

transition
school-to-work
effective measures lessons
Australia education
vocational transition
education system
measures effective
lessons Korea

Effective measures for school-to-work transition in the vocational education system

Lessons from Australia and Korea



*Tae-Hwa Jung
Josie Misko
Kisung Lee
Susan Dawe
Sun Yee Hong
Kwan-Choon Lee*

Publisher's note

At the time of publication, industry training advisory bodies (ITABs) are in the process of being replaced by industry skills councils. For this publication we have used the term ITAB.

Additional information relating to this research is available in *Effective measures for school-to-work transition in the vocational system: Lessons from Australia and Korea – Support document*. It can be accessed from NCVER's website <<http://www.ncver.edu.au>>.

Background

The Korea Research Institute for Vocational Education and Training (KRIVET) was established in 1997 as a research institute funded by the South Korean Government. KRIVET carries out a variety of projects aimed at promoting the development of policies and programs in the fields of human resource development, and vocational education and training through lifelong learning.

The National Centre for Vocational Education Research (NCVER) is Australia's primary research and development organisation in the field of vocational education and training. NCVER undertakes and manages research programs and monitors the performance of Australia's training system. NCVER also provides a range of information aimed at improving the quality of training at all levels.

KRIVET and NCVER have been designated Regional Centres of Excellence in Technical and Vocational Education and Training for the United Nations Education, Scientific and Cultural Organization (UNESCO). NCVER holds this title jointly with the Adelaide Institute of TAFE

© 2004 National Centre for Vocational Education Research Ltd

ISBN 1 920895 61 2 print edition
1 920895 62.0 web edition
TD/TNC 77.09

Published by NCVER

ABN 87 007 967 311
Level 11, 33 King William Street, Adelaide, SA 5000
PO Box 8288, Station Arcade, SA 5000, Australia
<<http://www.ncver.edu.au>>

Foreword

This study is about the school-to-work transition arrangements in place in South Korea and South Australia, and the improvements that are required to enable students to better make this transition. It represents the work of researchers from the Korea Research Institute for Vocational Education and Training (KRIVET) and the National Centre for Vocational Education Research (NCVER) and is one of a series of joint projects between the two centres.

This study is based on questionnaire surveys of secondary school teachers and lecturers and professors in post-secondary institutions involved in the provision of vocational education and/or training. Questions were focused on the approaches used to prepare students for entry into the workforce, problems and issues raised by the implementation of these approaches, and suggestions for improvement. The findings have confirmed for both countries the need for sound information about industry demands for skills and workers, and student access to relevant teacher expertise, sufficient time for skills acquisition and practice, and adequate facilities and equipment.

The value in undertaking comparative studies such as these is what we can learn from each other. At times this learning can relate to successful implementation of specific strategies; at other times this can relate to the application of certain concepts to suit to local requirements.

From Australia's perspective the Korean experience can provide some useful lessons. This especially relates to improving Year 12 retention rates, and the literacy and numeracy of secondary school graduates. It also refers to implementing formal training pathways between secondary schools and specific vocational colleges (2+2 articulation programs) and secondary schools and industry (2+1 programs) for students who are not on definite routes to employment through apprenticeships or traineeships. The Korean experience also supports the need to ensure that there is adequate communication between industry and education sectors, and between different educational institutions.

From the Korean perspective there are also lessons from the Australian experience. These relate to improving linkages between industry and education, increasing the flexibility of training to suit individual student interests and needs, and implementing a national qualifications framework. It also includes implementing apprenticeship-type arrangements, and increasing the valuing of practical and work-based education by parents, students and teachers.

Tom Karmel
Managing Director
NCVER

Contents

Tables and figures	5
Executive summary	6
1. Background	6
2. Aims of the study	6
3. Findings from the literature	7
4. Implementation of policy reforms in the vocational education system	7
5. Needs assessment is the key to effective school-to-work transition	9
6. Implications	11
7. Concluding remarks	12
I. Introduction	13
1. Background to study	13
2. Objectives of the study	15
3. Research methodology	16
4. Definition of key terms	17
5. Limitations of the study	19
II. Literature review	20
1. Australia	20
2. Korea	31
III. Implementation of VE policy reforms	42
1. Australia	42
2. Korea	54
IV. Needs assessment is the key to effective school-to-work transition	58
1. Australia	58
2. Korea	72
V. Summary and conclusions	86
1. Improving institutional arrangements for effective school-to-work transition	86
2. Implications from the Australian–Korean experience	94
Bibliography	99
1. Australia	99
2. Korea	100

Tables and figures

Tables

1	Percentage of VET in Schools enrolments by industry groupings in government and Catholic schools	51
2	Qualifications by education sector	52
3	Students by qualification level 2002	52
4	Number of specialised high schools and student enrolments from 1998 to 2002	54
5	Number of students and technical high schools participating in the 2+1 program (1994–2002)	56
6	Number of institutions and academic departments offering the articulation program	57
7	Number of students, schools and enterprises participating in the customised education program (1999–2001)	57
8	Number of sample groups and response rates	72

Figure

1	Fields of study and subjects offered in Korean specialised high schools	55
---	---	----

Executive summary

1. Background

This study has been conducted jointly by the National Centre for Vocational Education Research (NCVER) and Korea Research Institute for Vocational Education and Training (KRIVET). It explores how school-to-work transition processes can be improved to provide better outcomes for students in vocational education (VE) institutions in Korea and vocational education and training (VET) institutions in Australia. It originates from the need, for both countries, to respond to increased demands for a skilled and flexible workforce to meet the requirements of increasingly globalised and knowledge-based economies. It is also focused on the need to strengthen the accountability of VE and VET providers, and to provide suggestions for improving the training of students for the modern workplace.

2. Aims of the study

The process of school-to-work transition can be divided into three separate but inter-linking stages: preparation through education, actual transition, and outcomes in the labour market. This study is focused on the preparation stage of the process and has sought to identify viable methods for providing in-kind and financial support to programs designed to facilitate school-to-work transition for students, and for upgrading the competencies of existing workers.

For this purpose, the study attempted to answer the following research questions:

- a) How is research being conducted on school-to-work transition?
- b) What are the measures being implemented in Korean and Australian VE institutions to foster school-to-work transition and what are the critical issues and problems raised?
- c) What measures do teachers and professors in VE institutions want implemented for effective school-to-work transition of students from these institutions?
- d) What lessons can be learned from research findings from the Korean and Australian experience?

Data in Korea were collected through questionnaires administered to teachers in vocational high schools and professors in vocational colleges. Vocational high schools comprised those schools operating the 2+1 system or the 2+2 articulation program and specialised high schools. Vocational colleges included those conducting special programs, such as 2+2 articulation programs and customised educational programs. Data in Australia were collected through questionnaires administered to lecturers in technical and further education (TAFE) institutes, and teachers and vocational coordinators in secondary schools. Telephone interviews were used to gather information from representatives of group training companies. A review of literature and policy frameworks provided information on the implementation of reforms in the two countries.

3. Findings from the literature

Findings from the review of previous studies confirmed the need to implement in Korea national and institution-based policy frameworks and structures to improve the school-to-work transition of students. They also highlighted the need to strengthen the relationship between vocational education and the needs of the labour market. An examination of strategies and policy frameworks adopted in Korea and other countries to reform their systems of vocational education has identified the strengths and weaknesses of various approaches, and has provided some direction for further investigation.

The review of Korean studies has focused on the implementation of reforms in specialised vocational high schools, the 2+1 program in technical high schools, the articulation programs between vocational high schools and vocational colleges, and the customised education programs in vocational colleges. The review of Australian research has focused on school-based and post-school vocational education (and training). It has focused on reforms to the apprenticeship and traineeship system, the identification of competencies, and the methods of delivery. It has also made comment on the effectiveness of some pathways to deliver labour market outcomes.

It is clear from the literature that there are a variety of approaches to the study of school-to-work transition, and that many of the studies have tended to ignore the preparation stage. It is also clear that more studies are required to examine the roles and responsibilities of stakeholders in government, industry, and vocational education institutions, and to make recommendations for reform. It is also essential that any process for reforming policies, structures, and strategies for enabling students to make an effective transition to work in Korea and Australia (and indeed in any country) must take account of the needs of industry, and changing labour market and workplace demands. In view of the ageing population in Korea and Australia there is also a need to take into account demographic changes in the labour force. In both countries there is also a need for inter-ministry cooperation, in terms of employment and education and training portfolios.

4. Implementation of policy reforms in the vocational education system

1) Australia

The Australian system for vocational education and training has undergone substantial reform since the mid-1980s. This has been to respond to the demands of an increasingly globalised economy and the realisation that industry needed to be restructured if it were to become internationally competitive. This study has examined four major pathways to work. These include (a) post-school and (b) school-based apprenticeships and traineeships which combine paid employment with training and (c) industry-specific vocational education and training programs in senior secondary schools which enable students to complete vocational qualifications and general senior secondary certificates. It also includes (d) post-school institution-based vocational education and training programs which are not tied to employment.

In the year ending 31 March 2003, there were 391 700 apprentices and trainees in training, an increase of 15% from the previous year. Of these, 44.3% were over the age of 25 years. Just over a third were in trades and trade-related occupations. In the year ending 31 March 2003 there were 10 900 commencements in school-based apprenticeships, representing 4% of all apprenticeship commencements for that year. In 2002 there were 200 group training companies nationwide. They employed a total of 38 000 apprentices and trainees and this was more than double the number employed in 1995. In 2002 a total of 40.6% of VET students were over the age of 25 years. Another 20.5% were over the age of 40 years.

In 2002 there were 185 520 students in a VET in Schools program compared with 60 000 students in 1996. In 2002 there were 2083 secondary schools delivering VET in the senior secondary programs. In 2002 a total of 112 403 students had undertaken a structured workplace, representing 61% of students in these programs, compared with 55% in 2001. Students were enrolled in subjects covered by the following industry groupings: tourism and hospitality; business and clerical; computing, arts, and entertainment; sport; engineering and mining; building and construction; textile, clothing, footwear, and furnishings; community services, health and education; sales and personal services; primary industry; automotive; communications; science and technical; process manufacturing; utilities; food processing; finance, banking and insurance; and transport and storage. They were also enrolled in what are called general education and training programs, which include job-seeking, workplace communications, occupational health and safety and personal development.

In 2003 there were 85 TAFE institutes or other government providers (including agricultural colleges providing VET programs). They deliver training in 1460 separate locations.

A major feature of the Australian system which supports the preparation of students for the workplace is the system of competency-based training encompassed by national training packages developed by industry and endorsed by government. They comprise competency standards, linked qualifications, and guidelines for assessment. In 2002 there were 716 600 or 43% of students enrolled in training package qualifications. By 2003 there were 102 training packages endorsed by government. This included 20 training packages which had been superseded and modified after a review process.

A national system of qualifications, represented by the Australian Qualifications Framework (AQF) enables qualifications to be transported across state boundaries, and the operation of flexible inter-linking pathways between educational sectors. In 2002 there were 68.4% of students undertaking an AQF qualification, continuing the trend for the previous years.

A national system for quality assurance in the VET sector (the Australian Quality Training Framework) has recently been implemented to ensure that accredited training providers, and those bodies responsible for providing the accreditation, comply with defined standards.

2) Korea

During the last decade there have also been reforms implemented in the Korean VE system. These reforms have similarly been aimed at improving the ability of schools and colleges to provide the relevant knowledge and skills required by students for effective participation in the workforce, and required by industry to compete effectively in domestic and global markets.

The specialised high school program was introduced in 1998 to provide diversified and specialised education within the existing high school framework. It was aimed at broadening the scope of the standardised curriculum to meet the diverse needs of high school students and to develop skills and knowledge required by industry. By 2002 there were 48 schools offering these programs. These accounted for a total enrolment of 9217 students. They provided programs in electrical and electronic engineering; information technology; media and film; design arts; tourism and linguistics; cooking and food sciences; fashion and skincare; horticulture and environment; footwear design and production; and animation.

The 2+1 system in technical high schools was introduced to enable students to undertake training to acquire skills for industry and to help students make a smooth transition to work. It requires students to undertake one year of on-the-job training and work in industry. In 1994 there were 20 such technical high schools providing the 2+1 program and accounting for 3169 student enrolments. Three years later these numbers had more than quadrupled. However, they fell dramatically in 1998 (signalling the effect of the economic crisis) and have been falling steadily since. Today there are just 30 schools delivering the 2+1 program.

Articulation pathways programs between vocational high schools and vocational colleges were introduced in 1996 to enable students to acquire both professional knowledge and skills, and to provide students with a smooth transition from secondary school to tertiary studies. There were four vocational colleges and three vocational high schools trialling the program in 1996. By 2002 there were 127 colleges and 405 vocational high schools with articulation programs in place.

Customised education programs are offered in vocational colleges to provide skills and knowledge required by industry, and to enable students to compete effectively in the labour market. In 1999 there were 80 vocational colleges delivering these programs; by 2001 this figure had increased to 121 colleges.

5. Needs assessment is the key to effective school-to-work transition

1) Australia

Responses to questionnaires were received from 172 lecturers involved in post-school apprenticeship and traineeship programs, and institution-based programs in TAFE institutes, and 49 VET coordinators and teachers in secondary schools. The survey was conducted in South Australia and collected information on the post-school and school-based apprenticeship and traineeship pathways, institutionally based post-school pathways, and VET in Schools pathways.

The findings of the survey in Australia revealed that all these pathways are perceived by teachers and lecturers to provide students with the initial skills and knowledge they will require to make the transition from school to work or to further training and to work. The findings also reveal that, in the main, teachers and lecturers agree that students enrol in these programs because they want to get a headstart in the world of work. Notwithstanding the success of these programs in enabling the majority of students who undertake them to make a successful initial transition to work by teaching them industry-specific skills and knowledge, there are still problems encountered in their practical application. These are reported below.

- a) In terms of post-school apprenticeships and traineeships there is a need to ensure adequate time for apprentices and trainees to practise skills, and for providers to provide adequate assistance when students may be falling behind in their work. There is also a need to make more specific the language in training packages, and to implement strategies to improve the literacy and numeracy skills of apprentices and trainees, and to instil in them appropriate work and study habits.
- b) There are major logistical problems which have limited the take-up by some industries of school-based part-time apprenticeships or traineeships. These concern the length of time students have to participate in work-based projects, availability of students when they are required in industry, and student access to appropriate equipment and materials and teachers with relevant industry experience and expertise. There is a need for schools to increase the flexibility of school timetables to enable students to better meet all their commitments, and for teachers to be provided with the professional development and industry experience required to enable them to provide adequate training.
- c) If students are to move along flexible and inter-linked pathways to further education and then to work, there is a need to ensure that providers of post-school institution-based programs recognise prior learning and qualifications already acquired. One way to ensure confidence in the quality of the prior learning is to establish partnerships with feeder schools to develop appropriate programs of training and to share equipment and expertise. This includes paying attention to developing the literacy and numeracy skills of students, and to instilling in them appropriate study habits. There is also a concern that the competency standards in the training packages are too broad and allow for too much individual interpretation.

- d) In terms of VET in Schools programs there is a need to improve the flexibility of school timetables to enable students to attend workplacements without having to miss out on favorite subjects or having to sacrifice school holidays. In addition, there is a need to ensure that students have the literacy and numeracy skills and the relevant study skills to enable them to participate effectively in post-school training programs. In addition, it is important for them to instil appropriate work habits in students. The establishment of strong linkages with employers, and with post-school training providers can help schools to locate appropriate placements, and can identify for schools the necessary underpinning knowledge required for further studies.
- e) Although the issue of adequacy of resources and financial support will affect the ability of all sectors to provide appropriate training, there is a need to ensure that best use of existing facilities and resources is made. This means improved collaboration between all sectors.

2) Korea

The survey in Korea was conducted between 25 June and 17 July in 2002 for vocational high schools, and between 26 August and 13 September in 2002 for vocational colleges. Completed questionnaires were received from 504 vocational high school teachers, and 381 vocational college professors, representing response rates of 60.72% and 44.82% respectively. The results revealed a number of obstacles to the effective implementation of the different VE programs. These also highlighted some major priorities for government action.

- a) In terms of the specialised education program, there is a need to increase its focus on preparing students for employment and for further education as the primary goals of this program. Effective delivery of this program also requires government to remove any practical obstacles to implementation and an identification of industry and workforce skill needs.
- b) There is also a need to improve teacher knowledge about the original goals of the 2+1 program in technical high schools. The survey found that, while the original intentions of the 2+1 system were to equip students with practical knowledge and skills, teachers generally believed that the major goal was to enable students to advance to institutions of higher education. If this system is to work as it was originally intended, then it is important for the program to reflect existing industry demands. To do this the government should allocate substantial funds for improving the facilities and equipment required for appropriate training.
- c) The findings of the study indicate that there are strengths and weaknesses in the operation of articulation programs between vocational high schools and vocational colleges. The strengths are observed in terms of opportunities provided to students to engage in continuing or further vocational education after completion of secondary school. The weaknesses are observed in the reality that some vocational colleges use the program to fill student quotas. If this program is to be successful in providing a smooth transition from secondary school to further education, and then to work, then curricula need to reflect industry needs, and be monitored and revised in a timely manner to continue to keep abreast of changes. In addition, there should be adequate and timely provision of equipment and facilities, and increased collaboration between the partner institutions to ensure that faculties from each contribute to the development of curriculum and delivery of courses in both components of the program.
- d) The results also indicate that there is a lot of room for improvement for customised education programs in vocational colleges. To enhance the program's effectiveness, the curriculum should be revamped to be relevant to the National Technical Qualifications framework. Also the government and/or the colleges need to allocate more financial resources to foster the further development and availability of practical education in customised programs.
- e) It is clear that the issue of budgetary constraint is related to almost every vocational education program run in Korea.

6. Implications

1) Australia

There are also a number of implications to be derived from the findings to improve school-to-work transition practices for Australian students.

- a) These implications have more to do with ensuring the effectiveness and efficiency of processes already in place, than introducing any major new reforms. This is because, in a sense, the Australian vocational education and training system has already attempted to deal with the disjunction between the vocational curriculum and industry needs currently being experienced in VE institutions in Korea. It has had more than a decade to develop a system responsive to industry needs, and changes in labour market and workplace demands. Substantial funding has been devoted to the development of national industry training packages based on industry competency standards linked to qualifications, and to ensuring incentives for employers to take on apprentices and trainees.
- b) The recent implementation of the Australian Quality Training Framework for quality assurance is indication that the system has required the further elaboration and definition of specific standards for the operation of registered training organisations and accrediting bodies.
- c) In the Australian context, issues of inadequate literacy and numeracy skills and work and study habits of students in apprenticeship and traineeship pathways and other VET programs have been raised by lecturers in TAFE colleges and representatives of certain trade-specific group training companies. No such concerns have been raised about the literacy or numeracy skills or work and study habits of Korean students. Cultural norms of respect for authority, and doing what one is told by superiors without argument, may certainly contribute to increased time spent on tasks in Korean schools, and this may be reflected in higher levels of literacy and numeracy and respectful and appropriate work habits. There may be lessons to be learnt from the Korean approach to instilling respect and diligence in students.
- d) The Korean system of having defined pathways for substantial numbers of VE students (for example, the 2+1 programs) may help to develop more effective pathways to work for Australian students who are not in formal apprenticeships and traineeships. However, these programs must be structured so that they provide industry-relevant and appropriate off-the-job and on-the-job training. In addition, these pathways should provide opportunities for students to pursue further education and training once they are in work.
- e) The formal articulation programs between vocational high schools and vocational colleges, if appropriately managed, can also provide good examples of seamless pathways between school and further education. These formal articulation pathways between different educational sectors can also ensure the effective operation of the AQF, and define for students a specific route to follow to acquire advanced qualifications and skills and knowledge. The existence of these formal arrangements will also increase the level of confidence in industry about the ability of the vocational education and training system to enable students to become the highly skilled technicians and associate professionals required in many of today's workplaces. However, such programs, whether they are based in Korea or Australia, require clear dialogue between partner institutions in the development of objectives, curriculum and assessment procedures.
- f) Improving retention rates to Year 12 is also another area in which Australia can learn from the Korean experience.

2) Korea

There are a number of implications to be derived findings from the Korean and Australian experience. We begin with what the findings mean for VE in Korea.

- a) First, if Korean students are to make a smooth transition to work, there is a need to consider alternative models of training. There should be an increased focus on both school-based vocational pathways and apprenticeship-type vocational pathways.

- b) Second, there is a need to change negative parental attitudes about the importance of work-based learning. Parents need to recognise that this type of learning not only helps students to acquire valuable hands-on knowledge and skills, but also enables them to have increased access to higher education.
- c) Third, even though the school-to-work transition policy currently operating in Korean high schools depends on students taking the initiative to shape their own transition pathways, more structured support from stakeholders is required. This support includes better information on changes in the labour market, specialised advice, and better counseling on suitable career paths. It also includes better guidance on job-seeking skills and occupational selection.
- d) Fourth, vocational high schools should give their students a variety of choices of subjects, especially vocational education and training subjects. This will help to keep them motivated in learning and help them to develop skills and knowledge suitable for their interests and aptitudes.
- e) Fifth, there is a need to increase the number and type of vocational education and training subjects available to students in general high schools in Korea. While more diverse choices and options related to work are available in Australia, this is not the case in Korea.
- f) Sixth, vocational education and training and vocational qualifications should be linked in Korea, as is the case of the Australian Qualifications Framework in Australia.
- g) Seventh, there is a need to increase and strengthen the linkages between schools and employers. This will help to diversify and increase opportunities for students to combine learning with workplace experience and to improve career guidance.
- h) Lastly, vocational colleges in Korea should consider increasing the flexibility of training delivery, providing increased access to students from different backgrounds, and implementing institutionalised support networks for students. In that sense, the Australian TAFE model is a most useful, exemplary model for Korea.

7. Concluding remarks

Ensuring that there is a close connection between the vocational education and training system and industry has been shown to be as important in Korea as in Australia as both countries try to meet the demands of globalisation and the knowledge or information economy. However, any system of entry-level training which aims to help students make a successful transition to the world of work in any country must have in place supporting mechanisms and frameworks to enable accurate assessment of industry and labour market needs, and the reflection of these needs into curriculum. With the ageing of the population in both countries, both systems will have to adapt to the needs of a constantly changing workplace, and to the needs of adults in transition or preparing to make the transition from existing jobs to new jobs or higher-level jobs.

Support documents comprising questionnaires and detailed reports on findings are available at <http://www.ncver.edu.au>.

I. Introduction

1. Background to study

This project is a joint venture between the National Centre for Vocational Education Research (NCVER) of Australia and Korea Research Institute for Vocational Education and Training (KRIVET) with an aim *to explore effective measures for school-to-work transition of VE students in the two countries.*

School-to-work transition is a concept which is often approached differently according to the varying national contexts or to the particular perspective of the researcher. In its broadest meaning, *school-to-work transition* includes the students' preparation for transition, subsequent transition to the world of work, and the act of receiving the necessary education and training once they have entered the workplace (Smith & Rojewski 1993; Hoerner & Wehrley 1995). Applying this comprehensive approach to the Korean context, the *school-to-work transition* process includes searching for career paths in primary and junior high schools, preparing for employment while in high school and colleges/universities, achieving employment after completion of schooling and participating in continuing education and/or training as a worker.

There are various approaches which may be taken into consideration when analysing the transition from school to work. The Organization of Economic and Cultural Development (OECD), for example, focuses on:

- ✧ the context of transition, which includes the labour market and the education and training system
- ✧ the duration of transition
- ✧ the process of transition, which concerns the pathways of education and training accessible in the school and the labour market
- ✧ the outcomes of transition (Petersson 1998).

In other words, the OECD emphasises what students and workers experience at each stage of the transition and the outcome achieved at the end of the transition process.

In the United States' *School-to-Work Opportunities Act* of 1994, the emphasis is on preparation for transition and on strengthening the linkage between school and the world of work. The act is primarily concerned with:

- ✧ school-based learning
- ✧ work-based learning
- ✧ activities connecting the classroom and the workplace, the student and the worker, and the school and the enterprise.

Summing up the recent trends, Jang et al. (1999, 2000) concluded that school-to-work transition comprises preparation which occurs mainly through education, the process of making the actual transition, and the results of transition observed in the world of work. This framework is useful in deciding what objectives and interests should be the focus of their analysis.

Currently in Korea there are increasing demands by the national government for developing human resources. One way to meet these demands is to provide strong support for school-to-work transition strategies which will help to enhance the quality and workplace adaptability of the labour force, upgrade existing workers' competency, and reinforce the accountability of vocational education and training institutions. Therefore, the need for an in-depth study of school-to-work transition, with a special focus on the preparation stage, will have special significance.

It is important to note that many countries are beginning to include students in general and vocational education paths in their consideration of school-to-work transition (National School-to-Work Office 1997). This tendency is especially notable in countries such as the United States and the United Kingdom, which have high school systems built around the concept of the general or comprehensive high school. Such an approach is inappropriate for an examination of school-to-work transition in Korea where a substantial percentage of all high school students are enrolled in vocational high schools and where most students in general high schools pursue tertiary education directly after completion of secondary education rather than seek employment. Considering the distinct characteristics of the high school system in Korea, it is more meaningful to focus the research on school-to-work transition of students in vocational high schools. Similarly, research on tertiary-level students should concentrate on vocational colleges, where various programs supporting school-to-work transition are provided, rather than on four-year universities. This research aims to identify viable measures to support students from vocational high schools and vocational colleges to make a smooth transition from school to the world of work.

Assisting students in VE institutions to move easily into the world of work has significance for the state, the VE institutions themselves, and for students. Recently, the Korean Government has renamed its education ministry the Ministry of Education and Human Resources Development and has established the Human Resource Development (HRD) Committee to highlight the importance of pursuing HRD and developing national policies for its implementation. This has led to increased expectations for VE institutions to supply skilled workers capable of meeting the demands of industry. To help these institutions carry out this role, it necessary to implement policies which will help students in these institutions to adapt to workplace change and other demands of the world of work.

When the transition from vocational education to the world of work is hindered, it may have serious consequences for the national management of human resources. Implementing effective policies to raise productive manpower and to foster placement of workers in occupations according to their individual aptitude and capacity is material to the development of the society at large (Jang et al. 1999, p.2).

As for the VE institutions, there are a number of reasons why developing measures to facilitate school-to-work transition of students is important. First, these institutions play a decisive role in the transition process, and whether or not they are effectively helping their students make the transition is a criterion used to evaluate their performance. Secondly, they distinguish themselves from institutions of general education in that their policies are geared to meeting the demands of industry, increasing employability of their students, and strengthening linkages between school and the world of work. The extent to which they are able to meet these challenges, and to smooth the transition-to-work process for students will in part be used to measure their success. Implementing policies to enable them to carry out these tasks will also help to determine their productivity, productivity, efficiency, and effectiveness.

Finally, effective measures for school-to-work transition have important consequences for VE students, who generally move into employment earlier than those in the general education track. Preparing these students to enter the world of work with minimum psychological shock will help their initial adaptation to work. Moreover, when students successfully complete effective school-to-work transition programs, they will have developed the skills to enable them to adapt to the workplace. This will in turn help them once they have entered the world of work, where they will

participate in various occupational tasks. Assisting VE students to make the transition to work will also substantially raise their capacity to respond to the demands of the workplace.

Worldwide, much attention has been given to the transition of young people from school to work (Jang et al. 1999, pp.2–3). Alleviating youth unemployment and employment instability, re-shaping vocational education to meet real workplace needs, and facilitating school-to-work transition by enhancing skills and work competency of young people are major tasks recognised by OECD member countries (1994, 1996, 1998a, 1998b). Efforts are ongoing to create diverse programs to ease the transition process and to install legal mechanisms to foster it. *The School-to-Work Opportunities Act* legislated in the United States of America is one prominent example. In Australia in 1999 the Prime Minister established the Youth Action Plan Taskforce with specific responsibilities for examining school-to-work transition processes for Australian students.

Prompted by the attention given to school-to-work transition in other countries, researchers in Korea have recently begun to delve into this subject. Initial research effort has focused on national cases of OECD countries, including strategies for introducing the concept and related programs (Jang 1997; Lee 1998; Oh 1998; Shin 1998).

The conceptual and theoretical framework for the study of school-to-work transition in Korea was established by Jang et al. (1999, 2000). These researchers undertook a comprehensive observation of the transition of students from high school and vocational colleges to the world of work, and suggested policies for systematising school-to-work transition processes. Their study overcame the narrow scope of previous research on the subject. They divided the transition process into preparation, transition, and outcome phases and collected data to observe their actual occurrence in Korea. Comparisons were made with western countries and used to identify school-to-work transition processes that were distinctively Korean.

Jung (1998, pp.98–102) sought lessons from the American experience with the various transition programs described in the *School-to-Work Opportunities Act*. He categorised these programs into school-centered and workplace-centered programs, and selectively discussed programs which might be adopted by VE institutions in Korea. Although these achievements are not insubstantial *per se*, more work needs to be done, particularly because the whole question of transition to work has become a critical issue for Korean society. In 1996, the government published *The education reform for new education system (II)*, which outlined problems in vocational education and strategies for their solution. Since that time a variety of VE reform policies have been implemented. These reforms are aimed at enhancing the relevance of vocational education to existing workplace conditions, strengthening school–industry collaboration, promoting articulation of curricula among VE institutions, reinforcing linkages between academic achievement and vocational qualifications, and establishing a solid foundation for lifelong VE. Assessing whether these measures are being effectively implemented in VE institutes is an important task for researchers concerned with school-to-work transition.

Such is the context in which this project was conceived. Through collaboration with Australia's NCVER, the researchers sought to identify viable ways of supporting programs designed to facilitate school-to-work transition for VE students. In achieving this aim, the preparatory stage of the transition process was given special attention. Findings of our Australian counterparts were also carefully studied for any lessons with relevance and significance to the Korean situation.

2. Objectives of the study

The aim of this study was to compare and evaluate the success of transition-to-work strategies currently being implemented in Korea and Australia, for students in VE pathways. A secondary aim was to provide guidelines for action for governments, students, industry groups, and vocational education providers.

A. Research questions

The research attempted to answer the following questions:

- a What are the approaches being implemented in institutions providing vocational education (generally referred to as VET institutions in Australia) to foster school-to-work transition? What are the critical issues and problems raised?
- b What are the strategies identified by teachers and professors (lecturers) in VE institutions required for effective school-to-work transition for VE students?
- c What lessons can each country (Korea and Australia) learn from the research findings of each study.

The Korean research also examined the type of research approaches currently being used to examine school-to-work transition processes.

3. Research methodology

A. Australia

The study was conducted in five main phases. Phase 1 comprised a literature review of domestic and international research studies conducted on school-to-work transition. Phase 2 was focused on the preparation of a brief overview of the formal systemic arrangements typically used to prepare students for entry into the workforce. The main interest was entry-level training focusing on 15 to 21-year-olds.

In phase 3 researchers conducted a questionnaire survey of teachers and vocational education coordinators in secondary schools and lecturers in VE institutions about what their institution was doing to facilitate school-to-work transition, the problems being experienced in this process, and suggestions for improvement. In addition, field officers and managers of apprenticeship and traineeship programs in group training companies were also interviewed. Information was especially sought about the operation of full-time and part-time (post-school) apprenticeship and traineeship pathways, part-time school-based apprenticeship and traineeship pathways, and institution-based post-school pathways. Also examined was the operation of VET in Schools industry-specific programs. (Questionnaires are available in support documents for this report, at <<http://www.ncver.edu.au>>.)

Information was collected from TAFE institutes, secondary schools, and group training companies in South Australia. In addition, interviews were conducted with four group training programs in other states to provide a comparative perspective.

The analysis in phase 3 was used to generate some key conclusions and to develop guidelines for action by governments, vocational education institutions, and industry.

B. Korea

This Korean study was conducted in five major phases. First, there was an analysis of findings from a selection of research studies conducted in different countries. Each study was closely studied to determine the research approach and perspective adopted by the author(s). Second, a comprehensive picture of school-to-work transition of students in Korean VE institutions was derived from studies of transition trends for students of vocational high schools and vocational colleges. Third, the importance of implementing mechanisms to support school-to-work transition processes was evaluated in terms of its significance for the state, the VE institutions, the students in the VE institutions, and for linkages between education and the labour market. Fourth, information from vocational high schools and vocational colleges was analysed to discover how these institutions are dealing with the issue of school-to-work transition. The relevant institutional

and legal mechanisms were also analysed. Fifth, the role of each stakeholder, that is, the government, the VE institutes, and industry was identified. Finally, the findings from research on school-to-work transition in Australia were compared with the findings from the Korean study. The comparative analysis was used to derive conclusions to further inform the debate about the role of the government, the VE institutions and industry in the school-to-work transition process.

The review of the literature comprised an examination of documents from Korea and other countries, including research papers on transition-to-work processes, promotional materials and VE policies. Experts in the field were invited to provide advice on the content and plan of the study, the adequacy of methodologies for data collection and analysis, and the relevance and validity of research outcomes.

To get a better picture of how school-to-work transition is being promoted in the vocational schools, questionnaires were distributed to teachers in high schools and professors in vocational colleges. Sample high schools included schools operating the 2+1 system or the 2+2 articulation programs and specialised high schools. Sample vocational colleges included those which conducted special programs, such as 2+2 articulation programs and customised educational programs. Recognising that surveys are a useful but an imperfect way of investigation, the research team tried to complement them by personally interviewing teachers and professors in institutions of vocational education. Discussion revolved around the problems they faced in the field and how they believed the problems could be solved.

4. Definition of key terms

A. Australia

1) VET

This term is a short form of the term vocational education and training. It generally refers to post-compulsory education and training which excludes degree and higher-level programs delivered by universities. When we are talking about the Australian system we will generally use the term VET.

2) Registered training organisation (RTO)

This refers to a public or private training provider or enterprise which has been registered under the Australian Qualifications Framework to deliver training and/or conduct assessments leading to VET qualifications (within a certain scope) in accordance with the Australian Qualifications Framework. Registered training organisations include TAFE colleges and institutes, adult and community education providers, private providers, community organisations, schools, higher education institutions (delivering VET qualifications), commercial and enterprise training providers, industry bodies and other organisations which meet registration requirements.

3) The Australian Quality Training Framework (AQTF)

This refers to a nationally agreed quality framework for the Australian VET system. It comprises standards for registered training organisations, and standards for state and territory registering and course accreditation bodies. In order to maintain their registration status, RTOs must be audited and found compliant by state and territory registering and course accreditation bodies according to specific standards.

4) Australian Qualifications Framework

This refers to a nationally consistent set of qualifications for all post-compulsory education and training. It comprises titles and guidelines defining the qualifications, together with the

principles and protocols covering articulation and issuing of qualifications and statements of attainment.

5) Training package

A training package is a set of nationally endorsed competency standards, assessment guidelines and AQF qualifications for a specific industry, industry sector, or enterprise.

6) Assessment guidelines

These guidelines refer to the endorsed component of training packages which describes what is required to ensure that assessments are valid, reliable, flexible and fair.

7) Post-school apprenticeships and traineeships

This refers to an arrangement whereby school-leavers enter into a contract of training or its equivalent with an employer. In this contract of training the employer commits to providing paid employment and on-the-job training and experience for the apprentice or trainee. The employer also commits to ensuring that the apprentice or trainee is able to attend any off-the-job training required. The apprentice or trainee commits to undertaking workplace obligations and the on- and off-the-job training required. Where apprentices and trainees are under the age of compulsory schooling, these contracts are signed by their parents or guardians.

8) School-based part-time apprenticeships

This refers to arrangements which allow secondary students to undertake a part-time apprenticeship or traineeship while still at school.

9) Post-school institution-based pathways

This refers to training pathways available to individuals which do not require them to be in paid employment and in a contract of training to undertake the qualification. It is a pathway which enables students to attain qualifications which may lead to jobs during the course of or on completion of the program.

B. Korea

1) VE students

These students refer to students enrolled in vocational high schools and colleges.

2) Measures

Measures refer to policies and practices which could be implemented to foster school-to-work transition of VE students.

3) Specialised vocational high school

This refers to vocational high schools which are trying to adapt labour market changes by incorporating specialised courses throughout or in some departments.

4) 2+1 program in technical high schools

This program is similar to the dual system in Germany. Usually implemented in the technical high schools, the 2+1 system allows students to study 2 years in the school and spend their last year of high school in industry, where the student can work and learn under a contract for OJT (on-the-job training).

5) Articulation program

The articulation program is a modified version of the Tech-Prep program launched in the United States. It is essentially a 2+2 system, linking the last two years of the vocational high school curriculum with the two-year curriculum of the vocational colleges.

6) Customised educational program

This program was adapted from the customised training implemented in the western world. In Korea, it is provided by the vocational colleges seeking to reflect the real demands of the industry in their curriculum.

5. Limitations of the study

A. Australia

This study aims to gain a better insight into the preparation stage of the transition from school-to-work process. In so doing it makes sense to gather information from those who are directly involved in training and educating students. However, there are also some limitations in depending too much on the perceptions of trainers and educators, and not enough on more objective measures of success. However, these would also incur added time and resource costs. Such considerations could, of course, be included in any further study of transition.

In terms of the Australian study, resource and time issues have limited the study to South Australia. In one sense this can be considered a limitation. In another sense it means this controls for the impact on training and education of the variations in education and training policies of the separate state systems. Nevertheless, the issues of concern here are likely to affect TAFE providers, schools, and group training companies in similar ways.

B. Korea

This study has some limitations which need to be considered. One such limitation is that it focuses specifically on the preparation phase of the school-to-work transition process for students in vocational pathways. By so doing it fails to address the entire transition process, comprising preparation, actual transition and outcomes stages and thus fails to make comprehensive suggestions for supporting the school-to-work transition process. Future studies addressing these different studies should address this limitation.

Another limitation pertains to the study of transition in Korea, which exclusively deals with students in vocational high schools and vocational colleges. The Australian study, on the other hand, includes learners in TAFE institutes, a group not dealt with in the Korean study.

The third limitation relates to the significance of the findings from the questionnaire survey, which was administered only to instructors, and left out students who are critical key players in the transition. This may raise questions about whether the survey results accurately reflect the overall picture.

II. Literature review

1. Australia

A. Achieving adulthood through work

School-to-work transition processes for Australian students need to be understood in terms of the changing needs of an Australian labour market, and increased importance of knowledge-based activities for economic success in global markets. It is also important to note that, increasingly, the concept of a specific transition period where students are dedicated to preparing themselves for the world of work is becoming less meaningful. Today school and work for many students co-exist and students often have casual and part-time jobs while they are still in secondary schools and post-secondary school institutions of education and training. These jobs enable them to achieve some independence from their parents by allowing them to earn extra money while they are studying to complete their studies before they either move on to more advanced study or into the full-time employment. Sometimes these casual jobs may lead onto further employment with the same company once students have left the education and training system.

In examining school-to-work transition it is also important to keep in mind that at the same time that students are preparing themselves for work, they are also undergoing emotional and physiological changes as they move from childhood to early adolescence, and then into late adolescence and adulthood. Obtaining financial independence from parents, often only possible through moving into full-time paid work, has always been a major mechanism for achieving adulthood in modern industrialised economies like Australia. However, increasingly this transition from adolescence to adulthood is being deferred as young people are denied opportunities to move straight into employment either by lack of suitable jobs, or lack of skills to take up the opportunities that are available.

In 1999 the Prime Minister set up a taskforce (Prime Minister's Youth Action Plan Taskforce) to deal with better ways of supporting young people and their families as young people made the transition from school to work and thus to independence. This task force conducted consultations with the public, surveys of young people and their parents, examined written submissions, and commissioned a set of special research projects.

The findings showed that the term 'transition to independence' was somewhat misleading, because as has been already noted, young people do not make a single transition but make a multitude of changes in their interaction with families, society at large, work experiences, and learning. The report also explained that the success of and rate at which transition occurred in one area would affect transition in other areas. It was for this reason that the task force suggested a comprehensive and broadly based strategy to help young people in their transition to work and independence. It was important then to understand that independence 'entails having the means, capacity, confidence and orientation to interact with others on an equal footing. Independence is about sustainable livelihood and citizenship' (p.4).

B. Pathways for Australian students

Keeping in mind that individuals will follow unique pathways to the world of work, there are a number of major pathways followed by Australian students. In Australia the vocational education and training system is focused on providing the industry skills students will require to enter the workplace. Its main features are an open training market, competency-based training and assessment, a national framework for qualifications and training, close linkages with industry, and flexible inter-linking pathways. This means that secondary school students may select units of competency to meet their skill needs while they still in school and have these recognised nationally. It also means that they are able to move in and out of the training system as their skill needs alter once they have left school. These arrangements facilitate the operation of a training system that enables individuals to engage in lifelong learning.

When school-to-work transition operates successfully for students, they may follow a number of mainstream pathways. These include:

- ✧ moving directly into jobs once they have reached compulsory age
- ✧ moving directly into a full-time apprenticeship or traineeship which includes paid employment and combines on-the-job and formal training, on achieving compulsory age
- ✧ staying on at school and undertaking a part-time school-based apprenticeship or traineeship
- ✧ following a purely academic pathway and then moving either into work and/or into further education and training on completion of Year 11 and/or Year 12
- ✧ undertaking a VET in Schools program during Years 11 and 12 and then moving either into work or further training. There are also some instances where these programs are being made available to Year 10 and Year 9 students.

Increasingly, there are opportunities for students to follow interlinking and flexible pathways which allow them to combine academic and vocational learning and work and study.

C. Pathways to the world of work

In 1996 the Education Committee of the OECD launched the OECD's thematic review of transitions (OECD 1997). It set out the principal components of an effective transition system. These included: 'a healthy economy; well-organised pathways between initial education, work and further study; tightly knit safety nets for those at risk; good information and guidance; and, effective institutions and processes (p.12)'. In 1999 the OECD published a report on the experience of OECD countries in providing young people with a 'good start' (Bowers, Sonnet & Bardone 1999). This report found that countries (for example, Norway and Austria) which had made available 'broad pathways with multiple exit points' had been able to increase the 'attractiveness' of vocational training and participation. However, the report also highlighted the difficulties being experienced by other countries (United States, Finland) in attracting students and their parents to such integrated pathways.

Although there are multiple and individual routes and time-frames which Australian students take as they make the transition from school to full-time work, these can be grouped into four major pathways. These are described below.

1) *The school-to-labour market pathway*

In Australia students may leave school on achieving compulsory age (that is, 15 years of age in all states apart from Tasmania where it is 16 years of age) and move directly into the labour market. They may also leave school at any time during or on completion of their senior secondary schooling and go directly into the labour market. Once in the labour market they may either go directly into jobs which have no formal requirements for further training, or enter a traineeship or

apprenticeship which requires them to be in employment. They may also enter jobs which require substantial amounts of enterprise training. It must also be kept in mind that, increasingly, for many young people (especially those between 15 years and 19 years), the route from school to work is accompanied by spells of unemployment as they move in and out of casual or part-time jobs.

In addition, there is also one group of school leavers (often *early* school leavers) who may opt to leave school before or just on compulsory age and remain out of the labour market altogether. The transition from school to work for these groups is often filled with upheaval as they try to balance their needs for independence from school and parental authority, with a dependency on the social welfare system for financial support. In schools, students who are in danger of falling into this group are often described as ‘at risk’ students. There are special government programs which have been devised to help these ‘at risk’ students to either remain in, or re-engage with the school system once they have left it. These programs aim to assist these students to complete secondary high school or VET qualifications, and develop life and work skills and knowledge that will help them to compete more effectively in the labour market.

2) *The post-school apprenticeship or traineeship pathway*

Students may complete compulsory age schooling and enter a traineeship or apprenticeship if they are also able to find employment and enter into a contract of training with their employer. They may also decide to complete Year 11 and/or Year 12 of their senior secondary schooling and then follow this pathway. Alternatively, they may enter into a contract of training with an employer once they have left school and have been engaged in other activities. Individuals may also be taken on as an apprentice or trainee well after the time they have left school. Apprenticeships and traineeships are available to students who have undertaken purely academic studies, and to those who have combined academic studies and vocational education and training. Apprenticeships and traineeships are also available to those who are not school leavers and are taken on as mature apprentices. Increasingly, students are opting to undertake what are called pre-vocational qualifications in the hope that they will be able to secure a traineeship or apprenticeship either during or on completion of this program.

On entering a traineeship or apprenticeship, individuals sign a contract of training with an employer. This allows the individual to combine paid work with on-the-job and off-the-job training. In the main, on-the-job training and experience are provided by the employer, off-the-job training is provided by a registered training organisation (RTO). This RTO is registered under the Australian Quality Training Framework (ANTA 2002) to provide the training in particular trade or industry areas. If the employer is an enterprise RTO, then the off-the-job training can be provided at the work site. Generally employers who have their own training departments or skill centres may also opt to become RTOs.

Once the apprentice has completed the off-the-job and on-the-job training, and completed the three, four or five years specified in the contract of training, then the apprentice will be awarded the full qualification (trade certificate), and the contract of training will be signed off. In some industries the apprentice will have also completed requirements for special licences by completing the apprenticeship program. In other industries the licence is awarded on satisfaction of separate requirements for the licence. In Australia licences are required for occupations, including among others, electricians, builders, and plumbers.

(1) Pathway success

The success of this training pathway in helping students to make the transition-to-work is captured by a report by the National Centre for Vocational Education Research (NCVER 2001a) which examined all facets of the Australian apprenticeship system. The report highlighted the important contributions this system had made in terms of raising the Australian skills base and facilitating the transition of students to the world of work. The report also noted the use of the term ‘New

Apprenticeships' as an umbrella term for apprenticeships and traineeships which was generally more frequently used in national forums rather than in the states and territories.

Citing figures from the then Department of Education, Training and Youth Affairs (now Department of Education, Science and Training), and the Department of Employment, Workplace Relations and Small Business (now the Department of Employment and Workplace Relations), the report described the high employment outcomes from these arrangements. It noted that, in the year ending June 1997, the overwhelming majority (80%) of apprentices who completed their apprenticeship were retained as tradespersons by their employer, or had found a job with a new employer three months after completing their apprenticeship. In addition, 85% of trainees who completed their traineeships (typically one-year traineeships at certificate II level or equivalent) had also found an 'unsubsidised' job three months after completing their traineeship. By 2000 these figures had climbed to 90% for apprentices and 93% for trainees. The employment outcomes for those who did not complete the apprenticeship or traineeship were also reported to be good. In 1997 almost 40% of these had found employment. The report also noted that, in line with improved conditions in the Australian labour market, some 70% had found employment in 2000.

The NCVER study also noted that, although those with a university undergraduate or higher-level qualifications have the highest probability of being in a job, the probability is almost as high for those with a skilled vocational qualification, which includes apprentices and trainees. The report concluded that 'the importance of new apprenticeships as a pathway for young people in making the transition from school to work has not only remained intact, but its relative importance in entry to full-time employment is increasing'.

However, the picture is not all rosy and there are instances where the quality of the training available to trainees has been found wanting (Cully & Curtain 2001).

(2) Mature-age apprentices

One might argue that in discussing school-to-work transition there is no need to refer to the experiences of mature-age apprentices. Keeping in mind that these apprentices are also making a transition from life as an apprentice (that is someone in training) to life as a tradesperson, there is some justification for examining how they fare in training. Saunders and Saunders (2002) conducted a study of adult apprentices which involved examining national training statistics, and conducting a set of case studies with companies in three Australian states. They noted that, since 1995, the apprenticeship and traineeship system had more than doubled in size from 136 000 contracts of training in mid-1995 to 295 000 in 2000. In 1995 traineeships represented about 10% of the system, in 2000 they represented 50%. In addition, women in 2000 comprised almost a third compared to 5% in 1995.

Researchers found that in the traditional trades this age group comprised just 12% of the training places and for the trades and trade-related occupations it comprised 14%. Women comprised over 30% of all training places at the end of 2000, but only 13% of 'trades and related training' and 1% of the traditional trades.

According to Saunders and Saunders the current emphasis on getting adults into the trades is more related to the general ageing of the population and labour force and to issues of supply and demand, than to major policy directives. In their case studies of 16 companies employing adult apprentices in the traditional trades they found that, in the main, companies had introduced 'adult-friendly' approaches to training. They also found a variety of recruitment approaches. A small number of the companies still used annual school leaver intakes, others apprenticed existing employees, while others used a group training company to take over the recruitment process. Half of the companies still tended to use TAFE as the major provider for the off-the-job training, some maintained their own skill centres which provided accredited training, while others used the services of group training company providers.

In terms of wages, companies tended to make local adjustments to the wages they offered adult apprentices. That is, they might keep the adult apprentices who were existing employees on regular wages, or may offer them increased overtime. In general, adult apprentices are valued for their maturity and their self-discipline. Training providers appreciate their input as a way of ‘stabilising’ classroom environments and providing effective role models for younger apprentices.

(3) Non-completions of training contracts

Apprentices and trainees who do not complete a contract of training are often referred to in the literature as non-completers. A study by Grey et al. (1999 cited in NCVET 2001a) indicated that employment outcomes were better for those non-completers who stayed longer in their contracts of training before seeking a new job. Although the aim of this study is not to look at employment outcomes, the fact that students in these programs do achieve successful outcomes also indicates that there are aspects of the apprenticeship and traineeship experience which facilitate the transition from school to work.

Cully and Curtain (2002) conducted an analysis of why apprentices and trainees did not complete their contracts of training. Their questionnaire survey of 797 apprentices and trainees and 462 of their employers, and focus groups of new apprentices, employers and training providers, found that most non-completers were young (under 21 years of age). However, there was a substantial group (25%) who were over the age of 25 years. Almost all of these were trainees (that is, those who were not in traditional four-year apprenticeships). Non-completers were evenly divided between those who had taken on a traineeship as an existing employee and those who were new employees when they took on a traineeship.

Cully and Curtain report that most of the trainees (62%) and apprentices (54%) had entered a contract of training because they wanted to be in work. There were few new employees who had entered a traineeship because they had wanted the qualification that could be derived from completion of the program. However, the prime objective of 23% of existing workers entering such contracts was to get a qualification. In addition, there was a small group of trainees who had entered the contract because their employer had suggested it or because it was a condition of their employment.

In the majority of cases (86%) the contract was stopped when the trainee also left the job. Cully and Curtain found that, in the main, trainees left their jobs because of what they call the ‘employment relationship’ rather than the training itself. These included transfers to other employers for apprenticeship or traineeship contracts, redundancy, dismissals, dissatisfaction with the job. Employers confirmed these findings. For 44% of apprentices and 11% of trainees, the non-completion, however, was due to their transferring of contracts to another employer.

A major job-related reason accounting for 50% of the non-completions was related to individuals perceiving that they were being treated as cheap labour. There were also 29% of these non-completers who felt they weren’t learning anything, while 23% reported that they had been bullied at work.

Cully and Curtain (2002) asked these non-completers to specify what they were currently doing nine months and 21 months after they had left their jobs. Almost 75% of these had changed jobs, with two-thirds of this group reporting that they were in a job with better pay and working conditions. Of these, 9% had remained with their same employers. Nevertheless, 14% were unemployed at the time of the survey, and 5% had left the labour force altogether. Those who were unemployed had generally been dismissed by employers, and those who had left the labour force (that is, they were unemployed and no longer looking for work) had often cancelled their contracts because of personal or other reasons. Although 12% of the non-completers had gone on to full-time or part-time studies, just under half (49%) of non-completing apprentices and just over three-quarters (76%) of non-completing trainees were not undertaking any studies or training.

Cully and Curtain (2002) concluded that there was a need to improve the match between employers and trainees by better selection procedures, including pre-employment assessments, and more explicit specifications of employer expectations. There was also a need to improve the on-the-job experience, through better support, requirements for employers to adhere to a fair standard of employment, and improving mechanisms to resolve disputes. There was also a need to improve the assistance available to older trainees. Cully and Curtain also suggested that, in view of the fact that non-completion is a performance measure for the VET system, it was important to ensure that administrative data collection adequately covered this information.

3) The school-based part-time apprenticeships and traineeships pathway (SBNAs)

Individuals may also be engaged in apprenticeship or traineeship programs when they are still in school. These are called part-time school-based apprenticeships or traineeships and allow the secondary school student to engage in paid work, complete secondary school qualifications, and commence the required training for the particular trade or industry in which the apprenticeship or traineeship is being offered.

A study of 641 students in school-based part-time apprentices and trainees from South Australia, Victoria and Queensland by Smith and Wilson (2003) indicated that students have positive learning outcomes from their involvement in these programs, especially from their on-the-job training. The findings indicate that the majority of those undertaking SBNAs were trainees in training contracts aimed at achieving a certificate II qualification. There were few in traditional apprenticeships aimed at achieving certificate III qualifications. SBNAs generally worked an average of about 10 hours. In comparison with other students, SBNAs were more likely to be female, white Australian-born, live outside capital cities, and less motivated to seek direct university entrance on completion of secondary schooling. They were also more likely to be of lower socio-economic background and to have previous experience of work. About half were employed in retail and fast food enterprises.

In addition, to acquiring qualifications, SBNAs also used this experience to provide affirmation for their career choice or to decide that the career was not for them. A small number were undertaking a traineeship to give them a headstart in a certificate III or apprenticeship program, or as a part-time job for extra money either to support them through future university studies, or to provide them with extra spending money in general. About a fifth had worked for their employers before obtaining a traineeship with them. In the main SBNAs in new industries were given more autonomy by employers than were SBNAs in the traditional trades.

SBNAs 'overwhelmingly enjoyed their work' with just over two-thirds of all trainees reporting substantial enjoyment. However, there were differences across the industry sectors, with all the trainees in cultural/recreation and sporting industries, and almost 90% of those in building and construction reporting high enjoyment. As a group those working in the retail and fast-food sector were the least satisfied.

SBNAs were also generally able to fit in studies with their work obligations. However, there were students who had timetabling difficulties which meant they had to catch up on work missed at school, or increase their hours with weekend or after-school work. About a quarter were undertaking their off-the-job training at work.

By and large the majority of SBNAs had positive work experiences. They also developed a diverse set of skills, knowledge, and other attributes. These included industry-specific skills and knowledge, appropriate work habits, maturity, confidence and ease. SBNAs indicated also that their work had also helped them to develop the generic skills in substantial ways, especially skills in 'verbal communication', 'how to behave at work', 'working in teams' and 'using [their] initiative'. This was more the case for SBNAs who had a genuine love of the career than those undertaking the traineeship for 'instrumental' reasons like getting part-time work for university studies. Those who reported negative experiences often related these to the lack of training at their workplace.

SBNAs also reported a number of learning benefits for their school studies from being involved in these forms of training and employment arrangements. Students undertaking studies in accounting, information technology (IT), horticulture, business management, English, hospitality, retailing, industry studies and marine biology believed that their experience at work also improved their learning in these areas.

Although the study provides support for the concept of SBNAs, it identifies a set of five major issues. The first relates to the adequacy of the number of hours worked by SBNAs by comparison with the total number of hours required to complete their traineeships or apprenticeships. The second is concerned with the 'well-being of the student' who may need to spend vacations at work or in training. The third raises questions about the wisdom of having a concentration of SBNAs in industries typically providing part-time work for ordinary students and non-students. The fourth issue concerns the adequacy of training provision by RTOs. The fifth issue relates to the inflexibility of school timetabling processes.

4) *The purely academic pathway*

Secondary school students may also stay on at school on reaching compulsory age and continue into a purely academic pathway where they may concentrate on general academic studies in preparation for university entrance, or entrance into a particular VET qualification which requires knowledge and capacity in a specific academic area. As already noted, these students may also go directly into employment once they have left school (either on completion of Year 11 or Year 12) or enter a vocational education and training institution. Students who are admitted to universities may choose to move into university programs either directly after schooling is over, or to defer their university studies for a year or two. University studies may prepare them specifically for professional jobs requiring the higher skills, knowledge and credentials imparted by universities (for example, scientists, accountants, lawyers, dentists, doctors, engineers, teachers, psychologists, social workers, architects, computer professionals and so on), and for academic occupations (for example, lecturers and researchers in certain discipline areas).

Even though students on academic pathways may access vocational training while they are preparing for professional occupations requiring higher education qualifications, in this study we are mainly interested in those students who move into work primarily via vocational education and training pathways.

In examining the post-school outcomes of Australian students, Lamb and Ball (1999) examined data on course selections of students in the Longitudinal Surveys of Australian Youth and examined the consequences on their education training and work experiences to age 19. They found that students from the same social background, of the same sex, attending the same type of school, and the same levels of achievement at age 14 (measured by literacy and numeracy achievement tests) had different post-school education experiences according to their choices of subjects at school. Young people from higher socio-economic backgrounds, those from private schools, high school achievers and students from non-English speaking backgrounds, tended to select courses that would give them the best advantage in further higher education and the professions. They generally undertook courses associated with the academic streams. By age 19 less than 30% of students who had undertaken courses comprising maths, economics, chemistry, biology and computing or physical sciences and maths in Year 12 were not studying or engaged in training. Many of these were also in jobs.

The subject groups which tended to be associated with the lowest length of time in unemployment were reported by Ball and Lamb to be science and mathematics courses, with over 50% not experiencing any time in unemployment. Between 40% and 50% of those in business studies and humanities courses also experienced no time in unemployment. In addition, those from science and humanities courses also had low duration of unemployment, with 59% experiencing no time in unemployment.

5) *The VET in Schools pathway*

The VET in Schools pathway comprises programs (in addition to, school-based part-time traineeships and apprenticeships already mentioned) which allow students to commence a purely vocational qualification while they are still in school, or to combine vocational and general studies to complete dual qualifications. The VET in Schools programs comprise a large number of VET programs, with secondary schools being responsive to the needs of their students by considering the school's specific geographical, labour market, and commercial and industrial environments.

The most common form of VET in Schools program comprises VET which is 'embedded' into the already existing curriculum. 'Embedded VET' studies lead to a wide range of VET certificates, modules or units of competency. Typical VET in Schools programs require students to spend some structured time in a workplace or its equivalent. For example, hospitality students may spend time in a commercial kitchen attached to a school or other VET institution. In general, teachers of VET programs must have industry experience before they are allowed to provide vocational programs.

Secondary school students are able to undertake VET modules from industry-endorsed national training packages. These pathways provide opportunities for students to complete AQF qualifications, generally at the certificate I, II or III levels. These programs can be delivered by a TAFE or other non-school RTO or by the school itself if it is registered to provide those programs.

Although not all school-based VET programs require students to obtain specific workplace experience if skills can be acquired within the school setting, a significant number of students are involved in industry workplacements. Schools have evolved cluster arrangements which enable them to combine with other schools to provide programs or to pay for the services of a coordinator responsible for locating and negotiating workplacements with industry.

Typically VET in Schools programs apply to students in their senior years (that is, Years 11 and 12). However, concerns have been raised about the ability of the school system to retain certain groups in school to enable them to take advantage of these VET in Schools programs. For example, 'early school leavers' do not get to participate in specific vocational learning because they have left school before these programs are offered. This especially applies to Indigenous students who have left school before they get to Year 11 and 12. It is important therefore to re-think the strategy of offering VET in Schools programs only in the senior secondary years. This also applies to part-time school-based apprenticeships and traineeships.

The Ministerial Council for Employment, Education, Training and Youth Affairs Taskforce on Indigenous Education noted that the best way to make sure that Indigenous youth participated in apprenticeships or traineeships was to introduce a pre-apprenticeship program which commenced at around Year 9 (that is, the middle years of secondary schooling). This program should then articulate with post-compulsory VET in Schools programs, and lead on to school-based apprenticeship and traineeship programs.

(1) How teachers and students view initial VET

A study conducted by the New South Wales Department of Employment and Training (Anderson 1996) in three Australian states of the initial VET experiences of 15 to 19-year-olds aimed to study how students and teachers viewed initial VET training experience. It found that 95% of the 163 students in the study strongly approved of their vocational courses. In particular they approved of these vocational courses because they were able to develop their work skills and engage in practical training. They enjoyed the environment of the vocational classroom and the variety of the courses available. Females were more likely to say that they saw gaining vocational skills as a future investment. Almost half (49%) of the students had also been involved in workplacements. These students reported that they derived a wide range of benefits from these placements, including people skills, vocational skills, confidence and self-esteem.

Although there were 28% who indicated that they preferred to learn through hands-on activities, the great majority (67%) learnt best through hands-on and cognitive-based approaches. Students (29%) also reported that they learnt best when they were taught by teachers who treated them as equals, were prepared to be friendly (27%) and had good communication skills in terms of fairness, patience, and tolerance (18%). They also wanted teachers to treat them as adults and with respect. When teachers were asked how they perceived students to learn best in initial training, just over half (52%) replied that they believed students learnt best through practical hands-on training. Well over a third of teachers indicated that students tended to be highly motivated in these courses. However, a sizeable group (8%) believed motivation to be low. The researcher also conducted practical observations of their activities in classrooms and showed that teachers tended to use a variety of practical work, lecture, demonstration, group work and individual self-paced learning. Students were more likely to give higher levels of satisfactory ratings to teachers who used informal or non-authoritarian approaches to teaching. Just over half of the students in the study were also in paid part-time employment.

When asked to specify the types of problems encountered in designing courses or subjects, teachers indicated problems which related to the lack of information on desired outcomes, theory on occupational health and safety, difficulties in devising suitable activities to meet specified learning outcomes, and lack of time or physical resources.

Anderson concluded that there was a need to improve the practical components of vocational courses, and the availability of resources. There was also a need to ensure that teachers had the necessary technical competency and appropriate industry experience to deliver these vocational programs. Moreover, teachers could benefit from initial or in-service training which developed their skills in delivering practical training, and their ability to be flexible in customising education to student needs. They could also benefit from adopting a less formal approach in the classroom. This would help develop classroom relationships based on respect.

(2) Varied delivery approaches

In reviewing the extent to which there was effective inter-sectoral cooperation between, schools, TAFE and universities, Robinson and Misko (2001) examined the VET in Schools programs offered in a sample of public and private senior secondary schools in one state in Australia. They found that schools provided students with a wide array of vocational training options, and adopted a wide variety of approaches to helping students prepare for their eventual entry into the workforce. In some schools there was a focus on making all students (including those in academic streams) undertake a VET program, in others there was a focus on offering only those VET programs that the school had the capacity to deliver. In addition, some schools had implemented a four-day timetable which allowed them the flexibility to enable students to undertake workplacements, part-time school-based apprenticeships and traineeships without major disruption to their school programs. In the main, schools had an established relationship with an RTO, generally the local TAFE institute, a group training company, or private training organisation. In these cases RTOs had a key role in drawing up the training plan, and monitoring the workplace training and assessment of students.

In all cases the negotiations between schools and TAFE were done at the local level. Because TAFE expected schools to pay for programs, there was general dissatisfaction among schools about the excessive costs of programs, and the opinion was that this cost often limited school access to TAFE facilities and equipment. This was especially so for those schools who were short of funds and were in areas where they were not able to ask parents to meet the costs. Similarly TAFE institutes also cite the costs of running programs for school students as limiting their involvement.

Robinson and Misko also found that the funding policies in place to prevent 'double-dipping' by schools had actually contributed to a duplication of VET provision and an 'inefficient and wasteful use of resources'. It had also limited the role of TAFE to increase involvement in VET provision for schools. Double-dipping is generally acknowledged to occur when public schools that have

already been funded to provide a full education, use the resources of another public institution (for example, TAFE) to augment the education facilities or training available to their students. Since that time reforms have been put in place to deal with this issue.

D. Coping with an uncertain labour market

Studies into the effectiveness of school-to-work transition processes in Australia have been plentiful. In general they have focused on what happens to young people when they enter the labour market. In 1998 the Dusseldorp Skills Forum published a suite of papers which dealt with the experiences of Australian 15 to 19-year-olds as they entered the labour market. Commenting on the transition-to-work difficulties faced by young Australians, Sweet (1998) noted the major problem was 'not only to find work but to be able to escape from a cycle of insecure, casual, temporary and part-time work after they leave school' (Sweet 1998, p.6). In reviewing the labour market prospects for students in the state of Victoria, Kirby (2000) also came to the conclusion that those young people who do not go on to tertiary education and enter the labour market as part-time workers are in an 'economically precarious position' (p.65).

The increased tendency for non-student young people to find part-time rather than full-time employment was also identified by Wooden (1998). This often meant poor wages, seasonal or casual work and lack of access to benefits of employment like training, superannuation, annual leave and sick leave. Sweet (1998) reported that there was a tendency for these Australian youngsters to move between casual, low-paid work and unemployment. These problems were further exacerbated for those young people (often early school-leavers) who fell out of the labour market altogether (McLelland, MacDonald & MacDonald 1998). These researchers also found that early school-leavers were more than three times as likely to be engaged in marginalised activities for longer periods of time than were those who had completed Year 12. Ainley (1998) examined the relationship between Year 12 completion and unemployment and found that early school leavers were more likely to enter part-time work that was not related to study than those who had completed Year 12.

In 1999 the Dusseldorp Skills Forum commissioned and published another suite of papers, this time, tracing the labour market fortunes of 20 to 24-year-olds (Dusseldorp Skills Forum 1999). In reviewing the findings Spierings (1999) noted that labour force participation in this age group was greatest than at any point in the life cycle.

In 2003 the Dusseldorp Skills Forum published another paper looking at how young people were faring. They found that although 85% of 15 to 19-year-olds were in full-time study or full-time work, there were 14.9% of these 206 000 teenagers who were not in full-time education or full-time employment in May 2003. This was similar to trends for the last decade. For Indigenous Australians the figure was 49% not in full-time education or full-time work. For those in rural and remote Australia the problems were exacerbated.

Effective school-to-work transition is particularly difficult for those students who leave school without any formal or recognised qualification. Kirby (2000) found that most of these students in Victoria left school after they attempted the first year of their secondary school certificate (Victorian Certificate of Education). They entered a labour market where more than 50% of all full-time jobs held by males, and 66% of all full-time jobs held by females have vanished. Kirby reported that, along with the wish to seek employment, lack of interest in school activities was a major reason for young people leaving school without a recognisable qualification. However, a third of these students had also left because of their inability to cope with school work.

Although there is diversity between the employment, education and training opportunities available to young people in different remote and rural communities, transition to work and independence is often more difficult for these young people than those in metropolitan Australia. For example, young people living in small communities in geographically inaccessible towns were much more likely not to have access to schools, TAFE and universities. Golding (2001) found that transition-

to-work difficulties for students in remote and rural Australia are derived from the limited pathways available in these locations. Long-term unemployment, few jobs and high competition for these jobs also affected the transition from school to work for Indigenous students, 60% of whom live in remote and rural Australia. This was the case even when they have similar qualifications to their non-Indigenous peers. (Ministerial Council for Education, Employment, Training and Youth Affairs Taskforce on Indigenous Education 2001).

E. Comparing outcomes

Watson (2000) compared the employment outcomes of graduates of higher education and VET sectors, and found that over 70% of graduates from both sectors were in employment after their courses. She also found that prior qualifications and amount of experience in work also influenced the employment outcomes of graduates of both sectors. Those who were in full-time employment prior to their course had better employment outcomes after their course than those who had part-time employment prior to their courses. In addition, graduates who had undertaken a substantial amount of structured workplace experience component as part of their training also had better employment outcomes.

Although employment outcomes for male graduates from higher education and VET are similar, TAFE graduates are in different occupational sectors, and higher education graduates are more highly paid. In addition, female higher education graduates have similar outcomes to their male counterparts but earn less, while female VET graduates have lower employment outcomes than their male counterparts. However, they are also more likely to be in lower performing courses and have lower rates of employment prior to commencing their courses and during their courses.

F. Australian solutions

Kirby (2000) believes that the employability of individuals is dependent on their 'self-belief and ability to secure and retain employment' as well as their ability to improve their 'productivity and income-earning prospects, [to compete] effectively in the job market and to 'move between occupations if necessary'. It is also dependent on their ability to *learn to learn* for new job opportunities in an advanced knowledge, communications and technological society' (Kirby 2000, p.37). However, he also concedes that the greatest influence on the ability of young people (especially younger youths and those not in education) to find work was related to a nation's 'overall economic growth'.

Kirby (2000) concluded that the challenge for the education and training system in Victoria was to develop a highly skilled workforce for the interests of global competition. Another major challenge was to provide for the 'economic and social inclusion of those most at risk' from this new economy. These at 'risk groups' included young people moving from full-time schooling to full-time employment.

This would require:

- ✧ education, training and employment programs and services which were flexible and responsive to the needs of young people and supported by adequate financial arrangements
- ✧ seamless pathways which allow young people to pursue multiple training options and have access to continuous guidance and support
- ✧ education and training providers to assume greater responsibility and accountability for an increased range of outcomes of their students
- ✧ cooperative planning networks of education and training providers and other stakeholders
- ✧ greater systemic understanding of the labour market, industry and regional development conditions
- ✧ better guidance and support services for students.

G. Conclusions and implications

This review has provided a snapshot of the experiences of Australian young people as they enter the labour market after they leave school. It has also provided a brief description of the major transition pathways and some research findings on the effectiveness or otherwise of these pathways. These arrangements have been developed to assist secondary school students to make effective transitions to work. However, the extent of their success will depend on the human, technical, and financial resources available in schools themselves to provide the guidance and training students will require. In addition, successful transition to work for most students will also depend on the health of the economy and the availability of jobs for them to move into once they complete school. The support of local industries to provide workplacements for students while they are still in school will also be critical if Australian students are going to make a successful transition to the world of work.

2. Korea

A. General trends in school-to-work transition

Two studies conducted over a two-year span offer critical insight into the general trends of school-to-work transition in Korea. These are: *A study on the transition from high school to the world of work* by Chang et al. (1999) and *A study on the transition from college to the world of work* also by Chang et al. (2000).

School-to-work transition in this study is defined as activities in which students take part in order to enter the world of work after graduation or to extend related education and training. It consists of three elements: preparation at school for the world of work, the process of transition, and the outcome of transition, which becomes tangible in the labour market. Theoretical models on school-to-work transition include the deficit model, the opportunity structure model, and the social network model.

Chang et al. derived a number of major findings. One of them concerns the fate of youth after graduation from high school. It was discovered that young people whose highest qualification was a high school diploma occupied an unstable place in the overall process of school-to-work transition. They took longer to complete the transition process, and were less likely than higher education graduates to find employment. This was felt to be in part due to the expansion of opportunities for students to move into higher education and increased availability of places in general high schools. It was also found that, although most high school students wanted to engage in workplace learning, there were few programs in Korean high schools that offered them this opportunity. In addition, high schools were found to play a limited and unsatisfactory role in assisting students to make the transition to work. For one thing, the institutional networks between schools and employers tended to vary according to different economic conditions, and for another, the career counselling programs available in schools were of not much help to students searching for jobs. However, factors other than school education and work experiences, such as gender, were also found to have a greater influence on school-to-work transition outcomes.

In order to solve these current problems and to establish an effective school-to-work transition system, Chang et al. proposed a number of improvements. First, they suggested that students in the general high school track and vocational high schools should engage in work-based learning to prepare them for the workplace. Second, career education programs should place a higher priority on work-based learning in the workplace or various institutions external to the school. Third, high schools should implement comprehensive and flexible pathways to enable students to pursue both employment and higher education. Fourth, an alternative college admission pathway should be established to enable high school graduates to enter higher education after an initial time in the workplace. Fifth, rules and regulations needed to be put in place to enhance school–industry cooperation and describe the division of roles between them. Sixth, community-based school-to-

work transition networks should be developed to enable the community to take responsibility for helping high school students make the transition to the world of work. Lastly, continuous research and development is required to examine and evaluate the transition from school-to-work process, to improve the system for the long-term.

In the following year, Chang et al. (2000) conducted another study which examined the transition of students from college to the world of work. The researchers found that the college student's need for vocational education had increased due to changed labour market demands and requirements for lifelong education and training. They found a mismatch between supply and demand in the labour market for college graduates, with many of these entering the labour market without a systematic preparation for the world of work, and many school institutions neglecting their roles in these transition-to-work processes. Meanwhile, changes in recruitment patterns of employers had also affected the college-to-work transition process for students. Many employers, for example, were found to use the internet and informal networks for recruiting college graduates, and to use study major, qualifications, work experiences, attitude and personality as important criteria for choosing new workers. Finally, where most junior colleges and many of the four-year colleges had practice-oriented programs in place to prepare students for the world of work (for example, 'customised training' and 'sandwich' programs), most institutions of higher education had not developed systematic curricula for preparing students for work.

Although these studies conducted by Chang et al. were focused on general high school and college/university students rather than VE students, they offer some meaningful insights into the school-to-work transition experiences of Korean students. They identified a number of problems experienced by high school students in making the transition to work and suggested some possible solutions. To begin with, high schools were found to be inadequate in preparing their students for the world of work. Many high school graduates, and especially those from general high schools, many of whom want to move into employment directly on completion of high school rather than pursue higher education, were unprepared to begin their professional careers. Despite the predominant student preference for practical education as a form of pre-employment training, there were limited opportunities for them to learn workplace skills and knowledge. There were, however, what are called 'on-the-job training' (OJT) programs. Unfortunately for students, these OJT programs often turned out to be another form of early employment for school students and failed to fulfill the initial intent of the program, which was to provide practical training. In addition, the part-time work experience that many students, especially those in the vocational pathway, acquire while still in school is not gained in a systematically structured manner nor is it relevant to the student's study specialisation. As a result, it provides limited assistance in employment after graduation. The lack of practical training in school curricula also forces students to seek training in private external training institutions, and many invest their own money to acquire the skills and knowledge required for vocational qualifications. To alleviate these problems, Chang et al. suggested that schools needed to develop a variety of programs to enable students to gain more practical experience in the workplace. The continuing and increased demand by high school students for higher education means that less attention is paid to the development of programs to improve practical knowledge and skills for secondary school students. This also serves to intensify the oversupply of highly educated personnel. However, it is impossible, if not inappropriate, to prevent this from happening. It is more advisable to accept this occurrence and to assist the highly educated to develop their vocational competencies.

As has already been noted, the role of schools in the transition-to-work experience of their students is limited. There are mainly two ways by which transition from high school to the world of work takes place. One way is for students to gain employment as a result of recommendations to employers made by the school; the other way is for students to gain employment through informal networks. Most students who seemed to be inadequately prepared for the world of work during their school enrolment were more likely to have found job market information and employment opportunities outside the school. On the other hand, students who seemed to be well prepared for work were more likely to have been given better school assistance in finding employment. These

findings suggest that schools should play a central role in networks providing high school students with information on career development and labour market opportunities.

The present school–industry network is unstable and informal, and as a result, the role of schools in promoting student employment varies according to the shifting employment policies of enterprises. The often unsystematic career counselling system used in schools also limits what schools can do for students. Another problem that makes it difficult for schools to proceed with the regular curriculum is that many students find work while still in school. On the other hand, there are students who embark on their job search only after their school graduation. These late entries into the labour market fail to improve and enhance their vocational competency during the term of their unemployment. These problems cannot be solved by schools alone and require formal and systematic mechanisms based on schools, industry and communities working together to assist students to make the transition from school to work.

Workers with high school diplomas also faced difficulties in adapting to the world of work. There is a tendency among them to leave their first job shortly after commencement and to search for another. This is primarily due to the fact that job seekers with only a high school diploma are usually employed in enterprises and occupations demanding hard physical work, often in unfavourable working conditions. Military duty obligations provide another reason for early job transfers among males. Keeping this in mind, it is necessary to improve the working conditions for these workers so that they can settle into the world of work and develop their professional experience.

Assisting these workers to find a stable place for themselves in the world of work can be achieved in a number of ways. For one, it is important to guarantee these workers the opportunity to engage in continuing education. Exemption from military duties or delay of enlistment could help those workers who have undertaken or completed high school education. If the total term of military duty cannot be exempted, an alternative solution could be to provide practical training during military service so that workers can acquire skills they may use upon their return to general world of work.

The work of Chang et al. also offers insight and lessons on the transition of students from higher education to the world of work. As is the case for high school students, students in colleges and universities also lack effective preparation for the world of work. Furthermore, most students do not make a systematic effort to get themselves ready for this competitive world. Their experience of work mainly consists of part-time jobs, and few take care to earn vocational qualifications or to participate in vocational programs before graduation. With advances in information technology and the expansion of industrial structures, there is a need for the highly educated as much as their less-educated counterparts to prepare for transition to work in an organised fashion. Although there is room for much improvement, junior colleges and some of the four-year universities have been compelled to strengthen their vocational programs. Better information on current labour market demands and conditions can be used to provide direction for how higher education institutions can proceed to provide this training.

As employment of the highly educated becomes increasingly unstable, it behoves tertiary-level institutions to focus on strengthening the general and specialised skills of their students. This means that higher education should aim to enhance the basic competencies of students while at the same time reinforcing their vocational education. Higher education institutions need also to provide career guidance and workplace education for their students. Moreover, it is necessary to strengthen the school's role in informing students about labour market conditions, and promoting greater information exchange and collaboration between school and industry.

Chang et al. reported statistical data which indicated that only half of the newly recruited college graduates were assigned to a job relevant to their study major, while 20% reported being given a job that was completely irrelevant to their specialisation at school. Almost half of these workers were assigned to tasks that did not correspond to their completed educational level. In addition, the increased concentration of tertiary students in the liberal arts disciplines was found to increase the

imbalance of supply and demand for skills. This mismatch between study major and educational level and job assignment and allocated workplace tasks poses a serious problem. It inhibits the operation of a smooth transition-to-work-process, promotes increased job transfers among the highly educated, and stands in the way of improving technological competitiveness.

Comparisons may be made between the transition results for different groups of highly educated workers. In general, mismatch of job assignment and study major is more commonly found among graduates of two-year junior colleges than among graduates of four-year colleges/universities. Likewise, humanities majors were more likely than natural sciences/engineering majors to be assigned to jobs which were irrelevant to their study majors. Furthermore, junior college graduates were employed under inferior working conditions and assigned to tasks of lower level of specialisation when compared to four-year college/university graduates. A similar relationship is found between humanities majors and natural sciences/engineering majors, with the former being employed under inferior working conditions and assigned to tasks of lower-level specialisation. These trends are due in part to the common practice of using educational background as a selection criterion rather than employing and assigning people to jobs according to their vocational competencies and qualifications. They also indicate that there is more demand for workers with expertise in natural sciences and engineering than for those from humanities backgrounds. Mismatch between work assignment and study major, unsatisfactory working conditions, and assignment of tasks requiring a low level of specialisation are factors which raise job transfer rate and shorten retention in initial employment. Effective school-to-work transition strategies should include efforts to train students in the skills and workplace competencies relevant to their study major. In the long term, gradual changes may be attempted to reshape those faculties delivering academic programs for which there is little labour market demand.

B. Approaches to the study of school-to-work transition

The study of school-to-work transition can adopt a variety of approaches. *The School-to-Work Opportunities Act* of 1994 (revised in 2001) of the United States of America, specified three 'core' components of school-to-work transition. These included school-based learning, work-based learning, and an integration of liberal arts education and vocational education. According to Rosenbaum (1996) school-to-work transition also comprises three elements. These refer to the role of schools in supplying skills, the role played by enterprises in demanding skills, and joint partnerships between schools and enterprises.

Meanwhile, 'Network B', an OECD project charged with developing educational indicators, has identified four components of school-to-work transitions. They are:

- ✧ the context of transition including the labour market and education and training systems
- ✧ the duration of transition which spans from commencing the transition process to employment
- ✧ the process of transition that describes the nature of education and training pathways in high schools and the labour market
- ✧ the outcomes of training that evaluates the success of working life (Pettersson 1998).

Keeping these in mind, Chang et al. (1999, pp.15–16) are of the opinion that school-to-work transition involves the inter-linking phases of school-based preparation for transition, the actual process of making the transition to working life, and the outcomes gained in the workplace. According to these researchers, the preparation phase involves various preparatory activities undertaken prior to entry into the workforce. This includes education and training in schools and workplaces and ongoing education and training via articulation programs. These education and training arrangements aim to help individuals bridge the gap between school and work environments. The process phase includes various employment-support activities aimed at helping students to find jobs and to cope with limited school-to-work opportunities. Career guidance, recruitment information and education as well as training in the labour market, are offered through these supporting activities. The preparation and process phases are evaluated in terms of labour

market outcomes, including income, productivity, and job satisfaction among others. In this context, any research on school-to-work transition may adopt a comprehensive or selective approach to these three phases of preparation, process and outcome. The Chang et al. study adopts an approach which includes all the three phases of transition.

In an attempt to set up a conceptual framework for the study of school-to-work transition, the Chang et al. (1999, 2000) research tried to provide a comprehensive description of school-to-work transition processes for high schools and college students. The framework was based on existing policy studies for the establishment of effective school-to-work transition systems. Meanwhile, the study by Jung (1998, pp.98–102) focused on the importance of the preparation phase. He identified school-to-work opportunities programs implemented mostly in the United States of America, and classified these into school-oriented and field-oriented programs. Jung also presented model programs which could be applied to the Korean context so that local vocational education becomes more field-oriented. According to Jung, the school-oriented programs applicable to Korean schools are school-based enterprises (SBEs), job-simulation labs, and senior and class projects. As for field-oriented programs, mentoring arrangements, aligned work-study programs and school-linked summer employment were also found to be relevant.

In a similar vein, a group of Korean scholars (Chang 1997; Lee 1998; Oh 1998; Shin 1998) analysed various concepts and programs related to school-to-work transition in foreign nations, and discussed their applicability to the Korean situation. These researchers also identified a range of problems that might arise if such programs were applied.

Furthermore, Stern et al. (1995) studied the situation in the United States and suggested that the Tech-Prep program be considered as one of the major transition programs. The Tech-Prep program provides curriculum linked with tertiary schools (mostly community colleges) for graduates from high schools who choose not to move directly into the labour market.

C. Reforming the VE system to improve school-to-work transition for VE students

1) *Specialised vocational high schools*

Ok (1999, pp.50–2) conducted a study on the conditions and future tasks of specialised vocational high schools. His survey of officials from local education offices and teachers on problems related to operation of these specialised schools identified five major problems. First, the specialised schools did not want to change their curriculum organisation, and the operation of specialised curriculums differed from those of existing schools. Second, the entrance system based on middle school grades was found out to be inappropriate. Third, the specialised school system lacked effective measures to develop teachers' expertise and meet their needs. Fourth, the cooperation between the schools, local communities and industry was inadequate. Finally, the financial support available to specialised schools was neither solid nor stable.

Ok recommended six improvement measures to solve these problems. First, there was a need to establish new specialised high schools for vocational education, and to reform the curriculum of existing schools to increase their focus on subjects that were highly demanded by the labour market. It was also important to implement programs which allowed students to develop their potential, and to undertake interesting and popular subjects. Second, there was a need to improve curriculum development and implementation of various specialised curriculums, and to introduce more innovative teaching methods. Third, there was a need to strengthen teachers' expertise through professional development. Fourth, there was a need to understand that students and parents needed proper guidance. Fifth, it was important to secure stronger financial support for 'specialised' schools and finally, there was a need to specify a variety of support measures for the successful operation of 'specialised' high schools.

Meanwhile, the study on the development of specialised high schools conducted by Kang and Ok (2000, pp.60–2) discovered six operational problems. First, there are too many specialised schools whose curriculums and teaching methods are not differentiated from those of existing schools. Second, the entrance system based on grades in middle school gives rise to a variety of problems. Third, textbooks for specialised schools had not been developed. Fourth, teachers did not have the appropriate expertise and needed to be given opportunities for development. Fifth, there was no collaboration between local communities and industries. Finally, specialised schools needed more financial support.

To deal with these problems, Kang and Ok suggested six measures that needed to be implemented (pp.131–52). First, they suggested that the number of specialised schools should be gradually increased, by focusing on the fields in high demand by industry and are popular among students. Second, the objective of education in specialised schools should be to help students to build basic expertise in order to become the best in their own fields, rather than to provide practical training in certain fields. This would allow school dropouts to move into employment and advance into higher education. Third, innovative curriculums and teaching methods focusing on work experience should be employed. Fourth, experts who believe in and are devoted to specialised education should teach at specialised high schools. This means that teaching positions at these schools should be open to experienced experts from industry. Fifth, all schools should be given autonomy in programming curriculums, using textbooks, and setting standards of qualifications and teaching terms and conditions for principals and teachers. In addition, all the specialised schools deemed to have the capacity for self-management should be allowed to do so. Sixth, in order for specialised high schools to run small classes and offer a variety of specialised courses, they require sound financial support.

The study mentioned above shows that specialised high schools have not operated according to their original objectives. It is also clear that they require a variety of support mechanisms. Nonetheless, it is noteworthy that an increasing number of vocational high schools are adopting the specialised high school system and more importantly, recognising it as the best existing system available. In this context, further research and development needs to occur so that the system is able to facilitate transitions from schools to the labour market.

2) The 2+1 system in technical high schools

Lee (1995) conducted a study, 'Views of industries on the demonstrative operation of the technical high school', when the system was first implemented on a trial basis 1995. She recognised the necessity for objective and practical study of the trial operation of the 2+1 system before it was formally introduced. She, therefore, surveyed personnel in the firms participating in the system.

Lee reported three operational problems of the system. First, without government support measures or incentives, small- and medium-sized firms were not able to narrow the gap between the education and training that could be provided in their firms and that provided by larger firms. This meant that there was an urgent need to develop the institutional framework for providing such assistance to small- and medium-sized companies. Second, the government did not have a strong commitment to the process of implementing the pilot system and this had resulted in a lack of national consensus. Third, even though the potential for producing better educational outcomes was superior to that for existing educational arrangements, it was important to take into account any problems that may arise in any formal implementation of the system.

Shin et al. (1997) conducted a comprehensive evaluation study of the 2+1 program for technical schools. He reported that there was a need to improve the operational arrangements. First, there were difficulties in selecting firms to participate in the program. Second, the conditions for industrial on-site training were poor, especially in terms of joint practice education and financial support for vocational training. Third, students were not provided with appropriate benefits in relation to their military duty, and skills developed during military duty are not deployed effectively in the labour market. Fourth, the qualification screening process did not reflect the basic structure

of the system. Fifth, industrial field education is not adequate. In particular, teachers were not providing adequate on-site instruction, and not conducting appropriate evaluations of on-site training. Sixth, students in industrial on-site training complained of expensive tuition fees. Seventh, students advancing into colleges did not benefit from the system. Finally, relevant government agencies have failed to offer full administrative and financial support for the program.

To solve these problems, Shin proposed the following measures. First, there should be a systematic process for the selection of firms. Second, the overall conditions for industrial on-site training should be improved. This can be achieved by enriching the contents of joint practical training and by easing the requirements for obtaining financial support for vocational training. Third, benefits related to military service should be given or military duty should be deferred. Fourth, relevant certificates should be automatically awarded to students who finish the 2+1 program in technical schools. Fifth, in order to enrich the contents of industrial on-site training, teachers' on-site instruction should be strengthened and relevant evaluation systems should be improved. Sixth, students participating in the 2+1 program should be provided with a scholarship. Seventh, college applicants from the 2+1 program should be given incentives to undertake further education. Eighth, administrative and financial supporting mechanisms should be established by relevant government agencies.

Lee et al. (1998, pp.3–4) examined the issue from a different perspective. They had discovered that the existing textbooks in ordinary technical schools had failed to cover content required by the industrial workplaces because they were based on theory rather than on a practical analysis of actual workplace practice. They believed that it was necessary to undertake a thorough analysis of the work responsibilities of skilled workers who had graduated from technical high schools, and for these findings to be reflected in the development of curriculums and textbooks.

The findings of these studies demonstrate continuing challenges for the successful development of the 2+1 program. They also indicate the need for evaluations of the extent to which the system is fulfilling its original purpose for preparing students to make an effective transition to the labour market.

It is also important to understand the reasons for the recent decline in uptake of this system by existing schools.

3) Articulation program between vocational high school and vocational colleges

Ryu (1997, pp.1–13) analysed the outcomes from the articulation program (also known as the 2+2 system) and identified benefits for students, industry, vocational high schools and vocational colleges. Students were able to acquire general skills and knowledge through the liberal arts curriculum, and technological skills and knowledge acquired in technical studies. This allowed them to develop a capacity to deal with a rapidly changing technological environment. Meanwhile, employers were provided with access to well-trained applicants for jobs. For vocational high schools, the system provided students with the motivation to complete high school courses, while for vocational colleges, it allowed them to do away with those courses that were also taught in the high school. In addition, the system laid the groundwork for further education and career development. There were, however, a number of obstacles to the smooth operation of the system. These related to difficulties in systematic implementation of the system, meeting the objectives of all the students, and to joint inter-disciplinary administration. Ryu also found that strategies for providing better linkages between work-based education and theory-based education had failed to meet expectations.

In a study titled *Current status and problems of management of 2+2 articulation educational program*, Ahn et al. (1998, pp.71–84) conducted interviews in 16 vocational colleges undertaking trials of articulation programs between vocational high schools and vocational colleges between 1996 and 1997. They suggested a range of solutions to these problems.

First, there was a need to re-organise existing uniform curriculum aimed at getting students to pass the college entrance exam, into curriculum which was focused on preparing students for their specific major in college. This required the development of appropriate texts, and the professional training of teachers. Second, there should be an expansion of the numbers of participants training for specific professions and fields of study. Third, the system should not be administered independently by vocational colleges. Instead, it should be the responsibility of a consultative body comprising representatives from the Ministry of Education and Human Resource Development (the former Ministry of Education), the Korea Research Institute for Vocational Education and Training, local education institutes, participating vocational high schools and vocational colleges, and industry. Fourth, there is a need to develop standard curriculums and guidelines applicable to all vocational colleges based on a systematic needs assessments of each geographic region, field of study, and academic department. Fifth, there is a need for increased administrative and financial support.

Jang et al., (1999, pp.9–13) conducted a study of effective implementation of the 2+2 curriculum in vocational high schools and vocational colleges. They conducted interviews in 12 vocational colleges with financial support from the Ministry of Education. In addition, surveys were conducted with teachers in 225 vocational high schools. The findings indicated that in implementing the articulation programs, both vocational high schools and colleges aimed to secure the resources required to best prepare students for entrance into college. While vocational high school teachers placed a higher priority on meeting increased student demands for college entrance, professors in vocational colleges placed a higher priority on improving the quality of vocational education through curriculum coordination. Although it was found that departments in charge of school affairs were supportive of the articulation system, there was no department with specific responsibility for implementing related courses and handling workload issues. Although the reorganisation of classes for specialised learning was considered to be essential, there was no evidence that this was being implemented. The study also found that a variety of training courses were required if participating teachers and professors were to improve their knowledge about the needs of industrial society and the labour market, and to develop a mutual understanding of partner institutions. Improved knowledge of curriculum development strategies and methods was also required. Based on the findings of their study, Jang et al. suggested that an effective articulation program between vocational high schools and vocational colleges required:

- ✧ an improved understanding of the initial patterns of behaviour of vocational high school students
- ✧ basic course-oriented education in vocational high schools and relevant and in-depth course-oriented education in vocational colleges
- ✧ the introduction of formal course selection arrangements in each school
- ✧ incorporation of specialised programs and articulation programs into regular curriculums and application of developed curriculums to regular courses
- ✧ detailed implementation guidelines for schools
- ✧ a reduction in the number of subjects offered to enhance succession and integration of education
- ✧ the establishment of a government financial support system and operational support system for both vocational high schools and vocational colleges
- ✧ establishment of administrative support systems to deal with the supply and demand for teachers, scholarships in participating schools, and grading of students in specialised classes.

The studies mentioned above shed light on the operational status of the program from its inception and identify challenges for its further development from a variety of perspectives. However, there are still not enough studies dealing with reasons for and consequences of the decrease in vocational high schools and vocational colleges participating in the program. Meanwhile, there is an emerging need for studies on the development of measures which focus on

efficient school-to-labour market transitions, rather than on high school students advancing into vocational colleges.

4) *Customised education programs in vocational colleges*

Kang et al. (2000, p.34–48) carried out a study on measures for the development of customised education in vocational colleges. The study was conducted through data analysis, interviews and surveys. An analysis was carried out on information on vocational colleges from the Customized Education Promotion Association and applications submitted to the Financial Aid Program for Vocational Colleges headed by the Ministry of Education and Human Resource Development in 1999 and 2000. The results of the analysis indicated that the major objective of customised education in vocational schools was to strengthen educational foundations, while the primary objective of training in enterprises was to develop the work responsibilities and capacities of existing workers. The participation of enterprises in these programs was also found to be extremely low. Enterprises were found to have a negative perception of vocational college education because it did not accurately reflect conditions in workplaces. Because current customised education programs have focused on program expansion rather than on strengthening educational fundamentals, there has been no analysis of the positive and negative impacts of the program on general school operations. This has led to internal conflicts.

The problems of customised education were identified through intensive interviews. These concerned:

- ✧ the absence of specialised studies in past curriculum and objectives for program implementation
- ✧ the lack of a creative strategy for selecting the fields of study in which to implement customised education
- ✧ disparities in the organisation and stated objectives for pursuing customised education
- ✧ the overall lack of direction and objectives for the development and operation of a standardised curriculum, and method of delivery.

Kang et al. (2000, pp.106–110) suggested that customised education programs could be improved by increasing their focus on:

- ✧ adult education
- ✧ providing specialised education programs and curriculum for employed workers
- ✧ work-based education
- ✧ flexible course hours
- ✧ diversification of cooperative industries
- ✧ sound financial support.

Jung (2000, p.184) also noted a variety of reasons why current customised education in vocational colleges was not achieving substantial success. These included: a lack of understanding of customised education on the part of the officials, insufficient operational systems within the schools, and the inability of schools to accommodate the diverse demands of industry. Additional obstacles to success included difficulties in obtaining funds, developing curriculum and procuring competent teachers.

Lee et al. (2001) authored a research report titled *Strategies for providing customised education in junior colleges*. They concluded that, from the perspective of students and parents, customised education enabled students to obtain the knowledge and technology needed in the workplace and guaranteed the student a job in the participating enterprise on completion of schooling. This in turn allowed students to better concentrate on their school studies. From the perspective of teachers and the school, customised education maximised educational outcomes, enabled efficient delivery of vocational training, promoted college development and upgraded the status of the college.

Customised education was also felt to enhance understanding, facilitate the exchange of information and technology between the sectors, and strengthen school–industry cooperation through joint research.

From a societal and national perspective, customised education was believed to promote the national economy and international competitiveness, contribute to the development of the industrial society, provide a framework for advancement in the era of technological competitiveness, render service to the local community, and provide enhanced opportunities for lifelong education.

However, a number of operational problem areas needed also to be addressed. These concerned the lack of awareness and understanding of customised education programs in general, and among students, and adequate cooperation from industry. There was also a need to address problems related to the overall administration and implementation of the system, and shortages of qualified teachers, and adequate facilities and materials. Suggestions were made for the re-organisation of current administrative structures, increasing student awareness, and developing closer linkages with industry. The researchers also recommended the strengthening of vocational technical education through the development of specialised courses, curricula, and textbooks, hiring of qualified teachers, construction of high-tech facilities, and increased promotion and support from industry.

Although these studies provide an adequate description of the current operational status of the system as well as the challenges for its future development, there are a limited number of studies that examine industry participation, identify related problems, or seek ways for solving these problems. In particular, there is a need for more studies that explore future developmental plans for customised education in terms of supporting effective school-to-work transition processes.

D. Conclusions and implications

The following conclusions are derived from the analysis presented thus far.

First, in view of the various research perspectives that have been adopted in the study of school-to-work transition, an important task for the present study is to select the most appropriate perspective for studying the process.

Second, keeping in mind that the school-to-work transition process is a three-stage process comprising preparation, process and outcome stages, and that it would be difficult to provide a comprehensive treatment of all these stages in one study, there is a need to select one of these stages for closer examination. Because to date there are few pilot studies of the first of these transition stages, and because the development of appropriate workplace skills and knowledge is considered to be essential for a smooth transition to the workplace, the preparation stage has been selected as the main focus for this research. However, it must also be kept in mind that the lack of substantial research on this preparation stage may also indicate a lack of acceptance among other researchers of the importance of this stage in the transition process.

Third, it is important to specify the roles of government, industry, and vocational education institutes in developing measures for better processes for school-to-work transition. However, the lack of available research supporting the importance of this topic makes it timely to conduct studies which examine appropriate roles and responsibilities for each of these bodies.

Fourth, the pilot studies reviewed here have focused mainly on internal problems of system implementation at the school level, and have failed to take account of the need for a comprehensive approach to the development of vocational education policy based on an analysis of changing labour market and workplace demands. They have also not dealt with the need for revisions of existing qualification arrangements. These issues were considered to be central to the development of appropriate policies and processes for school-to-work transition, and were included as major elements for investigation.

Fifth, in examining suggestions for reforms to vocational education which would assist school-to-work transition, it was found that researchers generally focused on policies and statutes of the Ministry of Education and Human Resource Development. As a result they failed to acknowledge the fact that problems being experienced in vocational education were also related to educational policies of various government departments and agencies. Taking this into consideration, there is a need for all ministries of the government to adopt a cooperative approach in the development and implementation of reform.

III. Implementation of VE policy reforms

1. Australia

A. Overview

Australian school-to-work transition policies and programs, as elsewhere, currently seem to be attempting to construct an effective partnership between school and work, each of which sometimes operate together. That is, education sometimes merges with work; work experience takes place in school; and schooling, during paid employment. Certainly, this partnership is crucial to effective and successful school-to-work transition and is a goal many countries attempt to achieve in their youth pathway policies.

The traditional Australian model of school-to-work transition is basically the same as that existing until recently in Britain, New Zealand and Ireland (Davis & Woodburne 1983). Traditionally, the majority of young people have left school early, with a significant proportion of early school leavers being males entering apprenticeships. A smaller proportion continues through school into higher education to enter semi-professional, professional, and executive and bureaucratic occupations. The majority of school leavers, however, have made their transition into full-time employment by exploring the job market and acquiring on-the-job skills in the first three to five years after completing compulsory schooling.

However, there has been a major change in school-to-work pathway policy, as well as in the composition of the youth labour market in Australia since the 1980s. For instance, the proportion of students remaining in the school education system beyond their compulsory years has increased substantially over the last two decades. In 1986 the apparent retention rate from initial secondary schooling (Year 7 or 8 depending on location) to Year 12, was 48.7%; by 2001 it had increased to 73.4%. Apparent retention rates from Year 10 to Year 12 were 51.9% in 1986, increasing to 78.6% in 1992 (reflecting the downturn in the economy), and then dropping slightly to 75.4% in 2001 (ABS 2002). This increase has important implications for the senior secondary years of school. Previously, Australia focused on the school-to-university linkage as senior secondary schooling was directed towards university entrance. However, other destinations such as vocational education and training are now important for high school graduates (Robinson, Ball & Misko 2001).

High schools are now becoming involved in new youth apprenticeship initiatives, which link high school with a structured work experience. The vocational education and training system is more focused on increasing access to training for all groups, allowing students to access training in their preferred locations (at home, on campus, online) and to use self-paced or traditional classroom learning.

The Australian youth labour market is also changing. Full-time employment has largely disappeared as a choice for most teenagers, while part-time employment has become the dominant form of employment (Robinson, Ball & Misko 2001). The Australian Bureau of Statistics (ABS) reports that, between 1991 and 2001, the proportion of 15 to 19-year-old males and females who were either in full-time work, or full-time study, or in part-time work and part-time study remained

stable. In 2001 it was 87% for males and 86% for females. Within this group most 15 to 19-year-olds were studying full-time (males 76%, females 85%). Between 1991 and 2001 the proportion of those studying full-time had mainly increased for females from 76% to 85%. Of all 15 to 19-year-olds who were not studying, less than half were employed full-time.

In view of these developments, school-to-work transition pathways, as Robinson, Ball & Misko (2001) indicated, are becoming more complex and diversified, as nations, including Australia, attempt to adjust to these challenges.

This section is mainly concerned with examining the school-to-work transition practices and policies for effective youth pathways in Australia. The youth school-to-work transition pathway may be broadly classified in two main categories: 'school-*for*-work programs' and 'school-*and*-work' programs (Stern et al. 1995).

It should be noted that the distinction between the two may not be absolute and clear. For example, the apprenticeship and traineeship (also known as New Apprenticeships) system is basically focused on preparing students for occupations by combining training and paid employment (that is, school-*for*-work) after they have left secondary schooling. Alternatively, they can undertake a part-time new apprenticeship (SBNA) while still in school, or undertake a VET in Schools industry-specific program (that is, school-*and*-work) while still in school. Although the distinction between school-*and*-work and school-*for*-work is not clear-cut, this artificial classification will be adopted for ease of discussion.

Before we examine the system from these two perspectives, it is important to understand the major features of the Australian VET system. What follows is a brief examination of the major features of the Australian system. Summaries and implications for Korean school-to-work transition pathways will be discussed in the final section.

B. Reforming VET in Australia

The Australian system for vocational education and training has undergone considerable reforms since the mid-1980s. The impetus for these changes was provided by the adoption of a training reform agenda aimed at developing a more skilled workforce to improve economic competitiveness in global markets. From the 1980s, foreign debt, trade imbalances, and balance-of-payment problems were providing difficulties for the Australian economy and limiting economic competition for Australian business. The traditional reliance on primary exports, slowness in upgrading manufacturing plants and processes, and the lack of attention to improving the skills of existing workers, provided the backdrop for industry restructuring and major reforms to the system of training which provided skills to industry. A number of reforms were implemented to shift the emphasis away from traditional primary exports to value-added goods (for example, education, pharmaceuticals, defence and communications technology). The reforms also led to the restructuring of industry awards, removed obsolete occupational classifications, and eliminated many of the traditional trade demarcations. They also established skill-related career paths linking training to wages (Field 1990) These changes also announced the gradual disappearance of many of the routine low-skilled jobs generally occupied by those with limited training or aptitude. The reform of the training system and especially the system for entry-level training was an attempt to enable industry to acquire the skills required to become economically competitive at home and abroad.

1) A national system

Major reforms to the entry-level system of training (especially the training of apprentices and trainees) were implemented to make the system more responsive to industry needs. This included the creation of a national training system. The role of this training system was to train workers who were able to adapt to, and use, new technologies, and were able to work independently as well as collaboratively, in autonomous work groups to achieve business outcomes. The reforms then were

an attempt to enable students to make a smooth transition to the workplace and to develop the skills required by industry. The creation of a national system for VET also aimed to overcome the obstacles presented by separate but similar vocational education and training systems of the different Australian states, and also to improve the ability of students to transport their qualifications between the states. The adoption of competency-based training was central to these reforms.

2) Competency-based training (CBT)

The new VET system was based on national industry competency standards, and national curricula developed by industry bodies. Here competency was generally defined as ‘the specification of knowledge and skill and the application of that knowledge and skill to the standard of performance expected in the workplace’. The main features of a CBT system are focused on what learners can do and not on the courses they have done. In addition, the performance of students in a CBT system is judged by comparison with pre-determined and objective industry standards rather than by comparison with the results achieved by other students. Today these competency standards are incorporated into national industry training packages developed by industry and must be endorsed by government. The concept of national curriculum has, in the main, been superseded by these packages.

National training packages are sets of endorsed competency standards and guidelines for assessment for a particular industry. They identify the competencies required to achieve specified qualifications. These training packages also allow employers to package together a group of units of competency that will deliver them the skills they see as suitable for their enterprises. These employer preferences are then translated into a training plan for the apprentice or trainee.

3) An open training market

In view of the need to ensure that training met the needs of industry, it was felt that the training market should be opened up so that employers could select the training provider they believed could best meet their needs. This opening-up of the training market enabled private training providers (with accreditation) and not just the public provider (TAFE) to deliver apprenticeship and traineeship training. It also meant increased competition for government funds. This open training market was supported by a funding policy (‘user choice’ funding) where government funds flowed to providers who had been selected by employers to deliver the training. Incentives were also made available or increased for employers, and employment brokers (New Apprenticeship Centres), to encourage the employment of apprentices or trainees.

An open training market meant that TAFE needed itself to become more competitive to remain viable in order to compete for clients and funds. TAFE then adopted increased usage of ‘fee-for-service’ courses and other services to acquire extra profits to enable them to remain viable. In most states TAFE institutes also opened up branches which operated the business side of the enterprise. In the largest state (New South Wales) there was a centralised approach to TAFE entrepreneurial activity. Fee-for-service courses also included specific or customised training for enterprises delivered on campus or on-site. This focus on competition also introduced other major reforms to the TAFE system concerning the flexible delivery of training.

4) Flexible delivery of training

Flexible delivery of training was aimed at increasing access to training so that all students could determine when, how or where they would undertake their training. This means that it was aimed at enabling students to progress at their own rate through a course of study, and delivering training programs customised to the needs and abilities of individual student clients, and where applicable, to their employers. Its importance was based on the premise that modern workplaces required workers who would be responsible for their own learning and able to work independently or in groups on the tasks allocated to them. In addition, the focus on flexibility also meant an increased

emphasis on resource-based training, including print media, online learning and video-conferencing.

5) A national system for the recognition of training

In 1992 a national approach for the recognition of training was implemented. This framework included mechanisms for the recognition of prior learning, credit transfer, articulation, accreditation of courses, registration of private providers, and mutual recognition of credentialing of qualifications. It was introduced to enable qualifications to be transported across state borders. Today this has become part of the Australian Quality Training Framework (AQTF). The AQTF identifies the standards for the registration of training organisations and accredited bodies, and standards for those agencies which have responsibility for registration of training providers. These standards include explicit requirements for the monitoring and auditing of RTOs and accrediting bodies for quality assurance purposes. The AQTF also defines principles for the mutual recognition of training, requiring RTOs to recognise the qualifications awarded by other RTOs.

6) A national qualifications framework

The Australian Qualifications Framework was introduced in 1994 to increase the range of VET qualifications, and to establish linkages between school and higher education sectors. In addition, it was also possible for students to attain a statement of attainment, which although not in itself a qualification, meant that students could use this as a record of studies completed which could be added to in further years to gain qualifications.

7) Improving access and equity

The agenda for reform was also focused on improving access to and equity in training for marginalised or equity groups which had traditionally not benefited from entry-level training. Today these equity groups include women, people of Indigenous background, those of non-English speaking background (if they do not have English language proficiency), people with a disability, and those living in remote and rural Australia. The VET system is also evaluated in terms of performance measures related to these different groups.

C. School-to-work transition category I: School-for-work programs

School-*for*-work programs provide instruction with the express purpose of preparing students for work. Although all VET programs have this aim in mind, these ‘school-for-work’ programs deal with those programs that provide training for and in a specific occupation. These refer to post-school apprenticeships and traineeships.

1) Post-school apprenticeships and traineeships

According to Robinson and Misko ‘apprenticeships are the oldest and most resilient form of post-school vocational education and training in Australia’ (Robinson & Misko 2001). Although the apprenticeship system dates back to Egyptian and Babylonian times, the Australian apprenticeship system is based on the system of apprenticeship operating in the medieval craft guilds of Britain and Western Europe in the middle ages. Here skilled craftsmen formed organisations (craft guilds) to decide who could or could not practise the craft. They took on apprentices (even as young as nine or 10 years) who were bound to them and trained them in the craft until they had finished their indentures. The length of these indentures varied and often involved the young person living with the craftsman or master until they had developed the skills and knowledge to become a skilled artisan, generally known as a journeyman. When the journeyman felt he could start up his own business he would have to apply to the guild and when accepted he, too, could become a master craftsman and take on apprentices.

Today, the apprenticeship arrangement involves young people (and increasingly those in older age groups) entering a contract of training (formerly called indentures) with an employer. Under the terms of the contract, the employer agrees to provide employment and on-the-job training and release the apprentice to attend formal off-the-job training. The apprentice or trainee agrees to complete the training which appropriate for the trade. There is generally a three-month probationary period for apprentices and a one-month probationary period for trainees.

Contracts can be cancelled by mutual consent if the apprentice is found to lack the aptitude to cope with the program or other people, has an unsatisfactory work record, and is dissatisfied with the income, working conditions, or technical course. Contracts can also be cancelled through mutual consent for apprentice misconduct, financial problems, or health conditions not related to work. Alternatively, contracts can be cancelled through mutual consent due to the employer being unable to provide the work or training, business closure, work-related health conditions or death, and dissatisfaction with the training provided by the employer. Cancellations that are not mutually agreed, can also occur through a disputes resolution process.

As already noted, the apprenticeship involves training and instruction in the workplace, with skilled workers passing on their knowledge and skills to novices, so that after an adequate indenture period, these novices might also become skilled artisans. The central idea is to provide structured, work-based learning in a specific trade or occupation.

Traditionally, all apprentices were trained on the job. However, since the mid-20th century, Australian apprenticeships have required apprentices to attend a trade or technical college to learn the theory and practice of the occupation. This knowledge and skill was to be further developed on the job by the employer through experience and on-the-job training. Until recent years, apprenticeships in Australia were mainly focused on the skilled trades and related occupations. In addition, they were limited to young people (generally school leavers). In the mid-1980s the apprenticeship system was extended to include a wider group of occupations, particularly in the retail, clerical and service occupation, and to a broader group of young Australians, especially young females. Traineeships provided structured training (for example, a combination of on-and-off-the-job instruction) in these occupations, where prior to this no such formal training existed. In their original form, the focus of traineeships was on school leavers entering the labour market.

Traditionally, apprenticeships took three to four years to complete and traineeships lasted for one to two years. However, this specification of the exact length of time required to complete a contract of training was criticised on the grounds that this was merely 'time serving'. That is, it did not take seriously the concept of competency that was focused on what individuals could do and not how long they had spent in training. Although in theory the new CBT system had done away with the concept of 'time-serving', apprentices and trainees are still, in practice, required to complete the contract of training in terms of length of time specified in the contract. However, the off-the-job training can be completed at the apprentice's own pace.

In 1992, age restrictions in apprenticeships and traineeships were abandoned, allowing adults to enter such contracts of training for the first time. In 1995 only 7% of apprenticeships and traineeships were taken up by people aged 25 years or over. By March 2003 just over a third (33.7%) of all apprenticeship and traineeship commencements were over the age of 25 years (NCVER 2003). At the same time there were 44.3% of these mature apprentices and trainees in training.

In 1998 the government introduced the term *New Apprenticeships* which encompassed these traditional apprenticeships and traineeships. However, there remains a tendency in industry to continue to use terms like 'apprentices' and 'trainees' to distinguish between the two arrangements.

Nationwide, New Apprenticeships are now available in more than 500 occupations, in both emerging and well-established industries, from agriculture to telecommunications and tourism. Wages vary according to certain characteristics of the New Apprentice (for example, years of school completed, years of training), the type of New Apprenticeship and the industry or

occupation. A new apprentice is usually paid a training wage, reflecting the fact that the apprentice spends time in training. However, there are cases where older-age apprentices (especially existing workers) may be paid higher wages if the company is prepared to do so (Saunders & Saunders 2002).

Since March 1998 'traditional apprenticeships' increased by over 17%, from 105 100 to 123 000. Where in March 1998 they represented just over half (55%) of all apprenticeships and traineeships, today they represent 31% of the total group. This reflects the increased uptake of traineeships in 1998 when user choice funds became available for employers to employ trainees. These traineeships were in industries like computing, hospitality, sport and recreation, tourism, childcare, retail, multi-media and others.

By May 2003 growth in apprenticeships and traineeships was strongest at AQF certificate III and above, with growth at AQF certificate IV or above increasing dramatically from 1998 to 2003. At the same time growth in AQF III apprenticeships and traineeships more than doubled, while AQF certificate II contracts increased by 28%.

In order to provide information and services relating to New Apprenticeships to employers and people interested in becoming a New Apprentice, New Apprenticeships centres (NACs) have been established and are located in over 300 sites across Australia with some 200 sites in rural and regional locations.

(1) User choice

Accredited training for New Apprenticeships comprises on-the-job, off-the-job, or a combination of both on-the-job and off-the-job training. The off-the-job training is delivered by a training provider who is registered in the state to provide accredited training (that is, a registered training organisation). This may include public TAFE colleges and any private training providers which have been granted RTO status for a particular scope of training. Under user choice arrangements employers can select the private or public training provider of their choice and this allows them to negotiate the timing, location and nature of the training. This makes it easier in a number of ways. Employers who operate in more than one state or territory may be able to choose one provider who can meet all their training needs, and to negotiate with providers on aspects of the timing, location and mode of delivery, and about the trainer or facilitator who conducts the assessment. With the introduction of training packages there is also scope to negotiate aspects of the selection and sequencing of units of competence and to negotiate the purchase of flexible training over and above what is publicly funded.

The details of policies governing user choice of training provider differ from state to state, and within states where training markets vary.

(2) Group training

Group training is an arrangement whereby a group training company employs apprentices and trainees and hires them to other businesses, called host employers, while they are undertaking their training. It enables small and medium-sized businesses unable to offer a New Apprentice a permanent position to participate in apprenticeship training. Such firms may not be able to offer a permanent position to a New Apprentice because they can not guarantee ongoing work, or might not have the range of work to enable an apprentice or trainee to gain all the necessary job skills for that industry. They may also be unable to undertake all employment and training functions.

Group training enables small-to-medium sized businesses to hire apprentices or trainees when this might otherwise not be possible. It also creates employment and training opportunities for young people and provides a breadth of experience gained in a number of different enterprises. Group training organisations operate in all Australian states. Some specialise in servicing a particular industry, while others may cater for an entire region, covering many industries. Although group training companies provide a pivotal role in the employment of apprentices and trainees, they can only survive if the industries they service can afford the placements.

In 1995 group training companies employed 17 000 apprentices and trainees. By 2000 this number had grown to 38 000, a growth of more than 155% over the course of five years. There are also almost 200 group training companies currently employing apprentices and trainees, with almost 60% employing 100 employees, and 20% employing 20 employees or fewer. In addition, 90% of host employers are companies employing 50 people or fewer and over 50% of host employers are companies employing five people or fewer. Just a small percentage (6%) of host employers using group training companies employed over 100 people (NCVER 2001b).

(3) Technical and further education (TAFE) providers

TAFE institutes and colleges are relatively unique in the world, although they do have something in common with junior colleges in Korea and community colleges in Canada and the United States. TAFE colleges play a very significant role in the provision of vocational education and training, and in enabling effective school-to-work transition for young people. They also play a central role in the training of apprentices and trainees. In 2002 they provided training for 78.2% of all VET students, and 85.4% of all subject enrolments (NCVER 2002).

Each state and territory has its own TAFE institutions, with most of their budgets funded by the government. TAFE New South Wales, for example, comprises 12 institutes, and is Australia's largest educational institution and perhaps among the largest in the world. TAFE delivers flexible study programs and services to meet the needs of students, industry and the community. TAFE NSW institutes offer more than 1000 courses at over 120 locations across the state of New South Wales. These 'strategically placed locations' are one of the most distinctive features of TAFE, which means that many of the campuses specialise in study areas aligned with the work skills needs of local industry. Thus, TAFE institutes and colleges work closely with employers to give students the skills to make them productive and competitive.

One of the most important features of TAFE is its focus on access and equity. That is, it believes in providing access to training for all. For the unemployed, the college conducts many courses to help them get into or return to the workforce. All institutes have departments devoted to providing counselling, advice, and learning support for students, including those from specific equity groups, including women.

TAFE plays a crucial role in providing training for apprentices and trainees either in day release arrangements or block training. Day release programs require apprentices or trainees to attend off-the-job training usually for one day a week. Block training is provided in various arrangements of weekly blocks at different times throughout the year.

Probably, the most important features of TAFE are its flexible study options, which enable students to design study schedules to suit their particular needs. Students are considered to be in part-time study if they attend college for 11 hours per week or less, or in short full-time blocks. Classes are offered during the day and/or in the evenings. Some courses can also be offered through learning in blocks of time, and some can be scheduled over weekends. TAFE is also producing increasing numbers of course modules (and in some cases whole courses) available for study in various forms via the internet. In addition, TAFE offers courses that allow study from home, which are conducted through institutes and the Open Training and Education Network-Distance Education (OTEN-DE).

Today there are 85 TAFE colleges or other government institutes (such as agricultural colleges providing VET programs) operating in 1461 separate locations.

D. School-to-work transition category II: School-and-work programs

Schools across Australia are increasingly offering a greater number of industry-based units of competency within the school curriculum allowing students to combine general and vocational studies and to gain practical business and industry experience. Undertaking industry-based training while at school can also help students to gain a dual qualification, their senior secondary certificate of education and credits towards a vocational certificate, diploma or degree qualification if they decide to go on to study at a TAFE, a university or with another private provider. These are school-*and*-work programs, and allow students to work and attend school to complete their studies. VET allows students to acquire VET qualifications or part qualifications in addition to their senior secondary school certificate. Sometimes existing VET curriculum is linked to a broad range of VET certificates, modules or units of competence. This is called embedded VET as opposed to stand-alone VET that refers to VET certificates being gained apart from the normal school curriculum.

In 2002 there were 1996 schools offering VET in Schools programs, and 2083 schools offering VET in Schools programs in their senior secondary programs. In addition, the number of students who have taken up one or more units of competence through these programs has also dramatically increased, from 60 000 students in 1996 to 185 520 students in 2002. This represents an increase from about 16% of all senior secondary students undertaking some VET in their secondary school certificates in 1996 to 44% in 2002. (Ministerial Council for Education, Employment, Training and Youth Affairs 2003).

1) School-based part-time apprenticeships and traineeships

It is also possible for students to start an apprenticeship or traineeship before they leave school and to complete their senior secondary certificate of education at the same time. These school-based part-time apprenticeships and traineeships also comprise work and training arrangements where students are engaged in paid work (generally averaging about 10 hours a week) with an employer while simultaneously completing a nationally recognised VET qualification and their senior secondary school certificate while they are still at school. While acquiring qualifications is the main aim, students are able to use their work-based training to confirm their career choice or to decide if it is not suitable for them, while still at secondary school.

Most students in school-based part-time apprenticeships are trainees in training contracts aimed at achieving a certificate II or III qualification. About half are currently employed in retail and fast food enterprises.

Students in school-based part-time apprenticeships and traineeships are employed either directly by an employer, or by a group training company. Where there is direct employment by an employer, the employer is responsible for all the costs associated with the trainee (for example, trainee wages, holiday pay, sick pay, superannuation, workers' compensation). Where apprentices and trainees are employed by a group training company, the group training company takes care of all employment-related costs, and hires the trainee out to host employers. The group training company is generally responsible for coordinating the off-the-job training (undertaken with a registered training organisation); the host employer is responsible for providing the on-the-job training and employment.

Part-time, school-based New Apprenticeships are offering opportunities to students who might otherwise have difficulty in starting their careers, such as students from outside capital cities, lower socio-economic backgrounds and those who may be less motivated to seek direct university entrance on completion of secondary schooling (NCVER 2002). A small group of university-bound students are also undertaking these New Apprenticeships to get a qualification that may help them to gain a part-time job to support them during their university studies.

The numbers in school-based New Apprenticeships have grown rapidly from just over 100 in the mid-1990s to over 6000 by 2000. Thus, the proportion of school-based New Apprenticeships grew

from 0.6% to 2.2% of all New Apprenticeships from 1998 to 2000 (NCVER 2001a). The interesting feature of school-based New Apprenticeships in 2000 was the take-up in one state of Australia, Queensland. In the 12 months ending 31 March 2003, the National Centre for Vocational Education Research (2003) reports that there were a total of 10 900 apprentice and trainee commencements which were school-based contracts. This represented 4% of apprenticeship and traineeship commencements for that year (NCVER 2003).

More than 75% of these school-based apprentices in government schools were employed in sales and personal services, tourism and hospitality, business and clerical, and primary industry sectors. These trends are also observed for all school-based New Apprenticeships commenced in all schools.

2) Stand-alone programs

A stand-alone vocational education and training program is a program, generally delivering training package qualifications, that is available to students in a secondary school which has become a registered training organisation (RTO) in its own right. For example, a secondary school which is in a wine-producing district (for example, a high school in a wine growing region in South Australia) may decide to deliver a viticulture program to its students. The school obtains registration as an RTO to deliver the training package qualifications. This means that it does not have to deliver the training under the auspices of a TAFE college or another RTO. It is itself an RTO and can deliver training and qualifications in its own right.

In 2000 about 65 schools in Queensland were delivering stand-alone programs and about 1600 students were enrolled in these. The term 'stand-alone VET' is used in Queensland to differentiate it from embedded VET which includes subjects that incorporate general and VET components in their curricula. Embedded VET subjects can be used to contribute to senior secondary certificate qualifications, other AQF qualifications and, in some cases, tertiary entrance scores. At the time of writing there were only a few embedded VET programs in South Australia (one is information technology).

In Queensland all senior secondary schools have RTO status delegated to them through the Queensland Studies Authority (now incorporating the former Queensland Board of Senior Secondary School Studies). This means they can deliver embedded VET subjects which lead to AQF qualifications. This RTO status has been delegated to them and it is the Queensland Studies Authority which has the RTO status. However, in stand-alone VET the school has RTO status in its own right, and does not have to be auspiced by any other RTO.

3) Structured workplace training

In its pure form structured workplace training enables students to learn about the workplace in a way which is systematic, monitored, regulated and assessed. It can take place in a workplace or simulated workplace. Although there is no requirement for all VET in Schools programs leading to qualifications to involve workplacements, the closer these are linked to training package qualifications the more likely is the demand for a structured workplacement for training and for assessment. In 2002 there were 112 403 students who had undertaken a structured workplacement. This represented just 61% of students in a VET in Schools program, compared with 44% in 2000 and 55% in 2001 (Ministerial Council for Education, Employment, Training and Youth Affairs 2003).

4) Enrolments in industry group areas

The types of programs undertaken by students in secondary school VET programs can be categorised according to industry groupings. These indicate that the most popular programs were in tourism and hospitality, followed by business and clerical and computing. About a tenth of students were in general education and training programs aimed at training students in job-seeking

skills, personal development areas, workplace communications and occupational health and safety. A summary of these industry groupings appear in table 1.

Table 1: Percentage of VET in Schools enrolments by industry groupings in government and Catholic schools

Industry group	Percentage
Tourism and hospitality	19.7
Business and clerical	16.0
Computing	15.4
General education and training (job-seeking skills, personal development, workplace communications and occupational health and safety)	10.7
Arts, entertainment, sport and recreation	6.2
Engineering and mining	6.2
Building and construction	4.6
TCF & furnishings	4.0
Community services, health and education	3.7
Sales and personal services	3.7
Primary industry	3.4
Automotive	2.5
Communications	1.2
Science, technical and other	.5
Process manufacturing	.4
Utilities	.4
Food processing	.2
Finance, banking and insurance	.1
Transport and storage	.1
Not classified	1.1

Source: NCVET (2002)

E. Supporting structures for school-to-work transition

1) *The Australian Qualification Framework (AQF)*

Qualifications in any society certify the knowledge and skills a person has achieved through study, training, work and life experience. They are a measure of the intellectual capital and are increasingly important in a society where unskilled jobs have disappeared and continuous upskilling is required in all forms of work and in day-to-day life.

The Australian Qualifications Framework (commonly known as the AQF), which was introduced Australia-wide on 1 January 1995, is a unified system of 12 national qualifications in schools, vocational education and training (TAFEs and private providers) and the higher education sector (mainly universities). The qualifications are as shown in table 2.

In addition, students are able to gain a statement of attainment which provides a record of the competencies they have achieved. They may add to these competencies to acquire a qualification.

The framework links together all these qualifications and is a highly visible, quality-assured national system of educational recognition which promotes lifelong learning and a seamless and diverse education and training system. The AQF helps all learners, employers and education and training providers to participate and navigate the qualifications system. Under the AQF, people can start at the level which suits them and then build up as their needs and interests develop and change over time. The framework assists learners to plan their career progression, at whatever stage they are within their lives and when they are moving interstate and overseas.

Table 2: Qualifications by education sector

School sector	Vocational education and training sector	Higher education sector
		Doctoral degree
		Masters degree
		Graduate diploma
		Graduate certificate
		Bachelor degree
	Advanced diploma	Associate degree, advanced diploma
Senior	Diploma	Diploma
Secondary	Certificate IV	
Certificate of	Certificate III	
Education	Certificate II	
	Certificate I	

Source: Australian Qualifications Framework Advisory Board (2002)

Vocational qualifications under the AQF are industry-based, with specified combinations of units of competency required by each industry for each qualification. These qualifications are designed in a sequence, allowing learners to move steadily from one qualification to the next.

In 2002 just over two-thirds (68.4%) of students were undertaking an AQF qualification. This trend has continued for previous years. Table 3 summarises the number of enrolments by qualification levels for 2002. It shows that the most frequent qualifications occur at certificate III level.

Table 3: Students by qualification level 2002

	No. of students	% of students
Diploma or higher	199 500	11.8
Certificate IV	195 100	11.5
Certificate III	384 000	22.7
Certificate II	288 600	17.1
Certificate I	88 700	5.2
Other recognised courses	342 400	20.3
Non award courses	91 200	5.4
Subject only	100 700	6.0
Totals	1 690 200	100.0

Source: NCVER (2002)

2) Training packages

Training packages are sets of nationally endorsed competency standards and qualifications for recognising and assessing people's skills. Training packages describe the skills and knowledge needed to perform effectively in the workplace. They do not prescribe how an individual should be trained. Teachers and trainers are responsible for developing learning strategies, that is the 'how' of training, according to learners' needs, abilities and circumstances.

Training packages are developed by industry through national industry training advisory bodies (ITABs), recognised bodies, or by enterprises to meet the identified training needs of specific industries or industry sectors. To gain national endorsement, developers must provide evidence of extensive consultation and support within the industry area or enterprise.

Training packages complete a quality assurance process and are then endorsed by the National Training Quality Council (NTQC) and placed on the National Training Information Service (NTIS). Training packages have a set date for review, which is usually around three years after they are endorsed. However, they must begin the review process within 18 months of formal endorsement.

Reviews ensure training packages remain current to meet industry needs and allow issues which arise during their implementation to be addressed. By 2003, there were 102 training packages endorsed by the government. This included 20 training packages which had been superseded and modified after review processes had taken place (NCVER 2003). In 2002 there were 716 600 or 43% of students who were enrolled in training package qualifications. In addition, training packages accounted for just over half (51.1%) of all VET hours of training (NCVER 2002).

3) Registered training organisations (RTOs)

A registered training organisation (or RTO) is an organisation registered by a state or territory recognition authority to deliver training and/or conduct assessments and issue nationally recognised qualifications in accordance with the Australian Quality Training Framework. Thus, as long as a provider is a registered training organisation (RTO), it can deliver nationally recognised qualifications. It can also get access to public funds for certain programs.

Registered training organisations include TAFE colleges and institutes, adult and community education providers, private providers, community organisations, schools, higher education institutions, commercial and enterprise training providers, industry bodies and other organisations meeting the registration requirements of the Australian Quality Training Framework.

4) The Australian Quality Training Framework (AQTF)

The AQTF is a nationally agreed quality framework for the Australian VET system. It comprises standards for registered training organisations, and standards for state and territory registering and course accreditation bodies. In order to maintain their registration status RTOs must be audited and found compliant by state and territory registering and course accreditation bodies according to specific standards.

5) Individualised transition plans

In general, students in secondary schools in all Australian states have access to counselling services, including career counselling. The Government of South Australia has in place a strategy (*utures connect*) for every secondary school student in the state to have his or her own individual transition plan for moving through school, to work, to further training, or to further training and work. The plan will include a learning plan, a transition portfolio, and an exit map. The learning plan will be developed in middle schooling and is aimed at helping students identify a pathway that is suitable for them. The transition portfolio will enable the student to provide documentation of skills and knowledge, and the exit map will outline the pathway they intend to take once they leave school. There will be a joint approach between schools and local agencies to provide students and their parents with the support required to enable students make a transition to work and to adulthood. This strategy also aims to help students complete their Year 12 studies. It is based on a recognition that every young person should receive education and training for skills and knowledge of value to the community. This will reinforce their status as effective community members, and give them a greater connection with their local community, and the workforce needs of local industries. They will have better access to non-school services which will help them make this transition. This is aimed at improving retention rates (especially in disadvantaged areas) and helping students to set realistic career objectives and access transition assistance and support.

2. Korea

A. Specialised vocational high schools

In essence, the specialised high school program is an attempt to adapt vocational high school education to labour market shifts by incorporating specialised courses throughout or in some departments of the vocational high school.

In February 1996, the Presidential Commission on Educational Reform proposed the Act, *Educational Reform for New Education System II*. The specialised high school program was part of the proposal, and was later legislated and modified for implementation. Two years later in March 1998, the Busan Design High School, the first of these specialised high schools, was established (Kang & Ok 2000). As of 2002 the number of schools which offer specialised courses has increased to 48.

The specialised high school program was first conceived when it became apparent that the large high schools providing standardised education could not effectively serve the diverse needs and aptitudes of their students. Moreover, it also became evident that the standardised high school curriculum could not be counted on to develop the competitiveness required by an increasingly globalised and knowledge-based economy. In facilitating the establishment of small-scale high schools with distinct and specialised educational objectives, it was felt that viable alternatives would become available for students who did not wish to pursue mainstream education which confined them to a limited set of subject choices directed at passing the college entrance exam. There was also a view that students would certainly benefit from the more varied choice of curriculum to satisfy their interests and aptitudes (Ok 1999, pp.38–39). At the same time, it was felt that the new initiative could provide an alternative to the vocational high school, which was finding it increasingly difficult to meet the needs of an industrial society currently in transition to becoming a knowledge-based economy. It was also finding it difficult to meet the needs of emerging industries and occupations (Kang et al. 2000, p.3).

In sum, the specialised high school program was an innovative effort to meet the demands of both industry and the students by providing diversified and specialised education within the existing high school framework and policies for levelling high school education (Kang & Ok 2000). Table 4 summarises details on the number of specialised high schools and student participants between 1998 and 2002.

Table 4: Number of specialised high schools and student enrolments from 1998 to 2002

	1998	1999	2000	2001	2002
Number of schools	1	10	22	30	48
Number of students*	320	1874	4044	5924	9217

Note: * Number of students was calculated by adding the number of students being recruited by each school.

Source: KRIVET (2002 internal document)

A list of subjects offered by the specialised high schools is provided in figure 1.

Figure 1: Fields of study and subjects offered in Korean specialised high schools

<p>Electronics/Electrical Machinery and Appliances/Mechanical Engineering Electronics, Auto-mechanics, Construction machinery, Mechanical engineering, Moulding, Electrical machinery and appliances, Automatic control, Industrial machinery</p>
<p>Internet and Information Internet, Internet communications, Multi-internet, E-commerce, Network system, E-business, Business information, Information processing, Cyber information processing</p>
<p>Computer and Multimedia Web management, Web programming, Web design, Multimedia, Animation, Computer games production, Computer graphics, Musical instrument digital interface, Digital contents development</p>
<p>Film/Music/Broadcasting Media/Publication design, Media production, Media design, Internet broadcasting, Media directing, Wind instrumental music</p>
<p>Design Design, Graphic design, Computer design, Ceramic design, Interior design, Crafts design, Multimedia design, Ceramic arts design.</p>
<p>Tourism and Linguistics Japanese–Korean translation, Chinese–Korean translation, English–Korean translation, Cooking, Hotel management, Foreign languages, Golf course management, Horticulture, Information & communications, Crafts, Marine sports</p>
<p>Cooking/Food Cooking, Food industry</p>
<p>Fashion/Skin Care Fashion, Skin care</p>
<p>Horticulture & Environment Gardening, Landscape gardening, Biotechnology, Animal resources, Ocean industry</p>
<p>Others Shoemaking, Animation character design, Animation production</p>

B. 2+1 program in technical high schools

The 2+1 program in technical schools is similar to the dual system in Germany. Usually implemented in the technical high schools, the 2+1 program allows students to study for two years in the school and spend their last year of high school in industry, where the student can work and learn under a contract for OJT.

The Korean Government has been grappling with the issue of strengthening global competitiveness of domestic industries and the chronic shortage of a skilled workforce. In July 1993, the government finalised the 5-Year Plan for the New Economy, which included a reform of institutions for skilled workforce development. Part of this reform launched in 1994 was the 2+1 program. As of 2002, there are 30 technical high schools participating in this initiative.

Amidst increasing global competition, Korea recognised that its pool of skilled manpower was lacking in number as well as in quality. The 2+1 system for technical high schools was designed to train students to acquire the skills needed in the industrial sector and to make a smooth transition to the work environment.

Central to the 2+1 system is the active participation of enterprises in school–industry partnerships for the delivery of education and training. The enterprises assist schools, on the one hand, to make efficient use of material and human resources in the delivery of education, and on the other, to move away from theory-centered education to more practical and workplace-oriented education.

There is a global trend towards promoting the linkage between learning and work, and between the school and the workplace as a response to changing economic and industrial environments. The 2+1 system is in line with this global trend (Shin et al. 1997, p.25; Lee 1998, p.1).

The 2+1 system, in essence, gives students the opportunity for both school education and work experience, and uses the existing resources of the school and the most up-to-date facilities and equipment available to industry, for training. Ultimately, the system aims to train young students to become highly skilled workers capable of adapting to the real world of work (Lee 1998, p.3). Table 5 summarises the number of students and technical high schools participating in the 2+1 program between 1994 and 2002.

Table 5: Number of students and technical high schools participating in the 2+1 program (1994–2002)

	1994	1995	1996	1997	1998	1999	2000	2001	2002
Number of schools	20	68	96	90	45	35	37	33	30
Number of students	3 169	10 470	13 745	12 922	—	—	17 283	14 253	12 862

Source: Ministry of Education and Human Resources Development (2002 internal document)

C. Articulation pathways between vocational high schools and vocational colleges

The articulation program is a modified version of the already discussed American Tech-Prep program. It is essentially a 2+2 system, linking the last two years of the vocational high school curriculum with the two-year curriculum of the vocational colleges.

The faculties of partner institutions jointly develop and administer the program which is aimed at students wishing to acquire professional knowledge and skills. The programs are designed to meet the needs of industry and to ensure that vocational high school education leads smoothly onto tertiary education in the vocational colleges.

The articulation program was first announced on 9 February 1996 as part of *Educational reform for a new education system (II)*, and strongly promoted by the Ministry of Education and Human Resources Development since that time. It proposed a reform of Korean vocational education, and in August 1996, passed an education law supporting the establishment of articulation arrangements between vocational high schools and vocational colleges. This legal foundation ensured the practical implementation of the articulation program which has been in operation since 1997 (Ahn et al. 1997, p.55).

The need for the articulation program may be supported on two grounds. The first relates to the need to address the changes that have taken place in industrial and educational sectors, where it is generally agreed that there will be a major expansion of employment in the new high-tech industries during the course of the twenty-first century. This shift in the industrial sector is expected to create greater demands for workers to have a higher level of work competency and ability to solve complex problems, necessitating a change in vocational education. To adapt to these changes, it was felt that educational institutions delivering vocational pathways would need to provide their students with more extensive and in-depth education and training. The formal articulation program enabled them to do this. The second ground for supporting the introduction of articulation programs is that education at varying levels needed to be streamlined for greater efficiency. Often education in the vocational colleges overlapped with what students had already learned in the vocational high schools. An articulation program jointly developed by the faculty of both secondary and tertiary level vocational institutions was also felt to be a means for effectively eliminating this unnecessary repetition, and would help students participate in learning appropriate to their capacity (Jang et al. 1999, pp.9–13). Table 6 provides details on the institutions and academic departments offering the articulation program.

Table 6: Number of institutions and academic departments offering the articulation program

Year		Vocational colleges	Vocational high schools	Departments	Types of departments articulated		
					Identical depts.	Depts. in the same study area	Related depts.
1996 to 1998	1st trial operation	4	3	181	45	109	27
	2nd trial operation	12	8				
	Voluntary participation	12	71				
	Total	28	82				
1999	With government subsidy	(40)*	225	253	54	82	117
2000		121(40)*					
2001		121(40)*	405				

Note: *Number in parentheses refers to the number of vocational colleges subsidised by the government.

Source: Jang et al. (1999, p.42). Byon et al. (2001, pp.37, 58, 135–6)

D. The customised education program

The customised education program in Korea was originally adapted from the customised training implemented in the western world. Today, it is provided by vocational colleges seeking to provide curriculum which reflects the real demands of industry.

Customised education in Korea began in 1995, but a more concerted effort to incorporate this into the education sector did not begin until 1999, when the Ministry of Education and Human Resources Development launched its financial support initiative to assist vocational colleges to participate in the program.

The customised education program encourages the development of new courses geared to training students to become workers able to compete effectively in the labour market. It is based on active dialogue with industry to identify distinct manpower demands. The program is designed to provide the vocational education required for effective performance in the workplace, and to provide a foundation for better school–industry cooperation. Moreover, it will also help to reaffirm the distinct role and function of vocational colleges as educational institutions.

Its ultimate purpose is to establish a sound system of school–industry linkages, and through these means develop a labour force capable of meeting the changing demands of the industries and workplaces. Table 7 summarises details on the numbers of students, schools and enterprises participating in the customised education program between 1999 and 2001.

Table 7: Number of students, schools and enterprises participating in the customised education program (1999–2001)

	1999	2000	2001
Subjects available in the program	516	756	
Schools	80(60)*	112(60)*	121
Students	29 928	42 924	
Enterprises	10 806	16 204	

Note: * Number in parentheses is the number of vocational colleges subsidised by the government.

Source: Kim (2001, p.47)

IV. Needs assessment is the key to effective school-to-work transition

1. Australia

A. Overview of the survey

The aim of this study was to evaluate the success of transition-to-work strategies currently being implemented in Australia for students in vocational pathways. A secondary aim was to provide some suggestions for improvement.

Information was collected via questionnaire surveys of lecturers in TAFE institutes, and VET coordinators and teachers of industry-specific programs in secondary schools in South Australia. Interviews were conducted with representatives of group training companies. TAFE respondents consisted of lecturers of post-school apprentices and trainees, school-based part-time apprentices and trainees, and students in post-school institution-based pathways, or VET programs in secondary schools. Responses to questionnaires were received from 67 lecturers involved in apprenticeship and traineeship programs, 105 lecturers involved in post-school institution-based programs, and 49 VET coordinators and teachers in secondary schools. Representatives from all group training companies in South Australia (18) were contacted by telephone and agreed to respond to the structured interview questions.

Questionnaires to be completed by TAFE lecturers in metropolitan and country South Australia were distributed by educational managers or faculty heads within institutes who agreed to be part of the study and to distribute questionnaires. All metropolitan and country principals in government secondary schools were sent a letter asking for their schools to participate in the study, a letter confirming approval to conduct research from the state education department, and three questionnaires with reply-paid envelopes. Principals who decided that they would participate in the study were then asked to forward the questionnaires to school VET coordinators and industry-specific VET teachers. For these reasons it does not make sense to talk about response rates in traditional terms.

B. Findings and implications

Individuals follow unique pathways on their transition from school to work. For some these include pathways that lead from school to work without any intervening or associated training, and for others the pathway to work is directly connected to major training pathways. For a small minority the transition to work may be delayed well past the time that their schooling ceases. In this study we are concerned with those major routes which either combine training with paid work, training with workplace experience, or up-front training with or without workplace experience. We concentrate on:

✧ apprenticeship and traineeship pathways followed by individuals once they leave school

- ✧ school-based part-time apprenticeship and traineeship pathways followed by individuals while they are still in school
- ✧ institution-based post-school pathways which may or may not have requirements for students to be in employment to undertake training
- ✧ the VET in Schools pathway which is followed by students while they are still in school.

In particular, we consider the effectiveness and adequacy of these arrangements based on the information and insights of those involved in facilitating the training experiences of students. These include lecturers in TAFE colleges providing training for post-school apprentices and trainees and other students, and teachers and VET coordinators in schools. They also include field placement officers from group training companies which, in the main, employ post-school apprentices and trainees, although some are also involved with school-based apprentices and trainees.

1) Apprenticeship and traineeship pathways

Information on post-school and school-based apprenticeship and traineeship pathways is provided by lecturers, field placement officers in group training companies, and school-based vocational coordinators.

(1) Educational objectives

TAFE institutes were reported by between 80% and 93% of TAFE lecturers to be strongly dedicated to the goals of preparing full-time apprentices and trainees to obtain trade and vocational qualifications, meet the skill needs of industry, and enhance graduate opportunities for future employment.

In the main, coordinators and teachers believed that part-time school-based apprenticeship and traineeship programs should prepare students for work in general and related fields and for further VET training. There were just a few respondents who believed that these programs should prepare students only for work in a related field or only for further VET studies in a related field. There were just over a quarter (28.5%) of lecturers who believed that programs should prepare students for employment in a related or general field for VET and university studies. However, almost half (48.4%) chose to combine the goal of obtaining employment in a related field with the opportunity for students to gain a VET qualification, and 40% chose to focus on both gaining employment in a related field and further VET studies. In the main, these programs are perceived to prepare students with the industry skills and knowledge required for employment and further training. They are also perceived by school VET coordinators and teachers to provide students with a headstart in an apprenticeship and traineeship program once they leave school, acquiring dual qualifications, meeting their interests and developing personal and interpersonal skills and attributes (for example, maturity, self-discipline, sense of purpose). This means they see these programs as providing both vocational and personal development for students. In addition, they perceive these programs to provide access to a training pathway for non-academic students.

Although stated objectives for both types of programs are not identical, they are, in the main, focused on smoothing student transition from school to work, by providing students with relevant skills and qualifications or training leading to qualifications in a specific vocational area. However, in terms of school-based pathways, there is more of an emphasis on students developing a basic understanding of the world of work, and in some cases providing students at risk of leaving school early, with a purpose for staying on at school. These arrangements are also seen as providing an opportunity for country students to stay in their local environments.

These findings show that these apprenticeship pathways are seen by providers as supporting espoused government policies for improving transition-to-work pathways by combining paid work with training. They also indicate that secondary teachers and VET coordinators see these programs

as providing a starting point for students to move from school to VET and on to university if they so desire.

The extent to which TAFE and school VET providers are able to achieve these employment and training-related objectives is as dependent on the adequacy of resources and time available for training as it is on the knowledge and experience of teachers and the attributes of students. This means that goal achievement is heavily dependent on the extent to which lecturers, teachers and workplace supervisors have the necessary expertise, currency of knowledge, administrative support and time allocation to deliver the training to identified industry standards. Furthermore, adequate time for lecturers, teachers and workplace supervisors to provide the guidance and assistance required by students, and for students to practise skills in real workplaces or appropriate simulations is imperative to the achievement of these educational goals. However, student ability, general proficiency with basic literacy and numeracy skills, maturity, self-discipline and willingness to abide by expectations of the TAFE or school classroom, and of the real or simulated workplace, are other central ingredients to competency development.

(2) Developing the technical competencies of students

It is clear that, in preparing workers for industry, full-time apprenticeship and traineeship pathways are, in the main, believed to be highly effective in developing in students the skills required by industry, and the ability to apply these skills in their specialist areas. These programs are also seen to be highly effective in enabling students to obtain jobs in their specialist fields, and to plan and organise tasks.

Although they are also seen as effective in similar ways for school-based apprentices and trainees, TAFE and group training providers have expressed reservations about the ability of these school-based programs to deliver desired outcomes to defined standards for all industry sectors. This is true especially for the majority of the traditional trade areas. In spite of these reservations it is also true that, in the main, TAFE institutes and group training companies are in part trying to expand their involvement in these school-based programs, presumably because it may mean extra clients which may mean increased funding. However, a small number of representatives from group training companies do not agree with these school-based arrangements.

Reasons related to the adequacy of human resources and logistical arrangements mainly explain why TAFE lecturers and field placement officers (or their equivalents) from group training companies prefer the full-time post-school apprenticeships and traineeships to the school-based arrangements for preparing students to make the transition to the world of work. There is concern among lecturers in TAFE institutes, that in some cases, teachers who are delivering off-the-job training for school-based apprentices and trainees do not have the necessary expertise, awareness of the competency standards involved and/or industry experience to deliver the training. There is also an acceptance among teachers and coordinators in schools that teachers of these programs require more highly developed industry skills and knowledge, and extra time and administrative assistance to help them to deliver, coordinate and administer programs.

For group training companies and especially those servicing specific industry sectors (for example, building and construction and engineering trades), the concerns relate to their ability to encourage employers to take on school-based apprentices and trainees. Often employer reluctance to take on these apprentices is due to the limited amount of continuous time that students have to spend in the workplace to learn and practise required skills and to enable them to work on and complete specific tasks or projects. Because group training companies are in the business of hiring out their apprentices and trainees to host employers, the decision to include school-based apprenticeships and traineeships into their normal operations also becomes a business decision. Among those respondents who are not very supportive of school-based arrangements, there is also a view that school-based apprenticeships and traineeships may have a place in industry sectors like retail or hospitality.

Inflexibility of school timetabling training arrangements is cited frequently by TAFE and group training company providers as contributing to their lack of or limited acceptance among employers and among providers. This inflexibility of timetabling arrangements is also cited as problematic by VET coordinators in schools.

Students who are university bound are also encouraged to undertake these programs if they so desire, and if they have the time. However, the major objective of government policy in introducing opportunities for students to engage in relevant paid workplace learning and employment is to retain students who are not university bound in school to complete secondary school education. These courses are also intended to encourage them to begin to think about possible vocations and careers by formalising their gradual exposure to the world of work through a structured training arrangement. However, if these programs are not resourced appropriately in terms of providing adequate preparation for teachers to deliver the programs, time for students to spend in workplaces, and flexibility of timetables to fit in with the needs of employers, then they will continue to be regarded as second-rate arrangements. This will then affect the extent to which teachers, parents and students support the programs, and the extent to which they will be supported by employers.

The introduction of flexible timetabling arrangements to enable students to jointly undertake general school subjects, VET subjects in school or at TAFE (or other RTO), and participate in paid work also transforms VET into a mainstream program. If VET becomes an accepted part of the mainstream timetable and has its own timetable line, students in these programs will not have to miss lessons (which they will often have to catch up on at a later date), because of conflicting timetabling arrangements. It will also enable them to be better able to balance TAFE, school, and work commitments without feeling unduly pressured. In addition, the integration of programs into normal school schedules will also mean that students do not have to attend work during their school holidays and that teachers do not have to be on duty during school holiday times to monitor these placements.

The idea of combining paid employment with post-school VET training, or secondary school VET and general studies, provides a structure which allows students to gradually move into the adult world and into the world of full-time work. However, if providers and employers continue to be skeptical about the ability of providers to deliver quality training, then they will not be supported. It seems that the problems of school-based programs are not related to any philosophical objections to allowing students to complete secondary schooling and undertake VET studies and paid employment while they are still in the safe and nurturing environment of the school. It has more to do with ensuring that these programs have access to adequate financial and material resources, specialist staff and time to practise on-the-job skills. These are not insurmountable problems and can be managed if parties to the contract of training are able to discuss requirements and then put in place structures to enable these to operate effectively.

(3) Developing and maintaining the specialist competencies of lecturers and teachers

The competency of teachers and trainers is paramount to effective training and role modelling for students, and especially for students who are being introduced to new skills and knowledge. A substantial group (about 20%) of TAFE lecturers believe that their institutes do not provide opportunities for lecturers to keep current with what is happening in the field. When teachers and vocational coordinators in schools are asked for the type of assistance they require, almost 90% request more professional development opportunities, and 50% of those who have difficulties ensuring that students gained required skills believe this is because teachers involved in these programs lack specific expert knowledge. Substantial proportions of group training company field placement officers also report that they do not have access to professional development opportunities. When teachers are asked to indicate what type of assistance would help improve their programs, they frequently request increased opportunities for engaging in professional development.

This lack of major emphasis on professional development and continuing updating of skills and knowledge of lecturers and teachers and others engaged in facilitating the training and workplace experience of apprentices and trainees, will also affect the quality of training provided to students. This in turn will decrease the ability of these programs to develop workers able to meet the skill needs of different industry sectors. Continued lack of funding and other resources for professional development programs will also affect the reputation of TAFE and school providers among employers. If employers see TAFE and schools as providing training that is not up to date, and therefore unable to meet their needs, they may not select certain providers to deliver these programs. This in turn will affect the ability of RTOs to access user choice funding (funding made available to those RTOs which have been selected by employers to deliver training to their apprentices and trainees). It will also affect their ability to allocate resources to maintain the currency of knowledge and skill among their lecturers.

(4) Developing generic competencies of students

The extent to which students are able to make a smooth transition to the world of work is also dependent on their abilities to apply certain generic competencies. There is general acceptance among the majority (58%) of TAFE lecturers that full-time programs are highly effective in developing the ability of apprentices and trainees to plan and organise tasks. Although substantial groups of lecturers also believe that these programs are highly effective in developing the ability of students to work in teams, apply creative problem-solving strategies, and analyse and make decisions (47%, 46%, and 50% respectively), the remainder are of the opinion that they are only moderately or slightly effective in these areas. The majority of lecturers believe that these programs are only moderately or slightly effective in developing student abilities to use basic computer skills, and negotiate and make decisions.

Although four-fifths of the group training company providers concede that school-based programs increase student opportunities to get a job in their specialist fields, they are generally of the opinion that post-school programs are better than school-based programs in developing almost all of the already mentioned competencies. School-based programs are judged to be better at developing in students the ability to use computers. This is partly because schools have increased their use of computers in normal school studies, and also because computer skills are not always an important competency for students in trade-specific full-time apprenticeship and traineeship programs.

As far as TAFE lecturers are concerned, full-time programs enable apprentices to experience full-time employment, gain workplace experience, qualifications for chosen careers and develop real workplace skills and knowledge. For group training providers these pathways allow students to start a career, form the networks they will require to help them continue in the career, earn a wage while they are learning, obtain practical skills and knowledge, and enjoy a specific amount of time in full-time employment. Such arrangements are also used for individuals in non-traditional trade areas. For example, individuals who already have high time commitments to elite sports programs (for example, those in national or state league football, soccer, athletics, basketball or other sports programs) are able to enter a traineeship to obtain other industry-specific vocational experience, skills and qualifications. They will then have vocations to return to once their elite sports careers are over, or if they do not make the grade.

In addition, there are also psychological and personal benefits from participation in these programs. Students develop self-esteem and an acceptable work ethic, and a direction and purpose in life. School students also get to try out a specific vocation before they commit to a full-time program when they leave school.

Notwithstanding the success of these programs in developing certain generic and specialist competencies in students, there is also a view among TAFE lecturers and group training company officers, that students are often found to be under-skilled in mathematics. This is especially the case for those apprentices entering the mechanical, electrical, electronic, plumbing, and metal fabrication trades. In addition, it is also felt they are often not aware of the long and irregular hours associated with hospitality trades and occupations, or of the monotony that may be associated with some

routine components of trade work. Unrealistic expectations of what benefits they will derive from certain career selections are also perceived to provide difficulties for students once they are in jobs.

Furthermore, there are difficulties for both students and employers if students do not develop the appropriate work habits of getting to work on time, getting on well with workmates, accepting discipline, and becoming a productive member of the team. Lack of respect for authority, being over-confident of their abilities when it is not warranted, wanting to be the boss, and inability to modify behaviours and habits that had been acceptable in school, also provide problems for students when they move from school to work.

Ensuring that apprentices and trainees have appropriate awareness of acceptable workplace behaviour and protocols of the workplace can be solved in part through appropriate induction or orientation programs for apprentices, employers and training providers. Such sessions would focus on the formal responsibility employers and apprentices and trainees commit to when they sign a contract of training. They would enable employers to fully understand their specific roles in training and enabling trainees to get first-hand advice from employers of the behaviours that they will and will not accept in their companies. Such sessions also enable training providers to detail the time commitments that are required if apprentices and trainees are to complete off-the-job training programs. It seems to be counter-productive to the spirit of the contract of training if all parties are not made sufficiently aware of their specific responsibilities.

The issue of insufficient time allocation, however, is a recurring theme both for full-time and school-based apprenticeship and traineeship pathways. TAFE lecturers and school teachers and VET coordinators are all concerned about insufficient time for concentrated practical training and opportunities for students to put this training into practice. Insufficient time for focused learning, practice of skills, and appropriate guidance, directly impacts on the adequate development of both specialist and generic skills. For school students, insufficient time also affects their physical stamina to balance work, and TAFE and general school studies. These pressures in turn affect their learning.

If school students do not have the time to devote to training either because school timetables, work pressures, and conflicting demands make it difficult for them to balance school, work and TAFE obligations, then it will be difficult for them to develop competencies required to acceptable standards.

If governments are serious about providing students with pathways to facilitate their school-to-work transition through a gradual exposure to the world of paid work and workplace training, then they may have to review the adequacy of resources available to providers. If schools are to provide appropriate skills practice to students before they enter the workplace, then they require access to equipment and facilities, and expertise to deliver these programs.

It is also important that schools structure school timetables to enable students to spend sufficient time in the workplace without having to sacrifice holiday or favourite lessons (for example, sport, electives) to attend work. If these changes are not made, then students, employers, parents, and TAFE providers may not support such pathways and they will cease to be a viable transition pathway. Although the part-time approach makes good sense in introducing students to a specific vocation, and providing them with a headstart to qualifications and to further training, it needs to be reviewed so that adequate staffing and resources enable its efficient operation.

(5) Improving implementation strategies

Although TAFE lecturers identified a variety of strategies for improving full-time apprenticeship and traineeship pathways, the majority (about 60%) identified improvements to off-the-job training components which would enable students to develop appropriate practical skills and knowledge. These included extending the amount of time spent in off-the-job training, reviewing delivery approaches and learning materials, and ensuring that students had access to appropriate equipment and materials. Respondents also suggested changes to the insurance provisions for school-based

part-time apprenticeships and traineeships, and to incentives to employees to take on these apprentices and trainees.

Formalising articulation and credit transfer arrangements between schools and specific further training institutions was identified by VET coordinators and teachers in schools to be one of the most effective strategies for ensuring that school-based apprenticeships and traineeships lead smoothly into post-school apprenticeship and traineeship pathways. In addition, schools made suggestions for the strong involvement of external RTOs (generally TAFE institutes) with the provision of off-the-job training, learning resources, curriculum materials and equipment and facilities. This indicates that schools are aware of their need to develop partnerships with those institutions which already have the expertise and experience to deliver the required training.

Duplicating the resources required for skill development in places with already well-developed infrastructure for training is a waste of government resources. It is for this reason that both VET providers and schools need to identify strategies to ensure the effective deployment of resources. The fact that schools acknowledge the need to join with providers who already have the resources for training is good starting point.

(6) Analysing industry needs

If students are to acquire the skills and competencies required by industry, then effective methods for identifying these skills, and effective arrangements for students to acquire these skills need to be put in place. Industry training packages that guide direction for the development of competencies are based on the identification of competencies and standards by industry. This means that, in terms of apprenticeship and traineeship pathways, the majority of industry sectors (through their training advisory structures) have already had a major say in what they require from training.

To date, industry has had a major role in the formal identification of the competencies and standards and assessment guidelines which will give direction to training providers on the types of skills and knowledge required for the trades and vocations in their sectors. These are the components of the training packages that are formally endorsed by government. Industry involvement in the development and production of curriculum, learning materials and the delivery of off-the-job instruction has been at the discretion of providers. In addition, there is no formal obligation to have these learning resources endorsed.

Mandatory government endorsement of industry competency standards and guidelines for assessment only means that the development of learning and curriculum resources to be used in training is left to the discretion of providers, and often to the discretion of individual lecturers. This means that there is no formal venue or legal requirement for industry to influence how competencies are developed in classrooms. Although increasing the amount of industry input at this level can be beneficial to some extent, it also raises a variety of issues, in terms of cost and resources to be considered by providers and employers. Keeping in mind that, although employers may be in a position to assist in the delivery of training by providing opportunities for practical on-the-job training, and practical training during off-the-job training, they may not have the required skills and abilities to assist in the production of learning and curriculum materials. They may also believe that off-the-job training should be what the training organisations are paid to do, and would prefer to leave all matters dealing with off-job training to them.

Whether or not industry is also involved in the production of learning and curriculum materials should be determined at the institutional level by individual institutes or departments within institutes. However, government financial incentives made available to employers who are also prepared to provide expertise for off-the-job training programs may be one way to encourage employers to be involved also at this level should they so desire.

Although, in the main, respondents in TAFE institutes and schools report that they find it easy to follow training package requirements, they report problems with the way the competencies in the packages have been written. In particular, they are of the opinion that these competencies and

standards are at times too general and may lead to broadness of interpretation. Although training packages were introduced to avoid prescriptive directives and to enable workplaces to customise training to their particular requirements, they may become meaningless as a tool for training and for assessment if they are too broad. If students are to obtain advanced standing in further training based on their prior learning, providers must also be sure that they have achieved the necessary competencies to enable them to progress to more advanced qualifications. If competencies are written in formats which allow for individual interpretation, then they do not provide a clear direction on the standards that are expected.

Notwithstanding the extensive role played by industry in developing the training packages, there is still a role for training providers to analyse the skill needs of their local industries to better customise offerings to local employers. For group training companies, the customising of training programs for apprentices and trainees is often relatively uncomplicated since they interact with host employers on a regular basis through regular workplace visits, and regular interaction with potential host employers in negotiating placements for their apprentices and trainees. Nevertheless, almost all companies providing information to the study also undertook a formal needs analysis process, or canvassed views through client feedback surveys.

(7) Improving school–industry cooperation

Apprenticeship and traineeship pathways, whether they be post-school or school-based, by their very nature are tightly linked to industry. In the first place industry provides paid employment which enables students to be involved in operational processes. In the second place, it provides practical experience and guidance for on-the-job training. This means that employers play a major part in assisting the student to move from the world of school to the world of work. However, if this employment and training experience of students is to have maximum impact on the development of skills, knowledge, appropriate work habits and attributes, then they must be committed to increasing the amount of time and resources they or their workplace supervisors allocate to on-the-job training. This means ensuring that time during the day or week is allocated for workplace supervisors to work closely with students.

Adequate time, training places and resources for practical skill development for apprentices and trainees is pivotal to the success of apprenticeship and traineeship arrangements. It is telling that schools continue to be frustrated by the limited availability of jobs for students in some areas and structured time in workplaces to enable workplace supervisors to work individually with students when they are in workplaces.

Although employers may be willing and able to do all these things, they may not be aware exactly of what is really expected of them when they decide to take on an apprentice or trainee. In addition, it may also be true that apprentices themselves, and training organisations which have been selected by employers to deliver the training, may also be fully aware of the extent of their specific roles in the process. It is for this reason that government agencies charged with signing off on contracts (that is, New Apprenticeship Centres) establish a formal process for induction of all parties when a contract of training is signed. Such induction processes can take place in the initial stages of an apprenticeship or traineeship and should deal with the roles of employers and the commitments they have made under the contract of training, the role of apprentices and trainees and the role of the training organisation.

(8) Accessing government assistance

Keeping in mind that individuals, when asked, are likely to agree to any augmentation of government financial assistance for the improvement of programs, respondents' requests for assistance provides extra confirmation of resourcing difficulties experienced in schools and TAFE colleges. In the main, extra financial assistance is requested for the purchasing of equipment, materials and facilities, and increased incentives for employers to keep on apprentices and trainees once contracts are over. There are also requests for improving the wages of apprentices and trainees.

It is clear that, if apprentices and trainees are to effectively make the transition from the world of the child (school) to the world of the adult (work), then they must also be able to pay their way. The training wage as it stands puts extra pressure on this transition, and makes these young adults dependent on parents for longer periods of time. In addition, if apprentices and trainees see that their friends who are doing less skilled work are getting more pay, then they may be less likely to persevere with the apprenticeship and traineeship arrangement, and opt for the short-term goal of higher income. It is often the case that casual workers of similar age to these apprentices and trainees will get far higher wages for doing less skilled work because of the wage structures for casual employment.

2) Institution-based post-school pathways

(1) Educational objectives

Findings from lecturers from a broad range of institution-based post-school pathways and with a broad range of experience, indicate that the major objective of these programs is to prepare workers to meet the skill needs of industry (76%) and to provide enhanced opportunities for future employment (86%). These major objectives indicate that the pathway is also intent on helping students make the transition from further training to work.

However, although these objectives are generally perceived to be strongly supported by institutes, practitioners report some difficulties in the educational arrangements established to achieve these goals. In particular, there are difficulties for school leavers entering these programs if they do not have the necessary underpinning knowledge for certain subjects, basic standards of literacy and numeracy, or industry-specific skills required to enable them to progress to higher levels of training.

(2) Developing the competencies

Substantial numbers of RTOs are involved in providing training for secondary school students undertaking VET in Schools programs either within secondary schools or at the TAFE institute. There is a clear preference for such students to be taught by teachers (preferably lecturers from TAFE) with the required industry experience and expertise to deliver the competencies.

Like all other pathways focused on providing skills for students, either to make the direct transition from school or training to work, or to prepare students to acquire necessary prerequisites to enter training programs which lead to work, these programs aim to develop generic abilities in addition to industry-specific skills. There is a clear belief among the great majority (between 75% and 80%) of lecturers that these programs are effective in developing the ability of students to apply skills and knowledge in their specialist areas and work in teams. There is also agreement among 70% of lecturers that programs are effective in developing students' competencies in planning and organising tasks, applying creative problem-solving skills, negotiating and making decisions and getting a job in their specialist areas.

Well over half of the respondents are of the opinion that students derive personal skills and knowledge from their involvement in these programs. This is especially the case for school leavers and school students involved in TAFE training who are believed to benefit from interacting with students with more maturity than themselves. However, lecturers report problems encountered in these programs by some students. These relate to the difficulties they have in making the transition from classroom teacher-directed learning to independent or adult learning. Also posing difficulties for students and lecturers in these programs are students' limited numeracy and writing skills, lack of maturity, and lack of knowledge of what is really entailed in the courses and careers they have chosen. There is also a view that students are not aware of the rigour attached to TAFE training and standards of behaviour expected of them in the TAFE classroom.

In addition, lecturers report that school leavers often have to undergo additional work to achieve competencies to certain standards, even though they may have been assessed as competent in programs completed at school.

Keeping in mind that a substantial proportion of these programs are aimed at improving the literacy and numeracy skills of students and pitched at groups with traditionally low levels of educational achievement, it is not surprising that lecturers will identify literacy and numeracy issues as problems. The issue of deficient literacy and numeracy skills in school leavers is a recurring theme for many TAFE lecturers. However, this deficiency may also be explained in terms of the individual natural abilities of the students who have chosen or been encouraged to undertake a TAFE pathway.

If TAFE pathways are used to channel students who have not been focused on, or able to succeed in academic pathways, then it stands to reason that their literacy and numeracy skills will require further development and attention. However, if TAFE institutes are needing to revisit basic literacy skills that should have been acquired in primary, junior secondary and secondary education, the issue of how to resource these extra functions needs attention.

The extent to which resources are made available for lecturers to provide appropriate training and practice will, in part, affect the extent to which students are able to develop required competencies. About half of the lecturers in this study request financial assistance and extra support in buying equipment and resources, developing learning materials, and developing assessment materials for their programs. These are issues that need to be addressed by governments either through direct grants, or by providing incentives to industries for the provision of material and technical assistance. In view of the fact that about 50% of lecturers believe that financial and other assistance derived from industries for the performance of these functions areas is inadequate, there is also room for industries to increase their involvement in providing assistance at this level.

(3) Improving institute and industry cooperation

Almost two-thirds of the respondents were following a training package for the delivery of their programs. Although training packages have been developed through extensive consultations with industry stakeholders, almost half of the respondents indicate that their institutes had conducted industry needs analyses or research into the skills required by industries. However, those who have not been able to do so frequently cite lack of time, money or staff to conduct the research.

This lack of time and financial and human resources to conduct important tasks is a recurring theme which has arisen during the course of this project. If institution-based pathways are to be able to provide school leavers with appropriate skills and knowledge to make an effective transition from school to work, then it is important that they be able to identify the skill needs of local industries and the jobs that are available for students. Although formal surveys of local industries are often the preferred approach to canvassing opinion and evaluations, they take time and energy to conduct, and may not be completed by employers. There are however, other approaches that can be used. Regular environmental scanning which can occur either through regular teacher placements in industry, visits to workplaces, and regular involvement in courses of industry specialists, may be other worthwhile approaches for keeping institutions current with the demands of the market place and local employers.

Collaboration with industry can also take other forms. Industry can sponsor training programs by donating equipment and facilities and/or materials for training. This is especially important in country areas where such resources may be limited. Industry, through its peak bodies (for example, chambers of commerce, and industry training advisory boards) can also make available better information on labour market and employment trends and provide practitioners with specialist assistance in the development of learning, curriculum and assessment materials. It can also provide industry specialists to help in the delivery of training, and in the administration of assessments.

(4) Improving industry training packages

As has already been noted, training packages are developed and reviewed by industry training advisory bodies (ITABs) and constitute the main venue for industry to identify competencies and requirements, and for training providers to understand industry skill requirements. Although the majority of lecturers reported finding training packages not difficult to follow, there were about a quarter who experienced difficulties. Difficulties related to the lack of specific details on what to teach, and to the fact that competencies were written in such a way that left too much room for individual and broad interpretation, or used ambiguous and complicated language.

Keeping in mind that a major aim of the training package is to provide sufficient room for training programs to be customised to the particular needs of employers, it stands to reason that they are not overly prescriptive in their description of competencies and standards. However, if lecturers are finding these packages not useful for skill development in particular sectors or occupations within sectors, then this increased flexibility and lack of prescription is not at all helpful.

A formal review process for training packages commences 18 months after government endorsement of the package. The extent to which lecturers have input into this review process varies. However, unless the opinions of those who are to interpret and implement requirements are also formally canvassed in such reviews, attempts to keep current and streamline units of competency so that they keep abreast of changes in workplaces and occupations, avoid duplication, and provide appropriate direction, will not be meaningful. The solution, however, is not to introduce prescription at the expense of flexibility but to find an appropriate balance between the two which will ensure that flexibility remains a pivotal part of training packages, but that there is enough prescription to provide meaningful direction for skill development. Professional development activities focused on explanations of competencies and standards for each of the industry sectors is one approach to ensuring that lecturers in TAFE colleges have a clear understanding of industry requirements.

3) The industry-specific VET in Schools pathway

Industry-specific VET programs include those courses where VET is embedded into normal secondary school subjects, and stand-alone courses.

There are two major ways in which schools provide these industry-specific VET in Schools programs. The first is for schools to become registered training organisations in their own right and deliver all off-the-job training in schools, with on-the-job training delivered in workplaces or simulated workplace environments. In these cases on-the-job training can also be delivered by industry specialists or teachers with appropriate training in school facilities (for example, commercial kitchens, vineyards, restaurants, information technology centres etc.)

The other way is for schools to work in conjunction with or, under the auspices of RTOs. This might mean that students may attend classes at TAFE or private RTO campuses, and undertake practical experience either with local employers, or in simulated situations, or combinations of both. It may also mean that TAFE lecturers come to the school to conduct off-the-job training and practical training, combined with employer-provided workplace experience. Schools may enter cluster arrangements with other schools so that they can pool their resources to deliver VET programs.

(1) Educational objectives

The major objectives for these programs (identified by well over half of secondary school respondents) were to prepare students to gain employment in fields which were related to their studies, undertake further VET training in a related field of study, and gain a VET qualification. However, other frequently identified objectives (identified by well over a third of these respondents) were for programs to prepare students to combine work and further training in

related and non-related fields. That these programs also prepared students to combine work with further VET and university studies in a related field was identified by just under a third of respondents.

TAFE lecturers see these VET in Schools programs as providing an effective pathway linking school programs with further training, and providing students with a smoother transition pathway from school to work. They are also seen as providing training for non-academic students. TAFE lecturers are also concerned about the perceived lack of quality assurance processes to maintain quality and consistency of training provided to students. In particular, this relates to their belief that teachers in schools lack the expertise and industry experience to deliver the training to the competency standards required. It also relates to the fact that some students exiting these programs and progressing to further VET studies do not demonstrate that they have achieved the competencies to the standards required.

Underpinning the introduction of the VET in Schools pathway has been the notion of coming up with alternatives for those students who are not university bound. It is clear that teachers in schools and lecturers in TAFE also see this as one of the major benefits for students. However, the policy of providing options for these non-academic students also provides its own set of problems. These are associated with the preparedness and capacity of these students to undertake TAFE programs designed for adults.

However, these concerns may actually mask more serious concerns about the types of very basic literacy and numeracy skills that students do not appear to have sufficiently mastered, even though they have spent a substantial part of their life in schools. There are also concerns about the attitudes of students to their studies and of their inability to adapt to behavioural standards which are expected in an adult environment typical of the TAFE classroom.

(2) Developing specialist and generic competencies

Over three-quarters of lecturers in institution-based post-school programs believe that VET in Schools programs demonstrate above-average performance in developing the ability of students to apply skills to and obtain jobs in their specialist areas, and to work in teams. Almost the same proportion believe the same about the effectiveness of programs to develop students' abilities to plan and organise tasks, analyse information, and negotiate and make decisions. However, fewer of them believe the same of the effectiveness of programs in developing students' abilities to use basic computer skills, and apply creative problem-solving strategies. Teachers and VET coordinators also see program benefits in terms of increased student motivation for learning, and providing students with a sense of purpose. Although not competencies in their own right, these are attributes that increase the willingness of students to engage in learning. This in turn may lead to the development of specialist and generic competencies.

As we have already noted, students in VET in Schools programs gain practical skills, knowledge and experience in industry workplacements. It is interesting to note that, where almost two-thirds of these respondents believe that school-based apprenticeship and traineeship programs are highly successful in developing industry-specific skills, less than half are willing to say the same about VET in Schools programs. This may, in part, be related to the tighter connection between apprenticeship and traineeship programs to specific occupations, and specific employers. However, it may also be related to other structural difficulties dealing with the amount of workplace training received by students to develop these industry-specific skills. In addition, variability within workplaces and the motivation and capacity of individual students for learning also means that not all students will benefit to the same extent from their workplace experience and industry training.

The concept of providing training pathways that will assist secondary school students to combine VET studies with work and general school studies, seems to be make good sense in theory. It ensures that students complete their secondary schooling, and acquire relevant qualifications and experience to enable them to make the transition from school to work or further training which will lead to work. However, a number of major, but not insurmountable, difficulties are

encountered during practical implementation of these programs. These concerns relate to the amount of time available for students to develop workplace competencies, and complete their school and VET off-the-job studies.

The amount of time allocated by workplace supervisors to the on-the-job training of students in their care, and by students to their off-the-job studies, must be considered when determining the extent to which students are able to develop underpinning knowledge and the hands-on, practical, industry-specific skills and competencies. Nevertheless, teachers are concerned about the lack of sufficient workplace training which occurs during workplacements, the difficulties experienced by students in trying to manage their obligations to work, to TAFE and to general school studies, and lack of flexibility in school timetables. In country areas they are concerned about the difficulties experienced by students in getting to and from TAFE, and to and from workplacements. For students in remote and rural areas, the lack of available workplaces to provide workplace experience for students is another concern.

Unless schools are prepared to restructure school timetables so that VET studies and workplace training become mainstream programs, and schedules do not preclude students from also participating fully in their other general study programs, then students who undertake VET programs will continue to be penalised. They will continue to experience conflicting timetable demands, and will be expected to catch up on lessons they miss while they are attending TAFE or participating in workplace training. They may miss out on more fun lessons like sport or electives, or school holidays in cases where workplacements are scheduled during holiday times. Moreover, if a major proportion of students in these programs has experienced difficulties in the past with academic programs, then it seems unreasonable and naive to expect that they have the capacity, maturity, motivation and time-management skills to be able to juggle three different sets of time commitments.

There is also a concern among TAFE lecturers and teachers in schools that, in many cases, schools do not have the necessary expertise and industry experience to teach the off-the-job components of these programs. There is also a concern that students are channelled into programs for which they are not suited, and that schools may be using these programs to get problem students out of school.

As already noted, lack of teacher expertise will affect the extent to which students are able to acquire the industry-specific competencies to defined industry standards. Resource limitations in terms of appropriate facilities and equipment for learning will also affect the practical implementation of these VET programs.

(3) Improving school–industry cooperation

These VET in Schools programs have been established to enable students to combine industry-specific studies with practical experience in real or simulated workplaces. In this way they will be able to develop required industry-specific competence and knowledge to enable them to make a successful transition from school to work, or to further training and then to work. As such, they require schools to develop close connections with local industries to identify skills required, and to secure appropriate workplacements to provide students with the real-life practical experience.

The locating of industry workplacements may seem straightforward, but in actual fact this is one of the most time-consuming parts of the process, and not all schools are able to readily acquire this experience for their students when it is required. This difficulty is confirmed by VET coordinators who request extra resources and funding to help them with this task.

Although just over half of the respondents in this study report that they find it easy to ensure that students in these programs are able to develop industry-specific competencies, there is still a substantial group who report that this is not an easy task. They experience difficulties in locating sufficient and appropriate companies willing to provide experience for students, and believe that the amount of time allocated to the practical component of programs by schools is insufficient.

They are also concerned with the limited amount of time for workplace supervisors to work closely with students.

Opinion is also almost evenly divided about the success of these workplacements in developing required industry skills, with just under half of respondents reporting that this experience is only successful to some extent. Variability in the quality of the workplace experience available in different companies, and the limited amount of time spent by students in workplaces, are frequently cited as reducing the success of workplace experience for students. In addition, the lack of teachers with industry-specific experience, and equipment and materials available to students to practise skills prior to entering the workplace, are also believed to affect the ability of students to develop the skills they require.

These difficulties indicate the continuing struggle faced by schools in coordinating the industry experience of students, and ensuring that adequate time and resources are allocated to practical training. They are dependent on the capacity and the willingness of local employers to provide placements for this on-the-job training. They are also dependent on the goodwill of workplace supervisors to devote time and attention to students once they are on these placements.

However, it is also the case that the growth of these programs may also place a burden on local employers which they may not be able or willing carry. It is for this reason that schools should synchronise their demands for work placements. This can be done by having VET coordinators of schools in local districts attend regular meetings where they decide the times at which they will require placements from local employers. (TAFE institutes which also require placements in the same industry sector, could also be invited.) Although such a strategy may address this problem for schools in the same district, it may not prevent schools from other city or metropolitan areas also making requests for placements, or overcome the lack of placements available to students in remote and rural locations.

Schools must also be prepared to establish networks with local employers that will encourage their continued goodwill. Such goodwill can be eroded if students who attend workplacements are not respectful of workplace protocols and are not willing to learn. Information from group training companies indicates that, in some cases, secondary school students who enter their programs do not always behave appropriately and respectfully in the workplace. If this is also the case for students in VET in Schools programs, then schools risk harming their image in the general community, and their reputation with employers. Furthermore, they are setting up for failure those students who are not aware of the importance of appropriate behaviour in the workplace. It is not enough to associate bad work habits just with the individual attributes of students. There must also be a concerted effort to provide information and training to all students which will instil appropriate work habits, and the knowledge that it is in their own interests to respect the expectations of the workplace.

Such problems are not insurmountable. Pre-workplacement sessions can be established to inform and impress upon students the importance of showing employers that they are prepared to learn, and have respect for rules and regulations, and for workplace norms. This includes coming to work on time, dressing appropriately, being courteous and respectful and showing interest in workplace tasks they are required to do. Implementing a selection process in which employers select the students who are best matched to individual workplaces may be one way to ensure that students do not experience problems in the workplace. However, the question of what happens to those students who are not selected by employers will need to be addressed.

2. Korea

A. Overview of the survey

A direct mail questionnaire survey of teachers and professors in institutions providing vocational education was conducted to learn about the effectiveness of existing school-to-work transition processes. It included teachers in technical high schools operating the 2+1 system, specialised high schools, and vocational high schools offering 2+2 articulation programs, and professors in vocational colleges. The survey was carried out from 25 June to 17 July in 2002 for the high schools, and from 26 August to 13 September of the same year for colleges. Table 8 summarises details on responses from each of the sample groups.

Table 8: Number of sample groups and response rates

	Special programs	Number of schools in the population	Sample group		Respondents (Response rate)	
			Schools	Teachers/ Professors	Schools	Teachers/ Professors
Vocational high schools	2+1 system for technical high schools	27	27	270	24 (88.88%)	184 (68.14%)
	Specialised high school program	56	23	230	19 (82.61%)	142 (61.74%)
	2+2 articulation program	406	60	300	38 (63.33%)	178 (59.33%)
	<i>Sub-total</i>		<i>110</i>	<i>800</i>	<i>81</i> <i>(73.63%)</i>	<i>504</i> <i>(63.00%)</i>
Vocational colleges	2+2 articulation program	121	50	500	31 (61.67%)	192 (38.40%)
	Customised educational program	121	70	350	43 (61.43%)	173 (49.43%)
	<i>Sub-total</i>	<i>242</i>	<i>120</i>	<i>850</i>	<i>74</i> <i>(61.67%)</i>	<i>381</i> <i>(44.82%)</i>
Total			230	1650	155 (67.39%)	885 (53.64%)

At the secondary level, vocational high schools were divided into different populations by the special program they offered in 2001. The population of technical high schools running the 2+1 system consisted of 27 schools, all of which were asked to participate in the survey. Ten teachers from each school were randomly sampled, forming a sample group of 270 teachers. From a total of 56 specialised high schools, 23 schools and 10 teachers from each school were randomly sampled, to form a group of 230 teachers. Again through random sampling, 60 among 406 vocational high schools offering 2+2 articulation programs were given survey questionnaires which were randomly distributed to 5 teachers in each school, totalling 300.

From the sample group of technical schools offering the 2+1 program, 184 instructors in 24 schools returned completed questionnaires, recording a 68.14% response rate. The response rate was slightly lower at 61.74% in the specialised high schools sample, with 142 teachers from 19 schools sending back their answers. Finally, the third sample of high schools offering 2+2 articulation programs recorded a response rate of 63.00%, with 178 teachers from 38 schools participating in the survey.

The survey of vocational colleges was also conducted in a similar manner. Two populations were identified, namely the colleges offering the 2+2 articulation program and those offering customised educational programs as of 2001. There were 121 schools belonging to the first category, from which 50 were randomly selected. Ten professors from each of the sample colleges formed a sample group of 500 professors. In the latter category comprising 121 colleges, 70 were randomly selected, from which 350 professors, or 5 professors from each college, were sampled. From the first sample group, 192 professors from 31 colleges provided completed questionnaires, recording a 38.4% response rate. In the second sample group, 173 professors from 43 colleges returned their answers, reaching 44.82% response rate.

The responses were analysed on the basis that the sample size was statistically adequate to represent the population. Methods used were frequency analysis and percentage analysis with an aim to observing a general tendency or trend in the responses.

B. Findings and implications

The survey results are a direct reflection of the opinions of teachers and professors who provide instruction to students in vocational institutes, and as such serve as important references in the search for ways to assist these students make the transition to the world of work. In addition, the views of teachers and professors are also especially important because it is they who will lead the implementation of educational reform in the field. It is therefore necessary to refer to their insight in developing policies for fostering effective school-to-work transition. The following section will be devoted to the discussion of the survey results and their practical implications.

1) Specialised high schools

(1) Educational goals

The survey found that the majority of teachers in specialised high schools sought to assist students in their pursuit of both employment and further education as the primary goal of the specialised program. As much as 78.2% of the sample indicated that the specialised educational program should simultaneously pursue these two objectives.

Concerning the support required for students in vocational tracks to advance to higher educational institutions, 56.0% preferred widening the special screening opportunity for students applying for entrance to vocational colleges or four-year universities to enable them to continue their specialised secondary studies. This shows that instructors have relatively little interest in the articulation programs as a pathway for students to move into tertiary education. As already noted, articulation programs are currently promoted by the government as part of the plan for educational reform, and are offered jointly by vocational high schools and vocational colleges. These programs were originally intended to provide a pathway between secondary and the tertiary vocational institutions in order to increase the pool of professional workers in occupations that were either already in great demand, or would be increasingly demanded by industry. The initiative, however, seems to have failed to serve this purpose as only a relatively small number of instructors believed it to be a means of helping students pursue higher education. The discrepancy between the government's intention to promote the articulation program as a pathway to vocational colleges, and the instructors' preference for it to provide special screening opportunities raises doubts about whether the articulation program will serve its original purpose. At present, the government would do well to first reaffirm its policy on the articulation program and then put in place strategies to obtain the consent and support of teachers to ensure its success.

(2) Students' choice of specialised programs and their future plans

The survey included a question on what motivated students to choose specialised high schools or programs over others. The results were rather negative as nearly half, or 49.3%, of the respondents replied that students made these choices based on their previous academic records. A smaller

group, or 30.3%, answered that students chose the specialised education option because the program seemed to be suited to their aptitude, interest, and learning capacity. The figures imply that the choice of the specialised program is based less on a careful consideration of one's specific educational needs and interests and the options that can satisfy them, and more on previous academic results. This means that the specialised program is often taken up by students whose poor academic records in the junior high school leave them few other alternatives. It is necessary to identify ways to encourage those students whose aptitudes and interests make them suitable for specialised education to choose this option. It should also be noted that this problem is not unique to specialised high schools but prevalent in all secondary schools in the vocational pathway. The search for an effective solution to this problem, therefore, is a task of great significance for the Korean vocational education sector.

The survey results raised another critical issue, that is, whether specialised programs are effectively training students to become the kind of workforce currently demanded by industry. It seems likely that this is not the case. When asked to identify the future plans of students currently in specialised high schools, 66.9% of the sample indicated that most students hope to move on to tertiary education after completing their high school program. It is therefore necessary either to reaffirm or modify the purpose of the specialised education program.

(3) Work competency of students

The most important part of helping students in vocational pathways to make the transition to work is to teach them the skills demanded by the workplace. To find out whether or not the specialised education program has been effective in this regard, teachers in the sample were asked to compare the work competency of students in the regular program with that of students in the specialised program. In respect to competencies like developing creative problem-solving, planning and organising tasks, negotiating and making decisions, and living in harmony with others, the majority of teachers believed that there were no major differences between the two groups. However, a greater proportion of teachers rated students in the specialised program as superior in ability to apply knowledge related to one's area of specialisation, apply basic computer skills, and analyse information. Students in specialised programs were also rated as being superior in their readiness to meet occupational challenges, and in effort and commitment to gaining vocational qualifications to improve competencies. It can be implied from these findings that specialised high schools have been successful in achieving some of the outcomes they set out to achieve. The findings also indicated that when the specialised program is implemented as it was originally intended, it is able to make a significant contribution to enhancing the work competency of students, and can be used as a formal mechanism for supporting the school-to-work transition of students. What is required is for the government to implement measures to resolve some of the problems that obstruct its effective operation.

(4) Implementation of the specialised education program and suggestions for improvement

Assisting the school-to-work transition of students requires prior assessment of the specific skills and workforce needs of industry, and the development of curriculum which reflects these needs. However, only 10.1% of the sample indicated that their school had conducted a detailed analysis of the manpower and skills needs of industry. This suggests that the programs offered in the specialised high schools do not adequately reflect the real needs of the workplace. The top two obstacles identified by the respondents were lack of reference material (41.7%) on industry needs and limited expertise of the faculty (25.0%) to conduct such needs assessments, and to reflect these needs in the curriculum. The government needs to remove these obstacles by making the data on industry needs available to schools and creating opportunities for teachers to acquire the expertise needed to reflect these needs in the curriculum.

The goal of vocational education is to enhance the workplace competency of students. A critical component is the practical training which enables students to practise and experiment with skills specific to different areas of specialisation. The survey sought to find out how effectively the practical element of vocational education is being implemented in the school, and found a number

of impediments. These include the difficulty of purchasing the necessary equipment due to budget constraints (37.0%), the limitation in the teacher's ability to give practical instruction (21.7%), and the lack of reference material and guidelines which teachers may consult in preparing practical instruction (21.0%). Presently, the most effective way to foster practical education seems to be in supporting schools with funds to cover the costs of equipment and materials.

In Korea, the government has responsibility for the development and dissemination of textbooks used in the vocational high school. In developing these learning materials it is hoped that the content will facilitate the students' school-to-work transition. However, just over half of the sample (50.7%) believed that the textbooks currently in use are inadequate, that is, that they do not take account of the actual demands and conditions in industry. Revising the textbooks to increase their relevance to the needs of the industry is an urgent task. The Korean Government is trying to implement the National Skill Standard (NSS) based on similar arrangements in the United Kingdom and Australia. It is also aiming to design curricula and textbooks appropriate for the NSS system. These are steps in the right direction.

A policy for improving school-to-work transition for students should promote the establishment of an overarching framework to link school curriculum to National Technical Qualifications (NTQs). This would include among others the identification and development of distinct educational content for particular qualifications, mechanisms for credit transfer and recognition of prior learning, and guidelines for reliable and valid assessments for qualifications. The benefits of qualification testing should also be promoted. This concept of linking school curriculum with national technical qualifications was supported by an overwhelming majority (75.2%) of teachers in specialised high schools; however, they also expressed doubt about the benefits of linking curriculum with existing NTQs if these did not sufficiently reflect the needs of industry

This problem can be solved by regular assessments of industry needs, reflecting these needs in the development of NTQs, and encouraging increased industry participation in vocational education. The implementation of recognition of prior learning assessment processes will also help students to avoid the repetition of already acquired skills and knowledge.

(5) Suggestions for school–industry cooperation

Students in vocational pathways in Korea must participate in OJT as specified in the *Vocational Education Promotion Act*. Almost three-quarters (72.5%) of the teachers in the survey sample indicated that the quality of OJT could be improved if enterprises employed specialists to conduct the training. Enterprises providing OJT for students should take note of the demands of teachers and make every effort to improve the quality of OJT. To do so they may seek assistance from leading industrial organisations such as the Chamber of Commerce and other associations representing the needs of different industry sectors.

Over 95% of teachers believed that enterprises could help to improve the success of specialist education by providing OJT opportunities and upgrading the quality of training (99.3%), providing information on industry trends and changes in work responsibilities and employment conditions (96.5%), and providing employment opportunities for graduates (95.8%).

(6) Suggestions for the government

When teacher respondents were asked to indicate what actions could be taken by the government to invigorate OJT for students, the majority (77.5%) asserted that the government could help schools select and access information on potential OJT providers. This confirms the need for government to assist schools to locate appropriate enterprises to provide OJT and to build mutual linkages. To do this the government could enact legislation that provides guidelines on the ratification of agreements and on monitoring the extent to which the terms of the agreement are applied. Such legal institutions should then be carefully and continuously managed.

Teachers suggested four major government initiatives to ensure the success of specialised education. These included: the provision of financial support to cover the costs of facilities and

equipment for practical education (97.2%), provision of information on industry trends, changes in work responsibilities and employment opportunities (95.7%). They also suggested an expansion of the school's autonomy in management (94.4%). Translating these suggestions into practical policy should be placed on the educational agenda of the government.

2) The 2+1 program in technical high schools

(1) Educational goals

When asked to indicate what was the main educational goal of the 2+1 system, well over half of the teachers (59.2%) indicated that they believed the program aims to help students in both their academic and career pursuits in sectors relevant to their study areas. The second most frequently reported aim was to assist students to find employment related to their educational background (35.3%). These results indicate that, although teachers believe that the 2+1 program aims to prepare students for both employment and higher education, there was a tendency to emphasise preparation for employment over preparation for higher education. This conclusion becomes more plausible when results are compared with findings from survey responses of teachers in specialised high schools. Here, as much as 78.2% of the specialised school sample indicates that assisting both employment and academic pursuits of students was the prime educational goal, with just 11.3% indicating that the preparing students for employment was the primary goal.

Teachers were asked to select the ideal policy for enabling the progression of students in the 2+1 program to tertiary institutions. Nearly half (48.9%) of the teachers chose the option of expanding special screening opportunities for vocational college or four-year university applicants to continue their study in the same area. The figure is comparable to 56.0% of teachers in specialised high schools who chose this response to a similar question. However, the two sample groups varied in their preference for the option of 'offering greater tertiary education opportunities for students who have worked in an enterprise for a set period of time after graduation'. While 35.3% of the teachers in the 2+1 program felt this was an ideal policy, only 8.5% of the teachers in specialised high schools preferred this over other options. It appears that instructors in the 2+1 program generally recognise the importance of helping students advance to tertiary education immediately following graduation, but also believe there is value in giving students further educational opportunities after they have gained some experience of work. In view of these findings it would make good sense to consider providing opportunities for graduates of the 2+1 program who are in employment the chance to continue education at the tertiary level. In fact, such a policy has been proposed a number of times as an ideal way to satisfy the needs for tertiary education of students in the vocational pathway.

(2) Students' reasons for choosing the 2+1 program and plans for the future

The survey results indicate, that in general, students who chose to take up the 2+1 program in 2002 tended to have based their decision on their previous academic record in the junior high school. Over half of the teachers in technical high schools offering the 2+1 program felt that the students' choice of the program was influenced by their junior high school grades (54.0%). Only 30.7% believed that students had chosen the program to increase their chances of finding employment. A similar discrepancy between what the program sought to achieve and what actually motivated students to choose it, is also evident in the 2+1 programs in technical high schools. These findings highlight the necessity for finding effective ways to attract to the 2+1 program those students who see it as a way to fulfil their interests and aptitudes, rather than those students whose poor academic records leave them no alternatives but to settle for the 2+1 option.

The survey also found that students participating in the 2+1 program planned to seek employment after graduation and then pursue tertiary education at a later time. About half of the teachers in the sample group (50.5%) identified this as the typical plan for students in their school. In contrast, the survey of specialised high schools produced a different outcome, as just over two-thirds of the teacher sample (66.9%) indicated that most students aspired to enter tertiary institution after

graduation. Keeping this in mind, the key issue relates to providing support to students who would like to resume education after acquiring some experience in the workforce. Currently, existing workers with vocational high school backgrounds and a certain amount of work experience have a number of alternatives if they want to pursue tertiary education while still in work. They may enter an advanced program in a vocational college, or enter a cyber university program administered under the *Lifelong Education Act*. They may also choose to commence an evening program offered in a vocational college or four-year university. Despite the existence of these options, workers have a difficult time in finding sufficient financial support to enable them to return to education and enter one of these programs. This is because there are only a few enterprises that provide financial assistance to help workers meet tuition costs, and available assistance from government sources is limited to low-interest loans. In developing a viable policy for enabling existing workers to return to education, consideration should be given to using part of the employment insurance funds to provide support to working students.

(3) Work competency of students

Teachers in the sample technical high schools were asked to compare the work competency of students in the 2+1 program with that of students in the regular program. There was a tendency to rate the competency of students in the 2+1 program as similar to that of students in the regular program in all competencies apart from the *effort applied to acquire vocational qualifications for the specific purpose of developing one's competency*. In this respect students in the regular program were believed to outmatch their cohorts in the 2+1 program. However students in the 2+1 program were rated as superior to regular students in terms of employment rate (69.5%), rate of employment in a sector relevant to one's specialisation (63.4%), and the readiness to meet challenges in one's occupation (61.0%). These outcomes provide evidence of the positive functions of the 2+1 program in technical high schools and its effectiveness in preparing students to enter the labour market.

(4) Implementation of the 2+1 system in technical high schools and suggestions for improvement

When teachers were asked whether or not their school had carried out an assessment of manpower or skills demands of industry to develop the 2+1 program, the response was generally disappointing. Only 5.5% of the teachers confirmed that a thorough needs assessment had been conducted, indicating that current industry needs are not being adequately reflected in the 2+1 curriculum. The obstacles to conducting a thorough needs assessment identified by teachers in the technical high school sample were similar to those identified by teachers in the specialised high schools. The greatest difficulty for both groups related to the lack of adequate reference materials. About 45% of technical high school teachers reported this as the main reason for their school not undertaking a needs assessment. If schools are to be able to reflect in their curriculum the current skills and knowledge required by industry, then it is important that they be given the necessary data and information resources that will enable them to develop a curriculum responsive to industry needs. The government may help schools by providing them with access to the data and information resources that they require.

Despite its importance, practical education in the 2+1 program is limited. The greatest obstacle to providing this education was the lack of facilities and equipment due to budget constraints. This was selected as a main problem by 53.6% of the sample. Second to this was the lack of references or guidelines for practical instruction, which 24.6% of the teachers pointed to as the main problem. It seems that if practical education is to become a reality for 2+1 students, there will need to be extra financial assistance available to schools for the purchase of facilities and equipment. Increased government subsidy, indeed, would help schools acquire the necessary material and equipment for conducting educational programs to enable students to engage in practice and experimentation.

The teachers in the 2+1 program evaluated the adequacy of existing textbooks in a similar way to teachers in specialised high schools. Here 54.1% of the sample identified as the greatest problem the discrepancy between textbook content and the knowledge required to meet the demands and conditions existing in the real workplace. One of the key tasks to ensure the program's success is to

increase the relevance of textbooks used in the 2+1 program to reflect the knowledge and skill required by industry.

The survey also found that a greater proportion of teachers assessed the 2+1 curriculum as bearing some relevance to the NTQs in its content and the advantage it gives students in qualifications testing and other processes. There were 53.8% of who believed this to be so compared with 26.1% who felt that the curriculum had no relevance to the NTQs. These findings imply that, although the 2+1 curriculum is somewhat connected to the NTQs, this may not be adequate to guarantee effectiveness of the program. Similar efforts that are demanded in the case of specialised high schools should also be made for the 2+1 program; that is, regular assessments of industry needs, and the reflection of these needs in the curriculum, and a strengthening of the relationship between the curriculum and the NTQs.

(5) Suggestions for school–industry cooperation

Almost three-quarters (70.1%) of the respondents to the survey were of the opinion that there was a major problem with OJT. It was often provided by enterprises which lacked experienced and expert trainers, was limited in substance and was used only as a means of recruiting new workers. This raises the need for institutionalising OJT as well as improving its effectiveness. When asked for reasons for students failing to complete OJT, nearly half (45.3%) explained that the tasks given to the trainees were often too demanding. Others attributed this to the fact that students in OJT were disappointed when they realised the limited career prospects available to them (16.9%). The survey results confirmed the common criticism of OJT that enterprises more often than not take advantage of their trainees by assigning them to menial tasks and neglecting to provide them with the promised training. This means that, on the one hand, enterprises should pay more attention to and concentrate on delivering the original purpose of OJT and on the other hand, the government should strengthen its involvement in the supervision of workplace practice in OJT.

Another problem that has frequently been raised regarding the 2+1 system is that a considerable number of graduates choose not to stay in the job they have found. Some teachers explained this to be a result of dissatisfaction with the working environment (34.2%), others indicated that students leave their jobs to prepare for entrance into tertiary education (31.5%), and still others felt students were too disillusioned about their career prospects to stay in the job (24.5%). The survey shows that there are multiple factors moving graduates of 2+1 programs to abandon their jobs. Some factors appear more personal, while others seem to be embedded in the conditions of the workplace. However, even the ostensibly personal objective of seeking tertiary education may be in fact a response to unsatisfying employment conditions. The key to reducing this problem may be held by enterprises. In fact, enterprises could improve working conditions by increasing remuneration and improving the work environment. Furthermore, they may also provide their employees with the opportunity to continue their education.

Given a list of changes enterprises can make to improve OJT in the 2+1 program, the sample's most popular choice was for enterprises to employ training specialists and improve the quality of training (41.3%). A substantial number of respondents also asked enterprises to refrain from expecting trainees to participate overly in production (29.9%). Therefore, the two priority tasks for enterprises are to enhance the quality of training on the one hand, and significantly reduce the involvement of trainees in actual production.

The teachers also evaluated the importance of possible contributions that enterprises can make to the promotion of the 2+1 program. There was most support for providing OJT opportunities for students and enhancing the quality of training (95.1%), providing employment opportunities for graduates (94.6%), and providing information on industrial trends, shifts in work responsibilities and employment opportunities (93.5%). The results reconfirmed the need for enterprises to provide students with adequate opportunities for OJT, improve the effectiveness of training, increase employment opportunities for graduates of 2+1 programs and make available information on labour market trends.

(6) Suggestions for the government

Teachers in 2+1 programs were asked to identify the primary form of assistance that the government could provide to foster OJT of students. The majority (63.1%) responded that the government could assist schools to select appropriate OJT providers and give them adequate information about these enterprises. Others requested that the government monitor the actual training provided in the workplace and demand the correction of irregular practices (16.3%).

There was general support for the government implementation of a variety of practical strategies to improve the effectiveness of the 2+1 program. These related to improving the quality of information on industry and workplace trends, texts, training and supply of trainers. It also included the provision of financial assistance for the purchasing of facilities, equipment and materials for practical training, and opportunities for graduates to participate in tertiary education. There was also support for expanding school autonomy in the management of the 2+1 program, assisting schools to select OJT enterprises, monitoring the actual training provided in OJT, providing graduates with preferential treatment in military service, and awarding students certificates which recognise the particular specialisation on completion of OJT. There was most support for the concept of exempting graduates from military service duties if they were employed by their OJT provider (90.8%), issuing certificates which recognise the students' achievement of competency on completion of OJT (89.7%), and expanding schools' autonomy in management (85.9%). Providing graduates with preferential treatment during military service duties, licensing without requiring students to undertake separate skills testing, and ensuring that schools are given the required management autonomy. These were all confirmed as priority tasks for the government.

3) Articulation programs in vocational high schools and vocational colleges

(1) Educational goals

When asked to identify what they believed to be the prime objective of the articulation program, professors in vocational colleges were divided between two important goals. One of the identified goals was to provide tertiary-level education that follows continuously from the secondary education in the vocational high schools, but without any repetition of unnecessary content (44.3%). The other was to recruit enough students to meet the school's quota (42.7%) for first year students. These findings provide some indication that the articulation program is achieving its intended function of providing continuing vocational education. They also indicate that the program serves as a means to meet student quotas in vocational colleges that are finding it increasingly difficult to recruit students.

When the same question was addressed to instructors in vocational high schools, 51.1% of the sample replied that, in the main, the articulation program seeks to train students to become specialists through continuing education; 28.4% responded that it aims to fulfil student aspirations for tertiary education. This information provides evidence of the high level of teacher understanding about the main espoused aim of the articulation program which is to enhance students' professionalism through continuing education.

When the responses of the two sample groups are compared, it appears that, although vocational high school teachers are fully aware of the goals of articulation programs, the same cannot be said of professors in vocational colleges. It is clear that vocational colleges should try to educate their faculty on the ultimate goal of the articulation program, and to organise their component of the program to better achieve this goal.

(2) Problems of student selection

The survey asked both vocational college professors and vocational high school teachers to identify the problems they have encountered in the process of student selection. The dominant concern among professors concerned admission into college of students who did not have the learning ability required, thereby lowering the quality of college education (60.3%). This indicates that there are serious problems with current vocational high school education. However, this problem may be addressed by providing supplementary or bridging classes to help those students who have entered college education via an articulation program, and who may require extra support to participate meaningfully in tertiary education.

When teachers in vocational high schools were asked to identify the main criterion used in selecting participants for the articulation program, the sample group was almost evenly divided between two responses. Almost 40% (39.9%) of the teachers indicated that applicants were screened according to their academic record, and 32.6% responded that they referred to the criteria proposed by their partner vocational college. Neither of these responses indicates that careful account is taken of the students' aptitudes or wishes. The teachers were also asked to indicate the problems experienced by students participating in the articulation program. That students lacked proper understanding of the program was the response offered by 35.3% of teachers while 26.6% replied that students often dropped out of the program. In view of these responses, it is clear that students need to be better educated about the main purposes and objectives of the articulation program.

(3) Work competency of students

Professors were requested to compare the work competency of students in the regular and the articulation programs. Students in articulation programs were rated as superior to their cohorts in the regular program in terms of the ability to apply knowledge in their specialisation (57.6%), the efforts made to develop one's competency (53.4%), and the readiness to meet career challenges (49.7%). Overall, students in the regular program were generally given equal or lower rating than articulation students in relation to the ability to use basic computer skills, analyse information, apply creative problem-solving, plan and organise tasks, and negotiate and make decisions. Articulation students were also believed to be superior in obtaining jobs related to their specialisation (51%). Based on these findings, the articulation program can be judged to be providing positive outcomes for students. These results also imply that students in the articulation program have relatively higher employability than those in the regular program.

(4) Implementation of the articulation program and suggestions for improvement

As in other vocational education programs, it was found that not enough effort was made to assess the needs of the industry. Only 19.4% of the professors reported that their college conducted a detailed analysis of these demands. This provides substantial indication that programs probably do not sufficiently reflect the needs of the workplace. Careful research and assessment of manpower and/or skills demands of industry and use of these findings in curriculum development should become the standard practice for promoting school-to-work transition processes for students in the vocational pathway. Professors attribute the neglect of these important tasks mainly to the lack of assistance from enterprises (29.9%), and the school budget constraints (24.5%). Solving these problems requires the support of enterprises as well as increased investment by the schools themselves.

Limited budget is the main cause of another major problem in the articulation program at the tertiary level. As much as 52.1% of the sample indicated that lack of funding and the consequent shortage of facilities and equipment were the key reasons for sufficient practical education not being included in the curriculum. Again, vocational colleges need to expand the financial support provided for articulation programs if effective education is to occur for students in these pathways.

Well over half (59.9%) of professors believed that the content of courses in the articulation program curriculum were relevant to the NTQs, outnumbering the 18.2% who saw little relevance

between the two. As previously mentioned (for specialised high schools and the 2+1 program in technical high schools), the effectiveness of the articulation program is contingent upon how the government improves the NTQs framework.

The survey also collected information on the development and management of articulation programs. The dominant response among vocational high school teachers was that the existing curriculum for vocational high school students was implemented without significant changes (49.7%); only 24.9% replied that a new curriculum was developed to suit the articulation program. This indicates that there has been limited effort in developing specific curriculum for the articulation program. Regarding the issue of insufficient focus on practice and experimentation in the curriculum, the majority of teachers pointed to the lack of budget to purchase the necessary materials and equipment (64.0%). Another prominent problem was the lack of reference materials or guidelines for use in practical instruction (22.9%). To improve these situations and to encourage increased focus on practical education in the articulation programs requires increased government provision of financial assistance and supply of reference materials.

(5) Cooperation between colleges and high schools in the vocational pathway

The survey asked respondent professors to rate how well vocational colleges were carrying out the responsibilities required for successful implementation of the articulation programs. In general, colleges were perceived to be providing professional development for relevant staff, recruiting extra professors to meet curriculum requirements, promoting collaboration and support from industry, and increasing the scope of participation of high school teachers. Faculties were also seen to be actively involved in the articulation program. However, 43.9% of the sample indicated that vocational colleges were not trying hard enough to offer separate courses for students admitted via the articulation program. Vocational colleges should take note of these responses in promoting their cooperation with high schools.

Instructors in vocational high schools in turn were asked to rate their partner college on each of these responsibilities. Negative responses outnumbered the positive for all of the items, a sharp break from the evaluations given by college professors. High school teachers were of the opinion that the colleges were not trying hard enough to expand the role of high school teachers in the articulation program (54.2%), and that they did not apply enough effort to offer separate courses for students admitted via the articulation program (53.7%). They also believed that vocational colleges applied little effort to promoting cooperation and support from enterprises (50.0%). The discrepancy of opinions between instructors at the secondary and the tertiary levels, highlights the need to improve institutional linkages for fostering shared understanding. Moreover, vocational colleges should try to determine why their partners in the secondary institutions view their efforts in this negative way. This can help to identify the root causes of these problems so that effective solutions can be implemented. Seeking government assistance to identify problems and develop and implement solutions can also be helpful.

The survey made a similar request to both sample groups to understand how hard vocational high schools have tried to ensure the success of the articulation programs. Professors believed that vocational high schools had worked hard in most cases to make the programs work. There was one exception and this related to the limited attempt made to improve the educational curriculum. In this regard, 32.8% of professors believed that the vocational high schools had been deficient. This means that, according to professors in vocational colleges, high schools have been adequately performing their major responsibilities as organisers of the articulation program. Interestingly, teachers in vocational high schools themselves were not as positive about the effort of their own schools and their ratings on all of the items were relatively low. These results may be attributed to schools giving mediocre attention and support for their own articulation programs. The survey found that 35.4% of teachers believed that their schools did not work hard enough to improve the curriculum. This is one area that needs major attention.

With regard to the exchange of staff between partners in the articulation program, the survey also discovered that certain forms of personnel exchange between programs were not practised as much

as they should be, with 54.2% of professors indicating that insufficient numbers of high school teachers were invited by their college to deliver lectures; 39.8% also reported that professors and high school teachers did not collaborate enough to organise special classes during school breaks. These results suggest that there is an opportunity to enrich articulation programs by strengthening collaborative activities between professors and high school teachers. Various forms of staff exchange, including cooperation in organising special programs during vacations, may be fostered for this purpose.

The responses of vocational teachers to the same question supported these findings, with a greater percentage of vocational high school teachers indicating that the various forms of exchange did not take place. The least frequently occurring opportunities for teacher exchange were invitations for lectures to be delivered by high school teachers to college students in the articulation program. Just under two-thirds (66.1%) of the sample indicated this did not happen sufficiently in practice. Nearly as many respondents, 65.4%, noted that vocational high school teachers did not often participate in giving special lectures for college students during the semester; 59.0% indicated that professors and teachers did not collaborate as much as they should to organise special programs for high school students during their school breaks. These responses contrast with the more positive views given by professors on this issue. Faculty in vocational colleges should, therefore, try to find out why teachers have such negative opinions on the current practice of staff exchange. In doing so, they should also develop solutions that can effect significant improvement in this respect.

(6) Suggestions for school–industry cooperation

Given a list of contributions that could be made by enterprises to foster OJT for students in the articulation program, about half (52.1%) of the professors agreed that enterprises could secure more training experts (specialists) to upgrade the quality of their training. This suggests that educators see the need for a more professional delivery of OJT by enterprises.

The survey provided professors with a list of activities that could be performed by enterprises to improve the articulation program. Respondents generally agreed to all of the suggestions. Most eagerly received was the idea that enterprises should provide OJT opportunities for students in the articulation program and upgrade the quality of training (92.2%). Nearly as many professors confirmed the recommendations for offering employment opportunities to graduates of articulation programs (89.6%), and for disseminating information on relevant industrial trends, shift in work responsibilities, and employment opportunities (88.0%). Responses from the vocational teacher group were quite similar: 84.7% agreed that enterprises should provide OJT to students and upgrade its effectiveness; 84.2% said that enterprises should support vocational institutes in accessing facilities and equipment necessary for experimentation and practice. The great majority of teachers would also appreciate information on industrial trends, changes in work responsibilities, and on employment opportunities (79.9%). The results provide strong recommendation for enterprises to: offer students OJT; make training more meaningful and effective; help graduates find jobs; make information on labour market conditions available; and provide schools with access to facilities and equipment for practical education.

(7) Suggestions for the government

Responding professors hoped that the government might offer more active support for improving the quality of OJT. Most requested was government assistance in finding the right OJT provider and providing information on the recommended enterprise. As much as 54.5% indicated that this should be the priority for the government.

Professors generally agreed to all suggestions for improving government support for the overall success of the articulation program. Most widely favoured was financial subsidy for the purchasing of equipment and facilities for practical education supported by 89.6% of the respondents. Second most popular (endorsed by 80.2% of respondents) was the suggestion for the government to disseminate information on industrial trends, shifts in work responsibilities and employment opportunities. Helping colleges find the appropriate OJT provider and monitoring the training

activities in the field was another function that 77.1% of the professors felt the government could perform. Vocational high school teachers gave similar responses. For both vocational colleges and high schools, the government could best support their articulation program by financially supporting experimentation and practice, by providing useful labour market information, helping them find the right OJT provider, and monitoring the training activities conducted in the workplace.

4) Customised education in vocational colleges

(1) Educational goals

To discover how professors involved in customised education perceived the various goals of their program, the survey asked them to rate the emphasis given by their institution to each educational objective. The three most important goals as identified by respondents were: training the workforce demanded by industry (87.9%); strengthening school–industry collaboration (87.8%); and ensuring employment opportunities for graduates (86.1%). These results indicate that the professors' views on what customised education should achieve coincide with the original intention of the program.

(2) Target group and mode of program management

The two largest groups participating in customised education were identified by just over 90% of respondents as students in vocational colleges (93.8%) and employed workers (91.3%). At present, most of the employed workers in customised programs are those who are supported by their enterprises to obtain an academic degree. However, there is a need to expand the customised education program to encourage and enable the average worker also to participate in training.

The customised educational programs in vocational colleges are organised in different ways: 88.5% of the professors replied that their college had contracts with enterprises to offer a two-year regular program, and in doing so was continually developing and implementing new curriculum (88.5%). Meanwhile, 82.7% of the sample acknowledged that their school had established re-skilling programs under contract with enterprises for their employees. In addition, 72.3% said that their school had contracts with enterprises to conduct two-year regular programs based on existing curricula.

When asked to identify where customised education takes place in their college, the majority of the respondents replied that customised programs are conducted on campus by the most closely relevant department in the college as part of its special program (58.8%). Also commonly found is the practice of dividing the program between the on-campus sessions and field visits to enterprises (32.4%). This indicates that, although the delivery of customised education happens mostly on campus, there are substantial instances of colleges taking the training to the actual work site.

The issue of which organisation funded customised education was also addressed in the survey. The majority, at 60.0%, reported that their college received no financial support for customised programs from the enterprises with which they have signed contracts to deliver training. Nevertheless, 39.4% of the respondents acknowledged that their college had received funding from some but not all of their partner enterprises. This indicates that there is limited sharing of the financial burden on the part of enterprises. The question of why some enterprises are prepared to provide financial support while others do not is a question for further investigation.

(3) Work competency of students

Professors were requested to refer to their teaching experience to compare the competency of students in the customised program and the regular program. They tended to rate students in the customised programs as superior to those in regular programs on a wide range of competencies. These included the ability to: apply knowledge related to their area of specialisation, use computer skills, analyse information, solve problems in a creative manner, plan and organise tasks, negotiate and make decisions, and live in harmony with others. Students in customised programs were also

judged to be superior in readiness to meet career challenges, and the effort they applied to achieving national qualifications to develop their competencies. They also had better rates of employment in general, and employment in a field that was related to their study major. These findings may provide some indicators of the success of the customised education program in terms of specific and generic competencies students require in the workplace.

(4) Implementation of the customised programs and suggestions for improvement

The survey asked the sample group whether, in developing the customised education program, their school had researched the manpower and/or skills demands of industry. More than half of the respondents (59.5%) indicated that, at a general level, this had been done. As much as 37.6% of the sample confirmed that their school had carried out a detailed needs assessment. This is in contrast to other vocational education programs already discussed, and indicates that, in the case of customised educational programs, substantial effort has been made to reflect in the curriculum the actual demands of industry.

The issue of insufficient practical education found across the vocational education sector was also raised with professors involved in customised education, with 62.0% claiming that budget constraints limited the purchase of equipment and materials which in turn prevented the delivery of effective practical education. Others identified as the main obstacle the lack of reference materials and guidelines for practical instruction (15.1%). The best way to foster practical education in customised programs seems to be increased financial support provided by the government and/or the colleges themselves.

Concerning the relevance of the customised curriculum to the NTQ framework, respondents who acknowledged that there was a close relationship between the two (70.9%) far outnumbered those who saw little relevance (16.3%). In view of these results, it may be safe to conclude that the customised programs are closely related to the NTQs.

The sample group was asked to rate how much emphasis their vocational college placed on strategies for enhancing the program's effectiveness. In general, colleges were perceived to emphasise the importance of: fostering the participation of enterprises; promoting the understanding and participation of faculty; developing and utilising new curriculum and learning materials; securing college funding; and promoting the exchange of staff and material resources and information with enterprises. The strategy most emphasised among them was the effort to develop and implement specific curriculum for customised education (90.7%). The same proportion of respondents emphasised the development and promotion of the use of new textbooks for customised education (90.7%). Other priority actions included promoting the faculty's understanding of customised education and participation in its delivery (83.2%) and exchange of information with enterprises (82.1%).

(5) Suggestions for school–industry cooperation

The survey results indicated that professors found insufficient cooperation between their college and partner enterprises with regard to financial assistance, provision of facilities and equipment, and involvement of company specialists in program development. For example, 54.4% felt that enterprises could lend more financial assistance to cover the costs of curriculum development and management, and 44.2% suggested that enterprises could provide access to certain facilities and equipment for use in educational delivery. In short, vocational colleges would greatly appreciate material contribution from their partner enterprises, such as funding, and access to facilities and equipment.

(6) Suggestions for the government

Recommendations for the government to advance the customised educational program were generally well received by the sample group. Most enthusiastically endorsed was the recommendation for the government to support colleges in acquiring the facilities and equipment needed for practical education (95.3%). Respondents also favoured the idea that the government provide information on industrial trends, assert a shift in work responsibilities and provide employment opportunities (93.0%). The government should also help colleges find the right OJT provider and monitor their training practices (79.2%). In sum, professors were hoping for the government to take a greater initiative in providing support for their programs. They would especially appreciate the material support for practice and experimentation, up-to-date information on the labour market, assistance in selecting the appropriate OJT provider, and monitoring of training activities in the field.

V. Summary and conclusions

1. Improving institutional arrangements for effective school-to-work transition

A. Australia

This study has focused on the preparation stage of the transition-to-work process. It has examined the operation of training reforms from extant research and available training statistics, and has canvassed information from teachers and vocational education coordinators in secondary schools, lecturers in TAFE colleges and representatives of group training companies.

It is clear that arrangements for ensuring that system reforms are being implemented are in place. Arrangements to ensure that the system adequately reflects the needs of industry can be observed in the increased industry coverage of training packages. Arrangements to ensure that students have access to a national system of qualifications are also in place. This can be observed in the increased uptake of AQF qualifications, and the introduction of more stringent methods for quality assurance. In addition, there has been an opening-up of the apprenticeship pathways to school students and to mature-age students, and an increased uptake of these pathways by these groups. There has also been a dramatic increase in VET in Schools programs which enable students to combine school studies with workplace learning to acquire VET qualifications in addition to completing their senior secondary certificate. These arrangements have been especially dependent on effective linkages between schools and industry. Although the training market has been opened up to enable private providers to provide training for apprentices and trainees, it is clear that the public TAFE system has also examined its practices to make itself more client-sensitive and entrepreneurial. This has been done by the adoption of 'flexible delivery' which enables students to decide when, where and how they will undertake their training. This means they can decide the pace at which they complete their training and the methods by which they undertake their training. They may opt for traditional on-campus classroom approaches; distance learning using traditional print resources, e-learning, video conferencing; and self-paced learning on-campus or off-campus. However, in most cases many of these approaches are used in combination.

It is clear from the findings of the survey that the various transition pathways available to Australian secondary school students and school leavers are perceived to provide students with an introduction to skills, knowledge and experience that will give them a headstart in the world of work. However, there continue to be some difficulties related to effective implementation.

1) Adequate time for training and work

If students are to prepare for a successful transition from school to work, they need to be able to spend adequate amounts of time in industry acquiring appropriate industry-specific skills and experience. This is especially the case for school-based part-time apprentices and trainees who need to be engaged in meaningful on-job activities as part of their contract of training. Information from group training company representatives (especially in the traditional trade areas of engineering and construction) indicates that the amount of time available to students to complete work-based

projects is one of the major factors which discourages employers from taking on school-based part-time apprentices.

The issue of insufficient time for all students in VET programs to learn industry-specific skills is not just a school concern. It is also clear that, in some cases, VET secondary school students (including apprentices and trainees) are not getting the attention they require from workplace supervisors. If these pathways are to enable all students to make a successful transition to work, then it is clear that sufficient time within training programs needs to be allocated for the development of workplace skills and experience. It also means that employers must take seriously the responsibility for ensuring that students in their workplaces are given the appropriate attention and guidance that is required. Such an issue can be jointly addressed by schools, other VET providers and employers working together to establish suitable guidelines.

2) Teachers with appropriate expertise and industry experience

Access to teachers with appropriate expertise and industry experience is a major factor in the development of skills and knowledge for students in school-based or post-school VET pathways. However, the findings of this study indicate that there is room for increasing the amount of professional development or in-service training available for both teachers in schools and lecturers in TAFE colleges so that they acquire, or further develop, the expertise and experience to provide adequate skills training. Such activities should focus on improving teacher knowledge of current industry practice, effective training and assessment processes and new equipment and materials.

3) Formal pathways between secondary school and institutions of further education and training

The establishment of formal inter-linking pathways between secondary schools and institutions of further education and training are essential if the transition to work of students is to be smooth and uncomplicated. Such pathways, however, are dependent on clear dialogue between partner institutions to identify the competency standards to be acquired in initial training. This will help to ensure that unnecessary repetition of training is avoided and prior learning provides the foundation for more advanced studies.

4) Adequate equipment, facilities and materials

The development of skills and knowledge is dependent on the practical application of skills during learning. This requires access to adequate and up-to-date facilities, materials and equipment. There are two major ways in which secondary and post-secondary institutions may provide students with adequate access to materials and equipment. One is to have sufficient equipment and materials available within the institutions themselves, the other is to arrange to use the materials and equipment held by partner institutions or industry.

Having sufficient and appropriate equipment and materials in institutions themselves makes sense in terms of providing immediate access to facilities, materials and equipment for students and teachers at the place where the learning occurs. This is especially important for schools in country regions, which may be distant from TAFE, or other post-school VET providers. However, the provision of immediate access to equipment and materials in schools has major resource implications for educational systems and institutions with small budgets or small numbers of students in particular programs. This is why Australian school cluster arrangements for the pooling of resources makes a lot of sense. Before schools or school clusters embark on costly purchases of equipment and materials, however, they should also investigate whether or not there are other ways to access these. There is no need to duplicate in schools, the expertise, equipment, facilities and materials that are already available in TAFE or other post-school VET institutions. Rather, there is a need to consolidate the linkages between schools and other providers, so that best use is made of the considerable expertise, resources and facilities already available. In addition, there is a need to explore how best to develop networks with employers, so that schools, TAFEs and other VET

providers can access the up-to-date facilities and equipment available in industry. Industry sponsorship of certain programs is another way in which access to equipment and materials can be provided.

5) Flexible school timetables

In view of the concern with the lack of flexibility in school timetables to enable students to spend sufficient time in the workplace to learn skills and complete tasks to appropriate standards, there is a need for schools to improve the flexibility of their school timetables. This means integrating vocational education programs with normal school activities, either by introducing a separate timetable line, or by introducing a four-day week (or similar arrangement), so that a specific time is set aside to enable VET students to attend to work and other training obligations. Such arrangements may help students to better balance their work, school and training responsibilities so that they can avoid any undue pressures.

Some schools currently schedule time for industry practical experience during school holidays. Although this practice may help to solve problems posed by conflicting timetables during the school term, it also signals to students that there is a penalty for taking up VET programs. Keeping in mind that teachers must also be available to monitor such activities during holiday time, it may also decrease the motivation of teachers to engage in the delivery of VET training programs.

6) Formal structures to support transition processes

The establishment of a national qualifications framework like the Australian Qualifications Framework (AQF) provides a formal structure for recognising the skills students acquire at different stages in preparing to make the transition to work, or to further education and training and then to work. It also provides a formal structure to enable students to move freely along the pathways and between the education sectors.

The smooth operation of such a framework depends on the acceptance of initial qualifications by institutions delivering higher-level qualifications. This means that post-school institutions need to be assured of the integrity of training and assessment processes that take place within the school. One way to increase the confidence of post-school training institutions with training and assessment which has been undertaken in schools is to implement adequate systems for quality assurance. The Australian Quality Training Framework specifies standards for the registration of training organisations or for the accreditation of courses. It also specifies the standards for the registration of course-accrediting bodies. The continued monitoring of the implementation of these standards is crucial to the delivery of quality training.

The establishment of formal credit transfer arrangements between institutions may also be another way to ensure that adequate attention is paid to prior learning gained in initial programs. Although such formal arrangements may not avoid instances of training providers requiring students to undertake more training before they go on with advanced programs, they are a first step to ensuring that unnecessary repetition of content is avoided.

7) Access to adequate training in appropriate habits for work and training

Students need to develop appropriate work habits if they are to make a successful transition to work or to further training and then to work. Appropriate work habits in terms of punctuality, courtesy to colleagues and superiors, willingness to learn and to take orders, and respect for others are essential habits for students to acquire and should be emphasised in their training prior to entering the workplace. In addition, it is important to prepare students to take their place in the adult environment of the post-school institution where they must show maturity and self-discipline in their interactions with lecturers and other students.

There may be a number of explanations for why some secondary school students display inappropriate behaviour in the post-school VET classroom. Firstly, they may not be motivated by

the subject matter of the training program itself, and as a result, engage in disruptive and unacceptable behaviour. Secondly, they may not have well-developed literacy and numeracy skills to enable them to effectively engage in training programs that require them to take responsibility for their own learning, and to read instructions, explanations and other text-based forms of underpinning knowledge. Thirdly, they may not have the time-management skills to enable them to complete assignments on time.

If students are to make a successful transition to the world of work or to further training and then to work, it is important for them to have the basic literacy and numeracy skills required for engagement in meaningful learning. Although post-school institutions should have adequate provision of learning support, the provision of literacy and numeracy training should be a major priority of secondary school institutions.

There is also a case for insisting that students undergo study skills training where effective time-management strategies are reinforced and students are made aware of the need to allocate sufficient time to training responsibilities. In addition, there is a need for students to be sufficiently aware of employer expectations before they go into the workplace.

8) *Adequate information on industry needs*

Although the training packages themselves have been based on close consultation with industry, there is also a need for training institutions to have access to adequate information on the skill needs of local industries. This can be done by institutions either undertaking their own formal industry needs analyses, or developing partnerships with industry bodies to regularly update this information. Information on industry needs can also be collected by providers through regular industry visits, and dialogue with employers and workplace trainers. In canvassing the needs of local industries, training providers can customise training to meet local needs and ensure that their training remains relevant. However, they must also be aware that students require training that is not only attuned to the needs of local industry but also meets the needs of particular occupations regardless of the enterprise in which on-the-job training occurs. A focus on local needs, in addition to general occupational requirements, will ensure that students acquire relevant training, and skills and knowledge that can be easily transferred to other enterprises and locations.

B. Korea

The school-to-work transition of students in VE institutes is an inter-linking three-stage process of school-based preparation for the transition, the process of actual transition to working life, and the outcome achieved at the end of the transition. This study specifically focuses on the preparation stage for two reasons: one, because a substantial portion of Korean secondary and tertiary-level students participate in vocational education; two, because effective strategies or measures for their school-to-work transition can make a significant contribution to the national development of human resources, currently a major concern of government.

Opinions may vary among scholars and nations about what constitutes effective measures for school-to-work transition of students in vocational pathways. The analysis of past research on this topic has indicated that effective measures in the Korean context are varied. These include maintaining the motivation of students in VE institutes to pursue careers as highly skilled workers, and providing educational programs that reflect the needs of industry, and are linked to national technical qualifications. They also include the fostering of school–industry collaboration for the delivery of OJT and the provision of career counselling, and continuing government support for these activities.

The Korean researchers in this joint project adopted the following strategies to identify effective measures for promoting the transition from VE institutes to the world of work. First, they looked at policies and educational systems identified by the Korean Government as important areas for VE reform. At the secondary level, these included the specialised vocational high school and the

2+1 system in technical high schools. At the higher education level, these included articulation programs between vocational colleges and vocational high schools and customised educational programs. Second, they carried out a survey of vocational teachers and professors to examine current operations in VE institutes and identify suggestions for improvement. Teachers and professors were chosen as the sample group because of their extensive field experience as educators and their responsibilities for implementing educational reform policies promoted by the government. Their expertise, researchers believed, would provide meaningful suggestions for improvement. The results of the survey confirmed this. Third, the survey results were then analysed to outline a set of effective measures. Finally, researchers examined findings of research conducted respectively in Korea and Australia, and determined implications for the two countries.

The following section discusses what the government, enterprises, and VE institutes should do to support school-to-work transition in Korea.

1) Motivating students in VE institutions

While it is important to run efficient systems to facilitate the preparation stage of the transition process, just as critical to success is keeping students motivated in pursuing a career as a highly skilled worker. Unfortunately, most students who enter VE institutes choose to do so, not because their aptitude or interest leads them toward a vocational pathway, but because their prior academic record provides them with few alternatives. With such lack of genuine motivation among students, measures to support school-to-work transition are often ineffective. It is thus necessary to build a career development model which promotes to students the employment and career benefits of graduating from a VE institute. For example, the motto ‘graduation from a VE institute leads to diverse employment opportunities and ensures career success’, can be used in government promotional campaigns to market the benefits of vocational education.

Recent changes in the employment structure of the Korean labour market that threaten the status of skilled workers is another factor which discourages intelligent and highly motivated students from choosing to study in VE institutes. A substantial number of students in VE institutes choose to avoid entering the world of work directly after graduation because they perceive that stopping at this point will not ensure them a good social and economic future in the long term. That is, they may not have access to consistent income, increased social status, and a respected position in society. In addition, they will be at the mercy of changes in the labour market structure that may mean instability of employment. They also perceive that they will have to work in dangerous and harmful work environments, and that the employment and social welfare benefits (for example, employment insurance, work hazard insurance, medical insurance, pension, and retirement benefits) will be inadequate.

It may be inferred from these perceptions that improving conditions for workers in terms of raised social status and income (based on work experience) should precede the implementation of programs and systems aimed at preparing students to enter the workplace. The government may achieve this, for example, by awarding tax benefits to companies which provide VE graduates with opportunities for fair appointment and promotion. The government may also provide subsidies to help graduates meet the cost of tuition for their children, and general living expenses. For those who meet a certain requirement for technical qualifications, government subsidies can be used to help start their own businesses. Ultimately, the government should develop a comprehensive plan outlining the benefits for VE students at the various stages of their career development. These include benefits to be derived from starting their military service duty once they have found work, earning a technical qualification, receiving training to upgrade their skills, gaining promotions, or starting their own businesses. There is a danger that, in implementing such a plan at a time when part-time and temporary workers make up an increasing portion of the workforce, the government may further aggravate unstable employment and income. In addressing these problems, the government should review options such as restricting layoffs and supporting employment costs when production is temporarily suspended.

2) Providing needs-sensitive educational programs

One of the key roles VE institutes should play in promoting school-to-work transition is to provide educational programs that reflect the needs of industry. In other words, they should adopt a regular and systematic process to research and analyse the demands in manpower and skills of each industry and integrate these findings in curriculum planning and development. It is clear that this important task is not being effectively carried out in the field as school administrators and educators do not endeavour to conduct a detailed industry needs analysis or assessment. This also relates to the Korean vocational education system in which the development of the vocational curricula at the secondary school level has been driven by government initiatives, and the development of curriculum in vocational colleges has been largely undertaken by professors lacking reference material and relevant expertise. Although this approach was suitable and produced tangible results for the 1970s through to the 1990s, its limitations have become more pronounced in the new millennium.

Improving curriculum in terms of practical relevance and applicability in the workplace requires a system in which industries actively participate in curriculum development by identifying what they want prospective employees to have learned in school. The government is currently trying to develop a National Skill Standard (NSS) similar to the ones in effect in the United Kingdom and Australia. This is a welcome development, as is the attempt to base curriculum and textbook development on the NSS. However, the problem of encouraging existing workers to participate in training needs to be addressed.

There are a number of ways to activate such a system in Korea. The first task is to develop the NSS in the form of competency modules that reflect the skills needed in each occupational category in each industry. The framework may be developed in five stages, beginning with the establishment of committees representative of each industry. This should be followed by a formal assessment of industry needs, which includes analyses of changes in workplace competencies and industrial, technical, and employment structures. The next step is to identify competency elements demanded in each occupation. When these steps are complete, the government can publicise the NSS. Finally, the government should also strongly recommend that the NSS is reflected in the VE curriculum, qualifications testing, and workplace education and training in enterprises. The development of the NSS should initially take no more than three years and the complete set of NSS should be regularly updated and modified. The national committee should be composed of representatives of workers, employers, labour unions, human resources managers, occupational associations, professional organisations, VE experts, and VE institute managers and instructors.

3) Curriculum linked to National Technical Qualifications

In facilitating school-to-work transition of VE students, it is important to establish a comprehensive and effective system which links curriculum with the National Technical Qualifications. The linkage may take the form of distinct content, credit transfer, recognition of prior learning, and articulation pathways. Implementing strategies to link curriculum and NTQs is an important government initiative.

There was a considerable group of survey respondents who believed that the curriculum in VE institutes was relevant to the NTQs. Although this places a positive light on the linkage between the VE curriculum and the NTQs, it fails to acknowledge the fact, confirmed by many experts in Korea, that the NTQs do not generally reflect industry needs. The key to creating a meaningful linkage between curriculum and qualifications is to modify the NTQ system to better reflect industry needs and to make educational curriculum reflect more adequately the NTQs. This will involve regular assessments of industry demands, the updating of NTQs to reflect these needs, and the introduction of recognition of prior learning processes to avoid redundant learning. Active engagement of industry in the identification of industry needs is essential.

Before these actions are taken, it is necessary to first establish the National Qualification Framework (NQF) similar to that of the United Kingdom and Australia, and then to develop the NSS within this framework. The final step, of course, will be ensure that the NSS is reflected in the VE curriculum. At the same time, the government should keep in mind the need to maintain a close relationship between the educational aim of VE institutes, NTQ testing standards, and vocational training standards.

4) *Career counselling system*

Career counselling is another essential element of an effective school-to-work transition process. This research, however, did not include a survey on the career counselling system available in VE institutes, primarily because such a system has not been sufficiently developed and because there is little meaningful career guidance being provided to students. At this point, it is more helpful to discuss ways to improve the situation based on a close examination of existing problems.

There are a number of measures that may be used to foster career guidance in VE institutes. One effective way is to link the entire school program to career guidance by strengthening and actively delivering career-related content as part of the regular educational curriculum and in extra-curricula activities. Furthermore, career-related subjects should account for a greater share of the existing curriculum, and include substantial content on career guidance. As a way of helping students understand their capacity and aptitude for specific careers, and to help them prepare for their future career, schools need to strengthen career guidance, in terms of providing opportunities for students to learn more about careers through practical training. Schools should also set up a credible career counselling system and actively promote this system to students. In establishing such a system, schools should make best use of their existing staff and material resources as well as those available in the local community.

Fostering career guidance requires a system that can effectively manage career-related information and can easily be accessed and used by instructors and their students. A career information network comprised of existing databases owned by organisations such as the Chamber of Commerce and labour offices can be established to provide access to relevant information. This will require the formation of collaborative ties with these organisations.

Finally, the implementation of an effective career guidance system in the school also requires the building of a network between schools, families and the local community. Such a network can be used to help all members of the society to develop a sound and rational perception of careers and related issues.

In adopting these strategies, VE institutions will be more successful in facilitating the transition-to-work process. Success will also be guaranteed when the government is also strongly committed to providing career counselling to students.

5) *Collaboration between VE institutions for articulated education*

There may be some debate on whether articulation between vocational colleges and vocational high schools qualifies as a measure to foster school-to-work transition. In this research, the articulation program is also included as a possibly effective measure based on the perspective of United States' *School-to-Work Opportunities Act* (1994).

Many of the past research studies have reported the positive impact of articulation programs on school-to-work transition. These works claim that the required collaboration between institutions fostered by articulation programs generally contributed to the overall success of VE. They also note that students have benefited from increased opportunities for learning without deferring the training required to develop the professional knowledge and skills that are demanded by industry. Contrary to these positive reports by earlier researchers, our survey presents a more negative picture in which no close network has been established between vocational colleges, vocational high schools, industries, and the government. Moreover, as the number of students competing to

enter vocational colleges declines, there is a view among critics that the articulation programs are in fact being misused to increase student enrolments. This criticism does little to foster the uptake of articulation programs. What is required is for stakeholders to establish close collaborative networks, and for vocational high school teachers to play a greater role in the delivery of training for VE institute components. There is also a need to increase financial support for the development of programs and text-books and to provide special summer/winter programs for secondary VE students. To begin with, the government and VE institutions should identify what each will do to accomplish these tasks, and undertake their respective roles in a responsible manner.

6) *School–industry collaboration*

Students in Korea’s VE institutions must participate in OJT as specified in the *Vocational Education Promotion Act*. Most secondary teachers and professors in higher VE institutions who responded to our survey felt that enterprises could provide support for the transition process by increasing the number of training experts in the workplace and thereby increasing the quality of OJT. They saw this as a top priority. In other words, companies which accept student trainees should try to provide meaningful and effective training to fulfil the initial purpose of the program. Enlisting the assistance of industry associations, including the Chamber of Commerce and other relevant bodies, can help to ensure that enterprises respect the original intentions of OJT. At present, it is the schools that must locate a company willing to take on student trainees. However, they often find this process to be inefficient in locating suitable placements. To improve the whole process for preparing students for the world of work (including OJT), there is a need for the government to provide support to enterprises to provide students with employment-related information, namely, information on labour market trends, shifts in workplace responsibilities, and employment opportunities. There is also a need to help students with their search for jobs. To encourage enterprises to provide this support, special government incentives (for example, tax benefits, or financial support from the employment insurance fund) can be made available to those enterprises offering OJT.

Aside from fostering OJT, the government has much to do to promote effective school-to-work transition. First, the government should increase its role in fostering school–industry collaboration. In the past, the role of government was limited to enacting legislation and providing evaluation-based financial support to VE institutions. This role should be expanded. Once it is determined how the government should expand its role, the relevant legislation needs to be amended to enable a greater variety of approaches and improved effectiveness. In amending the law, the different types of school–industry collaboration possible should be specified. These include among others, school–industry collaboration in education, joint research and development projects, joint project management, and exchanges of human and material resources, and information. To invigorate these initiatives, the government could consider inserting articles into the legislation to promote ‘the recognition of model school–industry collaboration strategies’ (tentative). Finally, the government could also include provisions for a school–industry collaboration fund, and specify means of regular monitoring and support to be provided by the relevant ministry.

Effective measures for fostering successful school-to-work transition have become an important topic of international discussion, comparison and benchmarking, as most countries try to find solutions to generic issues concerning the process. There is no single solution, as multiple factors (including education, labour market structures, government policy) must inform the career development of students.

It goes without saying that an effective school-to-work transition process needs a variety of enabling policies from the government, industries, and VE institutions. School-to-work initiatives, as Brown (1998) indicates, do not reflect a single model, but rather reflect the conditions of the settings and contexts in which they are introduced. In particular, the role of government is increasingly emphasised in effective youth transition. OECD (2000) member countries, for example, have recently identified a set of goals at the national level for successful transition policies.

It is, therefore, important for the Korean Government and industry to take an active role in developing effective measures for the school-to-work transition and policies aimed to support their implementation.

2. Implications from the Australian–Korean experience

A. Implications of the Australian experience for Korea

Australian school-to-work transition policy has been described as providing a successful and effective model of youth pathways from the end of compulsory schooling to working life. A number of features that are distinctive of the Australian system have currently become a model for international benchmarking.

School-to-work programs in Australia can be divided into two main categories: ‘school-*and*-work, and school-*for*-work’ (Stern et al. 1995) programs. School-and-work arrangements allow students to engage in studies for their school certificates in addition to engaging in structured work experience, or school-based apprenticeships and traineeships at the same time. In Australia, industry-specific VET in Schools programs comprising stand-alone VET programs, embedded VET programs, and structured workplace training are major training programs aimed at enabling school students to complete their secondary school studies while they are also preparing themselves for entry into the workforce.

School-for-work programs, including post-school apprenticeships and traineeships, enable students to be in paid employment and to attend training at the same time. National industry-endorsed national training packages, developed by industry bodies and endorsed by government describe the competency standards and associated qualifications and assessment guidelines that are the basis of the Australian VET system. In addition, a system of accredited courses is also in operation.

Prominent among the systems playing a crucial role for both school-and-work, and school-for-work arrangements is the TAFE system. The TAFE system comprises institutes and colleges delivering vocational education and training. Although TAFE institutes and colleges are relatively unique in the world, they do have something in common with junior colleges in Korea, and community colleges in the United States. The major differences between Korean junior colleges and Australian TAFE institutes and colleges, relate to the availability in TAFE of a wide range of courses, increased flexibility in provision and delivery of programs, and the operation of open-access policies (however, there are some courses which require students to complete pre-requisites). There is also a close connection between accredited training and vocational qualifications in the VET system as a whole.

Through these VET programs, Australians are attempting to strengthen the relationship between schools and employers, diversify and expand opportunities to combine learning with workplace experience, and create formal connections or pathways between secondary and post-secondary education.

Australia’s school-to-work transition programs are not without limitations, however. For example, Sweet (2001) argues that the features of Australia’s transition pathways that seem to be associated with its good outcomes for young adults seem to have much to do with those that allow the enterprising, able and qualified to take advantage of opportunity. However, he maintains, this strength of the Australian system needs to be matched by better and more structured support for the less able in order to improve overall transition outcomes.

It should be noted that different cultural, economic and educational contexts explain the different ways for applying school-to-work transition policies and practices in different societies. There are also particular strengths and weaknesses associated with each of the pathways.

There are major differences between the education and labour market contexts of Australia and Korea, which provide different influences on the operation of school-to-work transition practices. However, the strategies used in Australia to encourage existing workers, early school leavers, and citizens, regardless of their age and background, provide an example of a system that enables lifelong learning to become a reality. In addition, the flexibility associated with the VET system enables students to decide when, where and how they will participate in training. The public provider, TAFE, has already been noted as relatively unique in the OECD (Sweet 2001). It provides a wide range of courses at several levels in a highly flexible way to both early school leavers and students after compulsory schooling. The Australian TAFE system has also been described by the OECD as 'adult friendly'.

The Australian labour market has also some distinctive structural features that affect the nature of Australian youth pathways. For instance, there is a higher incidence of part-time employment (over 26% of Australian jobs) than in Korea. This is related to another key feature that employment protection is not excessively strict. That is, it is relatively easy to fire but also relatively easy to hire. This helps to explain the fact that a high proportion of students have a job. It has also been claimed that young Australians' post-school pathways are extremely diverse. McKenzie (2000) points out that, in the first seven years after leaving school, almost 500 different activity patterns for students can be identified.

The above-mentioned features of the Australian education and labour market are just some examples of factors which should be considered when comparing the youth pathways available to Korean and Australian students. Nevertheless, the different features of the Australian system can be used to inform the further development of Korean school-to-work transition policies.

First of all, the Korean transition-to-work model should focus, as is the case of Australia, more on apprenticeship-type vocational pathways and increasing access to work-based learning for secondary school students. The traditional school-to-work transition pathway in Korea is typified by late entry into full-time employment of most young people, a relatively weak apprenticeship system, and a large number of entrants to higher education. Preparing students to make the transition to work is normally done through a private enterprise structure. However, in many cases, this system has failed to successfully facilitate the transition of young people into work.

Second, parents' attitude toward work-based learning should be changed. In other words, many parents are not receptive to work-based learning for their children. They see as a disadvantage the removal of their sons and daughters from a school setting, which is familiar to most parents, into the adult environment of the workplace. In addition, many parents perceive that increased involvement of their children in workplace learning poses a threat to their academic learning which will entice them away from college preparation commitments and attendance. There is a need to increase attempts to dispel the negative perceptions parents have of work-based learning.

Third, Korean high-school-to-working-life transition policy largely depends on students taking the initiative to shape their own transition pathways. However, an increasingly more complex labour market requires students to have access to better structured forms of support and assistance from schools, governments and communities. It is also clear that high schools do not play an effective role in helping students make the transition to working life, and that the development and operation of school-employer networks also fluctuates with changes in economic conditions. Keeping this in mind, it is important for high schools to increase the assistance they provide to their students in preparing for jobs.

Fourth, in line with the third, vocational high schools should give their students a far wider choice of subjects, especially VE subjects. Many research studies have revealed that vocational high school students in Korea are generally not interested in what is offered in their school curriculum. One of the keys to raise the level of interest among students must be to give them wider curriculum choice and to enable them to satisfy a wider range of developing personal and vocational interests. In addition, it goes without saying that another key to increasing student motivation must be to make schools more enjoyable places.

Fifth, there is a need to extend the vocational education and training subjects offered in general high school in Korea. The curriculum in most Korean general high schools is fairly narrow, in that it is designed to prepare the student for university-level tertiary study, which allows students relatively little subject choice. However, in Australia, the overwhelming majority of students (about 80% or more) are in general education programs. They have a wider choice of curriculum, and more options related to work and work-based learning, general citizenship and cultural and recreational pursuits.

Sixth, more specialised advice, guidance and support services should be available in high schools for students. High schools should also provide better careers advice to support the educational pathways of all young people. Support services that seem particularly weak in Korea and need to be improved are programs for the disabled, and re-entry programs for those who have dropped out of school but who wish to return to education.

Seventh, vocational education and training and vocational qualifications should be connected by an overarching framework like the AQF, as is the case in Australia. It is felt that the best outcomes will be achieved for young people if there are formal and structured institutional arrangements linked to coherent qualification pathways.

Eighth, increased efforts should be made to strengthen the relationship between schools and employers. This can be done by introducing some rules or regulations to improve cooperation between school and industry, and to indicate the division of roles between them. In addition, there should be more attention given to diversifying and expanding opportunities for students to combine learning with workplace experience, and to improving their access to credible and effective career guidance.

Finally, there needs to be increased flexibility and diversity of educational programs in Korean junior colleges. Here, Australian TAFE provides an exemplary practice. The beauty of the TAFE system is its flexibility and its focus on increasing access to training for all groups. This is why it allows students to access training in their preferred locations (at home, on campus, online etc.) and to use self-paced or traditional classroom learning.

B. Implication of the Korean experiences for Australia

In a sense, the Australian VET system has already encountered and attempted to respond to the disjunction between vocational curriculum and industry needs currently being experienced in VE institutions in Korea. It has had more than a decade to develop a system responsive to industry needs, and changes in labour market and workplace demands. Substantial funding has been devoted to the development of national industry training packages based on industry competency standards linked to qualifications, and to ensuring incentives for employers to take on apprentices and trainees. In addition, it has established funding for a national body to support structured workplace learning in industry for secondary school students, and career education. This funding is also contingent on schools collaborating in clusters to deliver vocational training.

Notwithstanding these advantages, the system has also had time to experience the difficulties of putting reforms into practice. When government funds are made available to employers to provide training places, and to training providers to provide training, there is also the danger that misuse of funds can occur, or that students may not get adequate or relevant training. This can happen if there are not mechanisms in place to monitor the quality of the on-the-job and the off-the-job training. The recent implementation of the Australian Quality Training Framework, the system's formal mechanism for quality assurance, is an indication that the system required the further elaboration and definition of specific standards for the operation of registered training organisations and accrediting bodies.

In the Australian context TAFE lecturers and group training company representatives have been concerned about the sometimes inadequate numeracy and literacy skills, and work and study habits of apprentices and trainees, and secondary school students moving into TAFE programs. No such

concerns have been raised about the literacy or numeracy skills or work and study habits of Korean students. The reasons for this are unclear and may have more to do with cultural norms of respect for authority, and obeying superiors with little argument. Keeping in mind that apprentices and trainees have been criticised for sometimes not being willing to take orders, and demonstrating unjustified confidence in skills and knowledge, there may be lessons to be learnt from the Korean experience.

The Korean system of having defined pathways for students (for example, the 2+1 programs) may help to develop more effective pathways for Australian students who are not in formal apprenticeships and traineeships. If the curriculum in these programs reflected industry needs, and was supported by effective on-the-job training, then such a defined pathway could be helpful to Australian students who did not want to take up a formal apprenticeship or traineeship. However, there would also be no guarantee that students in such 2+1 pathways would not be recruited as permanent employees if companies needed them.

In addition, the formal articulation programs between vocational high schools and vocational colleges, if appropriately managed, provide examples of seamless pathways between school and further education. These formal articulation pathways between different educational sectors can also ensure the effective operation of the AQF, and define for students a specific route to follow to acquire advanced qualifications and skills and knowledge. The existence of these formal arrangements will also increase the level of confidence in industry about the ability of the vocational education and training system to enable students to become the highly skilled technicians and associate professionals required in many of today's workplaces. However, such programs, whether they are based in Korea or Australia, require clear dialogue between partner institutions in the development of objectives, curriculum and assessment procedures. Also essential is continual dialogue with industry.

High retention rates to the end of secondary schooling in Korea are also examples of a system which is concerned with students achieving the knowledge and skills required to engage in further education and to improve eventual labour market success. The Australian system is also especially concerned with ensuring that students complete senior secondary schooling to improve their chances of labour market success. Although retention rates to Year 12 have increased considerably over the last 20 years, and even more dramatically over the last 30 years, there is still a way to go before these retention rates are increased to Korean levels. In this regard there are lessons to be learnt from Korea.

C. Joint concerns

Despite the considerable differences between Korean and Australian culture, youth labour markets and educational systems, this study has found that, in preparing students to make the transition to work, they share some joint concerns.

The Australian vocational programs are perceived to be more closely attuned to the needs of industry, and supported by training and qualifications frameworks that attempt to provide for seamless and flexible pathways for students. These concerns often relate to limited resources in terms of adequate staffing, facilities, and equipment and materials available for students on vocational pathways in secondary schools.

Findings from the Korean study emphasise the need to avoid unnecessary repetition of learning that has gone before. This concern is also shared in Australia, especially in terms of secondary school students who have presumably completed a training program which has led to a VET qualification, and are required by the TAFE college to undergo some additional training related to the same qualification. Lecturers report that this is because the training secondary students have received at school has not always addressed all the skills and knowledge to the appropriate standards. In view of the fact that teachers and vocational coordinators in schools are also

concerned at times about their abilities to deliver appropriate industry-specific knowledge, there is a need here to ensure that schools have access to appropriate expertise.

Ensuring that there is a close connection between the training system and industry has been shown to be as important in Korea as in Australia, as both countries try to meet the demands of globalisation and the knowledge or information economy. Also recognised as important in both countries are matters of quality assurance which can be implemented through regular monitoring by government agencies. The Australian Quality Training Framework provides a mechanism for this quality assurance to be undertaken in Australia. There is a need to implement similar strategies in Korea. However, without sufficient staffing and resources for implementation of the strategy, having a strategy in place does not always lead to the desired outcome.

The Korean and Australian systems will both have to address issues concerned with a rapidly ageing population. This means that, although entry-level training will continue to be important as a supply mechanism, there will also be a need for a focus on providing training for existing workers. In this case both systems will have to adapt to the needs of a constantly changing workplace, and to the needs of adults in transition or preparing to make the transition from existing jobs to new jobs or higher-level jobs.

Bibliography

1. Australia

- Ainley, J 1998, 'School participation, retention and outcomes' in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, 1999, Sydney, pp.53–68.
- Allen Consulting 2000, *Review of the ANTA VET in Schools program*, final report to the Australian National Training Authority, Allen Consulting, Melbourne.
- ABS (Australian Bureau of Statistics) 2000, *Australian social trends 2000: Education—Participation in education: Disability and schooling*, ABS, Canberra, viewed April 4 2002, <<http://www.abs.gov.au/ausstats/abs>>.
- 2002, *Education and training indicators, Australia*, ABS, cat. no. 4230.0, Canberra.
- Australian Qualifications Framework Advisory Board 2002, *Australian Qualifications Framework: Implementation handbook, 3rd ed.*, <<http://www.aqf.edu.au/implem.htm>>, viewed March 2004.
- Bowers, N, Sonnet A & Bardone, L 1999, *Background report: Giving young people a good start: The experience of OECD countries*, OECD, Paris.
- Cully, M & Curtain, R 2001, 'New Apprenticeships: An unheralded labour market program', *Australian Bulletin of Labour*, vol 27, no.23, September.
- 2002, *Reasons for new apprentice's non-completions*, NCVER, Adelaide.
- Dusseldorp Skills Forum 1999, *Australia's young adults: The deepening divide*, Dusseldorp Skills Forum, Sydney.
- Field, L 1990, *Skilling Australia: Handbook for trainers and teachers*, Longman Cheshire, Melbourne.
- Golding, B 2001, 'Great divides in learning: Youth learning pathways in rural and remote Australian towns', paper presented at ACER Research Conference: *Understanding youth pathways: What does the research tell us?*, Australian Council for Educational Research, Melbourne.
- Lamb, S & Ball, K 1999, Curriculum and careers: The education and labour market consequences of year 12 subject choice, Longitudinal Surveys of Australian Youth, research report no. 12, Australian Council for Educational Research, Melbourne.
- Kilpatrick, S & Bell, R 1999, *Vocational education and training in rural and remote Australia: Review of research*, NCVER, Adelaide.
- Kirby, P (Chair) 2000, *Ministerial review of post compulsory education and training pathways in Victoria*, State Government of Victoria, Melbourne.
- MacClelland, A, MacDonald, H & MacDonald, F 1998, 'Young people and labour market disadvantage: The situation of young people not in full-time education or full-time work', in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, 1999, Sydney, pp.103–123.
- McIntyre J, Freeland, J, Melville, M & Schwenke, C 1999, *Early school leavers at risk*, NCVER, Adelaide.
- Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) Taskforce on Indigenous Education 2001, 'Exploring multiple pathways for indigenous students: A discussion paper', MCEETYA, Canberra.
- Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) Taskforce on VET 2001, 'Report on vocational education and training (VET) in schools', 12th MCEETYA meeting, Melbourne, 26–27 July.
- Ministerial Council for Education, Employment, Training and Youth Affairs (MCEETYA) Taskforce on Transition from School 2003, The growth of VET in Schools programs: A national overview, unpublished report, MCEETYA, Canberra.
- NCVER (National Centre for Vocational Education Research) 2001a, *Australian apprenticeships: Facts, fiction and future*, NCVER, Adelaide.
- 2001b, 'Group training: Apprenticeships and traineeships', *Research at a glance*, NCVER, Adelaide.
- 2002, 'Students and courses, Australian vocational education and training statistics', NCVER, Adelaide.
- 2003, 'Apprentice and trainee statistics, Australian vocational education and training statistics', NCVER, Adelaide.
- Organization for Economic Cooperation and Development 1997, *From initial education to working life: Making transitions work*, OECD, Paris.

- Organization for Economic Cooperation and Development 2000, *From initial education to working life: Making transitions work*, OECD, Paris.
- Prime Ministerial Youth Homeless Taskforce Report 1998, 'Putting families in the picture: Early intervention into youth homelessness', Family Services Branch, Commonwealth Department of Family and Community Services, Canberra.
- Prime Minister's Youth Pathways Action Plan Taskforce 2001, *Footprints to the future*, AusInfo, Canberra.
- Robinson, C & Misko, J 2001, Extending learning opportunities: A study of co-operation between TAFE institutes and schools and universities in Queensland: A report to the Queensland Department of Employment and Training, unpublished report, NCVER, Adelaide.
- Saunders, S & Saunders J 2002, *Getting adults into the trades*, NCVER, Adelaide.
- Smith, E & Wilson, L 2003, Learning and training in school-based new apprenticeships, NCVER, Adelaide.
- Spierings, J 1999, 'A crucial point in life: Learning, work and young adults', in *Australia's young adults: The deepening divide*, Dusseldorp Skills Forum, Sydney, pp.25–7.
- 2001, 'Regional and local government initiatives to support youth pathways: Lessons from innovative communities', in ACER Research Conference: *Understanding youth pathways*, conference proceedings, 2001, Australian Council for Educational Research, Melbourne, pp.22–8.
- Sweet, R 1998, 'Youth: The rhetoric and reality of the 1990s', in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, 1999, Sydney, pp.5–22.
- Watson, L 2000, *Where to next? Graduate outcomes from the Australian higher education and vocational education and training sectors*, NCVER, Adelaide.
- Wooden, M 1998, 'The labour market for young Australian', in *Australia's youth: Reality and risk*, Dusseldorp Skills Forum, 1999, Sydney pp.29–50.

2. Korea

Publications in Korean

- Ahn, SR., Kim, IH & Lee, MK 1997, 'A study on the introduction of 2+2 Technical Education Program based on the case study of Tech Prep in United States', *Vocational Education*, vol.16, no.1, pp.51–70.
- Ahn, SR, Kim, IH & Yoon, GY 1998, 'Current status and problems of management of 2+2 articulation educational program', *Vocational Education*, vol.17, no.2, pp.71–84.
- Bae, IS 1997, 'Operation of 2+2 articulation program with special focus on Busan Gyeongsang College', *Busan Gyeongsang College Development Research*, vol.17, pp.237–267.
- Byon, HG et al. 2001, *Developmental tasks for the articulation pathways between vocational high schools and vocational colleges*, Korean Association of Vocational Colleges, Korea.
- Chang, WS 1997, *Sociology of education and work*, Hakjisa, Seoul.
- Chang, WS et al. 1999, *A study on the transition from high school to the world of work*, KRIVET, Seoul.
- 2000, *A study on the transition from college to the world of work*, KRIVET, Seoul.
- Customized Education Promotion Association 1999, 'Current status and developmental tasks of customized education', unpublished material.
- Jang, MH et al. 1999, *Curriculum model development under the articulation system between vocational high schools and colleges*, KRIVET, Seoul.
- Jung, TH 1998, 'Trends in improvement of vocational education in developed nations', *Journal of Vocational Education & Training*, vol.1, pp.77–125.
- 2000, 'Enhancing the effectiveness of human resources development in vocational high schools and junior colleges', in *The 4th HRD Policy Forum*, KRIVET, Seoul.
- Jung, TH et al. 1999, *A study on measures to facilitate the operation of school-based enterprises in Korea*, KRIVET, Seoul.
- Kang, KJ et al. 2000, *A study on the new directions of the customized training in the junior college*, KRIVET, Seoul.
- Kang, SW & Ok, JP 2000, *New directions for improvement of specialized high school*, KRIVET, Seoul.
- Kee, YH 1998, 'Cooperative education system in junior colleges for effective crisis management', *College Education*, vol.31, pp.27–33.
- Kho, HA 1997, 'A study on part-time job of Korean high school students' (in Korean), in *Seminar on Youth Part-time Job*, YMCA, Seoul.
- Kim, KS 1996, 'Strategies for school–industry cooperation', *College Education*, vol.21.
- 1998, 'Strategies for promoting employment of junior college graduates', *College Education*, vol.31, pp.40–44.
- Kim, NT 2001, 'Current status of Customized Education Program', Ministry of Education and Human Resource Development, Seoul, unpublished material.
- Korea Council for College Education 1993, 'Problems in school–industry cooperation and solution', *College Education*, vol.9.

- Lee, HK et al. 2001, *Strategies for providing customized education in junior colleges*, Korea Council for College Education, Seoul.
- Lee, JP 1995, 'Views of industries on the demonstrative operation of the technical high school', *Career Education Research*, vol.1, no.2, pp.1–16.
- Lee, SO 1998, 'Case study on school–industry–government cooperation in US: School-to-work system', *Career Education Research*, vol.9, pp.1–44.
- Lee, YS et al. 1998, *Development of textbooks for 2+1 system in industrial high schools*, KEDI and KRIVET, Seoul.
- Oh, JR 1998, 'Transition from school to world of work', *Sociology of Education*, vol 8, no.1, pp.19–40.
- Ok, JP 1999, 'A study on the present conditions and future tasks of specialized vocational high school', *Journal of Vocational Education & Training*, vol.2, pp.37–69.
- Paik, SJ et al. 2000, *Management strategies for vocational high schools under the new school accounting system*, Ministry of Education, Seoul.
- Rosenbaum, J 1996, 'Policy uses of research on the high school-to-work transition', in *Sociology of education*, (extra issue), pp.102–22.
- Ryu, CY 1997, 'Tech Prep and 2+2 articulation educational program in Korea', *Vocational Education*, vol.16, no.2, pp.1–13.
- Shin, IH et al. 1997, *Evaluation of the 2+1 system in industrial high schools*, KRIVET and KEDI, Seoul.
- Shin, MH 1998, 'Strategies for linking work, learning and qualifications', in *The prospects of jobs and the direction of vocational education and training in the 21st century: A symposium to commemorate the 1st anniversary of KRIVET*, KRIVET, Seoul.
- Stern, D, Finkelstein, N, Stone, JR III, Latting, J & Dornsife, C 1995, *School to work: Research on programs in the United States*, Taylor and Francis & Falmer Press, Washington and London.
- Uh, SH 1993, 'Strategies for articulating school–industry cooperation system', *College Education*, vol.9.

Publications in English consulted by Korean team

- Australian National Training Authority 2002, various VET information on internet, ANTA, Brisbane, <www.anta.gov.au>.
- Brown, BL 1998, 'What's happening in school to work programs?', *ERIC Digest* no.190.
- Davis, D & Woodburne, G 1983, *Intervention in transition: An evaluation of the TAFE response in six Australian regions to the Commonwealth school-to-work transition program*, AGPS, Canberra.
- Hoerner, JL & Wehrley, JB 1995, *Work-based learning: The key to school-to-work transition*, McGraw-Hill, Glencoe.
- Lewis, MV 1997, *Characteristics of successful school to work initiatives: What the research says*, Information Series no. 370, ERIC Clearinghouse on Adult, Career and Vocational Education, Cleveland, Ohio.
- Misko, J 2001, *Developing industry linkages: Learning from practice*, NCVER, Adelaide.
- McKenzie, P 2000, 'Using longitudinal data for research on VET', paper delivered to the 2000 Australian Vocational Education and Training Research Association conference, 23–24 March, Canberra.
- NCVER (National Centre for Vocational Education Research) 2001, unpublished data, NCVER, Adelaide.
- 2002, *Insight*, NCVER, Adelaide.
- National School-to-Work Office 1997, *School-to-work glossary of terms*, National School-to-Work Office, Washington, DC.
- OECD (Organization for Economic Cooperation and Development) 1994, *The OECD jobs study: Evidence and explanation part II*, OECD, Paris.
- 1996, *Mapping the future: Young people and career guidance*, OECD, Paris.
- 1998a, *Employment outlook*, June, OECD, Paris.
- 1998b, *Thematic review of the transition from initial education to working life*, interim comparative report, OECD, Paris.
- 2000, *From initial education to working life: Making transitions work*, OECD, Paris.
- Paulsen, B 2001, 'Methods of strengthening effective transition from school to labor market', presented at the International Conference on Human Resources Development Strategies in the Knowledge-based Society, KRIVET, 29 August 2001, Korea Press Center.
- Petersson, K 1998, 'Transition from school to work', in *Briefing book for the meeting of Network B of the OECD indicators project*, meeting convened in Frascati, Rome, Italy on 9–11 December 1998.
- Robinson, C 2001, 'How effective are apprenticeships and traineeship pathways?', presented at Australian Council for Educational Research Conference 2001, October, Hilton on the Park, Melbourne.
- Robinson C, Ball, K & Misko J 2001, 'Methods of strengthening effective transition from school to the labour market in Australia', presented at the International Conference on Human Resources Development Strategies in the Knowledge-based Society, KRIVET, August 29, Korea Press Center.
- Smith, C L & Rojewski, JW 1993, School-to-work transition: Alternatives for educational reform, *Youth & Society*, vol.25, no.2, pp.222–50.

- Smith, E & Wilson, L 2002, *Learning and training in school-based new apprenticeships*, NCVET, Adelaide.
- Stern, D et al. 1995, *School to work: Research on programs in the United States*, Falmer, London.
- Sweet, R 2001, 'Meandering, diversions and steadfast purpose: Australian youth pathways in a comparative perspective', presented at Australian Council for Educational Research Conference 2001, October, Hilton on the Park, Melbourne.



The National Centre for Vocational Education Research is Australia's primary research and development organisation in the field of vocational education and training.

NCVER undertakes and manages research programs and monitors the performance of Australia's training system.

NCVER provides a range of information aimed at improving the quality of training at all levels.

ISBN 1 920895 61 2 print edition
ISBN 1 920895 62 0 web edition