assessment of Generic Skills

Discussion Paper

December 2011
# Table of Contents

1. Introduction .......................................................................................................................... 3  
   1.1 Policy context .................................................................................................................. 3  
   1.2 Consultation .................................................................................................................... 4  

2. Principles and the student life cycle framework ............................................................... 6  
   2.1 Principles ....................................................................................................................... 6  
   2.2 Student life cycle framework ......................................................................................... 6  

3. Purpose ................................................................................................................................ 8  
   3.1 Direct Assessment of learning outcomes ...................................................................... 8  
   3.2 Uses ............................................................................................................................... 8  

4. AHELO – progress report .................................................................................................... 11  
   4.1 Outline .......................................................................................................................... 11  
   4.2 Progress to date ............................................................................................................ 12  
   4.3 Australia's participation ............................................................................................... 13  

5. Issues .................................................................................................................................. 14  
   5.1 Quality assurance framework ....................................................................................... 14  
   5.2 Discipline-specific assessments ................................................................................... 14  
   5.3 Measurement ................................................................................................................ 16  
   5.4 Participation .................................................................................................................. 19  

6. Next steps .............................................................................................................................. 21  

Appendix 1 - References ........................................................................................................ 22  
Appendix 2 – How to make a submission ............................................................................... 23  
Appendix 3 – Sample assessment tasks ................................................................................ 24
1. Introduction

1.1 Policy context

In 2008, the Government launched a major review to examine the future direction of the higher education sector, its fitness for purpose in meeting the needs of the Australian community and economy, and options for reform. The review was conducted by an independent expert panel, led by Emeritus Professor Denise Bradley AC. The panel reported to the Government in December 2008, making a total of 46 recommendations to reshape Australia’s higher education system.

In 2009, in response to the Bradley Review of Australian Higher Education, the Government announced a comprehensive 10-year reform package for the higher education sector in Transforming Australia’s Higher Education System. Reforms announced included introduction of a demand driven funding system, the establishment of the Tertiary Education Quality and Standards Agency (TEQSA), significantly improved indexation on grants, Performance Funding and mission based Compacts.

Performance Funding will encourage universities to improve outcomes for students and achieve national quality, participation and attainment objectives. Facilitation Funding of $94.2 million will be distributed to the sector in 2011, with $27.6 million in Reward Funding available in 2012 for achievement of participation and social inclusion targets.

In the 2011-12 Budget, the Government released details of its Advancing Quality in Higher Education (AQHE) initiative. This provided information on the new performance measurement instruments being developed for use in performance reporting; the University Experience Survey (UES), an Australian version of the Collegiate Learning Assessment (CLA) and the Review of the Australian Graduate Survey (AGS). It also provided funding for the development of the new instruments and outlined the consultation processes for implementing the initiative.

The Government’s response to the Review shares a number of features with reform agendas in other areas of “human capital development” such as health, employment services, and disability services that are being implemented in Australia and internationally. These common features include: opportunities for citizens to exercise greater choice between alternative providers; the introduction of funding that “follows the consumer” and thus gives them more power in the service relationship and strengthens incentives for providers to tailor their offerings to citizens’ requirements; improved regulation to ensure minimum quality standards; and improved information on performance to allow citizens to make better informed choices.

The Government’s efforts to improve performance reporting and transparency are aimed at enhancing the quality of information available to students, to give them greater confidence that the choices they make are the right ones for them. The performance of universities has a number of domains, including but not limited to: research, teaching, financial performance, student experience, the quality of learning outcomes and access and equity. Each of these domains has a specific mechanism or tool (sometimes more than one) designed to capture relevant information about performance in that domain. For example, the Excellence in Research for Australia (ERA) process captures information about research performance; access and equity outcomes are captured
through student data collections that include markers for low-SES status; and TEQSA will be implementing teaching standards by which the performance of universities will be measured.

Similarly, the three new performance measurement instruments described above are designed to capture information about how universities perform in the domains of student experience and the quality of learning outcomes. There are likely to be synergies and complementarities with other tools, for example, TEQSA’s teaching standards. They therefore should be seen as part of an overarching suite of performance measures and mechanisms that are designed to capture information across the most relevant domains of university performance, necessary for improving the information available to students as they seek to exercise the choices that are now open to them in the demand-driven system. It should be noted that the newly created MyUniversity website will be used for presenting information to students about performance across the various domains.

1.2 Consultation

In late 2009, the Department convened an Indicator Development Group comprised of experts from the higher education sector. The group assisted in the development of a draft performance indicator framework, outlined in the discussion paper, An Indicator Framework for Higher Education Performance Funding, which was released for consultation in December 2009 (DEEWR, 2009). The paper proposed 11 possible performance indicators in four performance categories. Over 60 submissions from the sector were received in response to the discussion paper.

The Government has over time refined the framework based on feedback from the sector to include six indicators in three performance categories: participation and social inclusion, student experience and the quality of learning and teaching outcomes.

The discussion paper acknowledged that the best kind of indicator for a quality of learning and teaching outcomes measure would be, as recommended by the Bradley Review, 'direct measures of learning outcomes' for the performance funding arrangements – that is, a means of identifying the extent to which students have achieved the specified outcomes of their degrees, and the skills that they have developed as a result of their higher education experience. Direct measures of learning outcomes would ideally include discipline-specific measures as well as measures of the higher order conceptual, analytical, communication and problem solving skills that students might be expected to develop during the course of their degree, and which might help to distinguish higher education outcomes in general from more vocationally-oriented outcomes.

The discussion paper had proposed the inclusion of the Graduate Skills Assessment as an indicator of generic skills in the performance indicator framework. However, participation in the Graduate Skills Assessment declined substantially following its first administration in 2000. Further, feedback received in response to the discussion paper was mixed and the major concerns expressed regarding the use of the Graduate Skills Assessment related to the additional burden on universities and students and that it did not include discipline-specific measures of generic skills.

For the Australian higher education system to be internationally competitive, it is desirable that the provision of quality education services is informed and guided by international benchmarks. During 2010 and 2011 the Organisation for Economic Cooperation and Development (OECD) has been investigating the feasibility of incorporating the Collegiate Learning Assessment as a measure of
generic skills as part of its Assessment of Higher Education Learning Outcomes (AHELO) project. More details on the progress of the AHELO project and Australia’s participation are provided below. In this environment it was considered that inclusion of the Collegiate Learning Assessment in the performance indicator framework, or at least some version of the Collegiate Learning Assessment appropriate for the Australian context, offered the best prospects for assessment of generic skills against international benchmarks.

Additional consultation undertaken for the release of the draft Performance Funding Guidelines in October 2010 again had mixed feedback on the use of a value-add generic skills indicator, specifically the Collegiate Learning Assessment. Some submissions did express in-principle support for the assessment of generic skills. However, there remained some concerns about the use of the Collegiate Learning Assessment including the cultural appropriateness of the instrument for Australia and that if it were to be used there should be sufficient time for development before it was used for performance reporting purposes.

The Government accepted universities’ feedback that additional time is necessary to develop some of the performance measurement instruments, and that instead of setting quantitative performance targets for these in the first Compact, universities will be required to participate in the development of performance measurement instruments and establish baseline performance. This includes the development of an appropriate assessment of generic skills which potentially could be used for multiple purposes as discussed later in this paper.

Consultations planned to develop the performance measurement instruments for use in performance reporting include the establishment of an AQHE Reference Group to advise on the cohesiveness of the three instruments described above. In addition, the AQHE Reference Group will also assist in the development of discussion papers on each of the instruments (such as this paper). Consultations and roundtable discussions with universities, business and students will also be held later in 2011 and in 2012.
2. Principles and the student life cycle framework

2.1 Principles

It is desirable that the development of new performance measurement instruments is guided by principles. Previously the Department has published principles underlying the publication of institutional performance indicators (DETYA, 1998 and DEST, 2001). While these focused on existing data and indicators, these principles can suitably be adapted and supplemented to guide the development of performance measurement instruments:

- **Fit for purpose** – information is used to suit the purposes and objectives for which it is designed to be used;
- **Consistency** - information is consistently collected and applied across uses and time;
- **Auditability** – information can be scrutinised;
- **Transparency** – information has clear meaning; and
- **Timeliness** - information readily enables institutions to enhance their quality of teaching and learning.

2.2 Student life cycle framework

This section proposes that the development of new performance measurement instruments, including the assessment of generic skills, is most appropriately situated within a student life cycle framework. Given the Government’s ambition that 40 per cent of all 25-34 year-olds will hold a bachelor level qualification or above by 2025, the development of three performance measurement instruments will focus on the quality of undergraduate teaching and learning. Further details on the student life cycle framework and its relevance to the Government’s higher education policy can be found in the Development of Performance Measurement Instruments in Higher Education, discussion paper.

From a life cycle perspective, an undergraduate student can be considered to proceed through three key phases: pre-entry, university study and post-study. Pre-entry refers to when the student first considers entry to university, applying and enrolling in university. There are distinct phases within university study itself, with the first year of study often considered critical followed by the middle years and the final year of study. Post (undergraduate) study includes completion and graduation and post-graduation outcomes, typically focusing on employment and further education.

Within each of these phases, there are different aspects of the undergraduate life cycle that could be considered appropriate to measure. Readiness to study and pathways to study represent key aspects of the pre-study phase. Similarly, support, engagement, experience and satisfaction are crucial for retention in the first year of study. The student’s university experience, engagement, satisfaction and the quality of teaching and learning are all aspects that prevail throughout university study. Possibly more pertinent in the final year of study are the preparedness for employment and achievement of skills. In the post-study phase, key outcomes to be measured include graduate satisfaction, employment and further education and these can be measured at various points in time following graduation.
There are a number of uses and purposes for performance information and these will each lead to
different points of emphasis and information requirements. These include: institutional strategic
planning; teaching and learning plans/frameworks; TEQSA provider, teaching and learning and
information standards; the Australian Qualifications Framework; and the MyUniversity website. As a
result of these different uses and purposes, requirements will vary for quantitative and qualitative
information and national, institution, course or subject level information.

Achievement of higher order cognitive skills such as conceptual, analytical, communication and
problem solving skills represents a key aspect of the quality of learning and teaching outcomes. As
suggested in the student life cycle framework, achievement of these skills is relevant to university
study. From one perspective, ensuring that students have acquired the generic skills needed to
meet workforce and employer needs would lead to a focus on final year students. From another
perspective, assessment of generic skills could be undertaken throughout the phase of university
study and the results used to inform better teaching and learning. The issue of the appropriate
measurement of generic skills is is considered in more detail below.
3. **Purpose**

3.1 **Direct Assessment of learning outcomes**

Direct assessment of learning outcomes represents the ‘holy grail’ of educational measurement. Objective data on student outcomes provides direct evidence that higher education is meeting economic, social and community needs. Knowledge of what students have learned and achieved and that they have attained the expected outcomes of their degrees provides assurance about the quality of higher education.

External assessment of student’s cognitive learning outcomes, at least in the higher education environment, is rare and to date has been difficult to achieve. In the schools sector, the Programme for International Student Assessment (PISA) is probably the most notable example on an international scale of the measurement of reading, mathematical and scientific literacy outcomes. Alternative measures of learning outcomes in the higher education sector, such as employment and further study, are thought to be problematic because they may be confounded by factors such as the influence of field of education and differences in state/regional labour markets. In the absence of robust direct assessment of outcomes, reliance is frequently placed instead on student self-reports, for example, as measured through the Course Experience Questionnaire (CEQ) generic skills scale which records student perceptions of their achievement of generic skills.

The Bradley Review of Higher Education argued that, “Australia must enhance its capacity to demonstrate outcomes and standards in higher education if it is to remain internationally competitive and implement a demand-driven funding model.” (DEEWR, 2008, p. 128). As part of the new quality assurance framework, Recommendation 23 of the Bradley Review of Higher Education proposed:

“That the Australian Government commission and appropriately fund work on ..........

- a set of indicators and instruments to directly assess and compare learning outcomes; and
- a set of formal statements of academic standards by discipline along with processes for applying those standards.”

3.2 **Uses**

Direct assessment of learning outcomes has many uses and benefits including providing assurance about the quality of higher education, encouraging continuous improvement among universities, meeting employer needs for more skilled graduates and informing student choice.

**Quality assurance**

External assessment and reporting of the attainment of generic skills provides assurance about the quality of graduates from the higher education system. With significant public and student investment in higher education, the community is entitled to understand that graduates have acquired the skills expected of them when they have completed their degree. The performance indicator framework proposes that the Collegiate Learning Assessment, or some variant of the
instrument, be developed for use as an indicator of the acquisition of generic skills. A key principle in the design of performance measures is that they be ‘fit for purpose’, and it is intended that an instrument assessing generic skills be designed that is capable of being used for performance reporting.

**Continuous improvement**

Assessment of learning outcomes offers the prospect of a virtuous circle whereby assessment and reporting inform improved teaching and learning, in turn leading to improved assessment and reporting of learning outcomes. For example, the Collegiate Learning Assessment offers assessment tools and additionally resources to support improvement of curriculum and pedagogy to promote the development of generic skills. The Council for Aid to Education (CAE) in administering the Collegiate Learning Assessment also conducts professional development activities that train staff in the process of creating better teaching tools (and classroom-level measurement tools) aimed at enhancing student acquisition of generic skills.

Arguably, the process of teaching and learning generic skills is more effective if undertaken at discipline rather than university level. The issue of the appropriateness of university and/or discipline-specific assessments will be addressed in more detail below. In part, the focus on discipline follows the recommendation of the Bradley Review of Higher Education of the need for more work to be undertaken on academic standards by discipline and processes for applying those standards.

**Employer needs**

To be successful in the workplace, graduates must acquire generic skills that enable them to fully utilise their discipline-specific knowledge and technical capabilities. As suggested by the Business Council of Australia:

“The challenges involved in adapting to new and changing workplaces also require effective generic skills. Generic skills including communication, teamwork, problem solving, critical thinking, technology and organisational skills have become increasingly important in all workplaces.” (BCA, 2011, p.8)

Reliable empirical studies of employer needs and satisfaction with graduates are few and far between which is both unfortunate and somewhat surprising given the strongly vocational orientation of much of Australian higher education. An earlier study of employers found that the skills in which new graduates appear most deficient are the generic skills of problem solving, oral business communication skills and interpersonal skills with other staff (DETYA, 2000, p.22). The measure of skill deficiencies used in this study was the gap between employer ratings of the importance of skills and their ratings of graduate abilities in these skills. A study conducted by the University of South Australia gave broadly similar findings about employer demand for graduate skills and capabilities (UniSA, 2008).

**Informing student choice**

Greater transparency will inform student choice in a demand-driven funding model of higher education. The Collegiate Learning Assessment is part of a suite of performance measurement
instruments designed to improve transparency in university performance. Subject to the successful development and trial of the Collegiate Learning Assessment, it is intended that universities results on this performance indicator will be published on the MyUniversity website from 2013 onwards.

Another issue that arises in consideration of the MyUniversity website is the level of reporting. A major purpose of the website is to inform student choice about courses and subjects. In this environment, it would be appropriate to report information at the discipline/field of education level as well as the institution level. This is another factor that impacts on the development of an appropriate assessment of generic skills. The issue of the assessment of discipline-specific generic skills is discussed in more detail below.

### Questions for Discussion

- Are there other uses of the assessment of generic skills?
4. AHELO – progress report

4.1 Outline

As mentioned previously, external assessment of generic skills is not commonplace. This section provides further details of the OECD’s Assessment of Higher Education Learning Outcomes (AHELO) project which is attempting to provide assessment of generic skills on an international scale. The AHELO project may well have important lessons for the assessment of generic skills within Australia.

The AHELO project is currently undertaking a feasibility study that aims to develop criteria that will enable evaluation of the quality and relevance of what students learn in higher education institutions around the world (OECD, 2011, p. 2). It is designed to assess whether it is possible to measure at an international level what final-year undergraduate students know and can do.

The AHELO Study is developing assessment tests in three areas – generic skills, economics and engineering. The generic skills strand is using an adapted version of the Collegiate Learning Assessment to measure student’s generic skills including critical thinking, analytic reasoning, problem solving and written communication. The goal is to adapt the Collegiate Learning Assessment instrument to provide a valid instrument in a cross-national context. The economics strand will seek to assess discipline-specific skills in economics. The Educational Testing Service (ETS) in collaboration with the Australian Council of Educational Research (ACER) led AHELO consortium has brought together international economic experts to develop a provisional assessment framework and instrument for the economics strand. Similarly, the engineering strand will seek to address discipline-specific skills in civil engineering. ACER, Japan’s National Institute for Educational Policy Research (NIER), the European and Global Engineering Education (EUGENE) network have collaborated to develop a provisional assessment framework and instrument for the engineering strand.

The feasibility study involves 16 countries representing a range of geographic, linguistic and cultural backgrounds. The study is being undertaken in two phases, the first of which has involved developing provisional assessment frameworks, testing the instruments for an international context and small-scale validity testing. The second phase will examine the scientific and practical feasibility of an AHELO by focusing on the practical aspects of assessing students’ learning outcomes. It will implement the three assessment instruments in a small group of diverse higher education institutions. This second phase will address issues of practical feasibility, further investigate validity issues and assess data reliability. The AHELO project aims to assess both inputs and outputs on the premise that the success of a student’s education is influenced by supportive teachers, available resources and environmental factors. By assessing students’ learning gain, a more accurate measure of quality can be determined. Value-added, or learning gain, will not be measured during the feasibility study but methodologies and tools for evaluating it will be explored to feed into subsequent work if the study produces positive results.

If the three assessment instruments demonstrate the feasibility of assessing student learning outcomes across different countries and institutions, a last phase will be implemented that will consist of developing a value-added measurement strand to explore methodologies and approaches to capture the contribution of higher education institutions to students’ outcomes.
The results of the AHELO feasibility study, due to be completed by end 2012, will help OECD member countries determine whether a fully-fledged AHELO study could be undertaken in the future that would provide a comprehensive and robust cross-national assessment of learning outcomes.

4.2 Generic Skills

The Generic Skills strand of AHELO will consider the skills that students in all fields should acquire in their university studies, regardless of discipline. For this strand, the Council for Aid to Education (CAE) has been contracted to select and adapt two tasks and their scoring rubrics to measure generic skills from the existing Collegiate Learning Assessment. More details on the Collegiate Learning Assessment instrument are provided below.

Students undertaking this assessment will need to use critical thinking, analytic reasoning, problem solving and written communication skills to answer several open-ended questions about a hypothetical but realistic situation and gather the necessary evidence from different sources such as letters, maps and memos.

Based on feedback, the generic skills strand has been augmented with the inclusion of multiple choice items to provide a stronger objective evidence base for the assessment of generic skills.

The translation cycle for the tasks involved dual translation of performance tasks by qualified translators; reviewing and reconciliation of the dual translations; testing of the performance task translations in cognitive labs; and reconciling translations across all countries based on cognitive lab findings. Translation of the generic skills multiple choice questions is complete and adaptation and verification processes are underway. In the second phase, participating countries will deliver an agreed version of the Collegiate Learning Assessment in their home language via the internet in a proctored environment (OECD, 2010, p. 8).

4.3 Progress

The AHELO project is being conducted in two phases. Phase 1, the development of testing instruments and small-scale validation of these instruments, was scheduled for January 2010 to June 2011.

Phase one of the study is nearing completion and the project is now moving into phase two. With respect to the generic skills strand, according to the OECD:

“This portion of the study is well on its way to proving that an international tool to measure generic skills can indeed be developed. Two performance tasks, chosen by participating countries and their supporting materials have been translated and culturally-adapted in different languages for a first set of participating countries. ...All in all, emerging insight suggests that measuring generic skills across languages, cultures and types of institutions is feasible.” (OECD, 2011, p. 6)

Phase one of the economics and engineering strands has resulted in two groups of international experts in each discipline developing a conceptual framework of learning outcomes in their fields. The experts from both strands have agreed frameworks and reviewed draft test instruments.
Phase two, that is, the “scientific feasibility and proof of practicality” (OECD, 2011, p. 7) began in 2011 with planning underway and implementation of the test instruments and contextual surveys scheduled to commence in late 2011. Phase 2 is planned to run from January 2011 through to December 2012.

A final conference is planned for the end of 2012 to discuss the findings of the feasibility study.

### 4.4 Australia’s participation

Australia committed to participate in the AHELO project from its outset in 2009, including providing the OECD with funding for the project. Australia is participating in the engineering strand of the AHELO project.

Since the engineering strand commenced, international assessment designers have worked with prominent international engineering experts to create assessment tasks which will measure engineering discipline-specific skills. These assessment tasks do not simply measure knowledge, but test students’ capacity to reason in complex and applied ways and to effectively use these skills and competencies in different settings.

Phase one of the AHELO feasibility study has involved students and academics in validating the assessment tasks, both to ensure that they measure skills and knowledge appropriate to higher education students in Australia, and also to ensure that the translated versions are appropriate and complete. For this phase, up to 10 students from 10 institutions were invited to participate in a focus group, from which feedback was used to verify and improve the translation of the assessment tasks and to ensure that all items have construct validity.

Phase one of the engineering strand in Australia is currently being finalised, providing Australia’s feedback on the assessment task. Phase two of the engineering strand will commence later in 2011.
5. **Issues**

5.1 **Quality assurance framework**

This section discusses the relationship between assessment of generic skills and various elements of the quality assurance framework for Australia’s higher education system.

The Australian Qualification Framework (AQF) includes a description of the expected learning outcomes of graduates from each qualification/award level. Two important considerations in this context are that the AQF does not describe learning outcomes within disciplinary fields nor does it describe methods of assessment.

By way of contrast, teaching and learning standards which are agreed external points of reference for measuring and improving quality, are typically expressed at discipline level. There are important conceptual differences between teaching standards and learning standards (DEEWR, 2011). Teaching standards refer to inputs that lead to the achievement of outcomes including course design, course resourcing, quality of teaching, quality of learner support, quality of provision for student diversity, quality of provision for online learning and the like. On the other hand, learning standards refer to learning outcomes, the level of attainment or knowledge and skills expected of graduates, the grading of attainment/achievement and potentially methods of assessment.

An example of the latter in Australia is the Australian Learning and Teaching Council’s (ALTC) Learning and Teaching Academic Standards (LTAS) project which commenced in 2009. The LTAS project has developed statements around expected (threshold) levels of learning outcomes, that is, the level of attainment that could be expected of all graduates. Statements of learning outcomes have been published in several, though not all, discipline areas. While the statements are presented as guides to curriculum design, as currently configured they exclude reference to teaching modes, learning activities or methods of assessment.

“A common theme across the various statements of expected learning outcomes is the priority given to generic skills such as critical thinking, problem solving and communication” (DEEWR, 2011, p.11). In this context, it is not surprising that external standardised assessments of generic skills have emerged that permit comparisons across time and institutions. The downside of external standardised assessment of generic skills is that one-off written tests have limited capacity to assess the acquisition of higher order cognitive skills. This form of assessment needs to be complemented by alternative forms of assessment, for example, formative assessments within institutions which are used for diagnostic purposes. While formative assessments can provide valuable insights to inform better teaching and learning practices, unlike standardised assessments, the results are applicable to the specific contexts in which they are undertaken and are not generalisable.

5.2 **Discipline-specific assessments**

Direct assessment of learning outcomes is designed to operate ‘above curriculum content’, that is, not to test discrete knowledge content, but rather to test learner’s capacity to apply generic skills at the very least, and potentially beyond that, core disciplinary knowledge to solve complex and authentic problems. There is some argument that external tests restricted to assessment of generic
skills are limited in their capacity to assess higher order skills. An emphasis on generic skills may overshadow learning within discipline contexts and learning embedded within particular curricula (DEEWR, 2011, p. 12). Arguably, assessments that are broader in scope will be of more benefit to inform improvement in teaching and learning at discipline level as “the nature and level of learning outcomes in higher education depend heavily on the particular field of study and those who are expert in it” (DEEWR, 2008, p.133).

The development of discipline level assessments may be facilitated through existing community agreement on outcome standards expressed at discipline level. Examples of the development of discipline level standards include the LTAS project in Australia noted above and the Tuning process originating in Europe which describes discipline specific lists of learning outcomes focusing on threshold levels of attainment. The responsibility for development of discipline standards most appropriately rests within disciplinary communities and professional associations. It is important to note that approaches will vary by discipline. For example, professional accreditation and registration bodies will likely play a role in some but not all disciplines or fields of education.

Likewise, different disciplines will have different levels of emphasis on discipline-specific as opposed to generic skills. This is reflected in labour market outcomes, for example, where there is a strong link between qualification and jobs such as in nursing and education, it is likely that there will be a greater emphasis on discipline-specific skills. Contrast this with the more varied job destinations of graduates from the humanities, where the emphasis is more likely to be on the importance of the acquisition of generic skills among these graduates.

Many universities commented, in response to the discussion paper, An Indicator Framework for Higher Education Performance Funding, that assessment of discipline-specific generic skills is more relevant and meaningful for informing quality teaching and learning. The inclusion of discipline-specific assessments to complement the assessment of generic skills will require significant resources and effort. In such circumstances it may be appropriate to adopt a phased approach where the inclusion of disciplines at different points in time might be guided by a number of criteria, including the following:

Mix of disciplines - it might be desirable to include a range of disciplines, for example including a mix of the sciences and humanities;

Number of students - ideally, the disciplines selected will cover as many students as possible;

Number of universities - discipline or course provision differs across universities, with some being more commonplace such as business and commerce, whereas veterinary science, for example, being provided at a few universities;

Existing academic community - as noted above responsibility for development of discipline standards rests within disciplinary communities. The existence of disciplinary academic communities, for example, the Australian Business Deans Council, would facilitate development of standards based assessment;

Existing professional body - likewise, the existence of existing professional accreditation and registration bodies, for example, Engineering Australia, would facilitate development of standards based assessment;
Existing discipline standards framework - these will facilitate the development of discipline specific assessments. To date, the LTAS project has resulted in standards statements being written in the following discipline areas: Engineering and ICT; Health, Medicine and Veterinary Science; Accounting; Geography; History; Law; and, Creative and Performing Arts. Standards statements are expected to be published in September 2011 in Science; Architecture, Building, and Construction; and Education.

Existing discipline assessments - these could be most readily adapted for broader assessment of generic skills. Foundation work on discipline-specific assessments is already underway in the disciplines of mathematics/statistics, chemistry, biology, engineering, medicine, economics, education and the humanities. Requiring more effort, work could be progressed in other disciplines including ICT, nursing, accounting, geography and history.

**Questions for Discussion**

- Which criteria should guide the inclusion of discipline specific assessments in the development of a broader assessment of generic skills?
- Are there other criteria, not listed above, which need to be considered?

5.3 Measurement

Assessment of generic skills must have both face validity as well as technical validity. Face validity will be closely related to the uses and benefits of such assessments as discussed above. Technical validity will depend on factors such as construct validity, test bias and individual/group level reliability. The trend in student assessments and surveys to be administered wholly on-line leads to more robust and valid appraisal of student outcomes. While there are a small number of generic skills assessments currently available, these are generally administered on-line. It is worth noting at this point that administration of proctored on-line assessment of generic skills is likely to be resource intensive, though this will depend in the scale of any such assessment. The development of on-line instruments permits assessment and rating to be undertaken by either university staff or by raters engaged by a central administration body. If the former, this would require universities to allocate resources for this purpose. A benefit of this approach would be that universities would be able to tie in assessment and reporting to processes directed towards continuous improvement in teaching and learning. Ultimately, universities will decide what is the best approach to take in terms of assessment and rating of the generic skills of their students.

As discussed earlier, in response to the release of the performance indicator framework in which it was proposed to use the Collegiate Learning Assessment for the purposes of assessment of generic skills, a key issue raised by universities has been the cultural appropriateness of this instrument for the Australian higher education environment. As noted above, the OECD’s AHELO project has made progress in this area, translating and culturally adapting the Collegiate Learning Assessment for administration in a variety of cross-national settings. The project will now enter a second phase, examining the “scientific feasibility and proof of practicality”, that is, the more widespread administration of the instrument across students, institutions and countries.
Appendix 3 provides examples of performance tasks used to assess students' generic skills from the Collegiate Learning Assessment and Graduate Skills Assessment. The Collegiate Learning Assessment is administered to first and final year students and assesses their critical thinking, analytic reasoning, problem solving and written communication skills obtained during their university degree. The Collegiate Learning Assessment is based on real world performance tasks. Students perform cognitively demanding tasks and the quality of those tasks in assessed on a quantitative scale. Students participating in a cross-sectional study undertake either a 90 minute performance task, which assesses some but not all generic skills, or alternatively a 45 minute 'Make an Argument' written task and a 30 minute 'Critique an Argument' written task. Students participating in a longitudinal study undertake all of the above tasks. There are no multiple choice questions. At this
point, it is worth noting that Southern Cross University has participated in a trial of the Collegiate Learning Assessment through 2011, with first year students participating early in 2011 at the commencement of their studies and final year students in the second half of 2011 close to completion of their studies.

The Graduate Skills Assessment assesses a broadly similar set of generic skills including critical thinking, problem solving, interpersonal understanding and written communication. The Graduate Skills Assessment comprises a 60 minute written assessment that includes a report writing task and an argument writing task and 120 minutes of multiple choice questions. Inclusion of multiple forms of assessment provides greater rigour and validity. In this context, it is interesting to repeat the observation from above that AHELO’s generic skills strand based on the Collegiate Learning Assessment has been augmented by the inclusion of multiple choice items precisely for the same reason. On the other hand, inclusion of multiple choice items also leads to greater demands on resources and participation. See below for a further discussion of participation issues. The OECD’s AHELO project also includes contextual assessments that provide additional insight into the achievement of generic skills.

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<tr>
<th>Questions for Discussion</th>
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<tr>
<td>What factors should guide the design of performance measurement instruments to assess generic skills?</td>
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A major issue in the measurement of generic skills is the extent to which acquisition of generic skills reflects the contribution of teaching or the innate ability of students, as reflected in the entry standards of the institution (DEEWR, 2011, p.12). The Collegiate Learning Assessment uses admissions tests scores such as SAT or ACT in the US context to adjust for initial ability. Use of a value-add measure which assesses the gap in generic skills between first year and final year students, and where entry standards are largely unchanged from year to year, will go some way to overcoming the problem of adjusting for initial ability. It is noteworthy that the gap between first and final year Collegiate Learning Assessment scores is one standard deviation which is a large effect size, suggesting there is learning over and above maturation effects. It is the case that samples/cohorts will differ over time. Adjustment of generic skills scores for differences in student demographics can be undertaken, but this has been shown to account for a small part of the variation in Collegiate Learning Assessment scores.

Once student intake/ability and student demographics are accounted for, this leaves relatively little impact due to the institution on student learning. This is consistent with earlier findings showing that institutions explain somewhere between 1 per cent and 13 per cent of the variation in learning outcomes as measured by graduate destinations and satisfaction (DEST, 2001, pp. 123-128). This places the role of institutions in influencing outcomes in proper perspective. While prior ability and student demographics have a strong influence on teaching and learning outcomes, this does not deny that universities also have an important, but lesser, impact. This is the basis for establishing
performance baselines and performance reporting from 2013 onwards following the development of valid and reliable assessments of generic skills.

Questions for Discussion

- *Is value-add an appropriate measure of generic skills?*
- *Is it necessary to adjust measures of generic skills for entry intake and how should this be done?*
- *Are there other more appropriate measures of generic skills?*

From a performance reporting perspective, a key issue for consideration is an appropriate measure to report university performance. The Collegiate Learning Assessment assesses a range of critical thinking, analytic reasoning, problem solving and written communication skills. First year and final year students can participate in the Collegiate Learning Assessment to provide a value-add measure of the acquisition of generic skills. Also, if a broader assessment of generic skills incorporated assessments of discipline-specific skills, there is the issue of how this might impact on a performance measure to be used for reporting performance at university level.

Questions for Discussion

- *What would be an appropriate measure of generic skills for reporting university performance?*

5.4 Participation

Another major concern expressed in response to the discussion paper, *An Indicator Framework for Higher Education Performance Funding*, is securing the participation of students and universities in the assessment of generic skills. The Australian Government provided $3.5 million in funding to support the administration of the Graduate Skills Assessment between 2000-2009. In 2000, there were originally 2,000 students and 20 universities that participated in the Generic Skills Assessment. However, participation of students and universities fell steadily thereafter. Students were charged a $20 fee to participate which was approximately one-quarter of the administration costs. In return, students received a report showing their achievement in each of four dimensions of generic skills in comparison with the distribution of achievement of the overall student cohort (ACER, 2001, p.47-50).

As currently configured, the Collegiate Learning Assessment principally provides results at institutional level. For this purpose, the instrument is administered to a sample of approximately 100 first year and 100 final year students. To minimise the burden on students, a matrix sampling approach is used. So while each student does not undertake all of the assessment tasks, it is the case that all tasks are administered within each university.
Many large employers conduct assessments of generic skills where recent graduates undertake communication, problem solving and team work tasks for recruitment purposes. Therefore, there would be some advantage, from the perspective of both employers and students, if there was more widespread assessment of generic skills. Common practice in student surveys and assessments is to offer incentives such as the chance to win a prize to encourage participation. With more widespread participation in generic skills assessments, the costs of such incentives alongside other administration costs would rise accordingly.

Another issue associated with more widespread participation in generic skills assessment, and similar claims are made about the National Assessment Program: Literacy and Numeracy (NAPLAN), is that this might encourage ‘teaching to the test’ and would distort teaching and learning behaviour towards generic skills and away from discipline-specific generic skills (if this were not included in the assessment) and discrete content knowledge. An alternative approach to more widespread participation would be to seek sufficient participation to produce robust and valid results at either university or discipline level (if assessment at discipline level is desired). This could be sufficient to provide assurance to employers and the wider community about graduates’ attainment of generic skills.

As noted above, a key factor in securing the support and greater participation of universities would appear to be the inclusion of discipline-specific assessments within a broader assessment of generic skills. Within universities, teaching and learning of generic skills appears to be of greater relevance and utility at discipline rather than university level. Development and participation in discipline-specific assessments of generic skills would undoubtedly lead to significantly higher costs and require increased participation by students and universities to produce robust and reliable results.

Questions for Discussion

- What level of student participation is desirable and for what purposes?
- What design features or incentives would encourage student participation?
6. Next steps

The Government welcomes feedback on the discussion questions outlined in this paper, or on any other important issues to be considered in the assessment of generic skills. Instructions on how to lodge submissions are in Appendix 2 below.

Once feedback to this discussion paper has been received, the Department will collate the feedback and seek advice from the Advancing Quality in Higher Education Reference Group. Issues raised at the Roundtable discussions will also inform the Reference Group’s advice. The Department will provide advice to the Minister on the assessment of generic skills.

The Department will work with stakeholders to develop a suitable assessment of generic skills with a view to sector wide implementation in 2013. Subject to successful development, trial and implementation, results from the assessment of generic skills will be published on the MyUniversity website from 2013 onwards.
Appendix 1 - References


Appendix 2 – How to make a submission

We would welcome your comments on the questions and issues raised in this discussion paper. The assessment of generic skills requires a strong evidence base and we would ask that you provide any evidence you have to support your views. Submissions received through this process will be used to inform deliberations of the Advancing Quality in Higher Education Reference Group and subsequent advice to the Minister for Tertiary Education, Skills, Jobs and Workplace Relations, the Hon Christopher Evans MP.

Submissions should be lodged by close of business 17 February 2012.

By email: AQHE@deewr.gov.au

By post: Andrew Taylor, Branch Manager
Policy and Analysis Branch
Higher Education Group
Department of Education, Employment and Workplace Relations
PO Box 9880
CANBERRA CITY ACT 2601

Please clearly identify your submission showing:

- Name of Organisation or Individual
- If an Organisation, please indicate the name of a contact person
- Address
- Email
- Phone

Please note that all submissions will be published on the Department’s Higher Education website.

DEEWR will not accept submissions from individuals submitted on a wholly confidential basis, however, submissions may include appended material that is marked as ‘confidential’ and severable from the covering submission. DEEWR will accept confidential submissions from individuals where those individuals can argue credibly that publication might compromise their ability to express a particular view.

Please note that any request made under the Freedom of Information Act 1982 for access to any material marked confidential will be determined in accordance with that Act.
Appendix 3 – Sample assessment tasks

Collegiate Learning Assessment sample assessment task

Work sample performance task

In this task, students are asked to assume they work for DynaTech—a company that produces electronic navigational and communication equipment for small aircraft—and have been asked by their boss to evaluate the pros and cons of purchasing a plane (called the “SwiftAir 235”) for the company. In evaluating the situation, students are given a library of information about the SwiftAir 235 in particular and airplane accidents in general. Some of the information is relevant and sound, but some is not. Part of the problem is for students to decide what information to use and what to ignore. Students integrate these multiple sources of information to arrive at a problem solution, decision, or recommendation.

You are the assistant to Pat Williams, the president of DynaTech, a company that makes precision electronic instruments and navigational equipment. Sally Evans, a member of DynaTech’s sales force, recommended that DynaTech buy a small private plane (a SwiftAir 235) that she and other members of the sales force could use to visit customers. Pat was about to approve the purchase when there was an accident involving a SwiftAir 235. You are provided with the following documentation:

1: Newspaper articles about the accident
2: Federal Accident Report on in-flight breakups in single engine planes
3: Pat’s e-mail to you & Sally’s e-mail to Pat
4: Charts on SwiftAir’s performance characteristics
5: Amateur Pilot article comparing SwiftAir 235 to similar planes
6: Pictures and description of SwiftAir Models 180 and 235

Please prepare a memo that addresses several questions, including what data support or refute the claim that the type of wing on the SwiftAir 235 leads to more in-flight breakups, what other factors might have contributed to the accident and should be taken into account, and your overall recommendation about whether or not DynaTech should purchase the plane.
Graduate Skills Assessment sample assessment task

Written Communication example

The focus of this assessment is on the ability to present a well organised and clearly expressed response based on an analysis of the information provided. Two writing tasks are required: a Report Writing task and an Argument Writing task. This is an example of an Argument Writing task.

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**argument task**

Consider the following comments and develop a piece of writing presenting your point of view on one or more of the issues.

Your response will be judged on:

- the quality of your ideas and opinions, regardless of the position you take;
- how well your argument is organised and structured; and
- how clearly and fluently your views are expressed.

You may find it useful to provide a title for your argument.

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The media is the watchdog of society, bringing into the open things that many people would prefer to remain secret.

News is more often than not created by the media rather than simply reported by it.

The media is just the modern form of the age-old need to inquire after, listen to and pass on information.

The pervasive influence of the media has meant that people are no longer able to genuinely think for themselves; they just repeat whatever they’ve read in the paper or heard on television or radio.