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The views expressed here are those of the project management, based on the work of the project team and do not necessarily represent the views of the Commonwealth Department of Employment, Education, Training and Youth Affairs, the New South Wales Department of Training and Education Co-ordination or the agencies that participated in the project.

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NSW Key Competencies Pilot Project Report

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The idea of key competencies has been a significant part of debate in education and training in Australia in recent years. This report arises from an ambitious project that tested this idea in a range of educational and work-based settings in New South Wales.

Independent evaluators identified the project's cross-sectoral research approach as a key element in its success. They concluded that the project resulted in significant agreement on many issues and promoted greater understanding of the way those issues affected education and training in the different sectors.

By establishing that key competencies are best viewed as integral to learning outcomes, the report provides a way forward. Of great significance is the project's identification of the reasons why we might wish to do this. Foremost among these is the finding that key competencies have the potential to improve curriculum, teaching and learning. The report also adds to our understanding of the complexities associated with assessment and reporting of student achievement. At the same time the report acknowledges that the key competencies can promote a common cross-sectoral language for providing additional information about student and trainee achievement.

The report, along with the sector reports cited within it, reflects the work of a great many people. I would like to acknowledge the valuable contribution of the cross-sectoral management group and the expertise and commitment of the project officers and consultants who assisted with the implementation of the project. Crucial to the success of the project was the work of volunteer teachers and workplace personnel who were prepared to reflect on existing practices and work collaboratively with members of the project team to explore a range of issues.

Responsibility for developing and managing a fluid research approach ultimately fell to the project manager, Chris Ryan. Chris placed great faith in what could be learned from working with practitioners to explore issues and field test propositions. This added to the level of understanding and acceptance of the project, by what the project evaluators termed a "policy-implementation-as-research" approach. He dealt constructively with a number of parallel activities—such as the Review of the NSW Higher School Certificate and national developments in apprenticeship training—that were external to the project but likely to affect policy direction. His contribution to work on key competencies, along with his curriculum expertise, has been widely acknowledged, both within NSW and nationally.

This report makes a substantial contribution to our understanding of key competencies and provides some important insights into co-ordinated practitioner-based research as a foundation for policy development. I am confident that it will prove to be an important reference for all involved in enhancing the quality of learning in schools, TAFE institutes, private and personal training programs and workplace settings.

J F McMorrow
Chair
NSW Key Competencies Pilot Project Management Group
About this report

This report arises from a project that put key competencies forward as a cross-sectoral matter for enquiry. The project developed as a complex, iterative and fluid research undertaking. This approach meant that the management team had to be reflective, responsive, flexible and proactive throughout the life of the project. Factors external to the management of the project also had a significant impact on its implementation.

Both the approach taken and the environment in which implementation took place have made it difficult to fully capture the events and outcomes of the project in a single cohesive report. In order to meet the needs of readers who may wish to pursue, in detail, particular aspects of the project, key references to other reports generated by the project are identified at the end of each section of the report. These documents are available from the participating agencies.

The structure of the report has been designed with two broad audiences in mind.

Part A caters for readers with a general interest and provides an overview that highlights; conclusions, project context and a number of cross-sectoral considerations.

Part B caters for readers interested in the specifics of the project in terms of the three learning environments in which key competencies were investigated: schools, TAFE institutes and workplaces.

Chris Ryan
Project Manager
# In this report

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EXECUTIVE SUMMARY

INTRODUCTION

Throughout Australia key competencies – the integrated application of knowledge, skills and understandings – have been the focus of considerable discussion and investigation. This can be seen as part of a global interest where similar investigations have included: Core Skills (Great Britain), Employability Skills (Canada), Essential Skills (New Zealand), Workplace Know-How (USA) and Project and Transfer Oriented Training (Germany).

The NSW Key Competencies Pilot Project represents the work of a Commonwealth funded pilot study which set out to answer questions arising from the proposals of the national committee responsible for identifying key areas of competence – the Mayer Committee. The project team approached its task without taking a particular theoretical, methodological or policy position. Instead, it sought answers to a wide range of questions that had arisen from the work of the Mayer Committee. Working with schools, TAFE institutes and workplaces, the project undertook to:

- Establish the nature of the presence of key competencies in existing practice
- Explore with practitioners approaches to working with key competencies, and
- Consider strategies for possible formal adoption of key competencies in education and training.

Because the key competencies were a matter of enquiry, the project proceeded in a somewhat iterative manner. This involved an exploration of issues, developing proposals, field testing, evaluation, further development, field testing and evaluation. The complexity of the task and the success of the project has been acknowledged by an independent evaluation team. This success is largely due to the expertise and commitment of volunteer practitioners, participating project officers and consultants engaged by the project.

This report consists of three sections: an executive summary of the project findings, a cross-sectoral overview of the project that highlights key issues, and a sector specific focus that considers the investigative approach taken, findings and issues. In a project of this size it is difficult to represent fully the wealth of data and contextually rich information generated by the project. To overcome this, available project documents are cited at various stages throughout the report.

When the project commenced in 1994 it was underpinned by an intention to pilot the Broad Descriptors as identified in the Mayer report:

- Collecting, analysing and organising information
- Communicating ideas and information
- Planning and organising activities
- Working with others and in teams
- Using mathematical ideas and techniques
- Solving problems
- Using technology

An eighth key competency, Cultural understanding, was later added for trialing.
Executive Summary

In NSW there was a general reluctance to accept the three performance levels proposed in the Mayer Report which were likely to impose an additional layer of assessment and reporting. Rather, there was a desire to explore whether relevant statements on learning outcomes could provide an appropriate framework for reporting on student achievement of key competencies.

**FINDINGS**

The conclusions that follow are based on the findings of the project and the independent evaluation report. Of particular significance is the finding that

key competencies have the potential to be an effective device to improve student learning.

The project findings indicate that the broad descriptors identified in the Mayer report are adequate and that the key competencies can provide a common language for describing attributes that are broadly valued across sectors. Any notions of equivalence when considering achievement across sectors, however, are difficult to justify. It is also highly unlikely that it will be possible to establish a standards framework for assessment purposes that can operate across the education and training sectors. The findings that have emerged from this project call into question the feasibility of pursuing some of the purposes for key competency assessment proposed by the Mayer Committee.

At this stage there are many questions to do with assessment and reporting that remain unanswered. There is no evidence to support a separate layer of assessment based on achievement of key competencies. Any imposition of a separate assessment framework is likely to be counterproductive and meet with considerable opposition. Development of key competencies is best considered within the context of school syllabus outcomes, vocational education and training modules and industry standards. The project established that

relevant statements of course learning outcomes, which integrate key competencies where appropriate, do provide a suitable framework for assessing achievement.

Across the sectors there is evidence that the key competencies can help enhance learning and there is support for incorporating key competencies within curriculum learning outcomes. The integration of key competencies with industry standards can enhance training packages and processes that focus on the development of industry specific competencies.

Using key competencies as a way of enhancing teaching and learning is not viewed as a way of reforming education and training generally, but as part of a process of continual improvement that takes direction from project based empirical evidence.
1 General

1.1 The project has demonstrated that there are potential benefits in proceeding further with the incorporation of key competencies in education and training learning outcomes, particularly as a mechanism for enhancing curriculum, teaching and learning.

1.2 The adoption of a cross-sectoral research approach that took direction from the work of practitioners formed a sound basis for policy development and proved to be professionally rewarding for participants.

1.3 Integrating key competencies with curriculum learning outcomes across the sectors can provide cohesion to a continuum of learning that extends through schooling (K-12), further formal education and training, the workplace and other aspects of life.

1.4 The key competencies that have been the subject of work to date, with the exception of Cultural understanding, are adequately defined and constitute an acceptable and reasonable working set of competencies that are broadly supported by practitioners involved in the field testing. Further refinement can take place as practitioners working with key competencies delineate the knowledge and skills that underpin the development of particular key competencies in specific contexts.

1.5 There is little support for a separate additional layer of assessment and reporting that focuses on key competencies.

1.6 Quality learning in the various project settings, whether schools, TAFE institutes or workplaces, was a function of the integrated application of knowledge, skills and understandings and reflection on learning. This was quite distinct from the automated, fragmented and behaviouristic view of learning some people believed would result from working with key competencies.

1.7 The research approach has identified specific areas where further investigative and developmental work needs to take place prior to consideration of any wide scale implementation. It will be necessary for any future work to align with, and take direction from, the recommendations of the Eltis Report on curriculum (Focusing on Learning) and the outcomes of the McGaw Review of the Higher School Certificate.

1.8 The implications for the workload of teachers and trainers are not clear. Appropriate management will be required to ensure that any further work on key competencies does not adversely impact on the workload of teachers and trainers. Trials could be constructed to test the proposition that working with key competencies will, after an initial period of familiarisation, bring about changes that improve the working conditions of teachers and trainers.

1.9 The secondary teacher survey response indicated that teacher perception regarding current practice did not match up with project officer observations and the experience of teachers involved in field testing. The survey response indicated that teachers considered that they were already incorporating key competencies to a greater degree than the mapping indicated. Field testing showed that teachers found working with key competencies as holistic entities quite challenging. A holistic approach challenges the learner as it requires the ability to establish a sense of purpose, select appropriate strategies, implement strategies and evaluate both the process and the outcome.

1.10 Representatives of education and training units/organisations with responsibility for enhancing the education, training and employment outcomes for targeted groups of students have indicated that the key competencies have the potential to be particularly useful. Key competencies have been incorporated in major equity documents such as the NSW Board of Studies Statement of Equity Principles and TAFE NSW Inclusive Curriculum Guidelines.

1.11 Work practices that utilise key competencies have been found to be present in, and a feature of, a range of high performance workplaces.
Executive Summary

2 Curriculum

2.1 The mapping exercises and field testing, in both school and vocational education and training settings, indicate that where key competencies are more prominent in curriculum documents there is greater engagement with them in the learning process. This reaffirms the significance of these documents in influencing teaching practice.

2.2 Evidence from both the school and vocational education and training sector indicates that integrating key competencies with relevant curriculum learning outcomes will enhance the quality of learning.

2.3 Key competencies can provide a common basis for cross-sectoral collaborative work on curriculum and training programs. The Eltis Report Focusing on Learning, the NSW Board of Studies Report Curriculum Keys, and the project based vocational education and training document Incorporating Key Competencies Into Vocational Education and Training Curriculum: Advice for curriculum developers, provide clear indications of how to incorporate key competencies in education curriculum and training programs.

2.4 In the school sector most key competencies should be developed in most subjects rather than being limited to particular subjects. This would result in students having sufficient opportunity to develop expertise in the full range of key competencies. Differences in the presence of key competencies across subjects, as shown in the mapping exercise, is not necessarily a reflection of the appropriateness of particular subjects for developing particular key competencies.

3 Industry standards

3.1 The project confirmed the limitations of the Mayer performance levels as a way of identifying the presence of key competencies in industry standards. The current practice of using Mayer performance levels to map key competencies in industry standards is largely retrospective and tends to endorse existing practices rather than encourage explicit and purposeful integration of key competencies.

3.2 The project has established that key competencies need to be explicitly integrated with industry standards if the key competencies are to have a positive impact on the development and delivery of training packages and programs.

3.3 The integration of key competencies with industry standards should be supported by guidelines that take direction from the findings in this report rather than relying on a mapping process that adheres to the Mayer three performance levels.

4 Teaching and learning

4.1 Key competencies can be viewed as learning tools to assist with the acquisition and application of subject specific knowledge, skills and understandings by providing concrete outcomes that can make learning more relevant and add to the learner’s sense of achievement.

4.2 Within the project there is evidence of a high degree of cross-sectoral convergence in terms of the appreciation of the nature of quality learning associated with the development of key competencies. Common characteristics include:

- a clear focus on the attainment of curriculum learning outcomes, industry standards and other workplace training outcomes
- active engagement in learning contexts that are perceived by the learner to be contextually relevant
- reflection on both what has been learnt and the learning process
- the fostering of skills for life-long learning.
Executive Summary

4.3 Mapping current practice has shown a strong relationship between the presence of key competencies in curriculum documents and classroom practices. Where engagement with key competencies is dependent on teaching methodology, rather than curriculum requirements, there is potential for inequity.

4.4 Providing access to the potential benefits of improved student learning requires active engagement with the key competencies and reflection on learning. This may unsettle and challenge many of those teachers and learners who are more comfortable with traditional teaching methods.

4.5 There are a number of teaching approaches that are likely to help the learner to transfer learning from one context to another. There is, however, no evidence arising from the project to suggest that development of the key competencies will result in the spontaneous transfer of a key competency from one context to another, significantly different, context. It is the knowledge, skills and understandings that are developed within a subject or training context, and underpin the development of the key competencies, that are likely to be transferred.

5 Assessment

5.1 The outcomes of the review of the Higher School Certificate will have a major impact on assessment considerations, particularly in terms of a possible standards framework K-12 and the relationship between school based assessment and external examinations in the senior school.

5.2 In the school sector, teachers involved in field testing tended to favour the idea of a standards frame of reference. Teachers experienced difficulty, however, when attempting to apply a standards framework to their subject to make judgments about student achievement.

5.3 Teachers and trainers are likely to experience difficulty when required to use performance criteria for making assessment decisions. Many teachers, trainers and learners are more familiar and comfortable with normative approaches to assessment.

5.4 The most effective assessment tasks appear to be those that are sustained and encouraging of holistic development of the key competencies.

5.5 Existing expertise in participating agencies is well placed to assist with advice on assessment issues. For example, the NSW Department of School Education report: Principles for assessment and reporting in NSW government schools, is particularly relevant.

5.6 In the vocational education and training sector, the intended learning outcomes of courses or training programs are based on endorsed industry standards. Where standards and learning outcomes explicitly incorporate key competencies, these will impact on the types of assessment used to gauge achievement of both vocational and key competency outcomes.

6 Reporting

6.1 The key competencies can promote a common language for providing additional information about student achievement in terms of attributes that are broadly valued. Notwithstanding this, the project was unable to identify direct relationships between achievement of the key competencies in the different sectors.

6.2 Explicit acknowledgement of key competencies in curriculum documents will encourage school based reporting that incorporates key competencies.

6.3 Consistency in reporting that incorporates key competencies can be achieved through the use of reporting guidelines and monitoring procedures that are collaboratively developed.

6.4 If key competencies are incorporated in curriculum documents and training programs, the
development, assessment and reporting of the competencies can be in terms of relevant outcome statements. Any emphasis given to key competencies will be in the context of achieving outcome statements that incorporate key competencies.

In the school sector, the Eltis Review has indicated that if key competencies are to be developed they must be integral to existing syllabus outcomes, and emerge from such outcomes. The NSW Board of Studies research and field testing indicates that it would be appropriate to frame syllabus outcomes that allow for a focus on both subject specific knowledge and skills and key competencies that are to be developed within the subject context. This approach could allow for the development of school based assessment and reporting practices that address subject specific and key competency outcomes simultaneously.

In the vocational education and training sector, where key competencies are explicitly incorporated into industry standards and documented curriculum (or other training material that express learning outcomes), the achievement of key competencies can be inferred from the attainment of learning outcomes based on industry standards. Reports can be produced which indicate both the relationship between attainment of units of competence in industry standards and key competency achievement.

7 Professional development

7.1 Professional development, in all sectors, is necessary if key competencies are to be successfully implemented.

7.2 Any implementation of key competencies would benefit from a co-ordinated professional development program that operates across sectors.

7.3 Professional development associated with key competencies should be integrated with professional development activities that are related to teaching, learning and assessing achievement within the context of course learning outcomes. Any emphasis given to key competencies should be in the context of helping students to achieve learning outcomes that incorporate the key competencies.

7.4 The project has generated a range of reports and resource materials. These have proven to be valuable and are potentially useful for professional development. Feedback from the field testing of project resource material indicates that there is a high demand for these materials.

7.5 An interactive multi-media professional development package, developed as a separate Commonwealth funded initiative, reflects the work of projects from across Australia. This package has the potential to either underpin a structured approach to professional development or be used as resource material for teachers and trainers.

8 The way forward

8.1 It is both possible, and worthwhile, to proceed with key competencies as a way of improving curriculum and training packages and enhancing teaching and learning. Proceeding with key competencies can best be facilitated by ensuring that they are integral to the achievement of relevant curriculum learning outcomes and industry standards. The documents generated by the project provide clear direction as to how this can be achieved.

8.2 The project has demonstrated that there are likely to be significant benefits in adopting a collaborative, cross sectoral approach, that is grounded in the work of practitioners, when further investigating ways of enhancing learning and reporting on achievement.

8.3 There is a need to further explore how appropriate combinations of learning experiences can help with development of the key competencies. This is particularly important where learning in the workplace complements learning in another environment such as a TAFE institute or school.
2.1 PROJECT HISTORY

The Pilot Project on Key Competencies in NSW follows directly from an agreement reached in 1990 between Commonwealth and State Ministers for Education and Training. Importantly, the initiative foreshadowed a review of post-compulsory education and training.

The Review Committee

A Review Committee, chaired by Mr Brian Finn, was established to prepare a report on six key areas of competence considered essential to all young people involved in post-compulsory education and training. On the basis of the report, Young People's Participation in Post-compulsory Education and Training (1991), further work was undertaken by the Mayer Committee led by Mr Eric Mayer. The Committee's brief was to identify and describe a set of key competencies in curriculum and teaching common to both the school and training sectors.

The Mayer Report

In 1992, following extensive consultation, the Mayer Committee produced a report on Key Competencies, Putting General Education To Work. Such was the importance and implications of this report that the Commonwealth Government funded the States, Territories and peak bodies to conduct pilot work.

The NSW Project

Encouraged by the Commonwealth Government in 1994, the then NSW Ministry of Education and Youth Affairs undertook to co-ordinate a single cross-sectoral project. The Agreement with the Commonwealth required that approximately two-thirds of the project's resources be devoted to work in the school sector. The change of government in 1995 placed responsibility for the project with the NSW Department of Training and Education Co-ordination (DTEC). The following NSW agencies participated in the project: the Board of Studies, Department of School Education, Catholic Education Commission (CEC), Association of Independent Schools (AIS), TAFE Commission, and the Department of Training and Education Co-ordination (DTEC).

The NSW project engaged a project manager and project officers to work with each of the participating agencies. In the school and TAFE sections of the project the majority of the project officers were practising teachers. The workplace component of the project was undertaken with the assistance of consultants who were successful in tendering for this work. The project evaluation was also undertaken by an independent consortium who were also appointed on the basis of a successful tender.

The project team's brief involved:

- mapping education and training documents and practices for the presence of key competencies
- developing and trialing approaches to working with key competencies in terms of curriculum, teaching, assessing and reporting
- devising strategies to facilitate possible broader incorporation of key competencies in education and training.
2.2 WHAT ARE KEY COMPETENCIES?

The integrated application of knowledge, skills and understandings

In recent years there has been a world wide interest in the place of generic skills, or key competencies, in education and training. Key competencies – what people both know and can do – have been argued to be essential for lifelong learning and effective participation in current and future society, education and training and work (paid and unpaid) and work organisation. Indeed, many people also view the key competencies as crucial to modern management practices. The plethora of seminars and courses that focus on communication skills, time management, working in teams, problem solving and information technology supports this claim. Some have also argued that key competencies can play a significant role in professional studies at university (Walker, 1994).

Recent educational research has sought to identify which competencies are the most fundamental to education and training. The Mayer report presented a set of key competencies that are said to underpin success in employment, further learning and life in general. In Australia the meaning and importance of these key competencies has been the subject of much academic and educational writing. The descriptors developed by the Mayer Committee are presented in Figure 1 below.

The key competencies are already implicit in many existing courses and workplace practices. An eighth key competency, Cultural understanding, was later added for inclusion in trials. Despite varying interpretations since 1992, the following characteristics are common to all the key competencies:

- key competencies operate as generic skills that configure to contexts
- key competencies require the learner to: make decisions regarding what is being attempted, why it is being done, how best to do it; demonstrate that it has been done; and reflect on what has been done in order to evaluate both the outcome and the process

Figure 1

<table>
<thead>
<tr>
<th>The Mayer Key Competencies</th>
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<tbody>
<tr>
<td>Collecting, analysing and organising information</td>
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<tr>
<td>Communicating ideas and information</td>
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<td>Planning and organising activities</td>
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<tr>
<td>Working with others and in teams</td>
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<tr>
<td>Using mathematical ideas and techniques</td>
</tr>
<tr>
<td>Solving problems</td>
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<tr>
<td>Using technology</td>
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</table>

The Mayer Key Competencies
key competencies are inter-related and overlap; they are not separate from each other.
- the development of key competencies spans the whole of life.

2.3 DEFINING THE PILOT STUDY

Questions and Issues

Work progressed in the belief that exploring key definitional questions and issues with practitioners would: provide additional information on a range of unresolved issues, point to areas where additional research is required, and establish a basis for considering approaches towards formal implementation.

The Pilot study is not a blueprint to implement the proposals of the Mayer Committee. Rather, it is intended to establish:

- the nature of the presence of the competencies in existing curriculum/training documents and practices
- whether the key competencies have the potential to be an effective device for educational improvement
- how key competencies might best be incorporated into education and training practices
- whether the key competencies can provide a linkage between schooling outcomes, vocational education and training programs and the needs of industry.

The project recognised the need to explore whether statements about learning outcomes could provide an appropriate framework for reporting student achievement of key competencies.

At the commencement of the project a decision was taken to reject the three performance levels proposed by the Mayer Committee. This decision acknowledges the difficulties in attempting to impose additional layers of curriculum, assessment and reporting on schools and training organisations.

The project officers for the NSW team developed a set of statements that reflected a shared understanding of the key competencies. The project processes were designed to continuously seek feedback on the legitimacy of these statements. The statements are provided in Figure 2.

In each sector the approach to investigating key competencies was iterative in that the findings from the mapping informed the approach taken to field testing and the findings from field testing were used to inform further field testing both within sectors and across sectors.
Project Statements on the Key Competencies

Young people need to be able to make critical, responsible and creative use of knowledge, skills and understandings (in a range of contexts) if they are to function effectively in society.

Key competencies require the application of knowledge, skills and understandings in given contexts and the ability to transfer these to new contexts.

Key competencies are integral to a broad and balanced general education.

Key competencies help to provide a link between general education, vocational education and training programs and the needs of industry. They apply to education and work generally rather than being specific to particular educational learning areas or work in particular occupations or industries.

Key competencies are embedded in and developed through education and training curriculum.

Statements on learning outcomes can provide an appropriate framework for the assessment and reporting on the achievement of key competencies by students.

Establishing a shared understanding of working definitions

The NSW team rejected the idea of simply mapping on the basis of the perceived presence of the broad descriptor for each key competency. In this respect, it was like other teams which had arrived at similar definitions for mapping purposes and which did not accept Mayer’s notion of performance levels. Hence, mapping for the presence of key competencies and their major features commenced with the team identifying the main elements of each competency. A set of working definitions became the subject of periodic review (see Appendix 1).

For example the elements of the key competency Collecting, analysing and organising information were identified as:

- establish the purpose for collecting information
- locate and organise information
- evaluate the information and sources
- evaluate the methods used to obtain the information.

In the mapping process the frequent absence of an element of a particular key competency was crucial to recommendations regarding further developmental work. It also pointed to a need to either critically review the place of that element in the definitional framework or review the mapping methodology itself. The same applied to the noted absence of a common element across a range of key competencies.

The definitional framework should be the subject of ongoing consideration, and any revisions are likely to benefit from further critical feedback from teachers and trainers.
Key competencies both as a process and an outcome

Demonstrating the ability to effectively work with one or more key competencies can be an important achievement that is integral to a syllabus or training outcome. Part of establishing working definitions was a recognition that key competencies can also be recognised as a process. Accordingly, the team set out to test the view that the key competencies are best considered holistically, and that each key competency can be viewed as a process with identifiable essential elements.

The example of Collecting, analysing and organising information illustrates this point. Of importance is the ability to locate, sort, organise, and evaluate the information and its sources, and the methods used to obtain it.

A similar process of identifying the essential elements of other key competencies revealed that they all share a common process, where the common features of the key competencies are: establishing a sense of purpose; selecting appropriate strategies; implementing strategies; and evaluation of both the process and the product. Field testing has since demonstrated the validity of this approach.

Field testing

The field testing in all sectors re-affirmed the view that the most appropriate approach to any implementation of key competencies should be based on their integration with curriculum, training programs, and assessment and reporting practices.

One of the most significant findings was the merit of exploring proposals with practitioners prior to consideration being given to policy implications. This proved to be both a useful professional development activity for participants and a valuable source of information.

Debriefings, briefings and seminars

The findings of the project have been the subject of major debriefings with groups of participants. The findings and project issues have also been the focus of discussion in a number of seminars. Three seminars have had an equity focus, while another involved representatives of teacher professional associations. A number of breakfast seminars and regional meetings were held for employers, training providers and representatives of industry. Briefings were also provided for representatives of parent organisations and representatives of teacher unions. The feedback from different groups at various stages was greatly appreciated.
3.1 THE NATURE OF THE KEY COMPETENCIES

**Process and outcome**

The findings of the project confirm that it is appropriate to view the key competencies as both processes and outcomes. As learning outcomes the key competencies are best developed as an integral component of relevant learning outcome statements that apply to a course of study or training program.

**An holistic approach**

The project has confirmed the benefits in constructing the key competencies as holistic entities consisting of a number of identifiable elements. This was a challenging construct for teachers and learners but one considered by project participants to be preferable to the Mayer approach of describing the key competencies using three performance levels.

There is a qualitative difference in the way the two approaches to the key competencies are conceptualised.

The Mayer performance levels promoted a view of key competencies based on stages of development: with the first level based on carrying out simple procedures under supervision; the second dealing with more complex procedures and some management of the process and the highest level not only requiring management but also evaluation. One of difficulties with this approach is that it can encourage an atomistic and behaviourist approach to learning. If students are expected to progress in a linear sequential way from one level to the next there may also be problems in relation to expectations.

The holistic view challenges learners at all stages of education and training to: establish purpose, select appropriate strategies, implement the strategies and evaluate both the process and the outcome. If the learning context is relevant and meaningful learners can work constructively with the key competencies in ways that make sense to the learner. This requires appropriate attention to be given to each of the elements of the key competencies, but with a short term expectation that the elements will be used by the learner in an holistic way. It was reassuring to find that primary school teachers involved in the field testing found this to be appropriate. In the school sector this approach should result in learners working holistically with the key competencies in increasingly more sophisticated and complex ways as they progress through schooling rather than have an expectation that they will only develop strategies, manage processes and undertake evaluation in the latter stages of schooling.
**Adequacy of descriptors**

Though not all similarly cast, and with the exception of *(Using) Cultural understanding*, the key competencies were seen across the sectors as being a reasonable working set. This is not to suggest that they should not be subject to ongoing refinement.

Research that focused on the workplace indicated that the key competencies embrace most of the general attributes valued by management. There is evidence that there is significant variation between occupation and industry sectors in terms of which key competencies are prominent in workplace performance. The researchers responsible for the workplace investigations of key competencies reported that people in workplaces found the definitions of the key competencies somewhat technical and forbidding. However, discussion with the researchers typically led fairly quickly to an appreciation of the key competencies.

A report from one of the project consultants, *Observations and Reflections on Key Competency Pilot Activity* (Moy, 1996), indicated that the working definitions were also able to be used effectively as a device to assist the process of curriculum development.

**Working with the competencies**

During the first phase of field testing many teachers chose to work with key competencies that they felt some familiarity with. This prompted the project team to prescribe working with particular key competencies during the second phase of field testing. It needs to be acknowledged that *(Using) Cultural understanding* was particularly challenging and it was difficult to get a clear picture of this competency when it is applied in a range of contexts. The workplace field testing team reported that this key competency was seen as lacking appropriate workplace connections. More developmental work and trialing is needed if it is to be retained as a key competency.

Whilst *(Using mathematical ideas)* and *(Using technology)* were readily identifiable in TAFE courses and workplaces, they were less easily identified in school contexts. The work of a Western Australian project dealing purely with *(Using mathematical ideas and techniques)* in school contexts and the Australian Christian schools project dealing solely with *(Using technology)* should provide valuable additional information about these two key competencies.

**The nature of the key competencies**

The following statements reflect the project findings concerning the nature of the key competencies:

- A key competency engages learners in actively building concepts and understandings by developing the ability to control and monitor thinking skills in relation to specific tasks
- A key competency can be developed and demonstrated by holistic sustained performance where learners engage with all the elements of the key competency
- A key competency is not simply an area of knowledge, a general attribute or a specific aptitude
- A key competency always configures to context
- A key competency cannot be taught or assessed in isolation from context
- The degree of competence a student can demonstrate in a key competency will be dependent on both the depth and breadth of context understanding the student has developed, and the opportunities provided by the context
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- the transfer of a key competency cannot be reliably or feasibly measured in school education but can be developed through pedagogy
- any key competency will encompass cognitive and affective domains and can be a vehicle to enable students to develop and demonstrate valuable higher order cognitive and affective abilities.

3.2 TEACHING, LEARNING, AND THE TRANSFER OF LEARNING

The project found the potential of key competencies to be considerable. They are both a means to an end, and an end in themselves. By assembling the findings from mapping and field testing, other project commissioned research and relevant research and theory literature (refer to Appendix 2), a clearer picture is beginning to emerge about the relationship between teaching, learning, transfer of learning and key competencies.

A number of factors have been identified as having an important impact on the quality of learning and the possibility of transfer of learning taking place: the conceptualisation of the key competencies themselves, the representation of the key competencies in curriculum, the teaching methodology pursued, the nature of the context/organisation in which the learning is taking place, and the affective domain – the attitude of both the teacher and the learner.

In all contexts the explicit integration of relevant key competencies with curriculum and training outcome requirements assisted the teaching and learning associated with the development of the key competencies. Linking good practice with a framework of key competencies offers tangible benefits. It can enhance successful learning and help students to become more autonomous, flexible and responsible learners who understand both the implications and possibilities of their learning. This is crucial for it elevates the importance of learning over transferability as a more significant and fundamental issue. Nonetheless, pursuing some of the approaches argued in the literature is more likely to result in transfer of learning and accords with the views of many of the teachers in the project who see the key competencies as integral to good practice.

Project evidence from the vocational education and training sector indicates there is no reason to view the nature of quality learning in this sector as being significantly different to the school sector. The adaption of a range of identified strategies that are able to be configured to the learning context proved to be useful when trialed across contexts.

Within the project there is evidence of a high degree of cross-sectoral convergence in terms of the appreciation of the nature of quality learning associated with the development of key competencies. Common characteristics include:

- a clear focus on the attainment of curriculum learning outcomes, industry standards and other workplace training outcomes
- active engagement in learning contexts that are perceived by the learner to be contextually relevant
- reflection on both what has been learnt and the learning process
- the fostering of skills for life-long learning.

As learning tools key competencies can be integrated in curriculum and training to promote the acquisition and application of domain-based and industry specific knowledge, skills and understandings. This runs contrary to the somewhat gloomy predictions of critics writing in the
early 1990s who claimed that working with key competencies would result in behaviouristic, fragmented and utilitarian approaches to learning. Recently, Forster (1996a) made the point that policy makers may have underestimated the benefits of key competencies. All the more so when considering fundamental questions about what students need to know and be able to do in order to fully participate in society.

It has been possible to identify particular approaches to teaching and learning that appear to have been highly effective. For some teachers and facilitators of workplace learning these may well have been good practices that were being used prior to working with key competencies. For others working with key competencies was quite a challenge to both teachers and learners and required both to take risks and venture into unfamiliar practices, often with surprisingly positive results.

For these project participants the experience resulted in changes to the dynamics of the learning environment. Across the sectors examples were found of high quality learning with a focus on key competencies configured to particular contexts.

Typically these practices:

☑ provided the learner with a more explicit awareness of what was being learnt, why it was being learnt, how the learning would proceed and how assessment would take place

☑ involved learning that engaged the learner in activities that were seen as being meaningful and relevant

☑ required the learner to use initiative and reflect on what had been learnt and how learning had taken place.

Key competencies are not likely to be developed where teacher-centred instruction is focused on abstract concepts and principles not located in a wider context.

The findings from project field testing, project-related research, and a study of the literature suggest there are particular approaches to teaching and learning worthy of adoption. This is particularly the case if we are to simultaneously assist students to develop the key competencies and realise syllabus and training outcome requirements.

Interviews with learners and data collected from project generated material suggest that students were motivated through working with key competencies. A significant number of learners indicated that they valued knowing that learning experiences could facilitate the development of skills and processes that were valued beyond the classroom.

Where teachers and students collaboratively prepared and planned the field testing of key competencies strong learning partnerships were developed with a more open discourse that encouraged sharing of ideas and reflection on learning.

Working with key competencies across sectors highlighted the pervasive impact of assessment practices on the quality of teaching and learning. It also pointed to the challenges involved with developing learning experiences that acknowledge the holistic nature of the key competencies and the need to identify strategies that underpin effective engagement with the key competencies.

There is a need for caution when promoting the idea of students being self-managing learners. The teacher has a crucial role to play in determining the appropriateness of strategies for particular students. For disadvantaged students this point is crucial. It is the most disadvantaged students who will be least likely to cope if required to prematurely take greater responsibility for their own learning. Ironically it is likely to be these students who will benefit most from an increased awareness of the learning process.
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It has been possible to identify a body of literature that suggests learning for transference is more likely to take place if particular teaching methodologies are employed. The more sophisticated of these approaches may differ significantly from the existing practices in some contexts and even conflict with some learner expectations of what is appropriate. The methodologies relate to the development of metacognitive awareness; student reflection; self assessment and authentic assessment.

The degree to which the organisational structures of schools, TAFE institutes, private training providers and work places (and the systems within which they operate) can embrace a culture of organisational learning may have a significant impact on the nature of changes that are sustainable.

Using key competencies to enhance teaching and learning is not viewed as a way of reforming education and training but part of a general process of continual improvement that takes direction from project based empirical evidence. The fact that this empirical evidence happens to fit comfortably with particular schools of research and theory, detailed in Appendix 2, is also useful.

Reports from school sector agencies

The following excerpts from reports prepared by each of the participating school sector agencies acknowledge the vital contribution of key competencies to learning.

"There was a widespread view among teacher participants that the key competencies are fundamental to good teaching and learning practice and are indeed desirable capabilities for all students. Teachers believe that key competencies can be included in appropriately stated curriculum outcomes. Most were of the view that key competencies enhanced their teaching practices.......The current curriculum documents are criticised for a lack of emphasis on the processes of learning central to the key competencies. Teachers felt that the key competencies were an extremely important part of students' education impacting positively on the teaching and learning of subject areas as well as providing an important preparation for work and study beyond school.

Similarly, the Board of Studies curriculum mapping report indicated

"It would be appropriate to develop most of the key competencies through the key learning areas as a way of assisting students to become more effective learners.

The vocational education and training sector field testing report claimed:

"The key competencies provide a good basis for viewing work from a more holistic perspective. As a general principle, if it is found that particular units of work can be described without involving the key competencies, then the work units are probably being described too narrowly to be useful. If the key competencies are used as a vehicle for enriching training then it is more likely that the approach will be more integrated, systematic and strategic. There is clear evidence that working with (generic) learning tools assisted learners to engage in complex problem solving in simulated work settings. There is also evidence that this approach facilitated holistic (integrated) learning."
Furthermore, the evaluation team stated:

The notion of generic skills is controversial but it is our view that the Pilot has established that key competencies have the potential to be an effective device for educational improvement.

The latter stages of field testing that took place in schools, TAFE institutes and workplaces suggests that the following model, see Figure 3, can be used to represent an approach to developing key competencies that is worth further trialing. Detail on the trialing in each sector, and the major features of the model, is available in the sector based areas of this report.

![Figure 3](image)

A Model for Developing Key Competencies that was Trialed by the Project

OUTCOMES
(Key competencies integrated with syllabus outcome statements and industry standards)

TEACHING AND LEARNING
(Active engagement in contextually relevant learning where both initiative and reflection are encouraged)

UNDERPINNED BY FOUNDATION KNOWLEDGE, SKILLS AND UNDERSTANDINGS

SUBJECT OR INDUSTRY SPECIFIC

GENERAL PROCESS IMPROVEMENT TOOLS (Configured to the context)

How key competencies contribute to the transfer of learning

There is no doubt that key competencies can, and do, contribute to the transfer of learning. They are useful in so far as they contribute to the learning process and the context in which they are developed and applied.
However, caution is advised when considering the degree to which key competencies themselves can be seen as being transferable. Despite the fact that research on transferability is capable of supporting a range of views, extravagant claims attract predictable criticism, especially from ideological opponents.

Unfortunately Mayer is silent on how we might identify processes likely to result in the transfer of learning. The Mayer report did acknowledge that:

> competence involves not only the ability to perform in a given context but also the capacity to transfer knowledge and skills to new tasks and situations.


Some employers say they are more likely to favour a potential employee who provides evidence of having developed key competencies in a work-related context. This implies a reluctance to accept that contexts in which the key competencies are acquired are equally valued.

The project found no evidence to suggest that:

- development of the key competencies in one context will result in the spontaneous transfer to another which is significantly different
- key competencies should be taught for their own sake
- general transfer involves skills that are independent of, and uninfluenced by, the context in which they are applied.

Active learning is more likely to occur where learners receive active support in the use of key competencies. The gradual decrease in the level of scaffolding or support can take place as learners gain confidence and demonstrate competence. Both the findings of the project and the literature (Brown, Collins and Duguid, 1989., Lohrey, 1995 and Gick and Holyoak, 1987) support this assertion.

**Transferring key competencies to an unfamiliar context**

If a learner engages with the key competencies in a range of relevant domain-based contexts, there is greater chance of the learner being able to make some sort of transference to an unfamiliar context. This assumes an awareness of both the learning process and the desired outcomes. The transference in question could be associated with a particular competency, a combination of competencies, elements of a competency or combinations of elements of competencies.

The literature suggests this is more likely if the learner is prompted or encouraged to make connections between the learning situation and other contexts relevant to the learner.

Forster (1996b) warns that concerns about transferability should not stand in the way of the achievement of key competencies in schools. Provided a student's general abilities are developed in a range of contexts, it is reasonable to assume that he/she will enter the workforce with a meld of attributes that can be applied in various ways, at various times, and in various contexts.

Hager (1997) further argues that key competencies should be thought of as a basis for lifelong learning, and not just confined to the realm of school or work. Rather than being viewed as discrete skills that people learn to transfer, the key competencies should be seen as learnt capacities that can help us to deal with diverse situations. Thus, as learners experience ever more success in their deployment of the key competencies across a range of situations, transfer comes to represent a growth in their confidence and adaptability. Hager suggests it is a growing understanding of how to deal with different contexts (enhanced by having previous experience with the key competencies in a range of contexts) that is transferred rather than the actual transference of the key competencies.
Field testing that explored the three dimensional approach to working with the competencies based on outcomes, processes and underpinning skills raised the possibility of yet another way of dealing with the issue of transfer. According to this approach confusion about the transfer of learning can occur when transfer is seen to relate to, and focus on, the authentic activity itself rather than outcomes and underpinning knowledge and skills. Winchester (1996) argues that transfer is basically a logical activity that links inference to self reflection. The authentic activity that the learner engages with provides the means but not the ends of transfer. Transfer requires the ability to reflect on underpinning generic knowledge and skills (illustrated in field testing by the use of general process improvement tools) and match these with key competency outcomes (as illustrated in the working definitions).

What is being transferred is the ability to choose underpinning knowledge and skills that are relevant to a particular context in order to help achieve a general outcome. In this sense planning a family holiday and planning a work schedule require the same generic abilities. The essential characteristic of the authentic activity is that it encourages an holistic engagement with one or more key competencies. The larger the scope of the activity the more the learner is challenged to apply a wider range of underpinning skills in order to achieve a wider range of outcomes.

A study by Broadbent (1996), *Key Competencies and the Curriculum*, looked at the relationship between cognitive theory and the view of key competencies emerging from the work of the pilot project. This study argues strongly in support of the view that key competencies are general skills that configure to contexts and promote higher order thinking skills. They are said to underpin successful learning and help students to become more autonomous, flexible and responsible learners with an understanding of both the implications and possibilities of their learning.

Broadbent argues that a focus on key competencies in the school sector could assist students in making connections within and between subjects and facilitate transfer of learning. Broadbent also argues that teaching that encourages transfer requires reflection and the use of multiple contexts to enable students to learn different ways knowledge can be used. This is best facilitated in learning experiences where students use knowledge as a tool to solve problems, rather than acquire a collection of facts.

**The significance of affective factors: attributes, confidence and attitude**

Observing young children with little experience of computers illustrates the significance of affective factors. A young child is more likely to have a go, take risks and explore options whereas inexperienced adults tend to exhibit a more cautious, structured approach (measuring twice and cutting once) that reflects learning experiences where the emphasis is placed on linear sequences and being penalised for making mistakes.

The project work of Hager, McIntyre, Moy, Comyn, Stone, Schwenke and Gonczi (1996) and Field and Mawer (1996) emphasises the development of personal attributes which contribute to learning that is likely to enhance transfer. These include the capacity and confidence to be proactive and take risks: it also involves flexibility, critical thinking, adaptability, responsiveness, creativity, sharing ideas and information, working with others, and reflection.

The field testing experience in the vocational education and training sector raised the issue of confidence. Using various strategies to analyse problem scenarios helped to allay student fears about the size of tasks. This confidence building process seemed to free their creative thought processes so that solutions and positive outcomes became the focus rather than “this is too big to tackle” thinking.
Research based on the Expert-Novice paradigm also links confidence to prior knowledge. Some teachers have commented that the reason some students do not have well developed key competencies is that they do not have foundation knowledge and skills that underpin the development of the key competencies. For example, the reason some students do not work well in groups might relate to their lack of knowledge about what working in a group involves and this may in turn influence their attitude. Working with others and in teams also requires a certain attitudinal disposition on the part of the learner.

The importance of attitudinal factors was strongly acknowledged in the study of 1500 small businesses in Western Australia (Goddard and Ferguson, 1996). This study would support the recommendations in the Karpin Report (1995) that point to the need to develop an enterprising culture.

**Learning in high performance organisations**

Field and Mawer (1996), commissioned by the NSW project, commented on the nature of learning taking place at all levels in high performance businesses and organisations. Critics who pointed to the shortcomings of working with general competencies argued that this tends to result in behaviourist, reductionist, utilitarian approaches to learning that over emphasise routine. These are not features of the sort of training identified by Field and Mawer in high performance workplaces.

Their research indicates that in order for employees to be flexible and adapt to change they need to be competent learners. They also argue that for individual employees, learning is a complex, internal process that involves not only skills but attitudes, knowledge and concepts. Employees are typically expected to learn by critically scrutinising what they do and by speaking up with criticisms and suggestions that could improve things.

For example, to be more productive and accept responsibility in the workplace employees are encouraged to

- be pro-active
- be confident in their dealings with other teams, technical experts and managers
- understand a wide range of data, concepts and terminology, so that participation is from an informed position
- articulate and justify suggestions
- adjust their communication style to get support for their ideas from different groups of people – for example, managers, technical experts and other team members.

These qualities are said to be more easily developed in organisations which constantly seek to improve the way they work, perceive themselves to be learning organisations, and exhibit structures and processes consistent with this perception.

Field and Mawer's work also highlighted the fact that much is being done in the workplace with generic skills that are similar in many ways to most of the key competencies. Although there is strong evidence to support the view that many organisations (particularly small businesses) are unfamiliar with the key competencies, there is also evidence that innovative learning incorporating the use of generic skills is taking place in a significant number of workplaces. Many organisations have produced training materials of high quality that deal specifically with generic skills, many of which are similar to the key competencies.

The work of Field and Mawer points to the nature of learning experiences in schools and training that are likely to help prepare students for participation in workplaces that are learning
organisations. In these organisations workers at all levels are encouraged to: participate in decision making, work effectively with others, plan and organise activities, solve problems, adapt to change, engage with new technology and perceive of themselves as life-long learners.

**Key competencies and job specific competencies**

The project research findings (Gonczi, Curtain, Hager, Hallard and Harrison, 1995; Hager et al. 1996) found repeatedly that job specific skills are deployed in a context which typically changes from one workplace to another and within workplaces. The findings from the project indicate that when significant units of work are considered the key competencies occur in complex clusters along with other more specific competencies and aspects of the particular work context. The key competencies are holistic in practice. When analysing work there is a tendency to favour job specific skill descriptions that are viewed as being independent of the key competencies. The requirement that skilled work take into account changing contexts is, on its own, usually enough to require key competencies. It is therefore argued that any significant work activity will embody simultaneously both specific skills and several of the key competencies.

**Perceptions from the Workplace**

Research conducted by Marett and Hoggard (1996) of the Assessment Centre of TAFE NSW focused on perceptions from the workplace regarding key competencies and the transfer of learning. This study looked at businesses smaller in size to those considered by Field and Mawer. It found that the organisations were familiar with the skills and processes described by the key competencies and saw them as being important. The enterprises involved in this study demonstrated a wide range of strategies that were seen as contributing to their workers' capacity to transfer learning in order to deal with new situations.

In each organisation there was acknowledgement of the importance of developing the worker's ability to manage their own learning effectively. In all cases, the creation of a workplace culture which supports and facilitates learning, encouraged the development of staff as life-long learners. One important finding was that workers developed these skills best in authentic learning settings. The authors also suggest that workers must continuously assess and reflect on what they have learned if maximum benefit is to be gained from the learning process. Participants identified workplace practices which they considered helped them to develop key competencies and transfer their learning to an unfamiliar situation.

**3.3 ASSESSMENT AND REPORTING**

This remains the most contentious area of interest. The project explored how relevant statements of learning outcomes integral to curriculum and industry standards can be used as a general framework to assess and report key competencies. The project found that the development of key competencies is best considered within the context of school syllabus outcomes, vocational education training modules and industry standards. There is strong support for using relevant statements of learning outcomes, which integrate key competencies, to provide a suitable framework for assessing achievement.

The following overview is based on the survey of secondary teachers, agency reports on the mapping of existing practices, field testing reports, research and development work, and meetings with representatives of industry, equity groups and parent organisations.
The report from the Board of Studies project team argues that incorporating key competencies in assessment practices could do much to enhance student achievement of learning outcomes. It also highlights a number of issues which would need to be considered should key competencies be given a more explicit focus in assessment practices. These issues are related to the purpose of key competencies assessment, the validity of various assessment approaches, the focus of current assessment practice, the design of assessment tasks that are inclusive of key competencies and judging key competency performance. Similar issues were identified in the vocational education and training sector.

**Cross-sectoral achievement**

The findings of the project call into question the feasibility of pursuing some of the purposes for key competency assessment proposed by the Mayer Committee. Notions of equivalence when considering achievement across sectors are likely to be difficult to justify and it is unlikely that it will be possible to establish a single standards framework that can be applied across sectors.

At this stage claims about comparability of contexts, transfer of learning, aggregation and equivalence when considering achievement in different sectors ought to be avoided. The focus needs to be on achievement within contexts that clearly recognises what students both know and can do.

**Key competencies as a useful common language**

There is widespread agreement with the view that the key competencies provide a useful common language for describing general attributes valued by teachers, trainers, students, parents and employers. These attributes have been variously described and used in school reports, references, job advertisements and recruitment practices. Reporting that provides additional information based on achievement of the key competencies is broadly supported.

**Standards framework**

Reference to a standards framework is necessary in order to facilitate both formative and summative judgments regarding development of the key competencies. In the school sector a standards framework K-10 is being established around outcome statements that apply to stages of schooling. The recommendations arising from the Review of the Higher School Certificate will influence the assessment context in Years 11-12. In the vocational education and training sector the standards framework is based on the integration of key competencies with appropriate industry standards. Holistic demonstration of the key competencies in a range of contexts has been the focus of assessment considerations.

Teachers have expressed interest in working with key competencies within a continuum of learning that helps to both establish standards and raise expectations. This is preferred to establishing a single benchmark with limited descriptors such as competent/not competent.

**The Role of self assessment**

Self assessment is fundamental to the development of competence and the learning process. To gain cumulative benefits from the learning process the learner needs to be encouraged to ‘reprocess’ his/her experiences, reflect on what he/she has learnt in relevant and meaningful contexts, and consider how effective the learning process has been. In the workplace this approach is essential if
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we are to achieve higher standards, improve quality, and foster creativity and innovation. The project found that most learners are not familiar with techniques used for self assessment.

Avoiding numbers and aggregations

The interest in reporting that is supported by contextually rich evidence of achievement and concerns raised about the misleading use of numbers and aggregations indicate that it would be worthwhile trialing reporting approaches that are descriptive. A reference style of reporting being used by Bradfield College, feedback in project workshops and a number of reporting procedures developed in schools and institutes demonstrate support for descriptive reporting.

Teacher judgments

It would be useful to explore a range of approaches to monitoring teacher judgments about student attainment of the key competencies, particularly if these judgments are to take place within the context of a standards framework. Accepting responsibility for making judgments about student achievement of key competencies within a standards framework may be a way of enhancing the professional role of teachers.

Difficulties experienced with process outcomes

Framing the key competencies holistically and considering them as processes that are integrated with curriculum and training programs, was broadly supported by teachers. Teaching and assessing them in an integrated and holistic way, however, proved difficult for many teachers. It appears that teaching and assessing key competencies as processes conflicts with many existing assessment practices. There was evidence to suggest that this was linked to assessment practices that were heavily influenced by existing Higher School Certificate requirements.

Future research

There are five sources of information that should underpin any future work on assessment and reporting:

- the outcomes of the NSW Higher School Certificate Review, particularly in terms of a standards framework that extends to Year 12 and the relationship between school based assessment and the external examination
- the approaches already being undertaken in a range of settings where generic attributes have been built into assessment regimes and feature in reporting processes
- the experience of field testing in NSW and the evidence that teachers have experienced difficulty when asked to engage with criteria based approaches to assessment
- the work undertaken by the Board of Studies in NSW related to tasks that are geared to assess both subject specific outcomes and key competencies, the possibility of working with achievement maps and the use of key competency descriptor levels
- the outcomes of work undertaken by other projects throughout Australia.
3.4 INCORPORATING KEY COMPETENCIES

A case for more explicit acknowledgement

Having established the potential for key competencies to positively impact on teaching and learning across the sectors there is a strong case for making the key competencies more explicit in syllabus documents, TAFE courses and training programs.

The mapping exercises established that the key competencies are not equally represented in curriculum and training documents. Specific key competencies are represented to different degrees in different Key Learning Areas in the school sector. Similarly, the presence of key competencies in TAFE courses varies according to the nature of the course. This imbalance does not necessarily reflect the intrinsic nature of what is being taught in terms of the relevance of particular courses for the development of key competencies.

The mapping of existing practices across sectors confirmed the significant role curriculum documents play in influencing teaching practice. In each sector where key competencies were more explicit in curriculum documents and training programs there was a higher representation in teaching practice. In addition, where the key competencies are explicit in documents, learner engagement with the key competencies is less dependent on the preferred methodologies of teachers.

Many teachers involved in field testing wanted key competencies incorporated explicitly in curriculum documents generally and learning outcomes specifically. Some went so far as to argue that it was more important for key competencies to be explicit in curriculum documents than in classroom practice.

In the vocational education and training sector where teachers had access to curriculum that explicitly identified key competencies they felt they were more able to incorporate key competencies into their teaching. This was particularly the case where key competencies were an integral part of what was being assessed.

Mapping reports from all sectors argue that it would be beneficial to explicitly acknowledge the presence of key competencies in curriculum documents where they are seen as being integral to the achievement of learning outcomes. If there is to be less emphasis on curriculum in Commonwealth supported training programs, the incorporation of key competencies in both industry standards and assessment guidelines will need to be explicit. Trialing of project resource material in workplace settings indicates that there is strong support for training approaches that explicitly integrate key competencies with authentic learning contexts.

Working with the current definitions

The working definitions have proven to be useful when curriculum developers have explored approaches to incorporating key competencies in curriculum documents. The Board of Studies project team worked with more than 200 teachers to consider the implications of incorporating key competencies for effective teaching and learning. The team found that there was broad support for the view that key competencies could help articulate the core processes of subjects. There was also broad agreement that the key competencies can reinforce cross curriculum perspectives that enhance learning.

TAFE curriculum developers used the working definitions during a series of diploma course review cycles to explicitly incorporate the key competencies. They found the definitions to be a useful ‘tool’ that helped to enrich the curriculum and saw the explicit and systematic incorporation of key competencies as a ‘value adding’ process.
The way forward

As noted in other sections of this report, we can take some direction as to how to proceed with incorporating key competencies in curriculum from: the Board of Studies Mapping Reports; comments in the Eltis Report (1995), the collaborative work between NSW, Victoria and South Australia on incorporating key competencies in vocational curriculum and the Hager Report (1996) Workplace Keys.

The strategies proposed for incorporating key competencies in the vocational education and training sector have also met with strong support. The project team at the Board of Studies has explored a number of strategies for incorporating key competencies at both the macro (curriculum) level and micro (syllabus) level. Work on sample documents indicates that the strategies are appropriate.

If key competencies are incorporated in curriculum and training documents their inclusion in assessment practices used to make judgments about the achievement of outcome statements can be a natural extension.

This general approach to incorporation would see key competencies being explicitly acknowledged in documents and practices as a gradual evolutionary process allied to general improvement in the quality of curriculum, training programs, teaching and learning, and assessment and reporting.

3.5 PROFESSIONAL DEVELOPMENT

Incorporation and integration

Incorporating key competencies in professional development fits comfortably within a range of professional development activities taking place in response to other changes in education and training. Examples include the move toward an outcomes approach to curriculum in the school sector, the use of performance criteria for assessment in the TAFE courses such as the Tertiary Preparation Certificate and the Australian National Training Authority (ANTA) proposal for an Australian Recognition Framework which requires incorporation of key competencies, where relevant, as part of the quality criteria for national competency standards.

If key competencies are incorporated in curriculum documents and training programs the development, assessment and reporting of key competencies can be in terms of relevant learning outcome statements. Key competencies will not become a separate focus for professional development. What will be required is a focus on effective course delivery where any emphasis given to key competencies will be in the context of achieving outcome statements that incorporate key competencies. Professional development in this context would benefit from a co-ordinated approach that operates across sectors.

The project findings suggest that the following areas will require consideration in planning to meet professional development needs:

- the integration of key competencies, where appropriate, in learning outcomes statements
- support material that focuses on the place of key competencies in teaching and learning activities, appropriate assessment strategies and, if applicable, the nature of a standards framework
- the acquisition of underpinning knowledge, skills and understandings (both subject specific and general process improvement).
The role of the teacher

The role of the teacher is crucial in establishing
☐ the context for learning
☐ teaching strategies that underpin the effective engagement with key competencies.

Helping students to develop process skills is a precursor to students becoming independent learners. Nonetheless, the more didactic approach of many teachers can still work in concert with active engagement and student-centred learning experiences in a range of contexts. A key issue is how we can help students to make connections between what they already know and can do, what we expect them to know and do and how this relates to life beyond the classroom. This may require changes to the traditional role of the teacher, but not a reduction in the significance of the role of the teacher.

Lohrey's report (1995) A Report on Transferability in Relation to the Key Competencies indicates that good practice includes modelling what is to be learned. That means doing it and not just talking about it; coaching – guiding students through problems with focused questions and suggestions; scaffolding in the form of support; and ‘fading’, or the gradual withdrawing of support.

The project has demonstrated that there are significant differences between teachers’ espoused views of their ability to help learners develop key competencies and the project findings in relation to current practices. The extent to which teachers engage with activities that help to develop the key competencies depends very much on the nature of the curriculum or training program, the nature of the subject and the teaching methodologies used.

Similarly, a number of training managers indicated that many workplace trainers and supervisors would require opportunities to develop additional skills if required to help develop key competencies. Some teachers and trainers will need resource material that targets specific key competencies in particular contexts.

More exploratory work needs to be undertaken, particularly in the school sector, to consider how various strategies, including generic tools, can be used to simultaneously promote the development of key competencies and encourage high quality teaching and learning that results in the achievement of desired course based learning outcomes. The work of the project, across the sectors, points to the potential benefits of pursuing this approach.

Underpinning knowledge and skills

There was evidence from the project to suggest that teachers and trainers may need to familiarise themselves with a range of strategies that can be used to facilitate active engagement with the key competencies. These strategies, or process improvement tools, were trialed with success in each of the sectors. They include such things as: team role audits, force field analysis, pareto charts, and brainstorming techniques. These are not new but do take on a special significance when configured to particular learning contexts to help with the achievement of learning outcomes and the development of the key competencies.

Professional enhancement

If key competencies are incorporated in learning outcomes statements that are subject to criteria based teacher judgments of achievement there will be a need for substantial, but gradual, professional development. If this takes place as a way of building on current good practice and results in teacher judgments being valued by the community it may lead to an enhancement of the professional status of teachers.
The implications for teacher workload are not clear. Appropriate management will be required to ensure that any further work on key competencies does not adversely impact on the workload of teachers. Trials could be constructed to test the proposition that working with key competencies will, after an initial period of familiarisation, bring about changes that improve the working conditions of teachers and trainers.

**Organisational practices**

The project has evidence to suggest that there are potential benefits in further exploring current organisational practices to establish the extent to which these practices sit comfortably with the literature on learning organisations. The project findings indicate that the key competencies are more evident in workplaces that perceive themselves to be learning organisations and establish practices that are consistent with this perception.

**A professional development package**

It is anticipated that the Interactive Multi-media Professional Development package being developed in South Australia, as part of a separate Commonwealth funded project, will prove to be a quality resource which can underpin structured approaches to professional development. It is also hoped this will be a useful general resource for teachers and trainers wishing to explore any of the issues raised in this report. The resource features a database that has been developed by drawing on examples of project work conducted throughout Australia.

**3.6 EQUITY CONSIDERATIONS**

The project took some direction from the substantial consultations that took place in NSW in response to the proposals of the Mayer Committee. Recommendations in the NSW Access and Equity Report based on these consultations influenced various aspects of the project design and implementation. The consultations indicated that support for the key competencies largely depended on how they were to be defined and implemented. The consultations also indicated that there was support for trialing of a key competency on Cultural Understanding. This key competency was therefore included in the work of the NSW project.

**Project participation**

Participation in the projects by schools, TAFE institutes (including training divisions and equity units) and workplaces was entirely voluntary.

Schools involved in the project tended to reflect the diversity of schools in NSW, with the exception of schools targeting students with special needs who were the subject of a separate project funded by the Commonwealth. Officers of the NSW TAFE Commission drafted a set of Inclusive Curriculum Guidelines which linked the key competencies with a number of access and equity issues. These guidelines were supported in a TAFE sponsored seminar and should prove useful to curriculum developers and teachers. The NSW Board of Studies has released a Statement of Equity Principles as a guide to writers of syllabuses, support materials and assessment guidelines. This statement acknowledges the need to explicitly acknowledge key competencies that are integral to a syllabus.

Three seminars were conducted to allow for a specific equity focus on project issues. The first of these was for the school sector, the second dealt largely with TAFE settings whilst the third had a focus on youth labour market initiatives and young people not involved in formal education,
training or employment. The first two seminars highlighted the need for professional development if key competencies are to impact on equity issues and highlighted the expertise available from existing equity units and programs.

Teaching and learning

Key competencies require a clear sense of purpose and active engagement in the learning process if the student is to demonstrate achievement. Recent research indicates that groups of students who underachieve in education and training are likely to be better motivated by teaching methods which incorporate and develop the key competencies. Typically, this group includes students who simply cannot see the relevance of what is being taught. Teachers engaged in trialing the key competencies tend to agree and regard them as tools that can enhance learning.

The role of the teacher is crucial in determining teaching strategies that align with the needs of the learner. There is a danger in using key competencies to promote more autonomous, reflective learning if the learner has not been adequately prepared. This is particularly important for learners who do not have a history of successful learning, or learners with different expectations of teaching as a result of previous learning experiences in Australia or overseas. Foundation knowledge and skills that configure to the learning context are needed to provide a scaffold that can be gradually withdrawn. The learners who stand to gain the most are the same learners who are likely to be heavily dependent on the teacher for the acquisition of underpinning knowledge, skills and understandings.

The key competencies are:

☑ not likely to be developed where teacher-centred instruction is focused on abstract concepts and principles not located in a wider context.

☑ more likely to be developed by the active engagement of a learner in a contextually relevant process where initiative and reflection on personal progress are encouraged.

There is evidence from the literature to suggest that this assertion may be significant for groups of students who have traditionally fared least well in schooling and training. Grubb (1996) supports this view, arguing that standard, decontextualised approaches to teaching tend to work to the advantage of some groups of students and to the disadvantage of others. Grubb also claims that changing teaching to improve intrinsic motivation is uncommon. Recent evidence by Knapp (1995) suggests that more active, student-centred approaches in which students have greater initiative and which are perceived to be contextually relevant are the most promising ways for the teaching of disadvantaged students. Smyth and Hattam (1996) similarly argue that traditional approaches to teaching and learning fail to identify important features of the discourse which result in a breakdown in communication. In such cases, many students do not understand the cues within 'teacher talk'. Conversely, teachers experience difficulty in hearing cues in 'student talk'.

Curriculum implications

Certain curriculum implications flow from considerations of access and equity. For example, mapping exercises indicate that some learners may not have sufficient opportunities to engage with and develop the full range of key competencies in a range of contexts; this depends on the pattern of study chosen. In the school sector project officers noted that the absence of key competencies did not necessarily reflect the inherent limitations of particular subjects for developing particular key competencies. It appears that if engagement with key competencies is more dependent on teacher choice of methodology than syllabus requirements, then inequities will result.
The importance of syllabus directed learning in the school sector

Some students will engage in a broad range of contextually rich learning experiences, and develop key competencies across this range. This experience will be the result of their engagement with syllabus-directed learning experiences, in extra-curricula activities and as a result of engagement in a range of social activities where key competencies are implicitly embedded. However, many students are likely to be highly dependent on their syllabus-directed learning experiences as the principle means of development of key competencies.

Language, literacy and numeracy

Within some vocational education and training contexts, ideas about key competencies have been confused with ideas about language, literacy and numeracy. Yet, to what extent are the key competencies reliant on being competent in English language? In some situations the competencies may be demonstrated using languages other than English. In other situations the use of English may be integral to establishing competence. It is important to be aware that assessment tasks assess the ability to demonstrate a key competency, and not language per se.

Another assumption (erroneous) holds that issues relating to language, literacy and numeracy have been addressed because key competencies were incorporated into standards or curriculum. Employers and training providers tend to compound this misunderstanding by their reliance on basic skills testing to assess performance of key competencies (with its focus on language, literacy and numeracy).

The key competencies, particularly Collecting, analysing and organising information, Communicating ideas and information and Using mathematical ideas and techniques, can assist with the development of literacy and numeracy across curriculum domains. The literacy emphasis that is likely to be encouraged when working to develop key competencies would feature learners being encouraged to:

☐ respond to information by interpreting it and establishing meaning, considering relevance, evaluating the information, applying it and evaluating its application, and

☐ considering what sort of information is required in order to communicate for particular purposes that have meaning and relevance to the learner, and demonstrating the ability to communicate.

Assessment

Another equity benefit identified during piloting activities was the advantage of developing and assessing student performance against explicit course standards. Such standards can ensure that all students have precise information about curriculum and assessment expectations and what is required of them to achieve success.

Much the same applies to the monitoring of teacher (school sector) judgments of achievement within a standards framework. Monitoring of the application of the standards framework may be necessary to ensure consistency and comparability, and enable the credentialling authority to formally acknowledge achievement. Credibility is likely to be enhanced if the credentialling authority is able to accredit any statement of achievement. In the absence of a standards framework and monitoring, the value of any statement of achievement may be diminished by perceptions about the context in which the achievement occurred, rather than the quality of learning that has taken place.

The assessment approaches identified within the project as supporting holistic judgments on achievement are preferred to more atomistic assessment tasks. There is a need to develop examples
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of practices that are inclusive. Assessment tasks that minimise cultural bias and are contextually relevant to the learner will be needed as many students may not perform to their potential in contexts that are seen to lack relevance or fail to acknowledge special needs. The principle of reasonable adjustment, as it is applied in TAFE, is worthy of broader consideration when assessing learners with special needs.

**Existing expertise**

- Many organisations responsible for enhancing the education, training and employment outcomes for targeted groups of students have expressed interest in key competencies.

  Discussions indicate that any further key competency work would benefit substantially from action research that is underpinned by the findings of the pilot project, and accessing particular knowledge and experience. The latter has been found:

  - within programs such as Disadvantaged Schools Program (DSP); Students At Risk (STAR) and Country Areas Program (CAP)
  - in units responsible for multicultural, Aboriginal, disability/special education perspectives, guidance and student welfare issues
  - in youth programs units, and within specific organisations such as the Aboriginal Education Consultative Group (AECG), Adult Migrant English Service (AMES), Ethnic Affairs Commission, Ethnic Communities Council and Eduquate.

**3.7 CULTURAL UNDERSTANDING AS A KEY COMPETENCY**

The project has given the same status to Cultural understanding as the other key competencies. Feedback in project seminars and consultations indicates that there is support in NSW for more explicit acknowledgement of cultural understanding in curriculum and training. There has, however, been no clear evidence to suggest that this will be best achieved through a key competency. At the national level it has not been possible to gain clear conceptual agreement on Cultural understanding as a key competency.

Two nationally sponsored studies have been undertaken in an attempt to provide direction for people working with Cultural understanding as a key competency. The first of these resulted in a published report, *Cultural Understanding as the Eighth Key Competency* (NLLIA Centre for Workplace Communications and Culture, 1994) which did not produce a succinct descriptor or provide a definitional framework consistent with the other key competencies. This significantly complicated any attempts to reach agreement on the essential features of the competency. Unlike the Finn Report; which suggested the need for young people to develop an understanding of Australian culture through a study of such things as history, geography, politics, global issues and the world of work, the emphasis in this report was on issues to do with multiculturalism and the role of languages other than English.

The second study, undertaken by Rumsey and Hannan (1995), resulted in a definition that placed emphasis on the culture of the workplace with a particular values orientation:

**Using an Understanding of Cultures**

The capacity to apply an understanding of the nature and diversity of ideas, values, knowledge, traditions and practices operating in a particular workplace and influencing the wider contexts in which the enterprise or institution functions.
The NSW project team were of the view that this definition would be better if it did not place emphasis on the workplace context and values. This emphasis was seen as limiting the opportunity to engage with the competency, as a more generic competency, in a range of contexts in preparation for using cultural understanding in further education and training, in social settings and in the workplace. Rather than focusing on a particular context such as the workplace it was seen as useful to develop a more generic descriptor and attempt to illustrate what the key competency might look like when it is applied and assessed in a range of contexts.

Prior to the work of Rumsey and Hannan the NSW project had developed its own working definition in an attempt to align Cultural understanding with the other key competencies. This resulted in the word using being bracketed in the descriptor.

**Using Cultural Understandings**

*The capacity to apply understanding of the diversity and commonality within and between groups, organisations and societies toward the achievement of common goals.*

This involves the ability to:

- identify elements of cultural diversity and cohesion
- recognise Australia's Aboriginal heritage, political, social, economic and cultural traditions
- negotiate the diverse cultures in a group or organisation so as to achieve a common purpose
- identify how individuals and groups are independent on others
- interact with sensitivity, empathy, and tolerance
- demonstrate an appreciation of the rights and responsibilities of individuals, groups and organisations within a local, national and global context
- evaluate the extent of the use made of cultural understanding in a given situation.

The working definition lacked the same process orientation that had characterised the definition of the other key competencies. It proved very difficult to map. A review of the project's working definitions in May 1995 resulted in the number of essential elements being reduced to:

- demonstrate knowledge of cultural cohesion and diversity
- respect the rights and responsibilities of others
- work with others to achieve common goals which reflect equity and social justice.

The definition was argued to have the potential to be inclusive of the skills of citizenship identified by the Civics Expert Group (1995).

**Working with (Using) Cultural understandings as a key competency**

Whilst most project participants have been supportive of the concept of cultural understanding being made more explicit in curriculum documents and education and training practices there have been difficulties in using it as a key competency. In the secondary teacher survey 60 per cent of respondents rated *(Using) Cultural understandings* as important or very important (the top two ratings on a four point scale) to their Key Learning Area. Mapping of the key competencies in the school sector indicated that *(Using) Cultural understandings* is more likely to be present in policy and directional statements than in classroom practice. As a key competency it was noticeably absent from assessment and reporting practices. In the vocational sector its absence was even more evident.
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The project team found that there were conceptual limitations with the working definition. Very few teachers chose to work with this key competency during the field testing stage of the project. No clear picture emerged regarding what the competency might look like when it is applied and assessed in a range of contexts.

The work of Rumsey and Hannan clearly indicated that within the vocational sector there was strong support for placing greater emphasis on the culture of the workplace in education and training. Industry groups viewed this as a way of helping students to become work ready. The field testing research undertaken by Hager et al. (1996) also found strong support for more emphasis being given to the culture of the workplace in education and training.

It needs to be understood that some stakeholders have very strong views on cultural understanding as a key competency, particularly if it is seen as imposing a set of values or requiring compliance to particular attitudes and values.

Discussions within the project team focused on whether cultural understanding might better be addressed as both an integral feature of all key competencies and be identified in the foundation knowledge and skills underpinning each of the competencies. There was strong support in equity seminars for retaining Cultural Understanding as a key competency. However, there were conflicting views regarding what it actually was that people wanted retained.

The current situation

At the July 1996 meeting of the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) Ministers were informed that there was no consensus in either the school or training sectors on the definition or usefulness of this key competency. Ministers were asked to consider whether work should proceed on Cultural understanding as a key competency.

The decision was made not to proceed with any further work on Cultural understanding as a key competency. There was, however, agreement that the work to date on this competency should be analysed to establish points of agreement on the meaning of the term cultural understanding as a precursor to consideration being given to the more fundamental question concerning the place of cultural understanding in curriculum. Joint responsibility for this task rests with the Australian National Training Authority (ANTA) and the Curriculum Corporation.

In addition, the NSW Department of School Education, in collaboration with the University of Sydney and the NSW Board of Studies, has received a research grant from the Australian Research Council to undertake a benchmarking project based on civics and citizenship education. Part of this work will involve identifying the relationship between civics and citizenship education and cultural understandings in school curriculum. Participation in this project is not limited to government schools.
The project management group invited tenders for an external evaluation team to conduct an independent evaluation of the project. The evaluation was consistent with the objectives of the project outlined in the formal agreement with Commonwealth Department of Employment Education Training and Youth Affairs. The evaluation took place during the latter stages of the project and was primarily summative. There was, however, some opportunity to make formative use of the evaluation and address some issues raised in the Evaluation Report. The full text of the evaluation is available in a separate document entitled *NSW Key Competencies Pilot Project Evaluation: Evaluation Report*.

**Evaluation consortium**

The consortium appointed to evaluate the project comprised:

Assoc. Prof. S J Crump, University of Sydney  
Dr K Walker, University of Technology, Sydney  
Ms J Eldridge, Principal, Greystanes High School  
Ms C Currey, NSW TAFE Commission  
Professor K J Eltis, University of Sydney  
Professor J C Walker, University of Western Sydney

**Research Assistants**

Ms S Graves and Ms K Efthimiou

**The Evaluation Approach**

The evaluation followed a multi-method approach in which complementary quantitative and qualitative methods were complementary. The approach sought both depth and breadth of data sources in order to construct, through appropriate participant/document/investigator triangulation, as full a picture as possible. The team sought to ascertain the level of congruence between the intentions of the Pilot and the experience of the participants. It also aimed to provide an evaluation

The evaluation involved four research phases. Throughout the evaluation validation was sought for perceptions of the project and the evaluative tools used.

**Phase 1**  
Configuration of a platform for the evaluation; involving clarification of definitions, establishing a conceptual frame and establishing policy intentions.

**Phase 2**  
Review of the pilot implementation process; requiring an interpretation of the brief, methodology, validation, and reporting.

**Phase 3**  
Carefully designed and selected case studies; requiring agreement on ethics and confidentiality, site visits, interviews with key stakeholders and a survey of participants.

**Phase 4**  
Data analysis included:

- climate of opinion
- constant comparative method
A General Overview of the evaluation report is available in Appendix 3. The following section contains some of the main points extracted from the full Report.

**Findings**

**Implementation process and resourcing**

The piloting of the Key Competency Project was successful in relation to the implementation process and resourcing.

The evaluation team realised early in the review process that it was inevitable that the project should develop as a complex, interactive and fluid research procedure. This was seen by the evaluation team as being superior to a 'grand plan' approach which limits flexibility and sensitivity to the dynamics of the contexts within which the Pilot was located.

The willingness to venture into the unknown – to a degree – through iterative procedures and processes undertaken in NSW was a superior and more effective long-term approach for the Pilot than the following of a tight strategic plan that locked in a Pilot from an early stage. (Page 79)

Some participants in the school sector were initially sceptical about the NSW Pilot due to their experience with National Statements and Profiles. However, most agreed that the Pilot was successful to the extent that the issues were relevant and meaningful to the practice of teachers and learners. This suggested that one of the components of any further work should be a detailed investigation of how key competencies might assist teaching and learning.

The Pilot demonstrated that an 'outcomes approach' to student learning and improvement of teaching stands a good chance of gaining the support of practitioners. This is not surprising given that both research and experience show that one of the sources of most satisfaction to teachers is helping students to achieve their best learning outcomes. This is an area that could profit from further research and field testing.

The positive responses to the field testing arose from the fact that there is a set of pedagogical, curriculum development and assessment problems in educational settings that key competencies are seen to be solving. These 'problems' include student-learner needs as well as professional and institutional needs; perhaps even systemic/sectoral. For example, the nature and purpose of teacher-student interaction, recognition of learner abilities, and assessment that reflects knowledge, skills and understandings for all learners.

...changes reflect something more substantial than a normal workplace expectation that policy initiatives like this 'will not work'. They provide an account of perceptive and informed professional responses to a contemporary policy issue which, in itself, is suggestive of the power of the key competencies. (Page 79)

The Evaluation Team believes that further investigation would be useful to demonstrate the ways in which practitioners can be assisted to instigate key competencies across the curriculum,
especially in secondary schools, where incentives need to be provided for collaboration across faculties or Key Learning Areas. The identification of further examples of good practice would be a useful outcome of this investigation. Both schools and TAFE institutes could benefit from collaboration in the processes of the investigation. This would enable the sectors to identify and test further, by comparison, the contextual circumstances which contribute to the effectiveness of particular teaching, learning, assessment and program development practices. To enable this kind of school/TAFE collaboration it has been necessary to undertake research to identify those teaching, learning and assessment practices which apply in both contexts. (The Evaluation Team recognises that quite separate and different curriculum processes, products and structures prevail in each of the school and TAFE sectors). This collaborative research needs extension in relevant contexts.

The importance of mapping

Mapping the curriculum highlighted issues in curriculum design and development. The audit of syllabus, curriculum and practice in the school sector revealed an identification of key competencies in many Key Learning Areas, but not necessarily an embedding in a broad sense. Teachers tended not to recognise key competencies because they are not explicit even though they may be there in some form. Project Officers considered data from the audit in terms of partial/total and implicit/explicit criteria.

The TAFE audit of the curriculum found that some key competencies were always explicit but many were not; they were more obviously present in the teaching practice of those who took part in the audit of practice. This suggests that there is a need for more work on curriculum design and development strategies. Again, because there are many common problems, a cross-sectoral collaborative approach could be fruitful as long as any work recognised that there are quite separate and different curriculum processes, products and structures in the school and vocational education and training sectors. Part of the research required would be to ascertain whether good curriculum development and design strategies could be applied across sectors. There could also be some cost benefit in such an approach, should it prove feasible.

Educational improvement

The notion of generic skills is controversial but the Pilot has established that key competencies have the potential to be an effective device for educational improvement.

It is the Evaluation Team’s strong view that the high levels of support emerging from the NSW Pilot are based on participants’ definitions of ‘key competencies’ that, while mixed and not always those put forward in the field testing, were ones judged to be preferable to atomistic-behaviourist-reductionist definitions. The lack of a specific research, theoretical and philosophical base for the context of the pilots funded by the Commonwealth implies that there is a lack of intellectual clarity about ‘competencies’. The Board of Studies began the identification of relevant research in 1995 to inform the development of a theoretical base to support a more explicit focus on key competencies and to lead national work. ‘Transferability’ remains an issue which requires further field testing and conceptual work.

Unfortunately, the Mayer Report does not provide a clear illustration of what a competency is, without which it is difficult to address questions of assessment. Issues unresolved at the time of the evaluation are the extent to which competencies are interactive (sets not singular), whether competencies need to be performance-related or whether other (knowledge-based) ‘tests’ might apply, and whether school-level competencies are commensurable with TAFE and industry sites.
More work needs to be done. If we get agreement on definitions, we can then get support. Competencies are essentially part of a pedagogical process combining curriculum, teaching and assessment needs. A further issue for consideration is the extent to which teachers need to work with learners on how they go about developing key competencies and which ones. There is a need for further work on how teachers negotiate these decisions and then work out how to assess what was done.

**Unexamined preconceptions**

The Evaluation Team felt it important to revisit the literature and seek out connections with issues and concerns perceived by the Pilot. In doing so the Team was able to mark a reference point for the evaluation findings as well as make some judgments about the worth, or otherwise, of the responses in order to inform analysis of the Evaluation data.

One marker for our assessment of the worth of early academic responses against the long-term and extensive experience of the NSW Pilot was the efficacy of these predictions. Our impression is that much of the negative reaction to the Mayer Report (and Key Competencies) was based on unreflexive, unexamined preconceptions—often founded on deterministic theories that deny human agency against socio-economic structures and functions. In suggesting that a significant sample of the intellectual response to the educational policy initiatives in the early 1990's got it wrong, we are pointing to a general failure in educational critique to undertake adequate policy analysis and/or to seek a close contact with policy actors. (Page 89)

**Issues of equity, access and social justice**

Equity, access and social justice should be explicitly included in future work on key competencies. This area was explored in the various strands and phases of the Pilot but no clear or conclusive position emerged by the end of the Evaluation. The situation appears to have been that key competencies in both curriculum and practice has not encompassed this dimension of educational provision but that equity-related issues such as the relationship between language, literacy and numeracy learning and learning for the key competencies remain unresolved. Important groundwork is provided in the NSW Access & Equity Issues Report prepared for the Mayer Committee in 1992. The redefinition of the eighth Key Competency through MCEETYA and the ANTA Standards and Curriculum Council will have implications for further work in relation to the achievement of equitable and inclusive curriculum in both the vocational education and training and general education contexts.

**Working through the Eltis and McGaw reports**

Any further work on key competencies must occur in tandem with developments arising from the Eltis and McGaw Reports.

The Evaluation has uncovered concerns about the rate, logic and coherence of education change. Consequently, it is essential that further work on key competencies should be aligned with the implementation of the recommendations of the Eltis Report on curriculum (Focusing on Learning). Similarly, the outcomes of the review of the Higher School Certificate conducted by McGaw will provide clear points of reference for any future implementation of the key competencies. The need for consistency between these three parallel initiatives is strongly stressed. Finally, there should be a firm commitment to continuity of purpose and procedure once decisions are made.
**Further field testing**

The NSW Pilot demonstrated that it is possible to proceed with key competencies, preferably through further field testing.

The Evaluation Team concluded that further work is needed in a variety of curriculum and assessment contexts. Future work will require the design of a development program including curriculum development, teaching methods and assessment practices. Such a program must rest upon a coherent and shared position on learning theory. Furthermore, it is appropriate to consider an integrated approach to the development of key competencies rather than a wholesale plan to reform curriculum in NSW through key competencies.

**A model for future policy initiatives**

The NSW Pilot has the potential to provide an alternative procedure for future educational policy initiatives that could produce far less fragmented outcomes. One of the strengths of the Pilot was the policy-implementation-as-research approach which allowed policy realities to emerge and operate in a way that was less destructive than could have been the case if an attempt had been made to tightly manage and impose the Pilot. Teachers became a central part of the Pilot rather than a peripheral influence.

*Much of the literature we reviewed failed to predict that this could occur, and failed to recognise the way in which this could ameliorate the worst possibilities (instrumentalism, reductionism, behaviourism) of a key competency based programme.*

*(Page 90)*
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5.1 THE APPROACH TAKEN

The project established the nature of the presence of key competencies in existing practices by investigating: Board of Studies documents, school policies and programs, teaching approaches, assessment tasks and school reporting procedures. This involved a teacher survey, analysis of a range of documents by project officers and teacher interviews.

Field testing took place in two stages. The first stage was based on teachers exploring a range of project issues by incorporating the key competencies in the implementation of a unit of work. This was done with the assistance of project officers working in each of the school agencies: government, Catholic systemic and independent. The second stage of field testing was undertaken by project officers at the Board of Studies and largely focused on a number of approaches to assessment and reporting on key competencies. The approach is summarised in Figure 4 below.

As well as exploring particular questions and issues, the field testing provided additional information about the presence of key competencies in existing practices.

Figure 4

Approach Summary

- Developing Working Definitions
- Mapping the Mandatory Curriculum
- Mapping Senior Curriculum
- Key Questions to Underpin Field Testing
- Field Testing by Board of Studies
- Teacher Perception Survey
- Mapping School Based Practice Years 7 - 10
- Mapping School Based Practices Years 11 - 12
- Agency Based Field Testing
5.1.1 MAPPING
Curriculum Documents

The Office of the Board of Studies mapped NSW school curriculum documents for the presence of the key competencies. It was anticipated that there would be few explicit references to key competencies in existing curriculum documents. The purpose of the mapping was to identify the manner and extent of key competency representation in Board of Studies curriculum documents.

The main focus of the mapping was to record whether key competencies were explicitly acknowledged and if so, how and where in the documents. Project officers mapped all mandatory curriculum documents.

Three descriptors were used to record the presence of key competencies in documents.

- **Embedded** – the key competency is represented as a whole in the mandatory sections of the document.
- **Significant** – the key competency is represented but not in such a way as to ensure students would definitely be given the opportunity to develop the key competency within the context of the course.
- **Minimal** – it would be possible for students to study the course without being given any opportunity to develop the key competency within the context of the course.

School Practices

In the second phase of mapping, the Key Competencies Pilot Project reviewed existing teaching practices for the presence of the key competencies. The mapping of existing practice was designed to provide an impression of the nature of the presence of the key competencies. Three approaches were chosen:

- a survey of teachers’ perceptions of key competencies
- analysis of school documents by project officers
- a ‘snapshot’ of teaching practice based on semi-structured interviews involving teachers and project officers.

Teacher perception survey

The survey instrument was adapted from a similar survey which had been used by the Australian Christian Schools. The questions used in the survey are available in Appendix 4. A report on the survey responses is available from the NSW Board of Studies. The survey provided teachers with an overview of key competencies and a definition for each key competency. It asked teachers to indicate how important they thought the key competencies were for:

- the key learning area being taught
- teacher skill, planning and teaching practice
- assessment and reporting.

Analysis of school documents

School documents were analysed by project officers. They reviewed:

- school directional and policy documents
- documents relating to co-curricular frameworks and practices
- school assessment policy and reporting documents.
The Schools Sector

A ‘snapshot’ of teaching practice

This was the most challenging part of the mapping exercise. The project designers felt that it was important to get an impression of the extent to which the key competencies are present in day to day teaching practice. They negotiated with teachers, asking them to keep a record of their teaching, assessment and reporting practice based on a unit of work implemented over a one week period without otherwise altering their practice. Teaching programs underpinning the unit of work were also mapped. Each teacher was then interviewed by project officers.

Prior to the interview, the teacher was provided with information about the process. This included a pro-forma log to record information about the lessons taught. The pro-forma lent structure to the interviews, which usually lasted 30 – 40 minutes. In addition, the teacher was requested to provide any relevant materials they had prepared.

Project officers probed for more information whenever there was an indication that the students were engaging in an activity that may facilitate the development of key competencies. Finally, each teacher was invited to comment on the interview process. The project officers then used a common framework to make judgments about the presence of each key competency. Reports were prepared for each subject. The reports amounted to a ‘snapshot’ of teaching, assessment and reporting practice.

A trial of the snapshot process

The Management Group decided that it was best to trial the methods which had been developed to assist the mapping of existing practice before implementing them on a large scale. The trial was endorsed by senior officers from the two NSW teacher unions. The process was trialed in nine schools. By means of the trial, the Management Group intended to:

- field-test the tools of the methodology for their suitability, user (teacher and project officer) friendliness and the levels of resourcing required
- preview the nature of the data generated by the methodology.

A ‘buddy’ system involving project officers working in pairs was a vital feature of the trial. This usually meant teaming project officers from the Board of Studies with those working for school agencies. ‘Buddying’ was particularly useful when meetings were held to discuss how to determine whether key competencies were present in a course.

At a further meeting with senior union officers the trial outcomes were reviewed prior to wide implementation. The evaluation of the trial indicated that the methodology was appropriate. Many teachers spoke positively about the experience, to the effect that it was professionally rewarding and provided an opportunity for them to reflect on their teaching practice.

Orientation

Following the trial a meeting was held to ensure that at least one representative of each participating school was familiar with how the review of existing practice would occur. This project orientation meeting included personnel representing each participating school, members of the management group and project officers. The hope was that each school representative would not only raise any concerns about the mapping process but also provide feedback to the teachers at their school who would be participating in this phase of the project. During the meeting there was a discussion about the process and outcomes of the trial. Teachers from schools that had participated in the trial reported favourably on the process.
The scale of the mapping exercise

The mapping took place in two stages; the first stage involved 51 schools. The focus in the first phase was school documents and teaching, assessing and reporting practices in Years 7-10. It was during this phase that the survey was distributed. Project officers interviewed 374 teachers. Details relating to the number of subjects mapped across the Years 7-10 are available in Appendix 5.

The senior years of schooling was the focus of the second phase of the mapping. This took place in 46 schools and involved interviews with 348 teachers. Details of the number of subjects mapped across the Key Learning Areas are available in Appendix 6.

Describing the presence of key competencies

A two dimensional framework for describing the degree to which a key competency is present in a course was agreed to at a project officer debriefing following the trial. Key competencies were recorded as being partially or totally present.

<table>
<thead>
<tr>
<th>Partially Present</th>
<th>Totally Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>- if some elements are able to be identified, described and recorded.</td>
<td>- if each of the elements of the key competency is present.</td>
</tr>
</tbody>
</table>

Further, it was agreed that the presence of a key competence may be explicit or implicit. For school document mapping a key competency was:

- explicitly present when the key competency is stated in detail with nothing left out
- implicitly present when there is evidence to show the competency can be inferred from the course.

For teaching practice an element of a key competency was:

- explicitly present when it is specifically acknowledged in the learning process (by the teacher and/or student).
- implicitly present when it is not specifically acknowledged but evidence can be cited to substantiate the claim that it is inferred.

The essential elements statements from the Working Definitions (which incorporates the dot points) formed the basis for project officers' estimations about the presence of key competencies.

Synthesising data to establish a cross-agency impression

Each of the three school agencies, Department of School Education, Catholic Education Commission and the Association of Independent Schools, undertook to produce agency reports on the presence of the key competencies. Using a consistent pro-forma based approach, an agency report was produced for each Years 7 - 10 subject included in the mapping. Each agency contributed to a descriptive overview of the nature of the presence of the key competencies in the school sector based on the evidence from the mapping process. They also undertook to graphically depict the presence of key competencies based on the descriptors indicated in Table 1.
The Schools Sector

Table 1

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong</td>
<td>All or most of the key competency present in most of the examples</td>
</tr>
<tr>
<td>Significant</td>
<td>All or most of the key competency present in approximately half the examples, or some of the key competency present in most of the examples</td>
</tr>
<tr>
<td>Minimal</td>
<td>The key competency was absent in more than half the examples</td>
</tr>
<tr>
<td>Absent</td>
<td>The key competency was absent in all, or almost all, examples</td>
</tr>
</tbody>
</table>

A matrix was constructed with subjects listed on the vertical axis and each of the key competencies represented on the horizontal axis, grouped under the headings 'Programs', 'Teaching Practice', 'Assessment' and 'Reporting'. Each agency graphically depicted the presence of competencies for schools. The need to relate the descriptors to what was being mapped meant that the descriptors used by agencies differed from those used by the Board of Studies. A team with a representative from each agency then went through a similar process to graph the presence of the key competencies for the school sector as a whole.

It was acknowledged that this graphic representation is reductionist and presents only part of the full picture. Nonetheless, it did provide the project team with an impression of the extent of key competencies in existing practices. In addition, the graphic depiction of the presence of key competencies is supported by the descriptive data gathered during the interviews.

The graphic below, Figure 5, illustrates how the data were analysed and depicts Collecting, analysing and organising information as being strongly present, Working with others and in teams as significantly present and Planning and organising activities as minimally present in Subject X.

Figure 5

Teaching Practice

<table>
<thead>
<tr>
<th>Subject</th>
<th>KC1</th>
<th>KC2</th>
<th>KC3</th>
<th>KC4</th>
<th>KC5</th>
<th>KC6</th>
<th>KC7</th>
<th>KC8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Where:
KC1 - Collecting, analysing and organising information
KC2 - Communicating ideas and information
KC3 - Planning and organising activities
KC4 - Working with others and in teams
KC5 - Using mathematical ideas and techniques
KC6 - Solving problems
KC7 - Using technology
KC8 - (Using) Cultural understanding
For Years 11 - 12 each agency prepared a descriptive report and an overview of the major findings. A number of project officer debriefings were held to discuss the findings. The project manager, in consultation with the project officers, prepared a synthesis of the findings and used agency reports to prepare a descriptive overview for Years 11 – 12.

5.1.2 FIELD TESTING

There were two phases of field testing in the school sector:

- Phase 1 involved approximately 130 teachers and focused on the trialing of teacher developed units of work. This phase was largely the responsibility of project officers from the Department of School Education, the Catholic Education Commission and the Association of Independent Schools.

- Phase 2 was initiated by the Board of Studies and focused on assessment and reporting.

Further information on the two phases is provided below.

Phase 1

Based on the findings of the mapping exercise the project officers agreed on the following set of assumptions to underpin the first phase of the field testing.

Assumptions underpinning field testing

Competence is the ability to simultaneously apply knowledge, skills and understandings in given contexts.

A key competency is made up of elements.

Competence is determined through the contextualised holistic demonstration of a particular key competency.

A student is deemed to be competent when the key competency can be demonstrated in a range of contexts.

The school disciplines provide a framework of knowledge and conceptual understanding in which to practise the skill and processes of the key competencies.

Skills and processes are generalised in relation to ever increasing complexity of knowledge and conceptual understanding.
Methodology

The teachers agreed to implement a unit of work focusing on relevant key competencies. As shown below, key questions underpinning the field testing were identified.

**Key questions underpinning field testing**

Can relevant statements on learning outcomes provide an appropriate framework for reporting on student achievement of the key competencies?

Are the current definitions of the key competencies framed in a way that is useful to teachers?

How useful are the standards frameworks in assisting teachers to identify and record student achievement?

Are some strategies more appropriate than others for assessing student achievement of key competencies?

Is it possible to identify particular practices that are likely to assist students with their development of key competencies?

What kind of professional development is needed to support the teaching, assessment and reporting of key competencies?

To what extent are key competencies transferable from one context to another?

The majority of the teachers attended a two day induction work-shop to help prepare for field testing. Teachers were grouped according to interest expressed in working with particular project concerns: current practices regarding teachers' judgment of student performance; the use of a range of standards frameworks; and the exploration of appropriate teaching methods. Teachers were also provided with a list of questions more directly related to the teacher grouping.
This resulted in the four distinctive groupings shown below:

<table>
<thead>
<tr>
<th>Teacher Grouping</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teacher Judgment Framework</td>
<td>documenting the criteria teachers use to make judgments about competence</td>
</tr>
<tr>
<td>2a. Stages Framework (Vertical)</td>
<td>using a stages-based standards framework to assist judgments about student achievement of the key competencies at various stages of schooling</td>
</tr>
<tr>
<td>2b. Stages Framework (Horizontal)</td>
<td>using a stages-based standards framework to assist judgments about student achievement of the key competencies by a group of students across a particular year of schooling</td>
</tr>
<tr>
<td>3a. ASF/Mayer levels (Vertical)</td>
<td>using a five levels standards framework, derived from ASF/Mayer levels, to assist judgments made about achievement at various stages of schooling</td>
</tr>
<tr>
<td>3b. ASF/Mayer levels (Horizontal)</td>
<td>teachers using a five levels standards framework, derived from ASF/Mayer levels, to assist judgments made about achievement of a group of Year 10 students</td>
</tr>
<tr>
<td>4. Teaching Practice</td>
<td>testing a selection of propositions related to better teaching practices - additional standards framework based on a set of general descriptors of performance in five levels was also included for field testing by this group of teachers</td>
</tr>
</tbody>
</table>

Project officers were assigned to each of the above groups to provide ongoing support during field testing, facilitate debriefing and prepare written reports. Participants were provided with an optional teacher's journal to assist with data gathering. Project officers agreed to a common reporting format, held debriefings with participating teachers and examined relevant materials.

Project officers also attended project team meetings to focus on what was emerging from meetings with teachers. A major debriefing conference was held. This involved a broad cross-section of teachers who participated in the field testing and provided an opportunity to share experiences, highlight successes, respond to findings emerging from the field testing and workshop significant issues.

Each school agency produced a field testing report. Not all key competencies were field tested to the same degree. One agency prescribed trialing of key competencies on the basis of the mapping of curriculum documents, others relied on teacher preference. In order to overcome this limitation some key competencies were targeted for further field testing, conducted by the Board of Studies (see Phase 2, page 50).

Given the proviso about time restrictions, teachers supported the concept of their involvement in investigative processes of this kind. However, a two day intensive orientation was inadequate support for teachers, particularly when challenged to rethink their approach to teaching. This
deficiency was particularly evident in assessment procedures and judging student performance. It should be noted that many participants expressed a strong interest in continuing the study beyond the original time frame. Follow-up discussions attested to their enthusiasm, revealing that many continued their investigation independently.

**Phase 2**

Board of Studies project officers conducted further field testing with a focus on assessment and reporting. The field testing questions were:

- What are the implications for assessment of a more explicit focus on key competencies in curriculum outcomes and pedagogy?
- What is the continuum of development of the key competencies?
- Is it possible to describe this continuum in levels which can be easily integrated into current reporting practice and provide useful information for all stakeholders?

The field testing involved a range of different activities involving more than 200 teachers. In some instances a field testing activity was initiated by the project team and in others the activity grew out of an initiative already developed by a teacher or school.

- Field testing occurred in three areas:
  - Exploring approaches to teaching, learning and assessment that support key competencies in a way which will improve student achievement of subject outcomes.
  - Trialring of common assessment tasks related to *Collecting, analysing and organising information* with Year 11 students. This included the development of an achievement map for key competency assessment.
  - Exploring approaches to descriptive reporting of key competencies.

An overview of the field testing in each of these areas follows.

**Approaches to teaching, learning and assessment that support key competencies in a way which will improve student achievement of subject outcomes.**

This phase of the field testing involved working with teachers in workshops, school case studies and focus groups.

**Workshops**

Workshops involved project officers facilitating a process to explore teacher perceptions of the implications for assessment of a more explicit focus on key competencies in syllabuses. Teachers were required to undertake a number of tasks associated with: the identification of key competencies in syllabus documents, integration in outcomes statements, the design of appropriate assessment tasks, the use of performance descriptors to report on levels of achievement and consideration of sample reporting formats.

**Classroom based case studies**

Project officers coordinated case studies in two project schools. The focus of both case studies was to model learning experiences that enable students to make connections between subject specific knowledge and the general skills required to put that knowledge to work by applying it in a relevant context.
The teachers were also asked to define the criteria they would use to assess whether students had achieved the learning outcomes related to key competencies, to discuss what evidence they would use to determine if students had met the criteria and to reflect on the differences between student performance and what would be required to improve performance – i.e. what is the continuum of development of key competencies?

**Senior project focus groups**

The project team conducted a series of teacher focus groups to explore key competency assessment through senior projects that are currently part of Higher School Certificate assessment. The projects used were those from Geography, Design and Technology, Mathematics in Practice, Science for Life and Drama. Each focus group contained four to seven teachers from different schools. Using syllabuses, assessment manuals and sample material from their current practice, the teachers reviewed the tasks with a view to more explicitly integrating key competencies in documentation, teaching and learning activities, assessment and reporting.

**Trialing of common assessment tasks for Collecting, analysing and organising information**

This key competency was selected for the trialing as it was a key competency identified by the mapping as present throughout the mandatory syllabus and it is a core process in most Year 11 syllabuses. During this phase of field testing a package of tasks for assessing Collecting, analysing and organising information was trialed with 800 Year 11 students from seven project schools. The package consisted of:

- Tasks 1 and 2 – two short, non-subject specific tasks undertaken under test conditions. These tasks were designed by Board assessment specialists in collaboration with the project team and were completed by approximately 800 students.

  plus

- Task 3 – an independent research task undertaken by students over a three week period. The task was completed by approximately 400 students in eleven courses from English, Science and Human Society and its Environment (HSIE). In each course, the task was configured to the subject context using a generic format and was assessed using common criteria. Teachers and project officers worked together on both the design and marking of the tasks.

Throughout the trialing both the process and the results were documented. Analysis of the data focused on the implications of key competencies for task design and marking practices and the identification of work samples to illustrate the continuum of development of the key competency as reflected in the Board’s sample performance descriptors.

**Piloting the development of an achievement map for key competency assessment**

Officers from the Board of Studies Assessment Branch trialed the use of Item Response Modelling to construct an achievement map describing key competency achievement on a continuum of development. Collecting, analysing and organising information was used to trial the model. The process used to develop the achievement map is outlined below.
Process for development of an achievement map

Collection of data from items identified in the 1995 Reference Tests as assessing elements of Collecting, analysing and organising information.

Construction of additional tasks designed specifically to assess the competency.

Administration of the tasks to a sample representative of the Year 11 cohort (approximately 800 students from seven schools).

Marking of the tasks by teachers.

Analysis of combined data from the tasks and the Reference Tests by experts at the University of NSW.

Representation of the results for each item on a continuum.

Establishing cut off points for performance levels.

Developing a statement for each level describing what success on the items within each level indicates about the degree of attainment of the key competency.

Exploring approaches to descriptive reporting of key competencies

This phase of field testing involved:

Comment banks

The project team trialed reporting models using unlevelled individualised descriptions of student performance. Teachers from eight project schools worked with three comment bank models in small cross-faculty groups to generate descriptions of student achievement.

General descriptors

Project officers developed and trialed a set of general descriptors in five levels to provide a frame of reference for decisions about the performance of an individual student in each key competency. Constructing the descriptors was an iterative process informed by emerging findings from project research, particularly in relation to the nature of competent performance. This had two consequences for the design of the descriptors. Firstly, the competency needed to be addressed holistically at each level and secondly the continuum of development from level one to five needed to be characterised by growth in the complexity of tasks and by the degree of metacognitive awareness and autonomy of the student.

To exemplify this point, the set of descriptors for Collecting, analysing and organising information is presented opposite in Figure 6.
### Descriptors for the key competency Collecting, analysing and organising information

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>With guidance gathers, sorts and evaluates simple information from a variety of sources.</td>
</tr>
<tr>
<td>Level 2</td>
<td>Frames questions, identifies sources of information, locates, organises and evaluates information.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Refines questions to systematically identify sources, locate and organise and evaluate information.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Independently extracts, organises and evaluates complex data from a range of sources for specific purposes.</td>
</tr>
<tr>
<td>Level 5</td>
<td>Identifies plans and conducts research, critically evaluates methods and findings.</td>
</tr>
</tbody>
</table>

An essential aspect of these descriptors is that they do not refer to any context in particular but are designed to be applied in whatever subject is being taught. Furthermore, the standard represented by each level will only have meaning when attached to samples of student work.

The trialing of these descriptors was incorporated into all of the Board’s assessment and reporting field testing activities. The focus in the trialing was to explore with teachers the validity of the continuum of development reflected in the descriptors and way they would interpret the level statements within the context of their subject.

**Case studies: Incorporating key competencies in school based reporting**

Case studies were conducted in two project schools engaged in a long-term process of incorporating key competencies into their formal school reporting. The two schools were of a very different nature – one a large, multicultural comprehensive boys’ school and the other a Year 11-12 college with a mixed population of 15-19 year olds and mature age students and with strong links to industry and training.

The two schools documented their progress and at different points in the process met with Board officers to reflect on their experience. These reflections included providing feedback on:

- the school’s current reporting practices and the reasons for change
- the process involved in implementing a whole school-approach to key competency incorporation into reporting
- staff, student, parent and employer involvement
- implications for teacher professional development
- dealing with teacher work-load issues
- implications for teaching programs and practice
- the design of reports.
Trialing sample report formats

Board project officers used the findings emerging from the project to develop a number of sample formats for reporting on key competency attainment. The samples were developed to provide a focus for discussions with teachers and employers about the full range of issues related to reporting. As with the performance descriptors (in Figure 6) these reports were not trialed separately but were integrated into a wide range of field testing and consultation activities throughout the project.

5.2 FINDINGS AND DISCUSSION

5.2.1 THE PRESENCE OF KEY COMPETENCIES IN EXISTING PRACTICES

Curriculum Documents

The mapping exercise was broadly useful in that it highlighted a number of issues of importance to curriculum designers and developers, including consistency in adherence to guidelines.

The mapping of both K-10 and senior courses indicated that key competencies can play an important role in assisting students to become more effective learners. Any imbalance in their representation has more to do with how explicitly curriculum documents refer to them than with whether some subjects are ‘better’ than others at developing the key competencies.

Key competencies in the mandatory curriculum

All available documents related to the K-10 mandatory curriculum were mapped including syllabuses, support documents and course performance descriptors. The mapping indicated that the representation of key competencies is not consistent across the mandatory curriculum as a whole, nor is it consistent across curriculum documents in a particular subject.

Two key competencies Collecting, analysing and organising information and Communicating ideas and information are more fully represented than the others. The other key competencies tend to be less explicitly addressed and are more likely to be represented in syllabuses as processes that are dependent on teaching methodology than syllabus prescription eg Planning and organising activities, Working with others and in teams and Solving problems.

Key competencies have a greater explicit representation in curriculum for Mathematics, Science, Design And Technology and Visual Arts than in English, HSIE, Personal Development/Health/Physical Education (PDHPE), Music and Languages Other Than English (LOTE).

Appendix 7, Table 1 provides a graphic overview of the presence of key competencies in the mandatory curriculum.

Key competencies in the senior curriculum

In the senior curriculum thirty general courses and five dual accredited vocational courses were mapped. The mapping indicated that the key competencies are present in the senior curriculum when taken as a whole. However, they are not equally represented nor do the Key Learning Areas reflect similar degrees of key competency representation. In addition, there is not necessarily consistency within individual Key Learning Areas, with the degree of representation varying according to the nature of individual courses. The range of opportunities for students to engage with all the key competencies would be affected by an individual’s pattern of study.

Table 2, Appendix 8 indicates the relative degree of representation of key competencies in the senior general courses mapped.

In the general courses mapped Collecting, analysing and organising information and
Communicating ideas and information are more fully present than are the other key competencies. Planning and organising activities is the competency least represented.

All the vocational syllabuses mapped provide a range of workplace contexts in which key competencies can be developed and demonstrated. Using technology and Communicating ideas and information are the most consistently represented whereas Collecting, analysing and organising information is the least represented.

The mapping of senior curriculum clearly showed courses are more likely to contain assessment activities which focus on key competencies when they prescribe assessment in terms of knowledge and skills objectives rather than broad content areas. In this regard, the individual student projects that feature in a number of senior courses in the Mathematics, Science, HSIE, TAS and Creative Arts Key Learning Areas appear to provide valuable opportunities for students to develop and demonstrate a range of key competencies in a complex task over a sustained period.

**School Practices**

The mapping of existing practices indicated that, depending on the pattern of study chosen, learners may miss opportunities to encounter and develop all of the key competencies. Nor will they always be able to practise the key competencies in a range of contexts. In addition, there is a potential for inequity where the syllabus does not specify that students must engage with the key competencies.

**Teacher perception survey**

The majority of teachers who responded to the teacher perception survey indicated that they believed that most of the key competencies were important to their Key Learning Area. However, the mapping of existing practices did not reflect teachers' perceptions. The key competencies were less present in practice than the survey responses indicated they would be.

**In years 7-10**

Key competencies have a stronger presence in syllabus curriculum documents than in school practices. Where a key competency is present in teaching practice it is common to find an equal or greater presence in the corresponding syllabus document.

There is not a balanced presence of the key competencies across the areas mapped (ie. programs, teaching practice, assessment and reporting). Most key competencies are not strongly represented in school based directional and policy statements. There is a stronger presence of key competencies in teaching practice than in teaching programs. Key competencies are mostly absent in assessment and reporting practices.

**In years 11-12**

On balance, the key competencies were less present in Years 11 and 12 than in years 7 – 10. The key competencies were more evident in classroom teaching than in teaching programs and assessment. Key competencies were almost always absent from reporting.

Two key competencies, Communicating ideas and information and Collecting, analysing and organising information were mapped as present in teaching practice across the Key Learning Areas. These key competencies were significantly present in assessment practices while others were only minimally present. Sustained project oriented assessment tasks tend to encourage engagement with the key competencies.

In addition, Higher School Certificate assessment tasks that mirror external examination tasks tend to exclude many of the key competencies and, in some cases, dictate approaches to teaching and learning that do not encourage engagement with a range of key competencies. The demands of
the Higher School Certificate place an emphasis on covering syllabus content and competitive assessment by ranking.

5.2.2 TEACHING AND LEARNING

Project officers were able to gain insights to teaching and learning from the field testing and from detailed interviews with more than 700 teachers during the mapping of existing practices.

**Teaching practices**

Debriefings and evaluations showed that there is a widespread view that the key competencies can be integral to good teaching and learning practice. There was strong support for key competencies in terms of their potential to benefit students by both facilitating articulation between school and work and improving classroom teaching and learning. Much has been learnt about context based implementation from the work of teachers. For example, the sort of processes engaged with when working with a particular competency and the nature of the knowledge and skills that underpin the processes. However, adopting pedagogy that actively engages the learner with key competencies, as processes, is likely to challenge some teacher and learner perceptions about the role of both in the teaching/learning process.

It was evident that secondary teaching practice is strongly focused on content, with an emphasis on recall of content knowledge and patterns of presentation. During the first phase -of field testing most teachers taught the unit of work using teaching methods familiar to them. It was not common for an explicit connection to be made between the nature of the learning experience and the desired outcomes. In the senior years there was strong evidence that external examinations dominated the learning experience.

It was very difficult for teachers to distance themselves from normative assessment processes when attempting to use criteria for judging student achievement of development of the key competencies. This contrasted with the experience of the small number of K-6 teachers involved in the project. These teachers found that it was easy for them to work with key competencies. The key competencies were seen as being integral to existing practices.

**Implementing key competencies for the first time**

The field testing was successful in identifying particular problems associated with implementing key competencies for the first time. Another feature identified in the mapping exercise was that teaching practice did not always reflect the process outlined in the description of the competency. On the other hand, particular strategies were selected, often targeting a particular element of the competency.

It was evident that the time limit on the field testing restricted the extent to which teachers were able to conceptualise working with key competencies. Although some did manage to achieve an holistic approach, many teachers found it hard to adjust their practice to accommodate an holistic approach to the competencies. Teachers were aware this had occurred. Many expressed concerns about the value of short time frames for trialing processes that determine changes in student learning outcomes. The duration of such processes needs to be adequate for meaningful investigation and evaluation to occur.

**A sense of purpose**

Students valued learning experiences that allowed them to develop skills which were clearly seen as being useful outside of an academic environment. Any explicit connection between the classroom and the world of work was a highly motivating factor for students across all years of
secondary school. A number of students noted the value of monitoring their own learning and an increased sense of direction and purpose in their schooling. Alternately, a small number of students felt that they were already competent and that the real, important purpose of schooling was studies. They perceived their studies to be separate from developing competencies which they could apply outside of school.

In a case where teachers and students were prepared for the change together there was clear evidence of a strong learning partnership developing with more open discourse between teachers and learners. It provided learners with more opportunities to share and reflect on their learning and to gain regular and constructive feedback.

The research had a marked impact on student learning outcomes. Many student interviews, and data collected in student journals, provided evidence of an increase in motivation to learn.

**The importance of being explicit**

Teachers believe that it is easier to work with key competencies if they are explicitly acknowledged in syllabus and curriculum documents.

There was evidence to suggest that care will need to be taken when attempting to make key competencies explicit in classroom practice. If being explicit relies on teachers frequently naming and drawing attention to the key competencies this is likely to be a source of frustration to both the teacher and the learner. However, where explicitness means developing an awareness of purpose and process the students are likely to be more actively engaged in the learning process.

Some teachers felt that it was more important that the teacher be explicitly aware of the key competencies than the learners. These teachers believed that if the key competencies were integrated with syllabus outcomes then they would be developed implicitly in existing practices. To some extent, this was indeed the case.

**The crucial link between learning and assessment**

Assessment tasks and external examinations have been found to have a significant impact on what students learn and what they value in the curriculum. Students tend to value what is assessed formally. It is therefore important that assessment should match with intended learning outcomes and the method of assessment should mirror the teaching and learning process. In some subjects, assessment practices impact on the teaching and learning in such a way as to limit the potential to develop the key competencies.

The key competencies are more likely to be developed where learning outcomes integrate with key competencies and assessment strategies are derived from teaching and learning activities designed to achieve these outcomes.

**Case Studies**

Both the field testing and the literature suggest that the key competencies may not be easily developed in a learning environment where the emphasis is on a sequential linear progressive view of learning.

This view of learning typically assumes there is a body of knowledge to be learnt in a given period of time. At predetermined times students are tested to establish how much they have learnt. Some idea of value added is indicated by the difference between what is known at Time 1 and what is known at Time 2. This view of learning also underpins a number of institutional structures and practices. The following case examples indicate this view of learning is very different to that experienced by many of the project participants.
Case 1

This case study arose from an initiative related to teaching information skills. The case study involved a comprehensive Year 6 class and a group of Year 10 peer tutors but the approach could be applied at any stage and with any subject context. At the time of the case study the Year 6 class was working on an integrated unit on advertising. One of the requirements of the unit was to find out how advertising works by investigating one aspect in depth. The case study demonstrates how a learning experience can be structured so that students increase their knowledge of the topic and at the same time engage in a practical experience that helps them learn more about the key competencies.

It was decided to test the proposition that students are more likely to see how general skills can be used as tools to acquire knowledge if the learning experience focused on one key competency central to the task, in this case Collecting, analysing and organising information. The desired outcomes, therefore, were both subject specific (ie to know more about advertising) and related to key competencies (ie to apply the information skills process).

To achieve these outcomes the learning experience was designed to combine teacher directed learning with student centred experiential learning. The learning was structured so that students:

- received explicit explanation of the information process from the teacher librarian
- applied the process holistically through an independent investigation
- practised specific skills related to each step in the process (eg using indexes, compiling bibliographies, accessing the library terminal)
- worked co-operatively in a team to enhance their learning - the Year 10 peer tutors helped “get them on the way” and gradually withdrew as students took control of their learning
- made a short presentation to the class to show what they had researched, how they had gone about it and what they had learnt
- reflected on the process both by informal chats with the teacher during the process and through more formal oral and written evaluation.

Evaluation pointed to how much the students enjoyed the learning experience. They were all able to make very perceptive comments about how they would do it better “next time” and to demonstrate increased awareness of the research process. They were particularly insightful about the need to clarify their purpose and how failure to do this could present them with difficulties.

The teacher reflected that the experience had made her rethink her expectations of the students and she was particularly pleased at how all students were able to become actively involved in the same process and apply that process at a level of complexity with which they could cope.
Case 2

In a small country school a Year 11 English teacher decided to explore the use of key competencies with a very demanding section of the syllabus. This was a particularly challenging class with several students who saw little relevance in their school work, some who had emotional problems and others who were itinerants. They were not a cohesive group at this point. Engaging with the competencies proved to be difficult, both the teacher and the students were challenged to reflect on their role (and each other’s role) in the teaching/learning process. Frustration, uncertainty and insecurity resulted in discussions that focused on what was being learnt, why it was being learnt and how learning was to proceed. The teacher and the students entered into an iterative process.

Working with the key competencies significantly altered the dynamics of the classroom. The teacher and the students were continually challenged to reflect on the progress being made and use this information to underpin the next course of action. The students were more actively engaged in the learning process and were beginning to assume more responsibility for their own learning. At times risks were being taken and an atmosphere of trust was gradually emerging. There was an explicit focus on Planning and organising activities and Collecting, analysing and organising information.

The teacher mapped her perception of the progress made by the class against her expectations (see Figure ). Each point that was graphed represented a particular issue or critical moment in the implementation of the trial. The results surpassed her expectations. In the end of year assessments the students wrote far better essays for English than for their other subjects. The class went into Year 12 as a cohesive group with a good understanding of their own learning needs and an appreciation of different learning styles.

It is interesting to note that had a summative assessment taken place at particular times during the process the outcome would probably have resulted in the teacher resorting to a more traditional approach.

Figure 7

<table>
<thead>
<tr>
<th>Effective learning</th>
<th>Teacher expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td></td>
</tr>
</tbody>
</table>

Low Points: Key Competencies vs HSC requirements, conceptual confusion, uncertainty, risk taking, concern about assessment.

High points: Enthusiasm for something new, sharing a problem, shared understanding, negotiated progress, greater relevance, reflection, achievement, satisfaction.
Case 3

Three teachers from metropolitan secondary schools trialed learning approaches based on the use of process improvement tools that were field tested in TAFE settings and workplaces. The classes involved were a Year 9 Science class, a composite Year 9-10 History class and a Year 9 Personal Development-Health-Physical Education class. The trial unit of work was not additional to the normal class program, rather it represented an attempt to teach part of the program differently.

Each teacher was involved in an orientation program that engaged the teacher with a number of process improvement tools such as: brainstorming, cause and effect diagrams, action planning, team role audits and self assessment schedules. Teachers were also given time to write a problem scenario that represented syllabus content requirements and provided a focus for applying the process improvement tools. The History class, for example, was confronted with a problem scenario based on a number of issues associated with the 1917 political crisis in Russia. Students were required to identify with a particular faction; the Old Guard, The Reformers and The Bolsheviks, and devise a strategy to achieve and/or maintain power.

The teachers provided reports evaluating each of the steps in the process and completed an evaluation questionnaire. In general the responses were very positive. All three found the approach to be an effective way of giving students opportunities to put their subject knowledge to work in situations which were considered to be relevant. The teachers particularly appreciated the way the problem scenario approach required students to use inert knowledge and to make connections for themselves. The three teachers found the tools very useful in helping students to access the problem and structure an appropriate response. The teachers agreed that the approach has the potential to help students to make connections between subject learning and their development of the key competencies. The teachers indicated that they had been involved in trialing something that was quite new to them and that they had learnt from the process. Two teachers indicated that a more explicit focus earlier in the unit on the key competencies involved would have made the learning more effective.

The Science teacher had some reservations about the approach but conceded, I can see the process made more 'simple' being of aid and advantage to teachers.

The History teacher commented, A problem based learning scenario is a very effective way of integrating several learning outcomes in History as well as enabling students to develop skills in other competencies..........teachers should be able to devise their own (scenarios).........and should use language and structures that are subject and topic specific.
Case 4

In an inner city school a Year 11 languages teacher decided to trial the key competencies in her class. The students were being challenged to articulate the purpose of what they were doing, explore a range of approaches, initiate work-related activity and consider how effective the process was. The teacher met with considerable opposition from the students. Generally speaking, the students saw these requirements as an imposition and considered that the teacher was trying to off-load her work onto the students and that this conflicted with their perception of their own role as students. The students were comfortable with a classroom environment that promoted an individualised view of learning.

With some hesitancy the teacher persisted and a focus was given to Working with others and in teams in order to meet the requirements of a section of the syllabus. The students were task oriented and wanted to get on with their own work. Despite the fact that many students felt uncomfortable they soon started to work effectively in groups. The tasks were completed in time. The standard was sound and the students had learnt considerably more than expected. On reflection, both teacher and class decided that it had been worth the risk. The students could see that there are times when working collaboratively can be beneficial. They were confident of doing it better next time.

5.2.3 ASSESSMENT AND REPORTING

The understanding about key competencies that has emerged from the NSW project calls into question the feasibility of pursuing some of the purposes for key competency assessment that were proposed by the Mayer Committee. Comparing achievement of key competencies in different contexts is difficult. When it comes to cross-sectoral comparisons of achievement the difference in context can be so great as to make any comparison meaningless.

The key competencies do, however, provide a common language for describing achievement in terms of attributes that are broadly valued. In doing so they can add cohesion to a continuum of learning.

Development of the key competencies, and their assessment, is best considered within the context of syllabus outcome statements. There is no evidence to support a separate layer of assessment based on achievement of the key competencies. Relevant statements of course learning outcomes, which integrate key competencies where appropriate, provide a suitable framework for assessing student achievement.

The findings are presented in the following order:

- the survey findings
- the mapping of existing practice
- the two phases of field testing.
Survey Findings

Mapping and field testing indicated that teachers did not include key competencies in existing practices to the extent that the teacher perception survey responses indicated. The survey responses indicated a much greater level of presence of the competencies than was found in either the mapping of existing practices or in field testing.

The survey of secondary teachers indicated that teachers recognise that they assess key competencies indirectly and report on their development in a general way. There were significant differences in the survey responses that were related to the key learning area in which the teacher taught.

Teachers were of the view that they often refer to Collecting, analysing and organising information and Communicating ideas and information when assessing and reporting.

Around half the respondents frequently considered Planning and organising activities and Working with others and in teams in assessment and reporting. For Solving problems around 60 percent indicated that they often refer this competency when assessing and reporting.

Teachers were less likely to assess and report on Using mathematical ideas and techniques with around 65 percent indicating that they do this never or only sometimes.

About 80-90 percent believed they included Using technology in assessment and reporting, but for the majority it is only included sometimes. The response for Using Cultural understandings was similar.

Mapping of Existing Practice

The mapping of existing practice showed little evidence of existing assessment and reporting practices that explicitly incorporate key competencies. However, it is interesting to note that a number of schools, both project and non-project, have started to give some emphasis to the key competencies (or similar attributes), since the mapping commenced. Existing practice indicates that teachers assess and report on what they value in the curriculum. In turn, students become conditioned to valuing those parts of the curriculum that are formally assessed and reported.

In the senior years it was not surprising to find that the focus is almost entirely on aspects of the curriculum that are subject to formal assessment and reporting. Assessment tasks were found to mirror the tasks in the Higher School Certificate examination.
Overview of Phase One Field Testing: Conducted by School Sector Agencies

School sector agency based field testing involved grouping teachers according to one of the four implementation models that were outlined on page 59. These models, together with comments on field testing, are presented in this overview.

Model 1 – Teacher judgments

| Purpose | Identify the criteria teachers use to make judgments about competence. This included identifying the framework they use to differentiate between students and determine standards of achievement.

Teacher judgment about student performance was largely intuitive. Typically, it was based on an internalised standard derived from past experience and a tacit knowledge of the School Certificate and the Higher School Certificate standards.

| Comments | Although teachers claimed to be assessing competence this was difficult to discern. The report on this model indicated that teachers:

- most often graded students’ performance by measuring differences in their knowledge
- were strongly influenced by processes and practices designed to normalise learners and learning
- saw assessment as a means of ranking students.

Instead, they could have been comparing performance to an absolute standard, determined by a set of pre-defined criteria.

Teachers in this model would typically assess each element of the competency discretely. This showed that they had not conceptualised the holistic nature of competence and the need to make judgments based on evidence of performance of the entire competency.

Students from half the sample were interviewed. In all cases there was a positive response to the competencies. Students generally acknowledged that having an explicit knowledge of the competencies and an understanding that development of the competencies occurred in a range of knowledge areas (subjects) were highly motivating factors. Students were able to identify the competencies they were using in both the classroom and the workplace contexts. They also noted contextual differences. |
Model 2 – Six stages framework

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Use a six stage standards framework to make judgments about students' performance of the key competencies; and to assess the value of the framework as a standard for measuring student performance of the competencies.</th>
</tr>
</thead>
</table>
| Comments | The secondary teachers thought that a more useful framework could be one that is configured more explicitly to their subject. Some teachers considered the framework to be too broad and recommended that it be more clearly defined. In general, teachers:  
- found the standard at each stage appropriate to that stage  
- used the framework to inform lessons, not as a set of standards for determining levels of achievement.  
Teachers reported higher motivation of students when competencies were explicit. |

Model 3 – ASF/Mayer five levels framework

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Trial a five level framework derived from the Australian Standards Framework and the Mayer levels; and to use the framework to determine the level of student performance of the key competencies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comments</td>
<td>Teachers involved in this framework were evenly divided in their estimation of the value of this framework. Some considered the framework unworkable and abandoned it; others found both extremes of the framework appropriate but found it difficult to differentiate between the middle levels. Some teachers found the framework extremely useful and entirely appropriate. Apart from its primary purpose, many teachers reported that the framework was helpful as a planning tool for programming and practice.</td>
</tr>
</tbody>
</table>
Model 4 – Teaching practice

Purpose

Explore a range of propositions relating to teaching methods. Many of the teachers working in this model also agreed to consider the appropriateness of the key competency performance descriptor levels developed by project officers at the Board of Studies.

Comments

The performance descriptor levels became the focus of further field testing by the Board of Studies, which is discussed later in this chapter. Findings relating to teaching practice were significant and have been incorporated in the section on teaching and learning. This model also proved to be useful in providing evidence of the value of a professional development approach based on action research and self reflection.

Comments Based On School Sector Agency Field Testing

It should be noted that not all teachers fully assessed the unit they taught. Some applied assessment to only those aspects relating to the key competencies; some speculated about assessment. Reporting considerations were based largely on debriefing in which teachers were asked how they would report on the development of key competencies. In the process, several sophisticated key competency related descriptive reporting frameworks were identified.

The need for standards

It is difficult for teachers to make judgments about achievement of the key competencies in the absence of a standards framework. The assessment instruments used currently are largely inadequate for judging student progress in the holistic use of the key competencies. Many teachers felt constrained by existing assessment frameworks and indicated their weaknesses.

None of the standards frameworks used in the field testing gained unqualified support from the majority of teachers. Secondary teachers generally considered that a subject specific framework would be a more useful instrument.

The standards framework needs to be supported by work samples to ensure consistency of judgment. Aligned to this is the need to ensure the language of the framework is accessible and meaningful to its diverse audience.

The majority of teachers found the standards frameworks satisfactory as a standard reference to help with the development of the unit of work but difficult to use as a framework for assessment and informing the development of assessment instruments. Many teachers had difficulty with the unfamiliar practice of matching student work against the standard. Many teachers also encountered difficulties when constructing assessment instruments.

The challenge to current practices

It was evident that it was very difficult for teachers to step outside a normative assessment process for judging student performance. Judgments about competence were often recorded as a mark and students ranked against each others’ performance. There was no evidence that teachers conceptualised an absolute standard based on the frameworks provided. Instead, they made judgments on performance based on existing standards which were linked to external examinations.
Whilst teachers generally considered the definitions of the key competencies to be suitable a significant number assessed key competencies in terms of their discrete elements rather than holistically. Teachers found it difficult to develop assessment strategies based on a view of competence which encompasses the concept of the whole being greater than the sum of the parts. However, where syllabus documents promote a process, rather than behaviourist approach, (in, for example Design and Technology and Visual Arts) there was greater evidence of holistic assessment.

Teachers seemed to be caught between two approaches to assessment. The work of Hager and Butler (1996) may prove useful in helping to understand distinctly different approaches to assessment. Hager and Butler suggest there are two basic assessment models and that a shift is occurring in educational assessment away from a scientific measurement model towards a (favoured) judgmental model. Characteristics of the two models are outlined below.

**Two Models of Educational Assessment**

<table>
<thead>
<tr>
<th>Scientific Measurement Model</th>
<th>Judgmental Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess tasks remote from world</td>
<td>Assess tasks that reflect outside classroom context</td>
</tr>
<tr>
<td>Assess solutions to problems</td>
<td>Assess processes by which problems are solved, as well as the solution</td>
</tr>
<tr>
<td>Assess simplified discrete tasks</td>
<td>Assess performance of holistic tasks in their actual context</td>
</tr>
<tr>
<td>Assess individuals only</td>
<td>Assess group work as well as individual work</td>
</tr>
<tr>
<td>Emphasise one right solution</td>
<td>Emphasise alternative ways to reach acceptable solutions</td>
</tr>
<tr>
<td>Assess tasks directly from curriculum</td>
<td>Assess tasks that are relevant to the curriculum but expand on it</td>
</tr>
<tr>
<td>Assess discrete tasks one by one</td>
<td>Assess performance on holistic tasks as well</td>
</tr>
<tr>
<td>Rigidly prescribe assessment tasks</td>
<td>Learners help to design the nature and form of their assessment task</td>
</tr>
</tbody>
</table>

Source: Hager and Butler (1996) *Two Models of Educational Assessment*
Assessment must occur over a long time

Most participants recognised that the development of competence is an ongoing, long term process. It was difficult to infer competence from a single product; an essay for example was used as evidence of competence in: Communicating ideas and information. Plainly, it was also difficult to make judgments about achievement of the competencies within the limited time frame of the field testing.

Teacher workload

There were concerns about the increase to a teachers' work load if all competencies were assessed frequently. Many teachers expressed support for common assessment tasks as a way of ensuring a standard of performance that is viable across the various stages of development. Many participants recognised that assessment tasks should be designed to assess subject specific outcomes and key competencies simultaneously, rather than adding a new assessment layer to existing practice.

The need for a range of assessment methods

A large number of participants commented on the importance of using a range of assessment instruments. Appropriate assessment strategies included conferencing, questioning, examining work samples, self assessment, peer assessment and teacher judgment.

Students commented that self-assessment of the competencies increased their awareness of how well they were learning and where they needed additional assistance and practice. They appreciated receiving feedback about their performance, as opposed to simply being given a mark in some cases, as it gave them a basis for self-improvement.

Assessing complex reasoning

Some appreciation of the challenge being presented to teachers can be gained from the work of Butler (1995). This paper provides an interesting overview of the evolution of criteria-based assessment in Queensland since the abolition external examinations in 1971. It considers teachers' understandings of the complex process of judging standards of achievement in Queensland high schools. The focus is on the Science curriculum.

Process or cognitive skills associated with complex reasoning are included in the objectives statements of syllabus documents. It is acknowledged that the variety and creativity of assessment instruments is increasing. Much development has occurred in the assessment of interpretation, analysis, interpolation and language processes. However, despite these developments and the benefits many years of working with criteria-based assessment, a major problem is still the difficulty teachers find with assessment items that deal with complex reasoning processes.

The paper by Butler argues that the role of teachers as writers of work programs and as members of review panels has a profound effect on their understanding of the process of designing their own teaching. How they award student ratings based on criteria and standards is also affected. The scheme of criteria-based assessment depends on the conceptualisations and personal practical knowledge of teachers who have shared the meaning of the standards and criteria among themselves.

The principles for assessing and reporting in government schools in NSW acknowledges that the reliability of teacher judgment is enhanced when teachers cooperatively develop a shared understanding of what constitutes achievement of an outcome. This is developed through cooperative programming and discussing samples of students work and achievements within and between schools. Teacher judgment based on well defined standards is a valuable and rich form of student assessment.
The Schools Sector

Phase Two Field Testing: Research and Development Undertaken By
The NSW Board of Studies

The research shows that both teachers and students involved with work on key competencies
acknowledge that the opportunities for achievement of subject outcomes would be improved by
students being aware of the criteria for assessment. Syllabus documents could make clearer
connections between outcomes and the types of assessment practices that allow students to
demonstrate their achievement of those outcomes.

Approaches to assessment that support key competencies in a way
which will improve student achievement and subject outcomes

Work was undertaken to search out ways of assessing that support key competency
development while improving students' achievement of subject outcomes. This work involved
school-based case studies and teacher focus groups working to explore strategies for simultaneously
assessing key competencies and subject specific outcomes. These case studies and focus group
activities are described fully in the Board's project report, Curriculum Keys, Hegerty and
Broadbent (1997).

This work has provided valuable insights into the way teachers perceive the role of key
competencies in their subjects. Many teachers identified ways in which they could frame outcomes
to make explicit those key competencies that contribute to effective learning in their subjects. There
is strong evidence that teachers do not feel that they would need to develop substantially different
tasks to be able to assess key competencies. The main changes to assessment practice would be to:

- design tasks to simultaneously focus on subject outcomes and general skills
- define assessment criteria more explicitly
- ensure an appropriate balance of different types of instruments within an
  assessment program.

There are, however, limitations in using existing examinations such as the Higher School
Certificate and School Certificate Reference Tests to infer achievement of key competencies. The
need for high levels of reliability limits this sort of assessment to particular attributes that usually
excludes a demonstration of sustained holistic performance.

Projects and other sustained tasks

Teachers particularly stressed the need for more complex tasks undertaken over sustained
periods to allow adequate opportunities for students to demonstrate key competencies holistically.
The teachers who already work in subjects with a major project as part of the Higher School
Certificate assessment program felt most strongly that a more explicit assessment of key competencies
could be readily incorporated into current assessment practice.

Teachers and students alike acknowledged that the opportunities for achievement of subject
outcomes would be improved by students being aware of the criteria for assessment. They would
need to know not only the criteria for assessing specific subject content but also how the general
skills they need for successful completion of a task would be assessed.

In addition, work on senior projects and the research tasks indicated that syllabus documents
could make clearer connections between outcomes and the types of assessment practices that allow
students to demonstrate their achievement of those outcomes.
**Trialing of common assessment tasks for a key competency**

Assessment instruments related to the key competency *Collecting, analysing and organising information* were trialed. This key competency was chosen as it was identified by the mapping as being present throughout the mandatory curriculum and is at the core of most Year 11 syllabuses.

Analysis of the data from the development and administration of the assessment tasks focused on:

- the relationship between task design and demonstration of key competency
- the extent to which the results reflected the continuum of development contained in the Board's key competency descriptor levels and to identify work samples to illustrate those levels.
- the feasibility of generic criteria for judging performance in different subjects
- the relationship between key competency performance in a variety of contexts.
- the relationship between performance on tasks which address the whole key competency and performance on tasks that address isolated elements only.

Each of these items is discussed further in this section.

**Assessment task design**

The trialing of tasks pointed clearly to the importance of task design in providing opportunities for students to demonstrate a competency in its entirety and across a broad range of levels of performance. When designing tasks teachers tended to allow the "two ends" of the key competency to drop off; the elements associated with *establishing purpose and evaluation*. When these were included in a task students were more able to demonstrate the competency holistically. However, evidence would suggest that students are very unused to this and that learning experiences would need to provide more opportunities for them to practise applying a competency holistically before a valid assessment could be made.

Furthermore, tasks that were open-ended and contained ample scope for students to engage with complex knowledge and concepts were more likely to provide opportunity for performance to be demonstrated across the full continuum of development. It was evident that some tasks can, by setting low expectations of students, prevent them from demonstrating their full capacity in either key competencies or subject knowledge.

**A continuum of development for key competencies**

The teachers marking the tasks found that student performance did reflect the continuum of development used in the Board's levelled descriptors and were able to identify work samples to illustrate all levels. This is not to imply that there was easy agreement among teachers about the level assigned to each script and there were frequently significant discrepancies in judgments. The discussion surrounding the reason for such discrepancies provided valuable insights into the complexities of developing common understandings about standards of key competency performance.

It was significant, however, that the markers judged that approximately half the scripts did not demonstrate the key competency holistically and could not be considered to reflect even the lowest level of performance. Of those scripts that did demonstrate the key competency holistically the teachers considered that most reflected only the first two performance levels.
The use of generic criteria

Teachers involved in the setting and marking of the tasks felt quite comfortable with using generic criteria and could easily relate the criteria to their subject context. Many commented that the criteria helped them to clarify their expectations and to articulate the relationship between subject knowledge and the processes students need to enhance their access to that knowledge.

The relationship between key competency performance in a variety of contexts

Drawing conclusions from the data gathered in the field testing about student performance in a variety of contexts needs to be approached cautiously given the relatively limited scope of the investigation. However, analysis of the data did provide some interesting indications. The correlation between student performance in the short, non-subject specific tasks and in the sustained subject specific research task was low enough to support the view that students need to be given a range of opportunities to demonstrate a key competency and that inferring competence from a single performance would not be desirable.

The correlation between performance on holistic tasks and tasks mapped as addressing isolated elements of the key competency

Analysis of data from tasks specifically designed to assess Collecting, analysing and organising information showed a clear relationship between higher level performances on tasks addressing specific elements of the key competency and tasks requiring the students to apply the key competency holistically. The strongest correlation was between performance on tasks addressing the evaluation element of the key competency and performance on holistic tasks.

There was less of a ‘match’, however, between performance on more holistic assessment tasks and performance in the Year 10 English and Science Reference Tests on questions that had been mapped as addressing elements of the key competency. One of the reasons for this could be that the reference test questions focus more heavily on the locating element of the key competency than on other elements. Nonetheless, findings from this exercise indicate that the achievement on more holistic items fit poorly with the ability of the candidates as reflected in their reference test achievements.

Implications of the field testing

The results of the field testing of assessment tasks for Collecting, analysing and organising information are discussed in detail in the Board’s final report. Findings suggest that current implementation of syllabuses may not be effective in relation to the holistic development of this key competency. This is despite the importance of the competency for effective learning in most subjects. It may be reasonable to assume that a similar situation would be found in relation to the other key competencies.

The reasons for this deficiency may be that syllabuses do not explicitly focus on key competencies as holistic processes; nor do they require students to engage in the kind of sustained, complex tasks that are necessary for development of key competencies at the higher levels.

Incorporating Key Competencies Into Reporting

The Board of Studies in its project work explored approaches to descriptive reporting of key competency attainment and developed exemplar reports to be used as a focus for discussion with teachers and employers.
Two models for descriptive reporting were trialed - unlevelled individualised descriptions generated from comment banks and the set of performance descriptors in five levels developed for trialing.

**Reporting using individualised descriptors**

Project officers conducted workshops with groups of teachers from eight project schools to explore the use of descriptions of key competency attainment tailored to each student. Teachers were asked to consider a number of reporting models which generated descriptions from banks of centrally written comments.

Although teachers responded positively to the idea of reporting the key competencies, they were concerned by this approach. Their concerns had more to do with questions about the validity and reliability of the approach than with teacher workload or 'aggregating teacher judgments', although these were also seen as very important issues.

Some schools already have reference systems which report on key competencies and require some aggregation of teacher judgment. Teachers from these schools tended to see key competency reporting as replacing or modifying current systems rather than adding a new one. However, for others, the idea of developing reports cooperatively was alien. These teachers stressed the need for strong support structures such as computer programs and staff development.

Teachers wondered just how meaningful such decontextualised, aggregated descriptions would be to students, parents or employers. Their concern was that there is no way of ensuring that the descriptions generated in one school would be comparable to those in another.

**Reporting using levelled performance descriptors**

The descriptors developed by the Board project team (explained on page ) have been included in all Board field testing activities. They do not refer to a particular context and were designed to be applied by teachers in whichever subject the key competency is being developed. The descriptors were based on the Course Performance Descriptor model currently used in Year 10 but could be applied as readily to Year 12 as the standard represented by each level will only have meaning when it is attached to work samples from the contexts in which it is applied.

A large number of teachers from across all curriculum stages have discussed and, in some instances, applied the descriptors. At this stage the evidence suggests that teachers find the model has considerable potential for providing a useful reporting framework and that the continuum of development reflected in the descriptors is appropriate. A number of teachers who had been involved in the school field testing stage of the project expressed the view that this framework was more 'user friendly' than other frameworks they had been asked to trial.

Reservations about the framework focused mainly on:
- the need for common understandings about standards at each level
- the lack of a 'not yet competent' level
- the need for 'plain language' to meet the needs of all users of reports.

**Formal reporting of key competency attainment**

It is clear that many schools already have practices in place that require teachers to provide some sort of exit report or reference containing a summary of the general characteristics, skills and personal attributes of every student. Hence it is reasonable to suppose that some teacher and school
administration time is already spent on the type of cross curricular reporting that might be suitable for key competencies.

The Board team liaised with two project schools working on a whole school approach to the reporting of key competencies. While each school produced reports to suit its individual needs, their approaches had features in common:

- both recognise the need for key competency assessment to arise naturally from curriculum – to this end, both started by asking teachers to identify which key competencies could be assessed within their subject contexts
- both used a format shared by all faculties so that, if required, information about key competency development could be collated into a reference (or other exit report)
- both looked to using performance levels for reporting rather than a mastery versus non-mastery approach.

Both schools felt that something along the lines of the Board’s descriptors could be useful to provide common levels across schools. However, they emphasised that the language must be accessible to the stakeholders, and that work samples are needed to illustrate the levels of attainment within the different contexts. If it were decided that all students should have access to school generated key competency reporting then these considerations could be the basis for Board guidelines.

**Exemplar reports**

The findings from the field testing were used to develop a number of sample formats for reporting on key competencies. These were used in discussions with teachers and employers to explore issues such as: whether key competencies should be included as part of formal school reporting, what should be reported, and, when and how reporting should occur.

**Teacher responses**

Most teachers expressed the view that key competencies should be included as part of formal school reporting ‘where relevant to syllabuses’. There were mixed responses to the degree of Board prescription. The issue of whether reporting should remain the school’s responsibility or be included in the Board’s credentials was also controversial. Certainly, many respondents expressed the view that some central guidelines and monitoring of teacher judgments by the Board are needed to preserve equity, credibility and reliability.

Teachers who were opposed to explicit reporting of key competencies generally felt that key competencies are best reported using subject terminology rather than applying generic descriptors across all contexts.

All participants who favoured the explicit reporting of key competencies stressed the need to include in reports the context in which key competencies have been developed. Most also felt that levels of achievement should be included, provided the understanding and application of these levels was consistent.

For these reasons most teachers rejected an exemplar report that provided a very general summary of achievement. Instead they preferred samples that indicated both the level of performance and the context without requiring any aggregation of judgments across faculties. Teachers did, however, express concern that any reporting system that used levels would need to ensure that it did not lead to misinterpretation and adding up of scores to reach a “key competency total”.
Employer responses

There was general agreement from employer focus groups that key competencies would be a valuable part of a school's reporting but they stressed the need for the information to be brief and easily understood. Employers appear to favour the idea of a portfolio with a summary report indicating the performance of students in relation to a standard and specifying the contexts in which students have developed the competencies. The employers agreed with the teachers that a report of too broad and general a nature would not be very useful. Some particularly liked approaches that linked subject achievement and key competencies.

Accrediting achievement

If a decision were taken to provide all students with a report on their key competency attainment there are a number of options available. Each would require a different level of involvement by the Board of Studies. For example reports could be:

- generated within each school with no Board direction other than through syllabus outcomes
- generated within each school but based on guidelines provided by the Board
- issued by schools using a common format provided by the Board
- included as part of credentials issued by the Board.

Senior officers of the Board have worked with representatives of Boards around Australia; the Australian Curriculum, Assessment Certifying Authorities (ACACA), to establish a minimum working position on key competencies. This detailed in a report by Edwards and Smith (1996) and suggests that key competencies:

- should be explicitly embedded in curriculum
- provide opportunity for assessment for all secondary students
- can generally be assessed on the basis of teacher judgment
- can be assessed and reported on the basis of Board developed guidelines
- can be assessed and reported using processes that are monitored
- are underpinned by knowledge and skills that are appropriately emphasised in assessment tasks
- can be more clearly defined.

If the key competencies are to be considered as an important and valued component of the curriculum it is essential that they be given due recognition in assessment and reporting practices.

The work of other projects

The work of other projects indicates that four approaches to assessment have been considered in the school sector: inferred assessment, parallel assessment, separate assessment tasks for key competencies and integrated assessment.

The inferred approach has been explored in Queensland (Board of Secondary School Studies Queensland, 1996). The essential feature is a view that it is possible to make inferences about the achievement in key competencies from subject grades. There is therefore no need to specifically assess subject grades.

The parallel approach has been investigated by the Australian Council for Educational Research (McCurry and Bryce, 1996). The investigation is based on the proposition that it is possible to use key competency scores and teacher global judgment to assess performance and synthesise an overall level score for each key competency.
The Schools Sector

The separation of assessment tasks on key competencies has also been explored. This approach suggests the use of additional standardised common tasks to make judgments about key competency achievement.

This integrated approach is based on the need to determine subject grades and key competency performance from the same assessment tasks within subject contexts. The integrated approach is supported by the NSW project findings.

Also of relevance is the work of the National Industry Education Forum (NIEF) which explored approaches to reporting.

5.2.4 INCORPORATING KEY COMPETENCIES

Incorporating key competencies into syllabus documents and support material can ensure that all students including those groups traditionally least benefiting from their schooling and most dependent on it for the acquisition of the key competencies - will have the opportunity to develop them.

The project findings indicate that there is strong support for the view that key competencies have the potential to help students become more effective learners and to enhance learning outcomes. It would therefore be a minimum requirement of any approach to incorporating key competencies that it provide opportunities for all students to develop the competencies through their study within the curriculum.

**Key competencies in the mandatory curriculum**

Any approach to incorporating key competencies more fully into the Year 7-10 curriculum will need to take direction from the findings of the Report of the Review of Profiles and Outcomes, the Eltis Report.

The following finding of the Review can be read as being supportive of the NSW Key Competency Pilot Project's conclusions regarding incorporation of key competencies:

> The Panel agrees with the assumption that, if key competencies are to be developed in school settings, they must be integral to existing syllabus outcomes, and emerge from such outcomes.

> The Panel does not support a position that would force any syllabus to fit an externally imposed outcome or competency. The review has made apparent the difficulties that arise from attempting to incorporate abstract statements of competencies into existing syllabuses. Any outcomes of learning must be defined in terms of the syllabus and arise naturally from it. This should be a fundamental principle adopted with any use of the key competencies in schooling.

(Page 75)

This paragraph reinforces a fundamental proposition explored by the project:

Can relevant statements on learning outcomes within the existing curriculum provide an appropriate framework for teaching, assessing and reporting on student achievement of the key competencies?

The first two recommendations of the Review are also particularly relevant. Firstly, that in relation to curriculum content:

- The Minister affirm the prime role of NSW syllabuses in describing the curriculum content – knowledge, skills and understandings – in each subject area;

- the expected learning outcomes in syllabuses will be the basis for the development in school settings of:
teaching programs for school and classroom use, and
data on student's learning achievement, including samples of students work.

The most relevant feature of the second recommendation is:

_Syllabus outcomes (at 5 stages of compulsory schooling) are to be explicit statements of the knowledge, skills and understandings expected to be learned from teaching programs developed from NSW syllabuses._

Syllabus outcomes that state what students will be able to do if a syllabus objective has been achieved are necessarily based on the application of knowledge, skills and understandings. The development of syllabus outcomes along these lines are likely to incorporate key competencies and naturally identify the extent and nature of their presence.

**Key competencies in the post-compulsory curriculum**

Any approach to incorporating key competencies more fully into the Year 11-12 curriculum will necessarily be developed within the context of changes resulting from the McGaw Review of the Higher School Certificate. The mapping of syllabus documents and the body of research which is highlighted in this report has, however, provided some direction for the development of a possible approach. Underpinning this approach is the view that:

- it is not useful to make a distinction between education and training - the features of good practice appear to be common to both
- the development of key competencies requires students to integrate knowledge, skills and understanding in a range of contexts and engage students in higher order thinking
- research indicates that the development of key competencies assists with the development of general cognitive abilities which are essential as tools for successful learning in all contexts.

**Developing approaches to curriculum incorporation**

The Board of Studies project team explored several approaches to incorporating key competencies into the curriculum. This involved:

- an analysis of the findings from the mapping exercises
- a review of current research related to key competencies and the development of generic skills
- consultation with teachers and curriculum experts
- designing a possible general approach to curriculum incorporation that reflects the findings from the mapping, the literature review and consultation with teachers and curriculum experts.
- development of sample material to illustrate the approach taken.

In spite of the fact that curriculum documents were not written to include key competencies many have argued that key competencies are already part of school curriculum and that all students have an opportunity to develop them. The findings from the mapping of curriculum and teacher practice, however, indicate that this is not the case. The findings from the mapping of both mandatory and post-compulsory curriculum documents indicated that key competencies are not represented in a way which would provide all students with sufficient opportunity to develop them. There is not always an explicit focus on their development and they are not equally represented across the
The Schools Sector

curriculum. Specific key competencies are represented to differing degrees in different key learning areas but this imbalance does not necessarily reflect the intrinsic nature of the subjects.

In some instances it would appear to reflect the fact that key competencies have not been recognised as "enabling processes" which need to be taught explicitly. In other instances it is a reflection of the nature of the curriculum documentation in particular subjects.

In addition to the imbalance in representation of the key competencies, the mapping also indicated two other areas of concern. Firstly, regardless of the representation of key competencies in specific subjects there is very little focus, if any, on enabling teachers and students to recognise those key competencies that different syllabuses have in common and the different ways in which key competencies configure to different subject contexts. Secondly, sets of outcomes in a number of subjects reflect a continuum of development which is additive and incremental and which does not reflect the real differences between beginning and advanced learners.

**Key competency representation in teaching practice.**

The mapping of key competencies did confirm, however, the significant role syllabuses play in teaching practice. Where key competencies were highly represented in syllabuses, they had a higher representation in teaching practice. Where there was a low representation in syllabuses, there was little representation in teaching practice. A number of teachers, particularly in the senior secondary school, expressed the view that the amount of mandatory syllabus content which they had to cover gave them little time to develop the key competencies.

The mapping, therefore, indicated that there would need to be some changes in existing syllabuses if key competencies are to be developed, and levels of competence in them assessed and reported in school education.

**Support for formal incorporation of key competencies**

The Board project team conducted an extensive review of the current literature related to key competencies and the development of general skills. This review is described in detail in the Board's project report. In broad terms the project team found that the literature supported the view of key competencies that emerged from field testing.

The project team conducted a number of workshops, focus group discussions and seminars involving over 200 teachers in both subject specific and cross-curricula groupings. The purpose was to explore with teachers the implications of key competency incorporation for effective teaching and learning.

There was broad support for the view that key competencies could:

- help articulate the core processes of subjects and thereby enhance learning
- provide a means for rationalising outcomes
- provide valuable cross curricular perspectives that help make students more aware of the relevance of their learning.

The major concerns expressed were to do with maintaining subject integrity, the challenge provided by the need to provide ample opportunities for students to apply key competencies holistically in meaningful contexts, and the impact of current assessment requirements on teaching practices.

Throughout both the mapping and field testing phases the project team consulted with curriculum experts and where possible assisted with the integration of key competencies in ongoing syllabus development processes. These activities included the writing brief for Economics Stage 6 and the final draft of the Year 9-10 Mathematics syllabus.
Designing an approach to key competency incorporation

The Board team concluded that the understanding of key competencies developed by the project could do much to improve education. This improvement would result from the fact that the focus of curriculum would become the development of independent, responsible and flexible learners. Such learners would be able to recognise the commonality and differences between subjects they have studied. They would also develop general skills which would facilitate learning in new contexts. They would be students who would be better equipped to meet, not only the demands of a quality workplace and/or the demands of tertiary education, but also the demands of a dynamic, complex and unpredictable world.

This view underpinned the approach taken to developing strategies for trialing with syllabus documents. This approach was one which focused on:

- providing all students with ample and sufficient opportunity to develop all key competencies
- facilitating quality teaching and learning in the subject
- assisting students in making connections between subjects and facilitating transfer within and between subjects.

The approach required strategies related to incorporation at both the macro (whole curriculum) and micro (subject syllabus) levels.

Macro-Level: the whole curriculum

If students are to be able to see where subject detail fits into the overall picture, and to use what they have learnt from previous experience in one context in similar situations in other contexts, then teachers also need to be able to recognise where the subject they teach fits in the overall picture. They need to be aware of the broader relevance of the core process and perspective of the subject. They also need to be aware of the extent to which the subject draws on the knowledge, skills and understandings of other subjects and at what stage these are taught in other subjects.

The findings from the work of the Board's project officers suggest that teachers' ability to develop this awareness will be facilitated if:

- syllabus documents follow a common format
- the relationship between subject content in different subjects is explicitly acknowledged in Secondary subject syllabuses as it is in Primary syllabuses
- there is explicit reference to relevant knowledge, skills and understandings taught in other subjects and an indication of when these are taught
- the commonality of skills or key competencies is highlighted by the use of a common language for common concepts and common skills
- the way in which key competencies are developed in the subject is clearly articulated
- the key competencies to be assessed in each subject (those incorporated into syllabus outcomes) are mapped in relation to the key learning area and to the curriculum as a whole
- final decisions about which key competencies are represented in each set of syllabus outcomes are informed by the balance of key competencies in the mandatory curriculum and the need to ensure that the student's all round growth is addressed by the mandatory curriculum.
Micro-Level: The subject syllabus and syllabus support documents

A common approach to the incorporation of key competencies into subject syllabuses would assist both teachers and students in recognising the commonality and difference between subject disciplines. There are four broad strategies which reflect a key competency perspective and which could be used to incorporate key competencies more explicitly into syllabuses. These are:

- to focus on developing a more explicit statement of knowledge, skills and understandings which are essential for effective learning in a subject
- to increase opportunities for students to make meaningful synthesis of their learning by a focus on whole processes and an explicit recognition of the relationship between concepts and information.
- to adopt a view of the continuum of learning as one of increasing refinement, complexity and abstraction rather than as simply an additive process where more information and skills are acquired.
- to ensure that syllabus content demands allow teachers enough time to use a pedagogy appropriate to the development of the key competencies.

The development of key competencies is very much dependent on the teaching and learning experiences students have in the classroom. It is important therefore that syllabus support documents reflect good practice and place emphasis on:

- teaching for understanding by formulating generative topics which have a centrality to the discipline, and connectability to diverse topics inside and outside the discipline.
- providing opportunities for students' active involvement in developing the metacognitive awareness essential for transfer by encouraging articulation and reflection
- providing learning situations where students acquire knowledge as a tool.
- increasing opportunities for students to acquire deeper, more complex knowledge structures by presenting information from a range of perspectives.
- explaining strategies necessary for successful learning by detailing processes extensively and explicitly
- providing information about where and when to use strategies, as well as commentary on how to adapt strategies to new situations and questioning about where the student may have used the strategies previously.

Project officers used the strategies outlined above to develop sample material for a number of syllabuses from different Key Learning Areas throughout Years K-12. This material includes:

- a sample key competencies “map” of the curriculum (see Appendix 9, Table 3)
- a sample common format for syllabus structure (see Appendix 10, Table 4)
- a sample Key Learning Area format showing the relationship between subjects
- samples of individual syllabuses or sections of syllabuses including:
  - Mathematics 9-10 Intermediate Course
  - History 7-10
  - PDHPE 7-10
  - English 11-12 draft syllabus - sample unit
  - Economics 11-12.
samples of Year 10 Course Performance Descriptors which incorporate key competencies
sample senior projects that allow students to demonstrate their achieved outcomes and key competencies.

5.2.5 PROFESSIONAL DEVELOPMENT

The need to emphasise the key competencies in professional development

Teachers emphasised that professional development is essential to support the teaching, assessment and reporting of key competencies.

Teacher perception survey

The survey response showed that most teachers were confident of their ability to help students develop most of the key competencies. In the case of the key competencies Using mathematical ideas and techniques, Using technology and (Using) Cultural understandings, a teacher's rating of his or her ability often depended on the Key Learning Area being taught. For example, teachers of maths and science rated their ability to develop the competency Using Mathematical Ideas And Techniques high compared to teachers in other Key Learning Areas.

For most key competencies teachers also indicated that there was strong demand for emphasis to be given to the key competencies in professional development. A noteworthy exception was Using mathematical ideas and techniques, where teachers who indicated that they were not confident about their ability to develop the key competency had little desire for professional development. They did not think this competency was relevant to their key learning area.

Field testing and identification of professional development needs

The field testing results imply that acquisition of the key competencies requires more than an active involvement in learning. It requires knowledge about the learning process itself. In terms of professional development it is likely there will be a need for a range of learner-centred strategies to raise student awareness of the intertwining of the key competencies with their own learning process. Specific areas of need are identified below.

A guide to professional development needs

The teacher perception survey indicated that teachers saw a significant need for professional development if they are to assist with the development of key competencies for students.

It was generally very difficult for teachers to detach themselves from normative assessment processes.

There is a need for greater familiarisation with assessment tools and reporting strategies that are inclusive of key competencies.

Many teachers had difficulty conceptualising competencies as the integrated application of knowledge, skills and understanding within a context – there was a tendency to focus on aspects of either knowledge or skills.

Pedagogy that involves approaches that encourage reflective learning and the development of metacognitive capacities are likely to be particularly challenging.
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Key competencies in teacher education

There is a case for the inclusion of key competencies in pre-service teacher education that focuses on good teaching practice. There is also a case for preparing new teachers for possible differences they will discern between the experience and rhetoric of their training, the espoused values of systems/schools and the range of practices, and ideas about good practice they will encounter in the workplace. In the next fifteen years there will come a time when the intake of new teachers will increase significantly to fill places vacated by retiring baby boomers. This may result in the infusion of a critical mass of new teachers who have undertaken teacher training that incorporates key competencies.

Additional support

The following are likely to be useful, particularly for teachers who will be required to significantly change their methodology if they are to integrate key competencies into classroom practice:

- curriculum documents and support materials that explicitly acknowledge key competencies
- time and support that allows the links between theory and practice to be explored
- the formal facilitation of coaching and peer support as an integral part of the professional education process
- the availability of support material that explicitly identifies the connection between teaching strategies and the development of the key competencies and demonstrates the explicit teaching of learning processes
- orientation to standards frameworks and criteria-based assessment
- opportunities to work with a range of assessment instruments and discuss with colleagues the criteria and work samples used to make judgments about student achievement
- professional support for an action research model, based on self reflection and implementation, similar to that undertaken by a number of project schools.

Further Information


NSW Board of Studies (1995). NSW Key Competencies Project Report; Mapping of the Key Competencies in the Mandatory Curriculum, June.


Ryan, C. and Bristow, H. (1997). Mapping the Key Competencies in the School Sector; A Report of The NSW Key Competencies Pilot Project. NSW DTEC.
6.1 THE APPROACH TAKEN

TAFE NSW and the Department of Training and Education Coordination (DTEC) collaborated on a number of projects exploring key competencies within vocational education and training. The focus for these projects was courses and training programs, in both on-the-job and off-the-job contexts, with outcomes equivalent to Year 12 (i.e. programs with outcomes up to Australian Qualifications Framework level 2).

The task involved:
- determining the extent to which key competencies were already embedded within TAFE courses and workplace training, and
- developing and field testing strategies for teaching, learning, assessment and reporting and the incorporation of key competencies into vocational education and training curriculum, training programs, delivery and assessment.

To ensure that consistent approaches to the key competencies were developed across all sectors, the methods adopted within the TAFE NSW and DTEC components of the project were consistent with those in the school sector.

A summary of the approach taken is provided in Figure 7. The working definitions of the key competencies (refer Appendix 1) were used as a basis for making decisions about the presence of key competencies in existing practice. The first stage of the project involved mapping the presence of key competencies in existing curriculum, teaching and learning activities and assessment and reporting procedures within TAFE NSW.

Arising out of the mapping work, a set of draft principles relating to the key competencies was developed. These principles were tested during the next stages of the project.

Following the mapping, work occurred in two main directions. The first involved institutes in submission-based field testing of teaching and learning, assessment and reporting of key competencies. The second involved work to incorporate key competencies into state-developed vocational education and training curriculum. The findings led to a further round of field testing that aligned with the workplace project investigations and explored approaches to developing key competencies using generic tools.
Figure 7

Summary of Approach Taken

Developing working definitions

Mapping the presence of key competencies in existing practice

Establishing principles to underpin field testing

Phase 1 Field Testing.
Institute projects

Phase 2 Field testing.
Incorporating key competencies into TAFE curriculum.

Phase 3 Field Testing.
Trialing teaching approaches

6.1.1 MAPPING

The first part of the research, as in the school sector and workplace components of the project, involved exploring the extent to which key competencies were already in existing practice; that is, within existing curriculum and teaching documentation and in existing teaching and learning, assessment and reporting.

Curriculum Documents

A range of TAFE NSW courses was examined to determine the presence or absence of each key competency in the curriculum documents. Courses were selected to span the range of TAFE NSW provision and to enable investigation of the presence of key competencies in both on- and off-the-job training. Courses mapped were:

- Accommodation Services (TAFE Certificate, AVTS Pilot at Bradfield College, TAFE HSC Pathway, Content Endorsed Course, Career Start Traineeship)
- Hairdressing (Apprenticeship)
- Electrical Fitter/Mechanic (Apprenticeship)
- Manufacturing Skills (Apprenticeship)
- Metals/Engineering Career Start Traineeship.

To be seen as present, all the elements of each key competency had to be present in the curriculum documents. The resulting maps showed where key competencies were embedded in existing curriculum documents.
Institute Practices

The second aspect of the mapping of existing practice was the extent to which key competencies were being taught and assessed by teachers as part of their regular teaching practice. The methodology was designed to produce a number of snapshots of teaching practice. These snapshots captured the teaching and assessment practices occurring within a limited duration in any one module.

6.1.2 FIELD TESTING

During discussions in which the results of the various mapping activities were synthesised, a set of working principles were drafted. These principles were subsequently endorsed by the project Steering Committee and TAFE NSW Internal Liaison Group as a set of working principles to underpin the field testing phase of the project. As shown in Figure 8 below, seven working principles were identified.

Figure 8

Working principles underpinning field testing

- Key competencies should be integrated into curriculum. This means that the key competencies should be an integral part of the course philosophy and should be integrated into the course descriptions, the course outcomes, module purpose and learning outcomes, and assessment methods.
- Key competencies need to be developed within a context.
- Key competencies are inter-related and overlap. They are not totally separate one from each other. Opportunities which allow for learners to develop key competencies in a holistic way will provide the most meaningful development.
- Key competencies should be explicit in curriculum design, delivery and assessment.
- Key competency development requires that students reflect upon, evaluate and articulate their own learning and performance of the key competencies.
- The assessment of key competencies requires that learners have opportunities to learn, develop and demonstrate the key competencies.
- The teaching and learning, assessment and reporting of the key competencies should be done in such a way as to meet the needs of all groups.

Three phases of field testing were conducted. This comprised:
- projects proposed by individual TAFE institutes – involved college-based groups of teachers who explored ways in which key competencies might be implemented within their own industry areas
- incorporating key competencies in TAFE NSW curriculum
- trialing some approaches to teaching the key competencies – addressing concerns which arose out of the earlier institute-based projects.
An overview of each of these phases is provided below.

**Projects proposed by individual TAFE Institutes**

The first phase of field testing involved a range of college-based action research projects in which small groups of teachers explored the implementation of key competencies. Submissions were invited from TAFE NSW Institutes to participate in small projects which would provide information relating to the following questions:

- How do teachers interpret the key competencies in practice?
- What approaches do teachers adopt when implementing the key competencies in off-the-job training?
- What issues arise for teachers in implementing the key competencies?
- What do teachers do to make the key competencies explicit?
- What do teachers do to integrate the delivery of key competencies with the teaching of vocational competencies?
- Do teachers teach the key competencies?
- To what extent do the teaching and learning approaches and assessment methodologies encourage the development of students' awareness of the key competencies?

Institutes were asked to submit proposals to fund small groups of teachers to:

- Plan and implement approaches which enabled them to incorporate key competencies in their teaching,
- Design and implement integrated assessment tasks which involve key competencies, and integrate the assessment and reporting of key competency development with the reporting of other competencies.

Sixteen projects spanning the full range of industry areas and modes of provision were selected.

**Incorporating key competencies into TAFE NSW curriculum**

While the institute-based projects were underway, concurrent work was undertaken to incorporate key competencies into a range of state developed vocational education and training curriculum. A number of courses due for accreditation were identified which could act as pilots for the incorporation of key competencies. These included the Tertiary Preparation Certificate and certificates in Aboriginal Community Health Education, Residential Food and Family Services, Hairdressing and Local Government. The key competencies have also been incorporated in the development of a Diploma in Aboriginal Studies.

Key competency project officers worked with the curriculum development team involved in each of these projects in order to assist in the integration of key competencies into the design of the curriculum.

The products of this phase include examples of courses and/or modules which incorporate key competencies, a case study illustrating the process of incorporating key competencies into the Hairdressing Trade Certificate as well as draft advice about the integration of key competencies into curriculum.

Approaches to incorporating key competencies in TAFE curriculum were also being explored in Victoria and South Australia. Cooperation between project officers in N.S.W., Victoria and South Australia resulted in a set of guidelines for incorporating key competencies into vocational education and training curriculum. In NSW this was further developed into a booklet: *Incorporating key competencies into vocational education and training curriculum: Advice for curriculum developers.*
Trialing some approaches to teaching the key competencies: the use of generic tools

The institute-based projects showed that, for many teachers, their capacity to achieve key competency learning outcomes was limited because their teaching focus was on the achievement of vocationally specific outcomes identified in the curriculum. There was a tendency to overlook the significance of the processes involved in teaching and the foundation knowledge and skills that underpin these processes. In particular, teachers appeared to draw upon a set of familiar strategies and approaches for teaching regardless of the intended outcome of the teaching. This had also been identified as a problem in some school sector field testing.

As a consequence, a further phase of field testing took place within the vocational education and training sector (and the school sector) to trial approaches which might assist in making the processes involved in developing the key competencies more explicit. This further field testing aimed to enable teachers and learners to become more clear about: the distinction between outcomes and processes for achieving outcomes; and the knowledge and skills that underpin successful engagement with the key competencies.

The approach adopted within this phase was consistent with the findings of a major US study Classrooms That Work: Teaching Generic Skills in Academic and Vocational Settings (1993). This study, undertaken by the National Centre for Research in Vocational Education (NCRVE), found that it is necessary to be explicit about including the teaching of generic skills as an instructional goal. This is in addition to the domain-specific knowledge and skills already written into curriculum. In terms of incorporating competencies into classroom practice the study claims:

Our data indicate that one successful approach is to design classroom instruction around project work that situates learning in a specific context and provides opportunities for authentic practice in a domain. The project that students engage in should permit them to apply domain specific knowledge and skills to a real, complex problem. (Page 119)

This phase of the field testing involved the trialing of a number of generic approaches that underpin the teaching and learning key competencies which were termed "generic tools". The idea of a "tool box of instruments" that can assist students and teachers in developing more integrated approaches to learning is central to the approach which was tested.

Some of these generic tools were developed from scratch; several arose from work concurrently occurring within the DTEC workplace projects; others were evident in publications. Many of these strategies and tools have been used previously and are recognised as useful strategies in effective teaching/training, quality approaches to management and continuous improvement. There was also evidence of them being configured to particular workplace contexts and vocational education contexts in an attempt to consciously underpin the development of the key competencies. Examples of the tools and strategies are shown in the Table 2. These and other tools have been incorporated into the resource kit Teaching and Learning the Key Competencies.
Table 2

<table>
<thead>
<tr>
<th>Activity network diagrams</th>
<th>Force field analysis</th>
<th>Affinity diagram</th>
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</thead>
<tbody>
<tr>
<td>Group roles</td>
<td>Attitude lines</td>
<td>If.....then.....</td>
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<tr>
<td>Brainstorming</td>
<td>Mind maps</td>
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<td>Facts, Issues, Options and Actions</td>
<td>Consensus</td>
<td>Plus – Minus – Interesting (PMI)</td>
</tr>
<tr>
<td>Fish bone diagram</td>
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<tr>
<td>Process observers</td>
<td>Consequence mapping</td>
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<td>Critical incidents</td>
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<td>Snowballing</td>
<td>Developing an action plan</td>
<td>Tree diagram</td>
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</tbody>
</table>

The tools selected for field testing specifically targeted three key competencies: Working with others and in teams, Planning and organising activities, and Solving problems. These key competencies were chosen because they were least present in the mapping and were largely dependent on teacher methodology.

*Problem-based scenarios as a context for learning key competencies*

The generic tools were embedded in learning contexts provided by problem based scenarios. Teachers developed problem-based learning experiences to provide a context for the integrated learning of both vocational skills and knowledge and key competency outcomes. This provided a basis for field testing the generic tools. As far as was possible the scenarios were designed to be authentic, representing real problems and situations which employees would encounter within the workplace.

In addition, teachers and students were involved in an evaluation of the tools, the scenarios (as an underpinning method for integrating learning outcomes in problem-based learning) and the self assessment instruments.

6.2 FINDINGS AND DISCUSSION

6.2.1 THE PRESENCE OF KEY COMPETENCIES IN EXISTING PRACTICES

*Curriculum Documents*

The key competencies tend to be implicitly present in existing curriculum documents rather than explicitly present. Key competencies appear to be more explicitly addressed in the service industries.

Two key competencies were found to be present in their entirety in all courses mapped: Using mathematical ideas and techniques and Using technology.
Four key competencies were only partially present. These were Collecting, analysing and organising information, Communicating ideas and information, Planning and organising activities and Solving problems. The aspects of each of these key competencies which were most often absent involved evaluating, planning, organising one's own performance and working with autonomy, anticipating problems and evaluating outcomes. In general terms, the evaluation aspect of the key competencies was the most difficult to identify.

Working with others and in teams was not explicitly mentioned in any curriculum documents mapped. In some industries, there is a clear focus on the importance of team work. However it was not explicitly present as an outcome of training within any of the curriculum examined as part of this research. Though Working with others and in teams may be a crucial part of the work of the industry, it appears to be missing from the mapped curriculum documents.

(Using) Cultural understanding was only present in Accommodation Services courses, where it was present in an industry-specific way.

_Institute Practices_

The findings, as snapshots, need to be interpreted with caution and should not be generalised to teaching and assessment across all industry areas, nor teaching and assessment across TAFE NSW.

In general, it was found that key competencies that are addressed in curriculum documents are also addressed in the teaching and learning processes. Learner engagement with the key competencies was dependent on the teaching methodology employed. The nature and background of the learning group had a significant effect on the teaching and learning approaches used by teachers. Students with a history of positive learning experiences were subject to higher teacher expectations than students whose past experiences had not been less successful.

The effectiveness of teaching and assessing key competencies was increased when the breadth of task was more integrated, involving work skills and elements of a number of key competencies.

Key competencies are less evident in assessment practice than in teaching and learning practice. They were not explicitly reported in any of the contexts mapped.

Within vocational education and training courses, competency-based assessment approaches are intended to ensure that students/trainees reach levels of skill and competence, as specified in nationally endorsed industry standards. It is therefore usually industry specific content and skills which are assessed. Unless key competencies are explicit within the industry standards, it is unlikely that approaches will be designed to assess and report on key competencies.

As in the curriculum mapping, it was found that the key competencies appear to be more explicitly addressed in the service industries where teachers perceive an obvious link between key competencies and customer service and team work. In engineering and manufacturing industries, these links were less apparent and some teachers felt that there was little scope for the inclusion of key competencies within the existing curriculum.

Teachers involved in the focus groups and interviews perceived that the extent to which key competencies were taken on board as part of an industry's agenda depended not only on aspects to do with customer service and quality, but also the size of the organisation. Whereas key competencies were perceived as an integral part of the workplace culture in some larger companies, in the case of small businesses, key competencies are relatively unknown.

One of the most significant findings of the field testing was the benefit of “piloting” possible changes. Research that is based on the work of practitioners is a way of gaining useful information about both what is being piloted and the implications for policy development.
6.2.2 TEACHING AND LEARNING

The TAFE institute-based projects

Institute-based projects which were judged by the project officers to have been most successful in implementing key competencies had several of the following characteristics:

- Curriculum containing explicit reference to key competencies
- Teaching methods and learning materials which provided students with opportunities to learn the skills and knowledge which underpin the key competencies
- Acknowledgement by teachers that learning which focuses on the development of key competencies requires teachers to adopt a different role from the traditional 'presenter of content knowledge'
- Learning situations designed so that a range of learning outcomes can be achieved simultaneously within integrated authentic activities
- Integrated assessment events which require students to undertake holistic tasks with simultaneous demonstration of a range of competencies
- Teaching approaches and learning materials which promote students’ reflection on the ways they had used the various key competencies in the achievement of learning outcomes.

The findings point to the importance of both explicitness of key competencies in curriculum and teaching and the provision of opportunities to learn key competencies with other competencies within the context of holistic, integrated activities.

The importance of curriculum documents

Well written curriculum makes it easier to teach and focus on the key competencies. Across nearly all projects, teachers commented on the importance of key competencies being explicitly written into curriculum documents. Where teachers had access to curriculum in which the key competencies were more explicit, they felt they were more able to incorporate key competencies into their teaching. This was particularly the case where key competencies were an integral part of what was being assessed.

The use of integrated activities

In the majority of the projects, teachers approached the problem of incorporating key competencies by designing integrated activities requiring use of several key competencies simultaneously. The notions of holism and integration appear to be very closely linked with successful incorporation of key competencies. Where students and trainees were required to undertake more integrated activities there was an automatic increase in emphasis on the key competencies.

Predominance of vocational competencies rather than key competencies

In many situations, the teacher’s foremost concern was the development of relevant industry based vocational competencies. Teachers focused on the vocational outcomes of their programs. Rather than using teaching strategies or approaches which might have been more appropriate for achieving key competency outcomes, teachers tended to use strategies and approaches with which they were more familiar and which were clearly aimed at achieving vocational outcomes identified in course documents and in industry standards.
The need to focus on process

In focusing on vocationally specific outcomes and content material identified in the curriculum, there was a tendency for teachers to overlook the significance of the processes involved in developing the key competencies and the foundation knowledge and skills that underpin these processes.

In some of the projects there appeared to be little consideration by teachers of their role in teaching the skills which underpin the key competencies. They tended to add aspects to do with key competencies to existing student activities and assessment methods rather than reconsidering teacher roles and the types of learning and assessment contexts which might have been more appropriate for developing key competencies. Many teachers, on reflection, indicated that different approaches to teaching might have been more useful.

What, in effect, teachers were doing was inferring that if students had successfully achieved particular course outcomes, then they must have learned the key competency processes implicit in those outcomes. There appeared to be confusion between the “cake” and the “recipe” – between outcomes and the processes, knowledge and skills that sustain the development of the key competences. A typical instance of this might involve a teacher assuming that because students were working in groups that they had well developed Working with others and in teams skills. Similarly that if a student had completed a project, that the student had developed effective Planning and organising activities skills. This confusion had not been identified prior to field testing. Little consideration was given by teachers to how they might develop these skills explicitly.

Teaching the key competencies

In only a small number of the projects did it appear that teachers explicitly taught the skills and processes involved in using the key competencies. It appears clear that teachers need support if they are to teach the key competencies. Teachers need examples of how the key competencies can be incorporated into teaching and they need support “to know how to actually address certain key competencies”.

The usefulness of “generic tools” and problem scenarios

A number of extended case studies have been written describing several of the contexts in which the generic tools and problem scenarios were field tested. These are included in the project report Field Testing Some Approaches to Teaching the Key Competencies (TAFE NSW, 1996).

Case studies illustrate how making explicit the link between key competencies and a range of existing generic tools was considered by teachers and students to be a useful approach to incorporating key competencies within vocational education and training.

The two examples which follow illustrate how the generic tools were used in the second phase of the field testing.
Case 1: Accommodation Services

In the TAFE NSW Accommodation Services Certificate course, students were required to respond to the following problem scenario by applying appropriate generic tools:

Example Problem Scenario:
QANTAS has phoned to advise the hotel that due to a lay over, a group of fifty people are due at reception in three hours. They are a mix of nationalities. From experience you know they will all want to check-in first and they will be tired and annoyed as they have not been able to take their flight as planned. You need to plan rooms, meals, wake-up calls, bags out, transfers etc for the group. The manager has asked your team to provide a written action plan for the smooth running of the groups arrival and departure. This is due in two hours.

Within the context of developing solutions to this problem, students learned and used a range of tools, including brainstorming, cause-effect diagrams, action plans, a team role audit and a self assessment schedule.

In this and other examples, teachers reported that the holistic approach of problem based learning was effective in integrating generic key competencies with the learning outcomes specific to the scenario. The tools assisted students to structure their problem solving.

Using various strategies to analyse problem scenarios helped to allay student fears about the size of tasks. This confidence building process seemed to free their creative thought processes so that solutions and positive outcomes became the focus rather than "this is too big to tackle" thinking.

In addition, teachers generally agreed that the use of the tools encouraged students to think about possible causes, strategies and actions before developing action plans and fostered improved teamwork and an appreciation of what is involved in teamwork.
Case 2: Building and Construction

This was one significant example where the problem scenario approach achieved a result different from that expected. It involved a class of first year post-trade building supervision students. The majority of the students were in their early twenties. A scenario was developed that represented a situation in the workplace and incorporated the learning outcomes for the current topic.

Students found the problem solving task to be very difficult. They were unfamiliar with the approach and felt that the teacher was not doing his job when he indicated that it was up to them to work out a solution. The majority of the students were not familiar with working in groups. Many had problems coping with the cultural diversity within the group. The evaluation indicated that the students had very little explicit experience of many of the skills which underpin such problem solving:

The students had very little experience of identifying objectives, setting priorities, management of groups, applying strategies and forming outcomes. Although the current course in which students are involved does identify the need for planning, estimating, evaluating and teamwork within the building industry, it does not identify these as generic competencies. In this implementation of a problem solving scenario, the teacher was required to direct the implementation as the students were unfamiliar with the practice.

On completion of the activity, the students could appreciate the reasons behind the approach taken but still perceived a conflict between what their teacher was asking them to do and what they saw as appropriate roles for teacher and student.

The teacher indicated that he felt the task would have been dealt with better by the students if they had been exposed to key competencies in their earlier trade course. The evaluation indicated that their previous experience was based largely on teacher-centred methodology and working as individuals. Much of the previous formal learning had been based on acquiring prescribed knowledge and responding to assessment tasks that featured short answers to closed questions.

Explicit connection between the generic tools and key competency outcomes

Many teachers are already using a variety of similar tools as underpinning strategies in the teaching and learning process. However, these strategies have not been seen as related to the teaching of key competencies in most instances. They have been used as part of good teaching practice. The connection between the use of such tools and the key competencies needs to be explicitly made (Winchester, 1996).

New language and new skills for students

Learning approaches using the generic tools involved many students in activities which are unfamiliar. They were often required to take on roles which were new to them. The language which is used to talk about these situations often involved abstract ideas such as “analyse”, “evaluate” and so on which again are unfamiliar to many learners only familiar with more traditional ways of learning. This is an issue for all students for whom this type of language is unfamiliar (Brown et al. 1996).
Lack of student familiarity with the generic tools/problem scenario approach

In most situations, the problem scenario approach was successful. In others it pointed to problems of students being inadequately prepared to carry out the processes involved in each of the strategies. Teachers reflected that, in many cases, problems such as these could be overcome by students having more frequent exposure to this type of learning activity. By doing so they would become more familiar with both the processes and the language of key competencies and the various tools.

6.2.3 ASSESSMENT AND REPORTING

Mapping of existing practice

The mapping of existing practice highlighted a number of key points about existing assessment practice relating to key competencies.

Formal assessment of key competencies

Key competencies are seldom explicit in assessment practices. Within trade courses, assessment events are usually defined by the curriculum and based on the requirement to achieve vocational knowledge and skills as specified in industry standards. The criteria teachers use to assess competence in these situations usually do not relate to performance of the key competencies. In other words, the modules have not been constructed to assess for key competencies. When skill practice takes place, there is a good deal of informal assessment which contains aspects of the key competencies implicitly.

Assessment of the processes in achieving outcomes

Assessment is usually outcomes, or competency, based and is strongly driven by the relevant industry competency standards. In most cases there is little, if any, emphasis on the processes which lead to an outcome.

Teachers involved in the institute-based projects selected a range of assessment approaches to explore. These included portfolios and logbooks, simulations of tasks encountered within workplaces, integrated assessment events across a whole module or a number of modules, practical tests and problem-based scenarios, self assessment proforma and peer assessment processes.

There were often constraints as to which approaches could be employed. Curriculum descriptors often specify assessment approaches (for example, pencil and paper test) which limit the opportunity to utilise assessment approaches more amenable to the demonstration of key competencies. The wording of learning outcomes and assessment criteria sometimes indicates particular approaches which limit the flexibility of teachers to employ key competency-rich assessment events. In some industries, assessment events are clearly specified, thereby precluding the opportunity for teachers to redesign assessment events to incorporate key competencies where they are not evident.

Where one or other of these constraints were present, teachers sometimes opted to add additional components to prescribed assessment methods. In particular, they chose to use student self assessment or peer assessment or group tasks.
Assessment of key competencies should be integrated and holistic

The field testing supports the view that in the off-the-job component of training, the assessment of key competencies should be integrated with the assessment of vocational competencies. Moreover, assessment of key competencies should be incorporated into existing assessment tasks and should not be a separate entity. This ensures that the key competencies are developed in relevant vocational contexts in keeping with the industry’s competency standards.

Concurrent with the key competencies project, there has been considerable policy work occurring within the vocational education and training sector in relation to the need to develop more holistic assessment approaches; approaches which enable the simultaneous assessment of numbers of learning outcomes. This has arisen partly because of the recognition of the problems evident when separately assessing isolated, skill-related learning outcomes. Particular problems include shortcomings of checklist approaches to assessment, the lack of validity of approaches which focus on skills and knowledge separated from the context in which they are used, and resource problems associated with numerous assessment activities, such as over-assessing students.

The piloting of key competencies indicates that approaches to teaching and learning which support the development of key competencies require more holistic assessment tasks. The need to shift to more holistic assessment is explained by Hawke and Oliver:

One of the major changes required of assessment practice is the need to focus on the overall performance of the job. Traditionally it has been considered acceptable to assess component parts of a job or task and assume that these can be added together into an overall outcome.

(Hawke and Oliver, 1992, pp. 246-247)

Such holistic approaches to assessment support both the development and assessment of key competencies. This is because holistic assessment activities almost invariably require the performance of a range of key competencies.

Teachers and students involved in the project identified a number of advantages which arise out of using holistic assessment approaches:

- it is easier to assess the key competencies because they are explicitly required for the performance of the assessment task
- it is easier to get students to reflect on key competency achievement because they can see that the performance of key competencies is integral to successful achievement of the assessment task
- students reported that assessment strategies incorporating the key competencies were more ‘rounded’ and they were confident that they would be able to transfer these competencies to the workplace
- students felt that the key competencies required them to ‘think through’ tasks and consider decisions more carefully than they would otherwise have done.

The challenge of shifting from norm-referenced to criterion-referenced assessment

In some courses, curriculum contains explicit key competency outcomes and assessment/performance criteria which provide a focus on the assessment of key competency performance. Some teachers, particularly those unfamiliar with criterion-referenced approaches to assessment, have experienced difficulties in making the shift from assessment dependent on more traditional
assessment methods involving centrally-set examinations and norm-referenced assessment to criterion-based assessment. In general education courses, such as the Certificate in General Education (CGE) and the Tertiary Preparation Certificate (TPC), teachers are now required to become familiar with a range of new ideas and practices relating to assessment. The challenges have included:

- promoting awareness of the purpose and use of assessment criteria for making assessment decisions. An added difficulty was the problem of interpreting and using key competency performance criteria to make assessment decisions. For many teachers this represented a paradigm shift. In particular, this was difficult for those teachers who had previously used “impression” marking for grading assessment tasks such as projects and essays.
- teacher acceptance of professional responsibility for making assessment decisions.
- promoting key competency outcomes within the context of programs which traditionally had focused on content knowledge and skills outcomes.
- assisting students to understand the purpose and meaning of assessment criteria used to make decisions about their performance.
- assisting students to develop and use key competencies which were integral to their completion of significant assessment projects, such as the completion of research projects and development of portfolios.

New assessment methods require both students and teachers to learn new skills

Where new assessment methods are employed, students need to learn a range of new skills. For many students the skills involved in being able to judge their own performance, using assessment criteria, are new. Likewise, describing what they have learned and how they are progressing and what they can do to improve their performance are unfamiliar skills for many students. Teachers have to make these new skills explicit and provide opportunities for students to learn them.

Often students’ attitudes to assessment will influence the success of the approach. Some students feel threatened by unfamiliar modes of assessment. In the case of the projects mentioned above, a number of students questioned what they had achieved if they did not do traditional tests.

Developing skills in self assessment and reflection

Self-assessment and reflection are important for individuals managing their own learning. In addition, within learning organisations and workplaces quality approaches are dependent on learners being able to evaluate their own work and to make judgments about the quality of outcomes against performance criteria:

It is important that learners are able to reflect upon, evaluate and articulate their learning of key competencies. This is considered particularly important as students need to develop the capacity to reliably judge their own work if they are to contribute to quality improvement in the workplace (Johnstone, 1994).

Many of the college projects explored the usefulness of self and peer assessment approaches as a means of focusing students’ attention on their key competency achievement. Teachers adopted a number of approaches — for example, the use of logs, captions attached to items included in portfolios, training record books, workbooks, peer and self-assessment tools. These self assessment approaches included:

- approaches which asked students to comment generally (and usually in a summative way at the end of a module) about whether they had achieved the key competencies
approaches which required students to comment more particularly about their key competency achievement within the context of a particular activity

approaches which required students to comment more generally on key competency achievement within the context of the learning outcomes or assessment tasks within a module; for example through the use of reflective captions which students attached to each of the items they included in a portfolio.

In general, teachers were challenged and found it difficult to integrate self assessment approaches into their teaching. The approaches used to promote self-assessment often focused on the achievement of vocational outcomes rather than key competency performance, or on outcomes rather than the processes involved in achieving those outcomes. For example, teachers typically asked students if they had used the competency Working together and in teams rather than asking what the students had done which involved working in teams or what they had done which contributed to their effectiveness in working in teams.

The field testing of generic tools involved the use of a number of tools intended to focus student and teacher attention on the importance of self-assessment and reflection. The team roles instrument, for example, provided team members with information about the various strengths and weaknesses of the role various individuals play in groups. Despite the difficulty many students had with these activities, teachers recognised the benefits which would come from developing these skills. The following comment is indicative of teacher responses.

*Although tools such as the ‘team roles audit’ may need to be simplified, they do provide insights into behaviour in groups, and give students a basis for ‘concrete’ self reflection on performance in teams.*

Results of the field testing suggest that self assessment approaches and peer assessment approaches, particularly in the context of formative assessment, may be a valuable direction for further work. Professional development activities and support materials which assist teachers in incorporating self assessment approaches within training contexts would be extremely useful in focusing on key competency performance.

**Reporting**

Early thinking within the vocational education and training sector about reporting was dominated by the belief that systems would need to be devised to facilitate the separate reporting of key competencies. A range of options which might form the basis of system-wide reporting was identified. Some of these options were trialed within the institute-based projects. The options trialed included those outlined below.

- System-wide approaches to reporting individual student’s achievement of each key competency indicating the level of performance. Effectively this approach would require ‘grading’ of performance on individual key competencies.

- System-wide approaches inferring achievement of key competency outcomes from curriculum documents and/or industry standards. The course outcome, module purpose statement and/or learning outcomes could be used as a basis for describing and reporting achievement. Alternatively inference approaches could be based on industry standards.

- Approaches based on inference might use one or several of the following:
  - reporting based on module purpose statements, course outcomes or industry standards
- key competency report provided on completion of course
- key competency reports provided for each module completed
- reporting of key competencies based on inference from module purpose statements, course outcomes statement or industry standards.

☐ Local reporting of key competencies – an additional layer of reporting undertaken by individual colleges. In this approach, an additional layer of reporting is undertaken by individual colleges. Judgments about the achievement by students of key competencies could be recorded in reports either locally- or centrally-designed. As part of this process, students may compile competency logs, portfolios, etc. as a personal record of achievement of key competencies.

☐ Non-reporting of key competencies – in this approach there is no formal reporting process at either the system or college level. However, students may still be required or encouraged to compile competency logs, portfolios, etc. as a personal record of achievement of key competencies.

Support for integrated reporting

Investigations into reporting have revealed limited support for a reporting system which enables separate reporting of the key competencies. Instead, there has been greater support from representatives of training providers, industry and accreditation agencies for approaches in which vocational and key competencies are reported in an integrated manner. This finding has been supported by simultaneous work in Victoria and South Australia.

Consequently, our efforts have focused more on reporting approaches which are compatible with an integrated view of the key competencies. To be successful such approaches require key competencies to be explicit and integrated with vocational competencies within industry standards and assessment activities.

The approach which has the greatest support is reporting based on the stated learning outcomes in a module or unit of training. Inferences can be made about the range and level of performance of key competencies achieved by a student who successfully completes a module or unit of training from the learning outcomes, assessment criteria and module purpose statements.

Several reporting techniques emerged from the field testing. These included:

☐ a number of locally developed reports which provide additional records for students of their key competency achievement

☐ two computer-based systems for recording and reporting the achievement of key competencies.

Development of computer-based reporting systems

Two projects explored the potential for using a computer-based system for recording and reporting the achievement of key competencies.

In the Mechanical Engineering project, a computerised reporting system was devised. This system enabled a student’s progress in the development of both module competencies and key competencies to be recorded and reported. A map of the key competencies in the Mechanical Engineering Certificate curriculum had been developed during prior curriculum mapping work. Teachers involved in the project used this map to infer achievement of the key competencies whenever students completed relevant modules. Consequently, this model was concerned with implicit learning
of the key competencies. On completion of a course of study and after completing all modules within the course, students' achievement of key competencies might be inferred by considering the accumulation of key competencies achieved in the various modules of the course.

In the AVTS Geotechnical Field Operations project, an alternative computer-based reporting system was explored. This was based on an existing INTRAIN reporting system. The system provides a means of reporting vocational competencies and key competencies which are practised and assessed while the student is involved in on-the-job work experience. The student completes an INTRAIN report at the end of each day's work, with information about the types of activities in which he or she has been involved during the day. Underpinning this process is the assumption that if a student/trainee has successfully completed workplace activities, it is appropriate to infer that they are performing associated key competencies competently. This information is entered into a database which then enables the production of a report which indicates the key competencies employed during the day's work and makes some estimate of the complexity of the activity and the location.

These two projects demonstrate the feasibility of developing systems which can be used as a basis for reporting the achievement of key competencies. A report could be produced, providing students with information about their key competency achievement together with their results and/or Certificate. However, such a report could not be used to differentiate different levels of performance of the key competencies. Any differentiation would be based on differences between courses.

Nonetheless, important questions remain which need to be addressed. Critical questions include:

- what desire or support, if any, is there for reporting systems such as these?
- would it be implemented at the system level, the industry level, or the provider level?
- is the existing process of mapping the presence of key competencies, either in curriculum or in workplace activities, an appropriate or adequate means for making judgments about the presence of key competencies?

**Simplicity and workload**

With regard to systems of reporting key competency achievement, there was concern that any reporting system should be simple, supported by clear guidelines and integrated with vocational competencies. As with assessment, the reporting of the key competencies should be simple, incorporated into the vocational competencies and well monitored.

A factor frequently mentioned by teachers and industry representatives was that separate reporting of key competencies could greatly increase teachers'/trainers' workload. Concerns were raised by staff on this issue as they felt that the reporting of key competencies could generate another "load of paperwork" and thus have a negative impact on the teaching of the key competencies.

Teachers felt that flexibility needed to be built into any form of reporting of the key competencies and that a local response to reporting practices may be the best way to proceed in the immediate future. Such a process, it was argued, would allow a variety of creative responses to emerge out of practice within the various TAFE institutes.
6.2.4 INCORPORATING KEY COMPETENCIES

A number of project objectives related to curriculum design and the incorporation of key competencies within vocational education and training curriculum, in particular requiring the project to:

- develop strategies for incorporating key competencies within vocational education and training curriculum
- explore approaches to incorporating key competencies into state developed vocational education and training curriculum.

The effectiveness with which the project was able to incorporate key competencies into state-developed curriculum varied considerably depending on the project context.

In the general education projects, the incorporation of key competencies has generally been straightforward. Curriculum developers were committed to the key competencies as a set of course outcomes in the absence of industry competency standards.

Within the context of non-general education projects, the incorporation of key competencies was dependent on a number of factors:

- the quality of competency standards and the extent to which key competencies were explicitly identified in standards
- industry and teacher perceptions of key competencies
- commitment to key competencies by curriculum and project managers
- time/resources available
- constraints imposed by existing national curriculum.

Findings derived from the project activities can be summarised in the two ideas: explicitness and integration

Explicitness

Key competencies should be explicit within curriculum. Assessment and reporting of key competencies will be supported by curriculum in which key competencies are integrated into module outcomes and assessment criteria.

Field testing highlighted the idea that well-written curriculum makes it easier to teach the key competencies. In nearly every project, teachers commented about the importance of key competencies being explicitly written into curriculum documents. Where teachers had access to curriculum in which the key competencies were explicit, they felt they were better able to incorporate key competencies into their teaching. This was particularly the case where key competencies were an integral part of what was being assessed.

Where curriculum emphasised narrow industry-specific outcomes, teachers often found it very difficult to focus upon key competencies within their teaching. Some curriculum documents were not particularly challenging and focused on learning activities associated with describing, outlining, listing, stating procedures and the like. Activities linked to development of the key competencies, such as those in the figure framed opposite, tend to encourage qualitatively different assessment tasks and learning outcomes.
Activities linked with key competency development

- Planning, implementing and evaluating...
- Undertaking a group project to design...
- Selecting and using procedures to...
- Investigating...
- Analysing and making recommendations...
- Participating in a team to solve problem...
- Carrying out and reporting on...
- Determining a process to...

The crucial role of industry standards

Research previously undertaken by the National Training Board (NTB) (Ramsey, 1995) found that “key competencies are either explicitly or implicitly embedded in all industry competency standards” (p.16). However, the research methodology does not address the question of how a decision is made as to whether or not a key competency is deemed to be present or absent within industry standards. If the definitions of key competencies which were used for mapping key competencies in the NSW project (i.e. key competencies as processes incorporating all of the following elements: clarifying the goal, deciding how to achieve the outcome, achieving an outcome and evaluating the outcome and the process of achieving it) had been used as a basis for deciding if key competencies were present or absent, the NTB study would have found that fewer key competencies are fully present, whether explicitly or implicitly, in industry standards.

If standards are to be used to underpin the development of key competency-rich training programs and courses, then key competencies need to be explicit and clearly present in industry standards. Further, curriculum writers and developers of learning and assessment materials involved in the project found it much easier to develop “key competency-rich” training programs and materials where a holistic, integrated approach is taken to structuring the industry standards.

Integration

A common theme mentioned by project teams was the need for key competencies to be integrated with vocational competencies at all levels – of industry standards, curriculum, delivery and assessment.

The project found little pressure from industry to report on the key competencies separately. Instead, the project consistently found that the options of reporting achievement of key competencies in the context of the course outcomes, module purpose statements, learning outcomes and/or industry standards were the options preferred within the vocational education and training sector. There are a number of consequences arising from this view of reporting:

- the difficulty of providing credit for key competencies learned in other contexts;
- not being able to provide Recognition of Prior Learning (RPL) for workers who, though they have highly developed vocational competencies, may not be able to demonstrate achievement of key competency outcomes in a module;
- the need for good practice models which illustrate how key competencies may be written into course and module outcomes;
- the risk of key competencies being “hidden” within the vocational outcomes of course documents and consequently not being explicitly taught/delivered.

These findings were supported by the South Australian and Victorian projects as well.
The use of generic tools

Curriculum and learning materials developers need to become more aware of approaches and strategies which can be incorporated into curriculum and teaching/learning materials which can promote the further development of key competencies. In the case of the generic tools, for example, teacher participants expressed the view that:

It (the use of scenarios and generic tools) should also be encouraged at the course development stage by providing Industry Training Divisions with tools that can be written into new courses and syllabi currently being written ... any additional tools would be of benefit to teachers.

Case 3: Course Review

The key competencies were used in the development of a TAFE NSW course: the Diploma in Aboriginal Studies. The process was documented and forms part of a report prepared by May (1996); Observations and Reflections on Key Competency Pilot Activities.

Three course review cycles took place over a period of two months and included advice on the development of teaching and learning resources for eight core Diploma modules. The core modules were mapped against the key competencies and key competencies were integrated where appropriate. The mapping involved a review of the module purpose statement, learning outcomes, assessment criteria and conditions under which learning and assessment are to take place. The course developers found that all of the key competencies (and all of the essential elements) were able to be incorporated into the core of the Diploma. The course design enabled the integration of the key competencies in a holistic and inter-related manner.

The process also resulted in an enrichment of the curriculum that included:

- a refinement and refocussing of the activities in which learners are involved, with an increased focus on analysis, comparison and evaluation and less emphasis on activities such as discussing and describing
- more explicit and consistent reference to key competencies (and underpinning skills that contribute to key competency development)
- an increased focus on group and team work and problem based learning.
- a more explicit inclusion of self and peer review and evaluation as part of both learning and assessment practices
- the integrated assessment of multiple learning outcomes, where appropriate.

The reviewer noted that the process enabled the project definitions, including essential elements, as outlined in Working Document Draft 5, to be used as a continuous improvement tool to enhance the quality of the curriculum. The systematic incorporation of key competencies was seen as a much better approach than an 'add on' activity where the mapping of the key competencies may have been done at the end of the curriculum development process to improve accreditation prospects. Rather, the curriculum developers viewed the process used as a 'value adding' process.
6.2.5 PROFESSIONAL DEVELOPMENT

During the project several professional development needs were identified. Some of these related to key competencies specifically, including: information about what the key competencies are; why they are important and where they have come from; strategies for delivering key competencies; and delivery approaches which enables the key competencies to be integrated with vocational competencies within the context of authentic activities.

Professional development focusing on broader issues to do with effective teaching and learning and assessment

However, it would appear that professional development relating to key competencies might more profitably be integrated within professional development activities focusing on broader issues to do with effective teaching and learning and assessment.

The field testing suggests that the capacity of teachers to fully realise the potential benefits of working with key competencies depends on a range of broader factors. These factors are related to:

- teachers' understanding of the role of the teacher
- their ability to view teaching as a learner-centred activity
- their understanding of the link between learning outcomes and strategies for achieving learning outcomes
- their capacity to involve learners more actively in the learning process and to devise learning contexts in which key competencies can be integrated with vocational competencies within the context of authentic activities.

Need for specific examples

As part of their further professional development, teachers need examples of how the key competencies can be incorporated into teaching and they need support to know how to address certain key competencies.

Concerns were expressed by teachers that they needed further professional development showing how to integrate the key competencies into lessons in a natural and coherent way, and to design integrated activities requiring use of several key competencies simultaneously.

Issues with language

The implementation of key competencies involves a considerable new language for teachers. Yet, at the same time teachers are grappling with the new language of competency-based training and outcomes-based assessment. Participating teachers found it very difficult to develop common or coherent interpretations of this new language.

Teaching and Learning Key Competencies - A Resource Kit

A kit including a range of generic tools and strategies, descriptions of how to use them, and exemplars has been produced and may be used as the basis for staff development programs (Grant and Moy, 1996). Many of the tools have been widely used. Some are have been sourced to recent publications, others were developed from within the project. The strategies assist teachers to focus on underpinning knowledge and skills that can be used to help develop key competencies and cater for a range of learning styles when attempting to meet curriculum outcomes. The kit also includes a section on problem based approaches to learning, developing group and team skills and assessing
and reporting on key competencies.

Additional feedback

The researcher observations and reflections documented by Moy (1996) are also useful when considering approaches to professional development. Of particular relevance is a case study based on commencing TAFE teacher responses to strategies and tools for promoting key competency development. The following points emerged:

- Teachers were very enthusiastic about opportunities to share their experiences, particularly those related to new ideas. If teachers are to be supported in promoting key competency development there is a need to encourage the establishment of interest groups and information exchanges, through face-to-face exchanges or through such media as internet web sites.
- The response to the resource materials based on strategies and tools suggests that there is significant demand for this sort of material.
- Teachers and learners need to be assisted in making explicit connections between key competencies and strategies that can help with their development.
- Teachers would be better placed to work with key competencies if additional resource and reference material was more accessible.
- The implementation of an approach to teaching and learning which explicitly links:
  - the key competencies
  - quality and continuous improvement processes, and
  - the use of strategies and tools which provide a common foundation for both could be viewed as a strategic initiative useful in positioning and differentiating TAFE NSW within an increasingly competitive vocational education and training market.

Further information


7.1 THE APPROACH TAKEN

The Research Centre for Vocational Education and Training (RCVET) was engaged as consultants for the mapping stage of the pilot. This involved using a similar approach to TAFE for the mapping of training documents and workplace practices. The RCVET team worked with TAFE to identify common industry program areas in order to coordinate on and off-the-job aspects. The team undertook to examine how key competencies are understood in different industries, and the extent to which they are present in curriculum development and training practices in those industries. Detail of the RCVET mapping exercise is available in a separate report: *Key competencies in on-the-job training* prepared by Gonczi, Curtain, Hager, Hallard and Harrison (1995).

An additional insight to the nature of the presence of key competencies in workplaces came from commissioned research by Field and Mawer (1996) that focused on the *Generic skill requirements of high performance workplaces*.

The focus of field testing was the incorporation of key competencies into on-the-job training curricula and the incorporation of key competencies into training delivery, assessment and reporting practices. The detail of this work can be found in the report *Workplace Keys: Piloting the key competencies in workplace training* (Hager et al, 1996).

A further round of field testing focused on the trialing of learning materials highlighted in the *Workplace Keys* report. Considerable trialing and development resulted in the production of a resource package; *Workplace Keys; Improving Your Training with the Key Competencies* (Moy, Brown, Winchester, Stone and Schwenke, 1996). This has proven to be very popular with people responsible for vocational education and training in the workplace. Details about the development and field testing of the package are available in a report prepared by Moy (1996): *Observations and reflections on Key Competency Pilot Activities*.

A summary of the approach taken is provided in Figure 9.
Summary of Approach Taken

Developing Working Definitions

Mapping the presence of key competencies in existing practice

Phase 1. Field Testing. Developing models for incorporating key competencies.

Phase 2. Field Testing. Incorporating key competencies in workplace training.


Development of principles with TAFE NSW.

Investigating key competencies in high performance workplaces.

7.1.1 MAPPING

The RCVET approach

Program areas mapped

- Electrical Fitter Mechanic Apprenticeship
- Metals and Engineering Career Start Traineeship
- Hairdressing Apprenticeship
- Hardware Retail Sales Program (wholly work based)
- Food & Beverage stream of the Hospitality Traineeship
- AVTS Pilot in Manufacturing at Mt Druitt TAFE

An additional retail enterprise traineeship was added as a wholly work-based pathway.
Selected workplaces and individual enterprises were chosen by the relevant Industry Training Advisory Body (ITAB) against criteria that addressed: the size of the workplaces; the variety of work practices; the varying level of commitment to on-the-job training; and regional differences where appropriate.

The team visited six workplaces in each of the selected industries. During the half-day visit, officers interviewed trainees and training managers/supervisors. Their activities included:

- observing telephone surveys being conducted with managers of twenty enterprises
- mapping relevant log book / skill profile / course documentation using the scale developed in consultation with TAFE
- making contact with current curriculum/ National Transition Program development projects with a view to involve them in piloting the incorporation of key competencies.
- conducting a literature review / industry consultation to identify examples of best practice.

The Field and Mower approach

The project team wanted to establish whether key competencies were significant in workplaces that placed a high value on workplace learning. The researchers were commissioned to undertake a study that focused on the existing practices in workplaces that were acknowledged in the literature of quality and continuous improvement and featured in best practice seminars. These workplaces were termed high performance workplaces. In most of these work places the emphasis given to generic skills predated the work of the Mayer Committee and pointed to the diversity of practices in the workplace.

At each of the nominated sites, a series of detailed interviews were conducted with a small number of employees occupying a range of positions. All sites included an interview with one or more people with an overall perspective on workplace change (often senior or middle level managers).

7.1.2 FIELD TESTING

Phase 1 Developing a series of models for incorporating the key competencies into on-the-job training curricula

Five researchers worked with personnel engaged in on-the-job curriculum development projects to analyse the practices and models used to incorporate the key competencies into curriculum. Various groups were involved including some external consultants. Members of the research team met fortnightly to plan collaboratively, compare approaches and discuss emerging issues. The industry partners and the focus of each study are identified in Figure 11, which follows.
Phase 2  **Incorporating key competencies into workplace training**

This part of the project used action research processes at a number of sites across five different industries, to field test different ways of incorporating key competencies into workplace training. The purpose of this study was to develop and field test a series of models for incorporating the key competencies into the delivery, assessment and reporting of on-the-job training. DTEC identified workplaces from five industries: Clerical/Administration; Information Technology; Hairdressing; Hospitality and Metals.

The seven researchers involved in Part 2 met regularly to discuss emerging strategies and approaches observed in industry practice, identify issues and debrief on piloting. The set of working assumptions developed by the NSW TAFE sector (see Figure 8, page 99) were applied during the design of all tools and approaches. The researchers also provided regular feedback to stakeholders.

Phase 3  **The Development of resource material**

This additional round of field testing built on the outcomes of piloting the key competencies in the workplace and resulted in the production of a resource kit for trainers and supervisors; *Workplace Keys: Improving Your Training with the Key Competencies*. The kit itself was subject to considerable field testing with some of the workplaces involved in Phase 2, together with several new sites. The sites were drawn from the following industries: Hospitality, Hairdressing, Retailing, Manufacturing, Clerical and Administration. The kit includes introductory information on the key competencies together with sections on five approaches for integrating the key competencies into new and existing training practices. The five approaches are:

- using critical incidents in on-the-job training
- problem based learning and working with training scenarios
- project learning in on-the-job training
- performance review using the key competencies
- mapping for the key competencies.
7.2 FINDINGS AND DISCUSSION

7.2.1 THE PRESENCE OF KEY COMPETENCIES IN EXISTING PRACTICES

RCVET curriculum mapping

The availability of curriculum and learning materials to assist on-the-job training is patchy. Even where documents exist they do not explicitly refer to key competencies. However, with regard to industry training, the written curriculum should not be overemphasised. Trainers, supervisors and managers hardly ever mentioned documents or curriculum developed by industry associations.

Most on-the-job training is not geared to curriculum. Workplace training supported by curriculum and training programs may be increasing through NETTFORCE, the Australian Vocational Training System (AVIS) and national developments in apprenticeship training, but on-the-job training across industry is generally neither formalised nor systematic. The extent and complexity of training varies greatly across and within industries.

The nature of representation

The exercise revealed much about the presence of the key competencies in terms of elements of competence in industry standards. The use of Mayer performance levels in mapping the presence of key competencies to meet ANTA requirements can provide a useful first step in highlighting, promoting and assessing the need for key competencies in workplace training. However, where the Mayer performance levels had been used to ascertain the presence of the key competencies this did not result in a clear indication as to how the competencies were present. In addition, there were misunderstandings in the use of industry standards. Some participants assumed that because key competencies were mapped as present in industry standards, they were automatically present in the design and delivery of training events.

There was confusion about the nature of the key competencies – as outcomes, and as knowledge underpinning successful performance. This uncertainty extended to the relationship between the key competencies and the aspects of generic competence in language, literacy and numeracy.

RCVET mapping: workplace practices

Workplaces that support the service industry are more likely to embrace the key competencies – particularly where there is a need to be client focused.

Key competencies are being developed, to some extent, in on-the-job training; though generally in an unsystematic, unco-ordinated, “hit or miss” fashion.

The following interconnected variables appeared to determine the nature of training for key competencies:

- the training culture in the industry
- the nature of the work
- the size of the firm
- the trainer’s understanding of the teaching / learning process, and
- the age, experience and capacity of the trainee or apprentice.

Trainers and supervisors had an incomplete understanding of the key competencies. Whilst this has not prevented key competencies from being developed (incidentally and implicitly) in the course of other training activities, it has limited the extent to which trainees are able to fully develop the competencies.
Task-based informal learning occurring incidentally on a day-to-day basis appears to be the most common means by which key competencies are currently developed.

Where key competencies are present they are often implicit or not developed as fully as they could be. And where they are identified as being partially present, the elements associated with purpose and evaluation are missing. The researchers indicated that there is still the potential to develop the key competencies even where they are absent or minimally present.

Many learners may not be developing the key competencies as a result of existing learning practices. Indeed, current workplace trainer/assessor skills appear to require further enhancement for the development of the key competencies to take place.

Assessment and reporting are strong influences on student perception about what is valued in the curriculum. Notwithstanding, the key competencies were noticeably absent from these practices.

Documentation leaves much to be desired and considerable development work is required if key competencies are to be made explicit for on-the-job training.

It is interesting to note that later research by the field testing team (Hager et al) found the requirement that skilled work take into account changing context is, on its own, usually enough to bring the key competencies into play. Thus work is seldom as narrow as task based competencies seem to suggest. The researchers repeatedly found that any significant unit of work activity can be seen as embodying simultaneously both specific skills and several of the key competencies. The key competencies were therefore argued to provide a good basis for viewing work more holistically. As a general principle it was found that if particular units of work can be described without involving key competencies, then the work units are probably being described too narrowly to be useful.

**The Field and Mawer findings**

Field and Mawer found that key competencies are prominent in operational procedures, organisational thinking and practices in workplaces that are considered to be highly effective. The report from this study provides a contextually rich insight to what the key competencies look like in practice. Perhaps more importantly the study details the features of the workplaces that are argued to be conducive to employers developing the key competencies. This is exemplified by the following extracts from the Field and Mawer report that deal with comments from the workplace.

*Because your confronted with so much information here, you can’t be expected to know it all. Instead what becomes important is to understand what it is, where it is and how you can use it without actually going through it all in depth (OPTUS)*

*A lot more planning and organising is done by ordinary employees because they have much more responsibility. There has been a big increase in the number of process improvement projects that we get involved in. (Australian Tax Office)*

*Quite a few of our team’s extra responsibilities involves working with numbers. For example, each team has a budget to spend - so much for line improvements and so much for cleaning. They have to understand the amounts. (Rexona)*

*Line operators often tend to jump too quickly to solutions, but skip over vital steps. We try to get them to approach problems more systematically, collect data over a few weeks and then use it to come up with the best solution. (Rexona)*

*The systems here can be a nightmare. Tracing anything can be like looking for a needle in a haystack. You need to see the whole picture, and understand that problems can be both technology related (like data errors) or people-related. (MLC)*
It was found that the key competencies represent a satisfactory list of generic skills. The adequacy of the key competencies as a set was reinforced by most participants agreeing that most of the general things they considered to be important were covered by the key competencies.

### 7.2.2 LEARNING IN THE WORKPLACE

The RCVET field testing team confirmed the findings of Gonczi et al (1995) that across all industries the variables in a training culture and context have a significant effect on the teaching of key competencies. Of particular importance is the need for learning to be integrated and context specific. This involves combining the key competencies with specific occupational knowledge and skill to develop expertise in contexts that are relevant.

The team found that learning in the workplace is different in many respects to traditional classroom learning and is characterised by the following:

- It is not so reliant on teachers and formal curricula.
- Knowledge is not favoured over practice; rather the two are integrated in a seamless whole of know how.
- This know how grows and develops with appropriately structured experience.
- The know how is often implicit.

It is argued that the key competencies have not been emphasised enough in traditional vocational education and training and that the key competencies can be used as a vehicle for enriching training by encouraging a more integrated, systematic and strategic approach. As a starting point it is suggested that the workplace should be analysed for the purpose of identifying situations that have the potential for including key competencies to improve work performance.

On the basis of the piloting, methods that appeared to work well included: critical incident scenarios, problem based learning, and trainer/trainee assessment tools which integrate the key competencies. The third phase of field testing confirmed the usefulness of these approaches and the resource material developed has been in high demand.

Maximising the opportunity for the development of key competencies may require the integration of different learning contexts. While on-the-job learning may be most appropriate for situational learning which integrates generic and technical skills, field testing in the manufacturing and hospitality industries suggests that these locations may not always be conducive to the types of learning events which will encourage learning transfer and the development of key competencies. These findings suggest that people responsible for learning will need to consider appropriate combinations of on-the-job and off-the-job approaches that are characterised by:

- self assessment
- heightened awareness through reflection
- explicit connections between workplace tasks and the key competencies
- opportunities for learning as well as assessment
- integrated approaches to thinking and action
- Links to challenging work situations

The key competencies have been seen to be important for all of the workforce, not just school leavers, apprentices or trainees.

The Field and Mawer Research provided additional information on quality learning in the workplace that is valued and associated with the development of the key competencies. The emphasis
was most obvious in a set of criteria used at one workplace to help determine who should be eligible for redundancy. Those whom the organisation is keen to retain satisfy criteria that includes:

- Openness to new ideas and new ways of doing things
- Commitment to continuous learning and personal development
- Ability to implement and manage change
- Commitment to continuous improvement and the implementation of better work practices
- Ability to adapt to changes in technology
- Flexibility and capacity to work in a team-based environment
- Communication and representational skills, including responsiveness to clients
- Ability to operate systems and equipment
- Problem solving ability
- Relevant high level technical skills

**A model for learning in the workplace**

On the basis of their findings Field and Mawer proposed a model for skill development in high performance enterprises (see Figure 12). At the centre of the model is an intellectual and attitudinal core. In the workplaces studied employees need to have the capacity to understand interrelationships, to retain information, apply decisions, feel confident manipulating a variety of forms of information (verbal, numerical, symbolic, graphical) and put forward their own ideas and suggestions. Many of the organisations studied were noted as including attitudinal factors in their recruitment criteria. Another area emphasised at all sites was the willingness and ability to use initiative and take responsibility for ensuring the achievement of goals.

**Figure 12**

A proposed model for skill development

In developing workplace training programs two models of learning can be distinguished; Technical and Strategic. The main features of these models are provided in Figure 13 below. In terms of this distinction the project evidence clearly indicates that key competencies both develop through, and contribute to, strategic learning.

**Figure 13**

<table>
<thead>
<tr>
<th>Technical Model</th>
<th>Strategic Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non interactive learning</td>
<td>Action learning</td>
</tr>
<tr>
<td>Prescribed content</td>
<td>Less prescribed content</td>
</tr>
<tr>
<td>Direct learning</td>
<td>Learning through reflection</td>
</tr>
<tr>
<td>Didactic transmission of content</td>
<td>Project, problem based learning</td>
</tr>
</tbody>
</table>


**Field testing the resource kit**

The observations of one of the researchers have been documented (Moy, 1996) and provide an insight to the nature of the field testing that took place. During feedback sessions on drafts of the kit, industry representatives continually emphasised the need for practical information, including examples and anecdotes, rather than abstract or theoretical information. Interestingly, despite concerns among the researchers that there may be too many problem based learning examples in the kit (ie seven), industry representatives continued to request more.

A common theme was the need to produce resource materials which were appropriate for employees performing front line training functions, usually as an integral part of their job. They are busy people, with competing priorities, limited access to *train-the-trainer* training and sometimes variable commitment to, and ownership of, enterprise training. Specialist human resource management people frequently commented that there was a lack of training material targeted at frontline trainers. It was frequently targeted at specialist trainers who usually do not have time to revise material for in-house use.

Field testing resulted in cycles of modification. Diverse responses were encountered across a range of sites. As a result of feedback the researchers recognised that enterprises would come to both the kit and the key competencies from very diverse backgrounds and starting points. In a large company with a well developed training programs that actively engage workers in systematic learning programs the response was “so what’s new?” In other organisations where on-the-job training had generally been ad hoc, implicit rather than explicit and less than systematic, the material was greeted with considerable enthusiasm.
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The focus for the resource kit became "improving your training with the key competencies", in order to accommodate these variations and emphasise, where appropriate, that the information provided was designed to build on existing successful (and possible enterprise specific) practices.

**Feedback from working with the resource kit**

Feedback on the resource kit has been very positive. An example of how the kit has been used is provided in Figure 14.

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**A catering company**

At a large catering company the critical incident and problem based learning scenarios were greeted with enthusiasm because of their ready applicability to in-house training. Both the training managers employed by the company (one in Sydney, the other in Melbourne) integrated these approaches into their train the trainer programs in late 1995. The Sydney based manager indicated that over a twelve month period feedback from employees (exiting the program and during post program follow up interviews) had been very positive.

Participants valued information about on-the-job training approaches that were straightforward, could be adapted to different scenarios and contexts and engaged the trainee more actively in learning and performance improvement. For some employees it was something of a surprise to find that they were able to use a range of on-the-job training strategies which extended beyond mini lectures and demonstrations.
When is transfer of learning more likely to take place?


Researchers at the Assessment Centre of TAFE NSW (Marett and Hoggard, 1996), have also looked at the issue of transfer of learning. The findings are consistent with those of the project. The research dealt with perceptions from the workplace and argues that the transfer of learning is more likely to take place when.....

<table>
<thead>
<tr>
<th>Management</th>
<th>Workplace Culture</th>
<th>Individual</th>
<th>Training Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>values, encourages and</td>
<td>values open communication and</td>
<td>has a strong commitment to and accepts</td>
<td>employ learner-centred, adult teaching</td>
</tr>
<tr>
<td>models a lifelong learning</td>
<td>sharing of information</td>
<td>responsibility for their own learning</td>
<td>strategies.</td>
</tr>
<tr>
<td>approach</td>
<td>provides a safe, trusting environment</td>
<td>is an active learner</td>
<td>build learner self esteem and motivation</td>
</tr>
<tr>
<td>shares information</td>
<td>encourages coaching</td>
<td>develops the ability to reflect on their</td>
<td>promote the role of the learner in</td>
</tr>
<tr>
<td>provides orientation to</td>
<td>supports coaching by providing skills</td>
<td>own learning and skill development</td>
<td>reflecting on their experiences and</td>
</tr>
<tr>
<td>the organisation for all new</td>
<td>development for coaches</td>
<td>develops the ability to assess their</td>
<td>understandings</td>
</tr>
<tr>
<td>staff</td>
<td></td>
<td>skills development and identify gaps</td>
<td>develop the key competencies explicitly</td>
</tr>
<tr>
<td>provides regular positive</td>
<td>provides time for development of expertise</td>
<td>takes advantage of learning opportunities</td>
<td>develop transfer skills explicitly</td>
</tr>
<tr>
<td>feedback to all staff on their</td>
<td></td>
<td>seeks increasing responsibility</td>
<td>provide holistic assessment strategies</td>
</tr>
<tr>
<td>general skills development</td>
<td></td>
<td></td>
<td>which offer learners positive, constructive feedback</td>
</tr>
<tr>
<td>is open and available to staff</td>
<td>provides orientation to “experts” with</td>
<td>promotes the opportunity for and</td>
<td>provide a program which engages the</td>
</tr>
<tr>
<td>to provide advice, training and</td>
<td>support to develop their coaching/</td>
<td>expectation that workers will be able to</td>
<td>the learner in a process designed to</td>
</tr>
<tr>
<td>guidance</td>
<td>training skills</td>
<td>transfer their skills to new situations</td>
<td>develop them as a lifelong learner</td>
</tr>
<tr>
<td>provides workplace “experts”</td>
<td>supports the “extending” of employees in</td>
<td>allows for and supports the “extending”</td>
<td></td>
</tr>
<tr>
<td>with support to develop their</td>
<td>unfamiliar situations</td>
<td>of employees in unfamiliar situations</td>
<td></td>
</tr>
<tr>
<td>coaching/training skills</td>
<td></td>
<td>values diversity</td>
<td></td>
</tr>
<tr>
<td>provides employees with a rich</td>
<td>provides employees with the opportunity to</td>
<td>seeks and acts upon critical feedback on</td>
<td></td>
</tr>
<tr>
<td>variety of work experiences</td>
<td>take on increasing levels of responsibility</td>
<td>performance</td>
<td></td>
</tr>
<tr>
<td>provides employees with the</td>
<td></td>
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<tr>
<td>opportunity to take on</td>
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<tr>
<td>increasing levels of</td>
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<td></td>
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<tr>
<td>responsibility</td>
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</tbody>
</table>

Source: Marett and Hoggard (1996) *Key Competencies and Transfer of Learning.....Perceptions From The Workplace*
The Workplace

Case Studies

The following case studies indicate the type of engagement that took place with key competencies during the field testing. The cases are taken from the project resource: Workplace keys: Improving Your Training With the Key Competencies, A Resource For Trainers And Supervisors.

Case 1: Dealing with an unclear customer enquiry by telephone in a screen printing business

The key competencies being addressed were solving problems, communicating ideas and information, planning and organising and using cultural understandings.

Responding to telephone enquiries is very important to the operation of the business.

It is crucial that a customer’s needs are understood and that details of a telephone order are recorded correctly. The trainee telephone receptionist comes across several kinds of difficult calls and must learn to deal with them. One call is from a customer who is unclear about the kind of order required.

The organisation used the flow chart strategy outlined below. The trainees were coached through the process in an edge of desk mode. Where necessary students were prompted to make responses.

```
Standard greeting

Listen to the customer

Is customer clear?

Interpret inquiry: Assist customer to determine their need according to type and size of job

Redirect call

Can we perform the task?

Are sales staff in the office?

Can we sub-contract?

Redirect to another supplier

Direct to sales staff

Take a note
```
Case 2: Learning unfamiliar medical terminology in a radiography practice

One of the hardest tasks in a radiography practice is learning to prepare radiography reports. The trainee needs to recognise the medical terms used by the radiologist when interpreting x-rays and ultra-sounds. Trainees will come across unfamiliar terms. One practice with three branches in Sydney’s western suburbs developed the following problem scenario to help trainees with this problem.

You are preparing a report and come across a medical term you do not know. Understanding the term is critical to the structure of the report. The task is more difficult when the report is needed quickly, when there is nobody to help and the office is full of noisy patients.

Trainees were asked how they would deal with this type of challenge. Several strategies were offered to help solve the problem and assist with on-the-job learning.

Trainees were asked what they thought of the approaches and challenged to think of others. The key competencies were included in the discussion and were used to prompt students to think about what was being learned.

Using Critical Incidents in On-The-Job Training

Critical incidents have been used in several different ways:
- as a tool during one to one discussion and mentoring with a trainee
- to stimulate discussion amongst a group of trainees or a work team
- as a written activity (learning portfolio or journal entry) completed by trainees.

Critical incidents were successfully piloted in a range of work place contexts. Findings indicate that it is best to: debrief soon after the incident, show an appreciation that there will be more than one way of dealing with the incident and use negative incidents sensitively and constructively.

The critical incident approach was used to take advantage of a variety of naturally occurring situations to:
- review, praise and reinforce achievements
- discuss and direct negative incidents
- explain how performance is linked to goals in the workplace
- help employees think about how their values and actions can affect others
- prepare employees to deal with similar situations
- identify alternative approaches that can be applied in the future.
7.2.3 ASSESSMENT AND REPORTING

The field testing participants agreed for the most part that key competencies should not be assessed separately from vocational learning outcomes. This was seen as an unnecessary additional burden and cost. They also believed that the key competencies were more meaningful when integrated with industry specific competencies. Workplace assessment events will always involve more than one key competency. Several key competencies are likely to be simultaneously embedded, together with more specific competencies, in any significant unit of work.

The researchers suggest that incorporating a descriptive comment on the development of the key competencies into existing reporting arrangements can both ensure integrated assessment, and help make trainers and employers more conscious of the importance of the key competencies.

If the key competencies are to be considered as a means to improve existing practice, the principles of competency based education should be promoted. Namely, the key competencies should:
- be integrated and holistic in the context of real work
- rely on multiple sources of evidence, and
- promote learning.

As a formative assessment tool the key competencies encourage both learner and trainer to reflect on past actions and develop greater awareness of how they positively impact on workplace performance.

Although no mechanisms were developed for the explicit purpose of assessing and reporting key competency performance per se, performance review, using the key competencies as reference points or organising features, was trialed successfully.

Separate assessment

The primary function of the bulk of current training practices is to develop occupation specific skills. Separate assessment and reporting within industry training is considered inconsistent with an integrated approach to key competencies, one that sees key competency performance as embedded and integrated within vocational competence.

Whilst it can be argued that on-the-job training should support the development of the key competencies, the value for employers of separately assessing and reporting them is less clear. There is, however, evidence that industry may be interested in key competency based descriptive reports from schools for recruiting purposes.

7.2.4 INCORPORATING KEY COMPETENCIES

Establishing the presence of key competencies as integral to industry standards is crucial if key competencies are to be meaningfully developed in workplace contexts. The process of mapping the presence of Key Competencies on to elements of competence in industry standards (see Rumsey 1995), has been acknowledged as a useful first step in highlighting, promoting and assessing the need for the development of the key competencies in workplace training.

However, this project has found that the model currently used to map the presence of key competencies has significant limitations. This model was developed by the, now defunct, National Training Board and relies on the three performance levels proposed by the Mayer Committee. The current practice of mapping the key competencies in industry standards is largely retrospective and tends to endorse existing practices rather than encourage explicit and purposeful incorporation of key competencies. Hager et al (1996) argue that it would be more constructive to link the key competencies to learning outcomes in specific contexts and workplace situations.
The Workplace

When standards, preferably expressed in terms of learning outcomes, explicitly incorporate the key competencies there is likely to be a qualitative impact on the types of assessment events used to gauge achievement of both vocational and key competency outcomes.

The researchers also found that not all key competencies are equally applicable or relevant to all jobs and that certain competencies are more prominent in particular industries.

Three approaches were identified for incorporating key competencies into workplace training:
- working with industry standards that integrate key competencies
- using key competencies to organise training
- working with training scenarios.

Industry standards

Misunderstandings were evident in the use of industry standards. Some people felt that once the key competencies had been mapped as present in industry standards, they were automatically present in the design and delivery of training. The use of mapping activities may also lead atomistic approaches to assessment, rather than encouraging approaches that integrate groups of key competencies in selected training situations.

Misunderstanding about the nature of the key competencies

There is confusion between the key competencies as learning outcomes, and key competencies as enabling or underpinning knowledge that is integral to successful performance. This is compounded by accreditation requirements and standards mapping exercises that emphasise key competencies as outcomes only. There was further uncertainty about the relationship of generic competence in language, literacy and numeracy and the key competencies. The researchers also found that there may be more support from workplaces for the integration of key competencies if different language is used to describe the key competencies in different industry contexts.

Key competencies as components of vocational expertise

This was seen as important in an integrated model of workplace learning which combines specific and generic types of learning to produce higher levels of expertise. The following points emerged from field testing.
- Most industry participants were not familiar with the key competencies.
- Mapping activities were undertaken at all sites to identify areas where workplace training could be improved through the explicit use of key competencies and for engaging trainers and trainees.
- Significant variations were evident in the response to the notion of integrating key competencies into workplace training confirming the findings of Gonczi et al (1995). The five variables of training:
  - training culture
  - nature of trainee's work
  - size of firm
  - the trainer's understanding of the learning/training process
  - trainee characteristics
have a significant impact on the nature of training.
In some workplaces, where structured approaches to training exist, or approaches to organisational core competencies have been implemented, the key competencies were perceived as less relevant than in small to medium businesses where there was interest in tools and approaches that assisted in meeting organisational needs. These needs included improved customer service skills, encouraging more systematic problem solving processes, and improving existing workplace training and performance review practices.

Of the tools and approaches piloted, the most successful approach across and within industries was the training scenario approach. This approach offers opportunities for integrated contextual learning, either on-the-job or in other workplace training activities such as staff meetings and training evenings. Pilot scenarios included: scenarios focusing on core business activities, the use of debriefing activities after naturally occurring critical incidents, and more general scenario/problem based learning approaches.

The integration of key competencies in workplace training was seen by many participants as a good idea, but one that will require considerable resourcing to fully realise. Industry participants repeatedly noted the need for descriptors that made the key competencies more relevant to their industry and workplace and more comprehensible.

The research project undertaken by Field and Mawer (1996) indicates the potential of workplace training programs to help employees develop generic skills relevant to the needs of the organisation.

7.2.5 PROFESSIONAL DEVELOPMENT

The project has demonstrated that key competencies can be developed in industry contexts by making sensible use of typical workplace scenarios and incidents. The inclusion of learner reflection and debriefings encourages improved performance in the workplace and enhances the development of both key competencies and vocational specific competencies. Resources developed by the project have proven useful in workplaces that have been party to trialing.

If key competencies are to be central to training in all workplaces, the professional needs of personnel, curriculum developers, workplace trainers and assessors, training managers, and business owners and managers need to be considered.

Much can be done through promotional strategies and professional development activities to overcome the lack of familiarity with the key competencies in industry. For example, guidelines and support material should identify how and when a key competency is considered to be present in training curricula. Equally important would be providing strategies for incorporating and integrating key competencies in workplace training and assessment. Further examples of good practice such as the TABMA Enterprise Training Program in Wholesaling could assist this process.

Models and materials based on the research and products developed as a result of field testing might also form the basis of successful professional development initiatives and further promotional activities.
Underpinning principles

Field testing in stage two of the project set out to design key competency supportive approaches and materials which reflected the principles jointly developed by the vocational education and training sector project.

The meaning implicit in these principles is that the key competencies as ideas are not knowledge-based, but process-based, and given form by the context within which they are applied. In themselves key competencies are not discrete literacies and they can only be integrated within the vocational context in which they are learnt. For teachers, this means the educational context, whilst for assessors and workplace trainers, it means the workplace. Such an approach is consistent with the vocational education and training Professional Development Policy being developed by the National Staff Development Committee (NSDC).

Whilst generally confirming the validity of these principles, the field testing also identified that principles relating to some aspects of delivery and assessment were better suited to off-the-job training situations. Regardless, they should provide the “underpinning knowledge” for teacher, assessor and workplace trainer professional development activities.

The importance of the workplace context

If context dependency is central to the development of key competencies by students (in whatever area of learning they are involved in), then the workplace context is central to the integration of key competencies by teachers and trainer. The effective use of key competencies in teaching and learning situations is related to how well teachers and trainers themselves use the key competencies. The preferred methodological position for delivery of staff development is using process oriented Experience Based Learning (EBL) and Problem Based Learning (PBL).

Adequate training material

The project findings indicate that there is a lack of training material that targets frontline trainers and that when this material was made available it was frequently received with enthusiasm. Material needs to be presented in a user friendly format and contain practical information, including examples and anecdotes, rather than abstract or theoretical information.

Reporting arrangements

There may be advantages in incorporating some descriptive comment on the development of the key competencies into existing reporting arrangements. By making the key competencies a more integrated part of assessment documentation provided for employers and trainees, such as Training Record Books, the trainee would become more conscious of the importance of key competencies.

Suggestions have been made that this may help to combat the ‘tick and flick’ mentality so characteristic of the use of such documents. Overall, it seems that industry would support this provided it did not make on-the-job training more complicated and time consuming by requiring separate assessment and reporting on key competencies.
Further information


Appendix 1

NSW DEPARTMENT OF TRAINING & EDUCATION CO-ORDINATION

WORKING DOCUMENT
DRAFT 5

Key Competencies

To function effectively in society young people need knowledge, skills and understandings and the ability to use these critically, creatively and responsibly in a range of contexts.

Key competencies require the application of knowledge, skills and understandings in given contexts and the ability to transfer these to new contexts.

Key competencies are a sub-set of the full range of desirable outcomes that are integral to a broad and balanced general education. Key competencies are fundamental to the education and training of all students. The term competence focuses attention on outcomes, on what people both know and can do. They are essential for life long learning and effective participation in current and future:

- society
- education and training
- work (paid and unpaid) and work organisation

Key competencies help provide a link between general education, vocational education and training programs and the needs of industry. They apply to education and work generally rather than being specific to particular educational learning areas or work in particular occupations or industries.

Key competencies are embedded in and developed through education and training curriculum. Statements on learning outcomes can provide an appropriate framework for assessing and reporting on student achievement of Key Competencies.
NSW KEY COMPETENCIES PILOT PROJECT

Statements (stems) associated with each of the competency broad descriptors

**KC1 Collecting, Analysing and Organising Information**

The capacity to locate information, sift and sort information in order to select what is required and organise it in a useful way, and evaluate both the information itself and the sources and methods used to obtain it.

**KC2 Communicating Ideas and Information**

The capacity to communicate effectively with others using the range of spoken, written, graphic and other non-verbal means of expression.

**KC3 Planning and Organising Activities**

The capacity to plan and organise one's own activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance.

**KC4 Working with Others and In Teams**

The capacity to interact effectively with other people both on a one-to-one basis and in groups, including understanding and responding to the needs of others and working effectively as a member of a team to achieve a shared goal.

**KC5 Using Mathematical Ideas and Techniques**

The capacity to effectively use mathematical ideas, such as number and space, and techniques, such as estimation and approximation, for practical purposes.

**KC6 Solving Problems**

The capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and the desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome.

**KC7 Using Technology**

The capacity to apply technology, combining the physical and sensory skills needed to operate equipment and the understanding of scientific and technological principles needed to explore and adapt systems.

**KC8 (Using) Cultural Understandings**

The capacity to apply understanding of the diversity and commonality within and between groups, organisations and societies toward the achievement of common goals.
NSW Key Competencies Project

Essential Elements Statement
May 10, 1995

Collecting, Analysing and Organising Information

The capacity to locate information, sift and sort information in order to select what is required and organise it in a useful way, and evaluate both the information itself and the sources and methods used to obtain it.

Involves the ability to
- establish the purpose for collecting information
- locate and organise information
- evaluate the information and sources
- evaluate the methods used to obtain the information

Communicating Ideas and Information

The capacity to communicate effectively with others using the range of spoken, written, graphic and other non-verbal means of expression. 'Effectively'

Involves the ability to
- recognise purpose and audience
- select appropriate form or style
- convey meaning clearly, concisely and coherently
- revise and correct as required

Planning and Organising Activities

The capacity to plan and organise one's own activities, including making good use of time and resources, sorting out priorities and monitoring one's own performance.

Involves the ability to
- set goals
- establish priorities
- manage resources and manage time
- implement the plan.
- monitor one's own performance
Appendix 1

Working with Others and In Teams

The capacity to interact effectively with other people both on a one-to-one basis and in groups, including understanding and responding to the needs of others and working effectively as a member of a team to achieve a shared goal.

Involves the ability to
- establish group goals
- establish consensus on individual roles and responsibilities
- take responsibility for individual performance and contribute to group performance within a given time frame
- evaluate the process and the product

Using Mathematical Ideas and Techniques

The capacity to effectively use mathematical ideas, such as number and space, and techniques, such as estimation and approximation, for practical purposes.

Involves the ability to
- establish purpose
- select ideas and techniques
- apply ideas and techniques
- check application
- evaluate the process

Solving Problems

The capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and the desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome.

Involves the ability to
- anticipate, identify, clarify and frame problems
- adapt or develop strategies
- apply strategies
- evaluate the process and the outcome

Using Technology

The capacity to apply technology, combining the physical and sensory skills needed to operate equipment and the understanding of scientific and technological principles needed to explore and adapt systems.

Involves the ability to
- manage and use technology for a purpose in a given context
- apply technology in different situations
- evaluate the use made of technology.
(Using) Cultural Understandings

The capacity to apply understanding of the diversity and commonality within and between groups, organisations and societies toward the achievement of common goals.

It involves the ability to:

- demonstrate knowledge of cultural cohesion and diversity
- respect the rights and responsibilities of others
- work with others to achieve common goals which reflect equity and social justice

Note: KC7 Using Technology is subject to further review by the designated sub-group.

KC8 (Using) Cultural Understandings has an interim definition which will be subject to periodic review as information becomes available through the processes initiated by MCEETYA.
Appendix 2

RELEVANT RESEARCH

An exploration of the literature on the relationship between various approaches to teaching and learning, and the chances of increasing the degree to which transfer of learning is likely to take place, has been useful. Studies by Stevenson (1991, 1994 and 1995) and Bransford, Sherwood, Vye and Reiser (1986) provide powerful arguments that are consistent with the projects findings on key issues to do with effective learning and the development of the key competencies.

The literature indicates that the work of educators, such as Dewey and Bruner, that took place earlier this century is as relevant as the contemporary research cited.

Stevenson

Argument

Learning is likely to be more successful when it is contextualised.

Stevenson has asserted that higher level learning is more likely to take place in authentic learning contexts. This type of learning requires a pedagogy that goes beyond a focus on specific skills. It acknowledges that experts need to have a conceptual knowledge of underlying principles and the system in which the learning is taking place. The point is made that didactic content transmission with little emphasis on problem solving will do little to foster deep conceptualisation.

Higher level learning is supported by learners bringing together conceptual and procedural knowledge (knowing and doing) by experiencing a variety of problem solving situations; learning in a community of practice where learning is enhanced through application in a variety of contexts; learners being pressed to adapt their learning to unfamiliar situations.

The focus of such learning is that it is concerned with ongoing growth and development. Rather than challenging learners to adapt to fixed goal learning outcomes learners are challenged to continually adapt their knowledge, skills and understandings to different contexts. Ongoing educational growth or development is the desired end rather than the idea of growth or development that is movement toward a fixed goal.

Bransford

Argument

There is a set of skills of effective learners - what cognitive psychologists refer to as the skills of the "intelligent novice". Among these are the awareness of the need to analyse problems and then try to solve them, knowing when one does not understand and when to seek help from an expert (knowing what to do when you don't know what to do) and knowing when the experts help has been sufficient.
Among the basic problem solving skills are:

- the ability to predict the results of one’s own problem solving actions
- the ability to check the results of one’s own actions (did it work?)
- the ability to monitor progress towards a solution (how am I going?)
- the ability to test how reasonable one’s actions and solutions are against the larger reality (does this make sense?)

**Miska**

Research Interest

A review of the literature on the extent to which learning in one area transfers to other areas and factors that inhibit or facilitate transfer.

Argument

It is important that we help students to connect their learning to events and experiences with which they are already familiar.

Findings

The study acknowledges the existence of strategies that may help students to be more efficient learners and argues that there are few substitutes for knowledge and experience in the development of expertise and the ability to transfer skills to novel settings.

Conclusion

It is important to build up knowledge bases for the development of skill and expertise.

There is a case for the explicit teaching for transfer where the teaching takes into account the importance of prior and context specific knowledge. In terms of the key competencies this will be enhanced if the key competencies are an integral part of the curriculum and their relevance to a range of contexts is explored.

Critical Support

Resnick (1987)

Bransford, Sherwood, Vye and Reiser (1986) and Salomon and Perkins (1989) who argue that if students only acquire knowledge without strategies about how, when or where to put this knowledge to work, there is little hope of developing either expertise or transference.

Gick and Holyoak (1987) believe the teacher has a key role to play in prompting students to make connections between what has been learnt in one context and how it might apply in another context.

Comment

Misko’s work is consistent with the project position that key competencies should be integral to, and arise naturally out of, a content based curriculum.
Appendix 2

Townsend

Research Topic
A study of generic skills focusing on understanding the mechanisms of transfer through a broad overview of the literature.

Conclusion
There is reason to be optimistic about domain or subject based transfer. The main requirements being:

- a strong prior knowledge in the domain
- an emphasis on problem solving in the curriculum
- the use of meaningful, engaging, "real-world" problems
- explicit use of general principles
- teaching meta-cognitive monitoring or cognitive processes

Townsend also concludes that current instructional practices imply a transmission model of teaching and an absorption model of learning and that this conflicts with a more radical immersion approach to education based on notions of situated learning.

This approach sees understanding arising from the development of domain specific knowledge in the context of the application of this knowledge to real tasks and problems. This follows from the assumption that transfer, like learning, is a function of how well connected the ideas are—both to the specific phenomena they help explain (i.e., the situation) and to the various representations that give them form and substance.

Critical Support
Townsend cites research that claims evidence of successful transfer under conditions of "learning to learn", which involves the direct teaching of metacognitive strategies associated with learning.

McKeachie (1987) warns that a focus on how one is going about the learning process in the initial stages of the learning cycle, rather than the information to be learnt, may inhibit learning. The benefits of learning to become aware of one's learning skills and strategies are likely to depend on the individual's position in the learning cycle. This points to the need to consider the appropriateness of the approach being considered at any point in time. There will be times when a teacher centred didactic approach is appropriate.

This may be particularly important for disadvantaged students. It is the most disadvantaged students who will be least likely to cope with teaching methods that rely on students being self-managing. Ironically it is likely to be these students who will stand to benefit most from having more awareness of the process of learning. Promoting self-managing learners will be particularly challenging to teachers of students who are at risk of not successfully completing schooling. The experience of teachers working within the Disadvantaged Schools Program (DSP), and the research undertaken by the National Schools Network (NSN) are likely to be particularly relevant when responding to this challenge.
Frawat

Research Interest  The development of domain specific knowledge with an emphasis on the application of this knowledge to real tasks and problems.

Argument  Powerful ideas considered in the context of their application should be the focus for engagement in the learning process and that this challenges a lot of preconceptions about packaging curriculum around content that is sequential and hierarchical.


Garrison

Research Topic  Education as a creative and constructive activity is progressive and productive rather than merely reproductive.

Argument  Proposes a theory of learning that is pragmatic and based on social behaviourism that not only embraces cognitive, but also moral and aesthetic meanings.

Critical Support  Cites the works of Dewey (1916-1980) to support the claim that education is not an affair of telling or being told, but an active and constructive process where the learner values social interaction in the construction of meaning.

From the earlier work of Bruner (1959) who argued that it is what can be done with what has been learnt that is the main issue, and that this is linked to a progression from learning to thinking.

Comment  The reference to Dewey and Bruner reinforces the fact that there is nothing particularly radical or new in much of what is emerging. There is, however, a critical reaffirming that learning is likely to be more successful when it is appropriately contextualised.

Ryan and Davy

Research Interest  1989 NSW research study on essentials in the curriculum of secondary schools. The study, based on teacher practice and perception, outlined particular practices that were considered to be generic and enhance learning.

Argument  They argue the importance of developing the ability to evaluate information; the capacity to provide a point of view; the ability to relate what is being considered to a context that is meaningful and relevant to the learner, and as a result take appropriate action.

Findings  The study found the practices teachers saw as being more likely to enhance learning included: the integration of theory and practice, co-operative learning, teacher modelling good practice, student participation in assessment and student directed learning.

The participating teachers saw the above approaches as essential for promoting successful learning, but did not claim to be confident about implementing them.
Appendix 2

Comment

Consistent with their findings is the secondary teachers survey response indicating that teachers see the need for emphasis to be given in their professional development to ways of helping students to develop key competencies.

References


Stevenson, J. (1994) Competency based training policies in TAFE: Philosophy, power, programmes and practices in the changing context of Vocation Education. selected papers. Centre for Skill Formation, Research and Development Griffith University.

Appendix 3

NSW KEY COMPETENCY PILOT PROJECT EVALUATION

General Overview

Implementation

1. The NSW Key Competency Project needed to develop as a complex, interactive and fluid Pilot
2. The collaborative Management Team structure was unique to NSW. The Evaluation Team acknowledged the difficulties engendered by the decision to take this tack. However, our judgment is that these difficulties were greatest in the early stages and dissipated as the project matured.
3. We recognise there were issues that divided both the Management Team and Project Officers. Institutional and personnel differences both generated and helped resolve a number of impasses. Differences were dealt with creatively, furthering inter-agency insights through an understanding of why there are differences. As well, these insights built high levels of tolerance about the diversity the Pilot allowed under an umbrella of agreement.
4. The Evaluation Team maintains that the intersectoral approach enhanced the level and credibility of the accountability of the Pilot, of the sectors to each other as well as of the NSW Pilot to the Commonwealth.

Research

1. The decision to approach the NSW Key Competency Project Pilot through a research model was a key element in the degree to which the NSW project was successful. The strength of this approach was that it allowed for flexibility within the project as well as for collaboration with educational workers and others within the different strands informing the direction and outcomes of the Pilot.
2. We noted a hesitancy in some members of the Management Team to refer to the pilot implementation process procedures as ‘action research’, or even as ‘research’ from an awareness that the approach was not based on a rigorous application of a consistent scientific methodology. The Evaluation Team is of the view that there was value in such caution. However, the Evaluation Team, nevertheless, considers research to be an essential component of any further work on key competencies.
3. The issue of valuing teacher input in the development of policy at higher levels, as against development in isolation followed by imposition, is an itself strongly supported by the data collected by the Evaluation Team.
4. While closer attention could have been paid to greater consistency of expectations for participants, the management of the NSW Pilot gained through research-based implementation which put key competencies up as a matter for enquiry (a strategy which risks some inconsistency).
5. As the evaluation data demonstrate, the experience of field testing was positive for the majority of respondents. It needs to be recognised that not all our respondents felt they had experienced a degree of involvement sufficient to generate a positive response for their level and/or period of participation. However, this is not atypical of complex policy trials.
Appendix 3

Cross Sectors

1. Because the curriculum practices and processes within TAFE differ from those within the school sector, different strategies were used in both the audit and field testing phases of the Pilot. This made it difficult for the Evaluation Team to make detailed comparisons between the strands of the Pilot if this had arisen as a point of interest.

2. The decision to integrate co-ordination of the Project with the other strands was understandable. The Evaluation, therefore, did not address this as a separate issue given the Pilot's re-defined objectives and re-negotiated position. The evaluation of Strand 4 (project co-ordination and management) is seen as being inherent in, and an overall feature of, the Report generally.

3. The possibilities for assisting progress through multiple educational pathways are significant and worth pursuing. This is especially the case for determining a focus for equity in a key competencies agenda.

4. The main consideration in this era of fiscal restraint is whether the money expended on something like a Key Competencies Project is worthwhile. It is the view of the Evaluation that the funding of the Pilot appears to have been used to good effect and appropriately (given the qualifications stated through this Report).

5. Informal data from DEET personnel and national participants indicates a high level of satisfaction with the contribution of the NSW project to the broader work conducted nationally.

Future implementation

1. The question remains as to whether any extension of the Pilot may represent the same kind of value for money. There are key factors to be considered in an evolving political and educational context including, sectoral balance, cost-effectiveness, resource neutral planning and, therefore, the most effective location of future work on key competencies.

2. In referring to the literature on key competencies our conclusions point towards a general failure in research to undertake adequate or appropriate policy analysis and to seek close contact with policy actors. These tasks should be part of any future implementation so that the process, footprint and fidelity of policy can be monitored in a way that is meaningful and constructive of the project.

3. The evaluation team is aware that sections of the Pilot will continue beyond the completion of our Report. A 'pilot' cannot answer all questions raised in a project on an issue as complex as competencies. At the stage of preparing this Report, issues still to be addressed included: formulating a clear position on transferability, developing a response to the Hager Report, refining analysis of assessment and reporting, and a review of the project management structures. It would be desirable for this to occur before the end of 1997.

4. A study should be undertaken to examine teacher-led, gradual, implementation of key competencies paralleling curriculum development. The study should concentrate on the validation of key competencies through relevance, appropriateness and professional knowledge in the above context with reference to supportive theoretical positions.

5. For any future implementation we encourage the establishment of an educational team, early involvement of teachers, and an independent reference group for formative evaluation purposes. The Department of Training and Education Co-ordination is the best location for this work given the successful collaboration across sectors and agencies established in the Pilot.
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Val Gregory
Rosemary Livingstone
(Co-ordinator to March, 1995)
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The management team would like to acknowledge the contribution to the project of the school teachers, TAFE teachers and workplace educators from across NSW who have participated in the project. That this participation would not have been possible without the support of management at each site in each of the sectors is also acknowledged. As Project Manager I would like to particularly thank Libby Hegerty and Peter Grant for their contributions to the structure and content of the final project report, and Pam Christie (DTEC) for her assistance with the management of the DTEC workplace components of the project.

The project management group gratefully acknowledges the contribution of the following people to the work of the project.

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Helen Bristow
Jim Follan
Lesley Craig


NSW Board of Studies, (1995). NSW Key Competencies Project Report; Mapping of the Key Competencies in the Mandatory Curriculum, June.


NSW Key Competencies Pilot Project, (1996). Good Practice Examples of Incorporating Key Competencies into National Transition Projects: Information Technology; Office Skills and Administration; Hairdressing; Laboratory Technician; Local Government/Civil Construction. DTEC.

NSW TAFE Commission, (1996). Field Testing Some Approaches to Teaching the Key Competencies. Report of Phase Three Strand 3.; the NSW Vocational Education and Training Key Competencies Initiative, NSW TAFE Commission, August. DTEC.


Appendix 10

TABLE 4 Sample syllabus format for KC incorporation

AIM
(Broad directional statement common to whole KLA)

OBJECTIVES

| Knowledge                      | Values and attitudes               | Skills                                                      
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Broad - subject</td>
<td>Broad - common to all subjects in KLA</td>
<td>1. Key competencies - cross curricular format PLUS</td>
</tr>
<tr>
<td>specific context</td>
<td></td>
<td>2. Subject specific skills if not encompassed by key competencies (e.g. movement in PDHPE)</td>
</tr>
</tbody>
</table>

OUTCOMES

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set of outcomes related to each topic/content area</td>
<td>Outcome statements encompassing the holistic performance of each KC within the context of the subject</td>
</tr>
</tbody>
</table>

COURSE CONTENT

To include

☐ An introductory statement detailing the relationship between key competencies and context
☐ Skills outline. A description of each key competency to be developed in the syllabus - includes description of the process and essential elements and all foundation skills needed to develop the competency within the subject context.
☐ Topic/component outlines. A description of the subject specific knowledge to be developed.

LEARNING EXPERIENCES

To include descriptions of the nature of learning experiences (common to all syllabuses) that provide opportunities for students to develop key competencies and acquire subject knowledge in an integrated way.

ASSESSMENT

To include practices (common to all syllabuses) that provide appropriate and adequate vehicles for students to demonstrate their achievement of both knowledge and key competency outcomes.

PERFORMANCE DESCRIPTORS

To include explicit descriptors for each key competency assessed through the syllabus. These descriptors are to be configured to the subject context from a generic set of descriptors.
Appendix 9

TABLE 3 Sample "Map" of Key Competencies in the mandatory curriculum

The chart below provides a sample of a first step in the process of spreading key competencies across curriculum to ensure all students have opportunities to develop all the competencies in a number of different contexts.

To develop the "map" decisions need to be made for each learning area about which key competencies "arise naturally" from the syllabuses and would be able to be validly assessed within the subject context. One of the conclusions for the Board's project team's research was that any attempt to have all key competencies in the outcomes for all syllabuses would result in a watering down of the impact of an explicit focus on key competencies and impose an unacceptable burden of assessment on teachers. The sample below has been based on the findings from the mapping of syllabus documents and classroom practice and from a range of discussions with subject teachers throughout the project. It is not, however, to be interpreted as a definitive statement but as an illustration only.

Mandatory Curriculum

<table>
<thead>
<tr>
<th>KLA</th>
<th>KC1</th>
<th>KC2</th>
<th>KC3</th>
<th>KC4</th>
<th>KC5</th>
<th>KC6</th>
<th>KC7</th>
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<td>○</td>
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<td>●</td>
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<td>○</td>
</tr>
<tr>
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<td>●</td>
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<tr>
<td>PDHPE</td>
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<td>●</td>
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<td>Design and Technology</td>
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</tbody>
</table>

Code: ● explicit in outcomes and can be assessed and reported within the context of the subject
○ could be developed within the context of the subject but is not a central focus of the syllabus

Note: Four assessable key competencies in each area may be too much and three would perhaps be more feasible - the number of "appearances" for both KLAs and key competencies has been kept fairly even to avoid giving the impression that some contexts are "better for developing key competencies than others.
TABLE 2 Graphic Overview of the Presence of Key Competencies in General Senior Courses

<table>
<thead>
<tr>
<th>KLA</th>
<th>Course</th>
<th>KC1</th>
<th>KC2</th>
<th>KC3</th>
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<th>KC5</th>
<th>KC6</th>
<th>KC7</th>
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<tbody>
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<tr>
<td>MATHEMATICS</td>
<td>MIP</td>
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<td>MIS</td>
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<tr>
<td></td>
<td>2/3 Related</td>
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</tr>
<tr>
<td>SCIENCE</td>
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<td>Chemistry</td>
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- **Embedded**
- **Significant**
- **Minimal**
Appendix 7

**TABLE 1 Graphic Overview of the Presence of Key Competencies in the Mandatory Curriculum**

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<tr>
<th>Subject</th>
<th>English</th>
<th>Mathematics</th>
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<th>History</th>
<th>Geography</th>
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Appendix 6

Years 11 - 12
(46 schools with a fairly even spread of classes mapped across years and a total of 348 interviews.)

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### Appendix 5

**Years 7 - 10**

**Number of Volunteer Teachers Interviewed (subject and school year)**

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<td><strong>Totals</strong></td>
<td><strong>374</strong></td>
<td><strong>97</strong></td>
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(＋1) indicates a composite class

Number of participating volunteer schools 51
Appendix 4

The Questionnaire

Teachers were surveyed at schools where the curriculum for Years 7 - 10 were being mapped. For each key competency teachers were asked to respond to the following questions using a four point scale.

1. How important is this key competency for the key learning area in which you teach?
2. How would you rate your ability to develop this competency in your students?
3. Is explicit reference to this key competency included in your teaching programs?
4. Do your teaching programs refer to this competency but not in the exact words of the definition?
5. How often do you provide tasks which focus explicitly on enabling students to develop this competency?
6. How often do you provide tasks that focus on something else but enable incidental development of the competency?
7. Do you specifically assess the competency as part of your assessment program?
8. How often do you assess this competency indirectly?
9. Do you specifically report on this competency?
10. Do you report on this competency, using words other than the words of the key competency?