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Linkages between secondary and post-secondary vocational education and training in China and Australia

CIVTB

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Foreword

One of the main educational objectives of any nation is to develop a system of education that will allow its people to develop the work and life skills and talents they will require throughout life. To do this it must ensure that there are strong linkages between the various sectors of education so individuals may move between the sectors and continue to build on the knowledge and skill that they have previously acquired. This study, jointly undertaken by researchers from China and Australia, has compared the experiences of both countries in establishing linkages between secondary and post-secondary vocational education and training. In so doing it has increased our understanding of how vocational education systems can be structured to provide interlinking vocational pathways which allow individuals to progress from one sector to another.

This book represents one of the major outcomes of collaborative activity between Chinese and Australian researchers. The Chinese research team comprised researchers from the Central Institute for Vocational and Technical Education (CIVTE), Ministry of Education, Peoples' Republic of China, Hunan Research Institute for Vocational and Technical and Adult Education, and Beijing Research Institute for Vocational, Technical and Adult Education. The Australian research team comprised researchers from the National Centre for Vocational Education Research in Australia.

Since China launched its policy of general reform and opened its doors to the outside world, its system of vocational education has rapidly expanded. To develop the vocational skills and talents of its people, China has begun to identify a variety of strategies to enable secondary school vocational education students to articulate into programs of higher vocational education. It has provided funds for the development of formal linkages between academic certificate education and vocational qualification standards, and experimentation with various flexible delivery approaches to training, and models of sequencing vocational education (including the 5-year model of vocational training). It has also initiated the establishment of a system of vocational education and training in which primary, middle and higher vocational education is integrated. However, these changes are still in their early stages of development and implementation. A focus on deepening the reform process and extending the number of pilot programs trialling various models of integration will be essential if we are to develop improved linkages between secondary and post-secondary VET.

Australia, too, has implemented major reforms to its system of vocational education and training. In the Australian system industry takes a major lead in the development of training packages which identify competency standards, qualifications and pathways that can be followed to achieve these qualifications. The Australian Qualifications Framework provides a formal structure for the linking of secondary and post-secondary education. The Australian experience with implementing VET reform has attracted worldwide interest and attention.

Based on an overall comparison of the VET systems in both countries, this book provides an in-depth description of how each system has gone about developing the linkages between secondary and post-secondary VET. In so doing, it helps to increase our understanding of the importance of providing interlinking vocational pathways for students so that their education is continuous, meaningful and avoids unnecessary repetition. It also provides us with some practical examples of how this can be done.

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Preface

On 11 August 2000 a formal agreement to strengthen the exchange of information and co-operation in the field of vocational education and training (VET) between the People's Republic of China and Australia was signed in Beijing. There were two signatories to this memorandum of understanding (MOU). They were the Director-General of the Department of Vocational Education and Adult Education, Ministry of Education, who is also the Director-General of the Central Institute of Vocational and Technical Education (CIVTE), People's Republic of China and the Managing Director of the National Centre for Vocational Education Research (NCVER) from Australia.

The MOU stated that the two centres would agree to:

- strengthen co-operation in the field of vocational education and research through regular information exchange between the two organisations. This information is to include: published policy, research and technical reports produced by each organisation and other published monographs and journals, statistical data on vocational education of the two countries and any other vocational education materials of mutual interest
- strengthen co-operation in the field of vocational education research through short-term visits of experts and scholars for the purposes of conducting joint symposiums, joint research activities or for any other mutually agreed purpose
- launch a number of jointly sponsored applied research projects in vocational education on a mutually beneficial basis between the two organisations and within affordable means.

In March 2001 a delegation of three researchers from CIVTE visited Adelaide to meet with researchers from NCVER and to scope the guidelines for a collaborative research project that would be undertaken. The project aimed to compare, in both countries, the linkages that existed between vocational education and training programs delivered in secondary schools (lower VET) and those delivered in post-secondary institutions (higher VET).

At this time researchers visited a number of technical and further education (TAFE) institutes generally delivering vocational education and training programs for post-secondary school students and secondary schools delivering VET-in-Schools programs. In addition, Dr Yufeng-Liu from CIVTE presented a paper to staff at NCVER. She also presented a paper at the Australian Vocational Education and Training Research Association (AVETRA) conference which was being held in Adelaide at that time. Dr Ouyang-He and Dr Jiang-Li accompanied Dr Liu.

In June 2001 a delegation of three researchers from NCVER visited Beijing and Hunan Province to meet with the CIVTE colleagues and to visit schools and institutes in China. Ms Katrina Ball delivered a paper in Beijing to CIVTE staff and visitors, and in Hunan Province to staff and visitors of the Hunan Education Academy. Dr Josie Misko and Ms Oanh Phan accompanied Ms Ball.

This report, written by researchers from CIVTE and NCVER, outlines the main features of the Chinese and Australian VET systems. It also provides a special focus on the linkages between higher and lower VET programs.

Executive summary

This report describes the major features of the VET sectors of China and Australia, with a particular emphasis on the linkages between lower and higher VET. In the Australian VET sector these linkages refer to training taking place within the secondary education and post-secondary education sectors. In China these linkages refer to vocational education and training taking place within junior secondary schools, senior secondary schools and higher institutions of vocational education.

Brief overview of education sectors

Formal education in China occurs in four major sectors. These are pre-school education, primary education, secondary education and higher education sectors. Vocational education consists of school-based VET leading to academic credentials and vocational training leading to professional qualification certificates and training certificates.

Secondary or lower VET takes place in vocational junior high schools, general secondary specialised schools, vocational senior high schools, skilled workers' schools, comprehensive senior high schools and adult specialised secondary schools. Secondary vocational training for non-academic credentials education is delivered through apprenticeships or training programs run by training agencies and via programs run jointly between schools and enterprises and government and non-government organisations. This training includes on-the-job training, job-transfer training and continuing education. On completion of training programs trainees are issued with training certificates. They may also apply to be assessed for skill grade certificates, professional qualification certificates, or licences to perform specific operations or conduct businesses (for example electrician's licence, accountant's licence etc.).

Higher VET takes place in vocational and technical institutes, institutes of technology or higher skilled workers' schools, VET teacher training colleges and within enterprises or other agencies conducting training for senior level professional positions, in-service training, continuing education, preparation for examinations for professional certificates of skill grades certificates.

Formal education in Australia also takes place in four major sectors. In Australia, however, these are the schools sector, the VET sector, higher education and the adult and community education (ACE) sector. Vocational education and training takes place within the VET sector. The VET sector encompasses schools which conduct VET-in-schools programs generally available to students in the final two years of secondary schooling, enterprises and public and private post-school VET institutions. Increasingly, VET programs are also being delivered by the adult and community education sector.

Linking secondary and post-secondary VET

During the last decade Australia and China have implemented reforms to their VET sectors designed to develop a pool of labour force skills that will enable both countries to operate in new globalised markets. Both countries have implemented strategies to enable individuals to move easily between the different training pathways to ensure greater engagement with lifelong learning.

Australia

Any examination of the linkages between school and post-school VET programs in Australia must take account of the fact that students may undertake and complete Certificates I, II or III while still at school. They may also undertake Certificates I, II and III, diplomas and advanced diplomas once they have left school. There are also collaborative arrangements between registered training providers and universities that enable students to commence a course of study which allows them to gain VET qualifications within the VET sector and progress into university degree programs either on completion of, or during, their VET programs. For this reason, it makes more sense to speak about the role of the Australian Qualifications Framework (AQF) and industry training packages in integrating lower-level AQF studies with studies which occur at the higher AQF levels.

Under the AQF, individuals are able to begin at the level most suited to them and then build up their qualifications as needs change. In providing opportunities for individuals to obtain credit and recognition for skills and knowledge already acquired, the framework allows individuals to engage in relevant learning and limits the repetition of already developed skills and knowledge.

The Australian VET system is based on a competency-based approach to training and assessment, where industry or enterprise-specific competencies and standards are identified by industries and enterprises and endorsed by the Australian National Training Authority (ANTA). A system of qualifications, the Australian Qualifications Framework, has established the different levels of qualifications that can be achieved by the completion of units of competency identified in the training packages. A system of registration for public and private training providers wishing to deliver accredited training and/or assessment leading to qualifications under the Australian Qualifications Framework is also in place. A formal system of quality assurance helps to ensure that these providers have the required expertise, experience and facilities to become registered training organisations for a particular field and to maintain this status. The Australian Recognition Framework also provides a mechanism for individuals to have their qualifications recognised throughout the country.

The industry or enterprise training packages provide an easy method for individuals to identify units of competency which will help them gain the skills and knowledge they require for accessing and maintaining employment in particular industry sectors or enterprises. Because the training packages also align competency standards to qualifications in the Australian Qualifications Framework they provide a ‘road map’ for the qualifications available within the specific industry sector. However, there are a number of problem areas in relation to the development of the training package and to the implementation of the national policies for the recognition of qualifications.

If care has been applied in the identification of the competency standards and in the alignment of these to progressively higher qualifications, then there is less likelihood that there will be much repetition for students as they move from lower AQF levels to higher AQF levels. However, if registered training organisations establish prerequisites for acquiring qualifications which are different from the prerequisites established by other registered training organisations for achieving certain qualifications, then students may experience difficulties as they attempt to have their prior learning and previous qualifications recognised when enrolling in higher-level qualifications. This is sometimes an issue for students as they move from school-based VET to post-school VET.

It is true that the implementation of the industry and enterprise training packages has helped to provide an approach to acquiring nationally consistent qualifications or part qualifications. However, the system is still experiencing problems which will need to be resolved as each of the training packages comes up for re-endorsement every three years.

China

Although the Chinese VET system has no overarching framework like the AQF, or national system for identifying competency standards, the Chinese government has nevertheless implemented reforms aimed at guiding the development of linkages between lower and higher VET. The establishment of

common training goals and standards, streamlining of specialised study fields, development of common curriculum, unification of different schooling systems and the establishment of continuous pathways are the major mechanisms that have been identified for developing effective linkages between secondary VET and what is referred to as higher VET. In addition, pathways based on entrance examinations, credit points conversion and recognition of prior qualifications have been established to provide opportunities for students to move between secondary and tertiary VET. The implementation of many of these linkages is still at the preliminary or experimental stage.

VET reforms in China have been launched in policies and regulations for the reform and development of both general and vocational education. They provide guidelines for the development of a labour force with the intermediate and higher-level technical and professional skills required for the production of goods, provision of services, construction of facilities, management of staff and processes, and installation, maintenance and operation of information technology and telecommunications. The secondary VET or lower VET sector is responsible for preparing workers to take up positions requiring intermediate level skills, while the higher VET sector is responsible for preparing specialists to take up positions requiring higher-level or advanced skills. The higher VET sector is also responsible for providing programs which allow students to develop the moral, intellectual, physical and aesthetic qualities that indicate a well-rounded and educated person.

Because the guidelines only provide general advice for the development of linkages between secondary and higher VET rather than definitions of specific training goals for each sector, local areas have tended to approach the implementation of linkages between lower and higher VET according to their own needs and timelines. This flexibility and lack of specific definitions and expectations have delayed the establishment of effective linkages between the two sectors in many areas. This means that, more often than not, and particularly in specialised courses, students moving into higher VET will experience repetition of subject matter. It also means that, at times, advanced skills may be introduced in lower VET before basic skills have been acquired. However, the most effective linkages have been possible within the general courses that VET students undertake in lower and higher VET.

Curriculum-based linkages or their equivalents

In Australia the training packages help to provide a mechanism for avoiding, to some extent, the repetition of knowledge and skill that has already been gained at lower AQF levels. Although there have been a number of pilot programs to develop linkages in terms of curriculum between the lower and higher VET sectors in China, implementation of effective curriculum linkages between the two sectors is still not widespread. Curriculum-based linkages are generally evident in places where secondary and higher VET schools work in collaboration to provide vocational training. This is especially true for the '3+2' model where students spend the first three years in secondary VET schools and the last two years in tertiary or higher VET institutions. Curriculum linkages are also better implemented in the '5-year through' programs. Although there is no distinct division between stages in these '5-year through' programs, students will spend typically the first three years in secondary VET programs and the last two years in higher VET programs. This model facilitates collaboration between teachers in the planning of the curriculum so that repetition of subject matter is avoided and skill development occurs in proper sequence.

China has also removed what was considered to be the 'dead-end' nature of its secondary VET sector and allows graduates from secondary VET schools to take entrance examinations to further their studies in higher VET institutes. Today graduates from secondary VET may take examinations to enter specialised training courses or undergraduate courses in higher specialised VET institutes. Students who successfully complete their programs are awarded the higher VET certificate of specialised training or the higher VET undergraduate studies certificate. Undergraduate students who also pass English language examinations are issued with a bachelor's degree.

It is also possible for higher VET students, students of higher specialised institutes and adult specialised institutes to be selected for undergraduate courses of universities. This helps to maintain and raise student motivation and also improves the qualification levels of practical technical personnel. The creation of a pathway for individuals to move from higher VET into university programs rather than directly into the labour market has also helped to reduce unemployment pressures which are being generally experienced in the skilled professions.

There are now linkages being developed between undergraduate courses in higher VET and postgraduate university courses, comprehensive senior high schools and higher VET institutions, and secondary VET schools and adult education institutions.

In Australia the development of articulation pathways, generally operating through credit transfer and recognition of prior learning, has also helped to extend the opportunities for VET students to engage in higher-level studies and to move between program areas.

Recognition of prior learning and credit transfer

Both countries have implemented assessment systems that provide for the formal recognition of prior learning, qualifications and work experience. In Australia these options are available for students pursuing VET qualifications under the AQF. Students wishing to be considered for recognition of prior achievements are able to demonstrate their competency or acquired knowledge to qualified assessors in a variety of ways. They may undertake skill recognition assessments to demonstrate their current competency, or provide evidence to support the suitability of their requests for recognition. This evidence may include: letters of validation from employers, references, records of past academic results and/or certificates, school reports, original documents, relevant work samples, completed work outlines of courses undertaken. Students may also be asked to attend an interview to present their claims. Students need not repeat identical modules or units of competency completed at another registered training organisation. Generally this means that they have acquired advanced standing or been able to transfer credits completed in a prior course. This is generally automatic when arrangements for credit transfer have been formally established between institutions from the different sectors.

China has also begun to implement a system for the recognition of prior learning and experience. They have called this the credit points system, where points are given for the successful completion of different courses in terms of the number of credit hours that apply to different courses. Still in the early stages of implementation, the credit points system is experiencing some problems, which relate to the difficulty of achieving uniformity of recognition for similar or comparable subjects or courses undertaken at different schools or institutions. Nevertheless, a system of applying the same number of credit points to the same type of certificate is presently been trialled. In these trials, different higher VET institutions will allocate the same number of credit points to certificates awarded by the Ministry of Labour and Social Security or Ministry of Education.

Length of time spent in training

In China the most obvious form of linkage established between lower and higher VET is based on the length of time students spend in secondary institutions or lower VET before they progress to higher VET. There are various ways that the time spent in the sectors has been divided. For example, in the '2+3' model students spend two years in lower VET and three years in higher VET. In the '3+3' model they spend equal amounts of time in both sectors, and in the '4+2' model students spend four years in lower VET and half that amount of time in higher VET. In the '5-year through' model there are no definite distinctions between the stages for lower and higher VET but typically students will spend the first three years in secondary VET programs and the last two years in higher VET programs.

In Australia, courses leading to qualifications based on the achievement of competencies are also described in terms of nominal hours. However, the length of time to be spent in programs is increasingly becoming less important as a way of moving from lower- to higher-level VET programs. This is because competencies identified for lower- and higher-level VET qualifications can be achieved by individuals in varying amounts of time and at their own pace. However, different institutions have placed some restrictions on the amount of time that individuals may take to complete modules within their programs. Nevertheless, defining the length of time to be spent in training continues to be an important means for ensuring that apprentices spend sufficient amounts of time in training before they acquire full tradesperson status. This amount of time is generally defined by unions in industrial agreements. Even though apprentices may accelerate the time to be spent in formal off-the-job training, in general, most trades expect that apprentices will spend prescribed amounts of time before they complete their contracts of training and become fully qualified tradespersons.

Perceived benefits

In both China and Australia the major aims for introducing increased choice for individuals in relation to how, when and where they undertake training, are improvement of vocational skills, creation of employment and re-training opportunities, and development of a system for facilitating lifelong learning. For example, formerly when students entered a secondary VET program in China they could only become intermediate-level skilled workers and had no opportunities for upgrading their skills or qualifications. This tended to reduce the interest of students for entering secondary VET. Today a 'fly-over' strategy has been created to enable students to move more easily between all the sectors. This 'fly-over' refers to the creation of linkages between lower VET and higher VET, and between VET and other general tertiary education sectors. As such it also provides a mechanism for the survival of lower or secondary VET.

The Australian system with its emphasis on competency-based training and assessment, and flexible pathways, has facilitated the development of effective linkages between lower and higher VET, and between general and vocational education. It has allowed individuals to move in and out of the training system in order to take up employment opportunities as they become available and to undertake re-skilling activities as the nature of employment changes.

In giving industry the responsibility for developing the training packages and encouraging enterprises to collaborate with training providers in the provision of on-the-job training and experience for students, the Australian system ensures that VET has relevance and currency.

Concerns

It must be kept in mind that change, whether it be in China or Australia, may not always be automatically implemented or implemented according to the envisaged time-lines or desired goals. This is often because it takes time for people to accept the need for the change and subsequently to alter their behaviour to ensure that the change is implemented as required. In addition, change may also have consequences not anticipated by those who have designed the change.

The Chinese VET sector comprises far greater numbers of students, schools, other educational institutions and agencies than the Australian VET sector. For this reason the implementation of reforms with regard to establishing linkages between the sectors will take considerable time. Furthermore, access to government funding is also restricted by the need for governments to allocate resources to economic and social development. However, for effective linkages between lower and higher-level VET to become a reality, both the Chinese and Australian Governments need to continue their in-kind and financial support for implementation of change.

Although the training packages are effective in describing the workplace competencies required by industry, they do not provide sufficient guidance for the training of students who are not in work, or who have had no previous experience of work. In addition, there are still instances where previously completed modules in school-based VET have not been fully recognised by post-school VET institutions.

The Australian VET system relies on industry taking the lead role and responsibility for describing the competencies that will be required for particular industry sectors. As such, it is dependent on how accurately industry has read the environment in which it operates, and on the ability and diligence of those responsible for formally developing industry or enterprise training packages.

The way ahead

The Chinese and Australian VET systems both aim to develop skilled and flexible workers for economies which are becoming increasingly knowledge-based and globalised. A secondary objective is the provision of access to lifelong education through the opening up and linking of pathways between the various sectors of VET and between VET sectors and higher education. The speed with which these aims will be achieved for both countries will depend on the extent to which national and provincial governments in both countries provide sound administrative and fiscal environments and support to facilitate the implementation of training reform aimed at opening up pathways.

Both countries have paid a great deal of attention to developing flexible training pathways through the creation of effective linkages between higher and lower VET and have made substantial progress. However, more needs to be done in Australia and China to ensure an integrated approach to the development of training goals, curriculum and/or competency standards, so that unnecessary repetition of knowledge or competencies already acquired is avoided. It is evident that both countries have approached this problem in their own unique ways and both can learn from the diverse approaches applied by the other to solving similar problems. Nevertheless, it is important for both countries to continue to search for the best methods for developing pathways which will allow individuals to build on previous qualifications as their circumstances change. These include:

- ✧ allocating human, material and financial resources to support the creation and further development of these linkages
- ✧ developing closer ties with industry so that training is current, relevant and of a high quality
- ✧ improving quality assurance mechanisms to ensure that those charged with delivering the qualifications and the training abide by policies aimed at maintaining a quality VET system
- ✧ providing access to new technologies so that individuals are prepared for the skills they require in a changing work environment
- ✧ increasing access and equity to training so that all individuals have the opportunity to develop their potential.

Vocational education and training in China

The Chinese VET system

Since the early 1980s, in order to respond to economic reform, China has undergone major changes to its education system. In particular it has adopted a policy of large-scale development of its vocational education and training system. After over twenty years of reforms and development, China has been able to establish a vocational education and training system with unique characteristics. This system consists of three levels of education: elementary, secondary and tertiary. Although there is a special focus on the senior secondary school level there are linkages between all three levels of VET.

Definitions

Vocational education

The term vocational education has the same meaning as the term 'technical and vocational education' that is used by UNESCO. In contrast to general education, the aim of 'vocational and technical education' is to enable students to undertake studies of technology and related disciplines and to acquire practical skills as well as knowledge related to the occupation (profession). The broad education goal of 'vocational and technical education' differs from that of 'vocational training' which aims to provide training in skills and related knowledge for a specific occupation or occupation group. In terms of preparing individuals for jobs, China's vocational education includes before-job (commencement) education, after-job (commencement) education and change-of-job education. It also includes academic credentials education and non-academic credentials education. Vocational education is provided at elementary, secondary and tertiary levels of education.

Elementary vocational education

Elementary vocational education schools enrol primary school graduates, or people of equivalent education levels. It carries out primary level education and its aims are to produce junior-level skilled workers, farmers, and personnel in trades and commerce, and other relevant fields. Schooling in these schools is for three to four years. The current junior vocational high schools belong to this category. The elementary vocational education can be considered to be equivalent to the category of C type education at the second level of UNESCO's International Standard Classification of Education (ISCED).

Secondary vocational education

Secondary vocational education is the senior high school level of vocational education. It comprises post-junior secondary school education. Its aim is to produce middle-level skilled workers with all-round qualities and comprehensive occupational skills for industrial, services, technology and management sectors. Schooling is also for three to four years. China's secondary vocational education fits into the B and C categories of the third level of ISCED of UNESCO.

China's secondary vocational education includes secondary specialised schools, vocational senior high schools and skilled workers' schools.

Higher vocational education

This sector enrols graduates from general senior high schools and secondary vocational schools, or individuals with equivalent education level. It carries out vocational education at the tertiary level. It aims to produce senior-level first-line professional skilled personnel who are fully developed in moral, intellectual, physical, aesthetic and other areas for production, construction, management and service sectors. Schooling is generally for two to three years. The current vocational universities, vocational and technical teachers colleges, higher-level (tertiary) technology specialised schools and some general higher-level (tertiary) specialised schools, belong to this category. China's tertiary vocational education is equivalent to the B and C type educational categories of level 5 in ISCED of UNESCO.

The linkages between secondary and higher vocational education

The term linkage refers to the joining of processes, concepts or items. In terms of linkages between different forms of education, it refers to pathways that interconnect so allowing students to move from one level of program to another. Linkages between secondary and higher VET apply to the connections between secondary vocational education and tertiary vocational education. In China, the aims of such linkages are to provide pathways from secondary to higher VET in the education system, to establish a lifelong VET system, and to enable secondary VET graduates to have the opportunity to continue their studies.

The Chinese VET system described

General introduction

VET is a very important part of China's education system. It consists of VET school education and vocational training. There are three levels of VET, post-primary, post-junior secondary and post-senior secondary, with a focus on the post-junior secondary level. China's VET system is also divided into elementary, secondary and tertiary sectors. The emphasis is to establish and strengthen a Chinese VET system, which is focussed on enabling the co-existence of school-based VET and vocational training programs, and good co-ordination and communication between schools within the system, and between the VET system and other education sectors.

China also applies a streaming policy in its education system. This streaming policy is applied according to the different levels or degrees of economic development and education universalisation that exist in the different regions.

Practice institutions

School-based VET is formal education carried out in elementary, secondary and higher VET schools; that is, it provides access to academic credentials. Secondary VET is carried out in secondary vocational schools which are comprised of secondary specialised schools, vocational senior high schools and skilled workers' schools. Higher VET is carried out in higher-level specialised schools, vocational and technical institutes, vocational universities and general universities.

Vocational training, however, comprises non-academic credentials-based activities and aims to prepare individuals for employment-seeking, changing occupations, transferring jobs or improving employees' skill standards. These training programs are delivered by relevant vocational training agencies or vocational schools.

Target students

Elementary VET mainly enrols graduates from six-year primary schools. Secondary VET mainly enrols students who have completed the nine-year compulsory education (that is, junior secondary

schools graduates). Higher VET mainly enrols students who have completed senior secondary education (that is, senior high school graduates) or students with the equivalent education level.

Length of studies

Elementary VET generally involves two years of studies. Secondary VET is more complicated. It usually involves three years of studies. However, some programs may take four years based on the student's background, or specific field of studies.

About the three-year schools

The 3-year school program of studies comprises 150 weeks of tuition. Of these, between 106 and 111 weeks are set aside for teaching. The number of teaching hours involved totals between 3000–3300 hours. In addition, schools can arrange an additional three to six weeks for teaching or other activities. There are 12 weeks set aside for revision and examinations. The summer and winter vacations comprise 24–26 weeks.

About the four-year schools

The 4-year school program comprises 202 weeks of studies. Of these 144–150 are set aside for teaching. The total number of teaching hours is between 4000 and 4400 hours. Schools can arrange an additional four to eight weeks for teaching or other activities. There are 16 weeks set aside for revision and exams. Winter and summer vacations comprise 32–34 weeks.

There is an average of about 28 to 30 weekly teaching hours. Comprehensive field practice is arranged on a 30–40 hours per week basis.[1]

The length of studies of tertiary VET differs according to whether students are graduates from junior high schools, or from secondary vocational schools. There is a five-year program for junior high school graduates and a two- to three-year program for graduates from secondary vocational schools.

VET school provision

The 'vocational education law' stipulates the following conditions:

> The all level people's government at county level and above should run vocational schools and vocational training institutions. These schools and institutions will provide models for training. These are to be called backbone or model VET institutions. The governments should provide guidance and support to rural organisations, business enterprises, civil organisations, social groups and other organisations and citizen individuals legally running vocational schools and vocational training institutions … The main responsibility for developing VET falls onto the shoulders of local governments. The key is in cities and counties … People's governments at the county level should meet the needs of the overall development of economy, science and technology and education in the countryside, run various forms of VET and carry out practical skills training … Enterprises should have well planned vocational training programs for their employees and potential employees based on their specific situations … Enterprises are allowed to conduct vocational schools and vocational training programs on their own or in joint efforts … The national government encourages non-enterprise (non-profit) institutions, social groups and other social organisations and citizen individuals to run vocational schools and vocational training institutions by observing the relevant regulations of the country … The State Council regulates the ways and methods for overseas organisations and individuals to run vocational schools and vocational training institutions on Chinese territory …[2]

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[1] National Education Department, Department of VET and Adult Education (2000, pp.14, 28–36).

[2] See Vocational Education Law of the People's Republic of China, chapter 3.

This legislation indicates that China's VET providers include:

- ✧ government (at county level and above)
- ✧ enterprises
- ✧ non-profit making government institutions
- ✧ social groups
- ✧ other social organisations
- ✧ citizen individuals
- ✧ overseas organisations and individuals.

The legislation also indicates that different institutions/individuals have different responsibilities for running schools. People's governments at county level and above run *backbone* and *model* vocational schools. People's governments at county level and above should run various forms of VET and carry out training in practical skills to fit in with the needs of rural economy, science and technology and the overall development of education. Enterprises should provide planned training programs for their staff workers within the enterprise and also for staff whom they plan to employ, based on the specific situations within the enterprise. Other relevant organisations or individuals may run VET at all levels and in all types of areas according to the needs of social development and their own objectives.

VET in China is conducted either independently by governments through all level education administration departments or jointly by Chinese enterprises and schools. It may also be sponsored by the Chinese Government and/or enterprises, in conjunction with relevant bodies in other countries. For example, vocational schools are jointly sponsored with Hong Kong, Macau, Taiwan and other countries.

Responsibility for VET administration

Clause 11 of chapter one in the 'vocational educational Law of the People's Republic of China' states the following conditions:

> The Education Administration Department of the State Council is responsible for overall planning, all-round co-ordination and macro administration of vocational education work … The Education Administrative Departments of the State Council, Labour Administrative Departments and other relevant departments respectively are in charge of their relevant vocational education work within their responsibilities defined by the State Council … Local people's governments at county level and above should strengthen their leadership, overall co-ordination and their supervision and evaluation in vocational education work within their administrative area.

Specific application of this law includes the following.

Central government

At this level the main ministerial bodies in charge of VET are the Ministry of Education and the Ministry of Labour. In addition, a number of other departments and institutions of the State Council also have responsibilities for co-ordinating and supervising VET within their industry or professional sectors. For example, the Technology Department of the Ministry of Health, Ministry of Natural Resources, the Technology Education Department of the Ministry of Transportation and Communication, Personnel and the Education Department of the China Civil Aviation Bureau, all have these responsibilities.

In the Ministry of Education, there are two main education administrative institutions, the Department of Vocational Education and Adult Education, and the Department of Higher Education.

The Department of VET and Adult Education is in charge of the nation's *functional* departments which are responsible for academic credentials education in ordinary and adult secondary vocational education, adult cultural and skill education and training. It is also responsible for experimental work in comprehensive reform in urban and rural education. The Department of Higher Education of the Ministry of Education is in charge of the nation's *functional* departments of higher education.

Their major functions are to co-ordinate the administration of the nation's ordinary and adult secondary academic credentials in VET and adult cultural and skill education, and supervise the administrative work of academic credentials education of all types of vocational and technical education.

In addition they also deliberate on and develop:

- ✧ draft principles, policies, laws and regulations about VET and adult learning, and supervise the practice of these
- ✧ standards for the establishment of schools
- ✧ basic documents on school administration and evaluation
- ✧ study field catalogues for school education and basic requirements on teaching and basic documents on teaching and standards for teaching evaluation
- ✧ teaching materials.

Their role is also to provide guidance on:

- ✧ reforms of education and teaching
- ✧ moral education work at schools and on the professional development of teaching staff
- ✧ the establishment of laboratory and practical field training and associated facilities, library and teaching facilities and equipment, modernisation of teaching technology and development of school-run enterprises in school-based VET
- ✧ examinations for self-paced learning students and teaching work of distance learning in secondary specialised education
- ✧ secondary VET students' enrolment, employment and career guidance, as well as examination work for all types of vocational/professional qualification certificates
- ✧ running various types of secondary academic credentials vocational education and social cultural education work to social institutions/associations
- ✧ co-ordination of comprehensive reform experiments in urban, rural and enterprise education.

The department is also responsible for organising the implementation of the 'Prairie Fire Project'.

The Office of Higher Vocational Education and Higher Specialised Education located in the Department of Higher Education of the Ministry of Education, is responsible for:

- ✧ providing centralised design and guidance on the training work of higher VET and higher specialised education personnel, general guidance on the work in higher specialised schools, higher vocational and technical institutes and the independent adult higher learning schools
- ✧ organising the discussion and drafting of the basic principles, policies, laws and regulations on personnel training, and leading documents and materials for teaching in higher VET and higher specialised education, and promoting the collaboration of school and society, teaching and social practice
- ✧ planning and guiding the development of teaching materials, the field practice/training base, teaching and administration staff training, and capital construction for teaching. It is also responsible for organising and guiding the work of the academic advisory committee for higher VET, and higher specialised education. In addition, it participates in both domestic and international support programs and joint projects in vocational education and training

- ✧ driving forward the reforms in higher VET and higher specialised education by setting up large teaching and educational research projects, and by carrying out teaching reform experiments and pilot projects, teaching evaluation and inspection
- ✧ guiding the provincial and municipal governments and other ministries and departments in their administration work related to higher VET and higher specialised education.

The Ministry of National Labour and Social Security Welfare is entrusted with the responsibility for:

- ✧ organising arrangements for the development of draft classifications of occupations and national standards on vocational skills and the regulation and issuing of relevant standards for trades and professions
- ✧ setting up the vocational/professional qualification certificate system and formulating policies on vocational skills appraisal
- ✧ drawing up development and management programs for skilled workers' schools, and plans and policies on in-service training for employees, training for unemployed and retrenched workers, and plans and policies for vocational training centres and vocational training institutions run by social forces under the guidance of national education principles and policies
- ✧ drawing up regulations, policies and measures for vocational skilled personnel training, commendations and rewards, and vocational skill competitions
- ✧ developing the implementation methods for the rules and regulations for labour preparation
- ✧ supervising staff development in skilled workers' schools and vocational training bodies
- ✧ designing plans for the development of teaching materials and a system for the evaluation of skilled workers' schools and vocational skill training.

The Department of Training and Employment in the Ministry of Labour and Social Security Welfare is the functioning department responsible for urban and rural employment and vocational training work. Its major responsibilities are to design and develop:

- ✧ plans and basic policies for urban and rural employment and vocational skill training
- ✧ labour market development plans and administration rules, and supervise their implementation
- ✧ plans and policies for the relocation and organisation of retrenched workers from enterprises/ factories and make arrangements for their basic living allowance and re-employment. The department is also responsible for organising the implementation of the re-employment project.

It is also responsible for drawing up:

- ✧ national administrative rules for employment funding
- ✧ implementation methods for central government production support funds and arranging for their implementation
- ✧ employment service development plans and formulating policies for the promotion of the development of employment services (enterprises)
- ✧ administration rules for re-employment service centres and job introduction agencies and organise for their implementation
- ✧ policies and measures for the national scale and regional scale labour migration, rural surplus labour employment, and orderly cross-region migration of rural labour, and management policies on farmers working in cities.

The department is also charged with:

- ✧ formulating management policies on overseas personnel working in China and Chinese citizens working overseas within its administrative responsibilities

- ✧ developing administrative measures for selecting and assigning Chinese staff to work in offices of foreign countries' enterprises stationed in China
- ✧ designing qualification management measures for foreign countries' institutions in China engaged in intermediary services, consultation and training for labour/workers recruitment.

The department's role is also to organise the development of national standards on classification of vocations and vocational skills, and issue the relevant professions and trades standards. Its other specific roles are to establish:

- ✧ the vocational qualification certificate system and formulate policies on vocational skills appraisal
- ✧ implementation measures for labour preparation rules and regulations
- ✧ regulations, policies and measures for skilled personnel in vocational training
- ✧ measures for the commending and rewarding of personnel and the conducting of vocational skill competitions.

The department is also responsible for drawing up development plans and administration rules for skilled workers' schools and employment training centres throughout the country. It also develops plans and administration rules for vocational training bodies run by social institutions/ associations. Other roles are to:

- ✧ supervise staff development of teaching personnel in skilled workers' schools and vocational training institutions
- ✧ design plans for the development of teaching materials and an evaluation system for skilled workers' schools and vocational skills training
- ✧ draw up plans and policies on in-service training for employees and training for unemployed and retrenched workers from enterprises for re-employment.

Other national-level administrative organisations

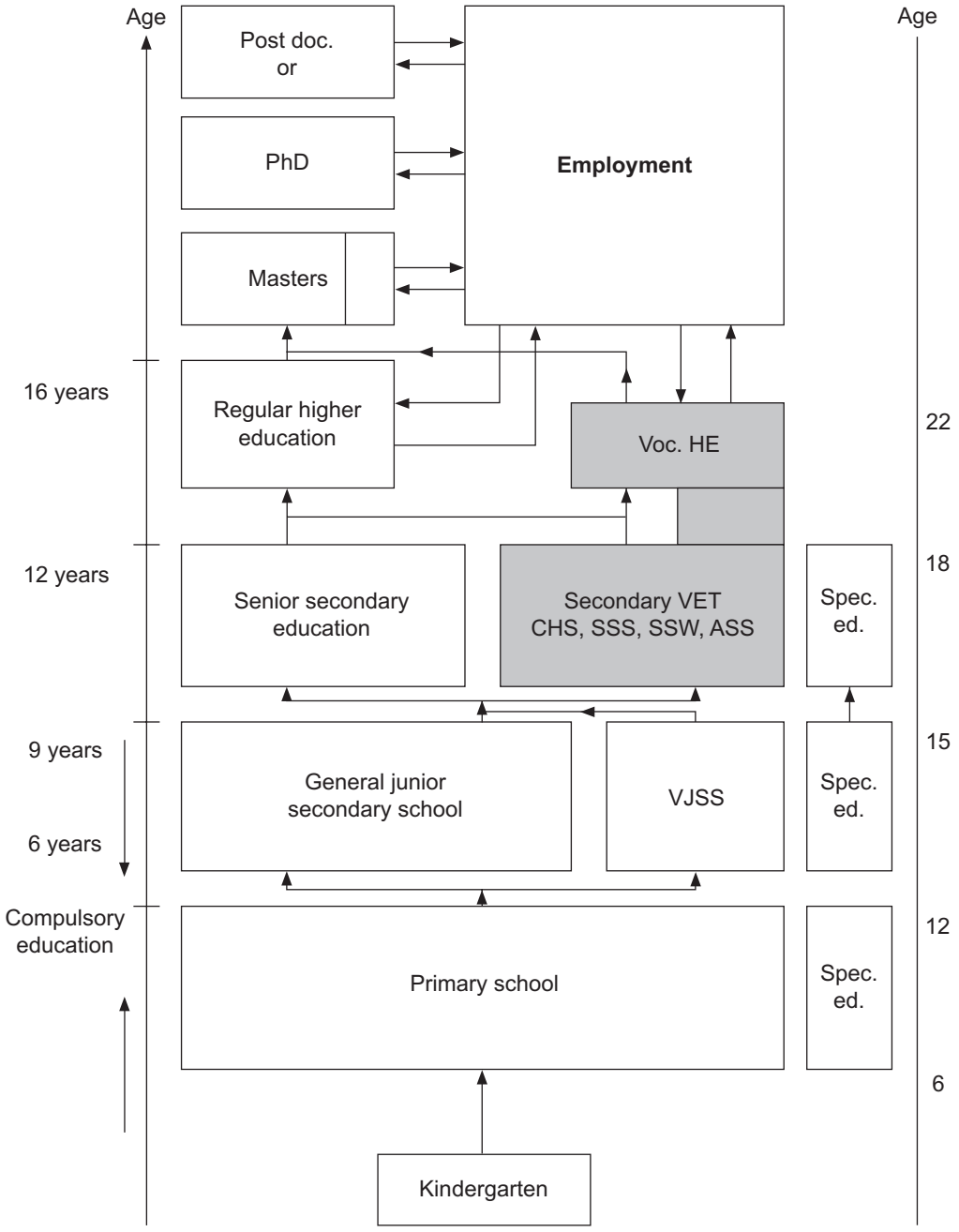
National level administrative organisations (for example, the Ministry of Health, Ministry of Railways, Ministry of Transportation and Communication) are responsible for the overall planning, all-round co-ordination and macro administration work of VET within their own systems.

Local-level responsibility

Local institutions in charge of VET are local departments of education and departments of labour. There are also specialised departments for trades and industries responsible for administering vocational education and training within their own systems. The following guidelines provide direction for the establishment of this responsibility.

> People's governments at the county level should meet the needs of overall development of economy, science and technology and education in the countryside, and run various forms of VET, carry out practical skills training and accelerate VET development in the countryside.
>
> Local people's governments at county level and above should strengthen their leadership, overall co-ordination and supervision and evaluation of vocational education work within their administrative areas.
>
> Local governments at county level and above have complete responsibilities for VET development, and power for decision making and direct administration of VET within their administration areas.

Figure 1: Pathways to qualifications and employment



Note: CHS: vocational higher school; SSS: specialised secondary school; SSW: secondary skilled worker school; ASS: adult specialised school; VJSS: vocational junior secondary school; Voc. HE: vocational higher education; Spec. ed: special education

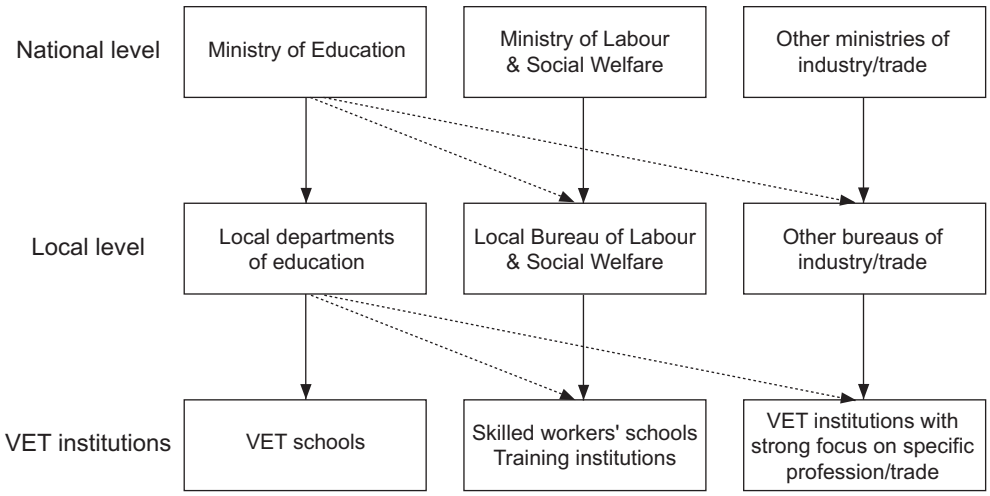
Sources of funding

Funding for China's VET systems is derived mainly from:

- ✧ the sponsor of the vocational school who will pay the full amount of VET funding according to student per capita funding standards
- ✧ the enterprises responsible for funding for VET training for existing and potential employees
- ✧ local taxes

- ✧ student tuition fees which vary according to specialised areas of studies
- ✧ donations from social groups and other individuals
- ✧ fundraising by VET schools, including funds derived from running school enterprises or providing services to the community.

Figure 2: Administration of the Chinese VET System



Linkages between secondary and higher VET in China

Historical background

In the 1980s, the Chinese Government made suggestions for the development of formal linkages between secondary and tertiary VET. In 1985, the Chinese Government stipulated in its policy document 'Decisions on reforming the educational system by the Central Committee of the Communist Party of China' that:

> The development of vocational and technical education should focus on secondary vocational and technical education … At the same time, … [it should also] … actively develop higher vocational and technical education colleges and institutes, [and] give priority to the relevant secondary VET school graduates and on-the-job personnel who have practical experience in specialised study fields and who are academically qualified for enrolment. [The objective was also to] gradually establish a VET system which ranged from elementary to senior levels, comprised a complete set of professions, industries and trades, was well structured and able to link up with general education.[3]

In December 1998, the Ministry of Education issued its *Action plan for vitalising education towards the 21st Century*, in which it stated that it wished to 'gradually deliberate on and establish a fly-over between general higher education and vocational and technical education.[4] This was the first time that it was expressed in document form that China intended to gradually implement reforms which would establish a VET system with the linkages between secondary and higher VET sectors.

In reviewing the history of the development of linkages between China's secondary and higher VET sectors it is clear that this process comprised three overlapping stages which related to:

1 devoting major efforts to developing secondary VET (1980–1994)

2 actively developing vocational higher education (1994–1998)

3 setting up a fly-over (1998–).

The three stages overlap in time and content, but each category represents each stage's defining characteristics.

Devoting major efforts to the development of secondary VET (1980–1994)

In the early 1980s, China's secondary VET was based on a weak foundation. There was only one type of secondary VET education and it was out of step with changes happening in the national economy. For example, each year only very small numbers of general senior high school graduates went on to higher education, while the great majority (that is, several millions) sought employment in the labour market. However, graduates seeking employment did not have the specialised knowledge and skills required by industry or trades. At the same time, however, all industry and trade sectors were badly in need of skilled workers. This situation meant that industries and trades had to train newly recruited workers in two-to-three-year apprenticeships. This situation adversely affected the efficiency of production in industry.

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[3] National Education Commission, Department of Vocational & Technical Education (1989, p.8).

[4] Ministry of Education, 1998.

Having realised this situation, the Chinese Government issued its *Report on structural reform in secondary vocational and technical education* in 1980. The report stated that:

> the structural reforms of secondary education were to mainly focus on the stage of senior secondary education, … [and that] … the principle for the simultaneous development of general education and vocational and technical education should be adopted. [It also stated that] some general senior high schools can become vocational (technical) schools, vocational high schools, or agricultural schools. [In addition it determined that] the percentage of students in all types of vocational schools in the whole senior secondary education were to be greatly increased through adjustments and reforms.[5]

China had realised the importance of reforming VET at the senior secondary education level, due to the fact that requirements for the preparation of the ideological, cultural and skill standards of potential workers were lacking and due to the traditionally low status applying to vocational education. However, an effective VET system urgently needed for economic reconstruction had not been adequately developed. It was still the weakest sector of the Chinese educational system. As a result, the Central Committee of the Chinese Communist Party (CCP) launched its policy document *Decisions on the reform of the structure of education*. It made the following announcement.

> The 'construction of modernisation not only requires senior science and technology experts, but it is also in urgent need of millions of intermediate and junior level technical personnel, management personnel, and skilled workers who have received a good vocational and technical education, as well as urban and rural labourers who have received good vocational training … [Therefore, we] … must take all effective measures to change the backward nature of vocational education and strive for the strong development of vocational and technical education.

The decision also aimed to have, within five years, all types of senior secondary VET schools in most areas and regions enrolling equal numbers of students as general senior high schools. Although it was also decided to actively develop the other sectors of the VET system, the development of secondary VET was the major focus.

Within about ten years of this 'decision', another series of policy documents was issued. These included the *Decision to strive for the development of vocational and technical education* in 1991, and *The outlines for Chinese educational reform and development* in 1993. Although these documents discussed many areas of VET reform and development, the development of secondary VET comprised the major focus of attention.

Actively developing vocational higher education (1994–1998)

China had already begun to develop its vocational higher education sector by the beginning of 1994. For example, a number of vocational universities was established at the early stage of economic reform and the implementation of the open-door policy. There was also a large number of secondary specialised schools which recruited senior high school graduates. (These secondary VET schools had vocational higher education characteristics.) The *Decision by the Central Committee of the CCP on structural reform* issued in May 1985 was aimed at developing higher vocational and technical institutes.

Although China had identified the need to develop vocational higher education, due to its importance in economic development, people were generally not aware of this fact. For this reason the development of higher VET did not become a significant area in VET. Along with the dynamic implementation of economic reforms and the open-door policy there were also advances in science and technology. These increased the skill standards required of the Chinese workforce and imposed a pressing need for the further development of higher VET.

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[5] Ministry of Education and National General Bureau of Labour (1980) in National Education Commission, Department of Vocational and Technical Education (1989, pp.37–8).

Such demands were reflected in the National Education Work Conference of June 1994. This conference emphasised requirements for the development of higher VET. It recommended reforms to the traditional forms of 'recruitment, tuition fees and the employment system for graduates in secondary and higher level VET schools'. It also aimed to 'properly expand the field of higher education and to … focus on higher specialised education and higher VET'.

To arrange for the implementation of decisions made at this conference, the National Commission of Education (formerly the Ministry of Education) issued in October 1994 its 'Announcement of pilot program in running the 5-year higher VET program in Chengdu Aviation Industry School and nine other secondary specialised schools'. In addition to documents on all-round or general education the National Commission of Education then issued many special policy documents. These included: 'A few suggestions on promoting reforms and construction in vocational universities', 'Announcement on constructing demonstration/exemplary vocational university work', 'Conference notes on pilot work/programs in higher VET schools', 'Announcement on running 5-year higher VET programs in Dalian Shipping School and seven other secondary specialised schools'.[6] These documents covered goals of training, standard requirements, teaching plans, syllabi, curriculum design, administration and development experience in higher VET. They played an important role in the proper development of higher VET in China.

Setting up a fly-over—linking secondary and higher VET pathways (1988 to present)

During the 1980s, many Chinese educational documents began to note the importance of developing linkages between secondary and tertiary VET. For example, the 'Decision on structural reform of education' in 1985 declared that higher VET institutions must 'give priority to the relevant secondary VET school graduates as well as existing workers who have practical experience in the specialised study field and are academically qualified for enrolment … [The aim] was to establish a VET system gradually which ranged from elementary to senior levels, … [and] which comprised a complete set of professions, industries and trades, was well structured and also able to link up with general education …'

The implementation suggestions by the State Council *Outlines for reforms and the development of Chinese Education* policy document stated that it was necessary to: 'implement planned strategies for the streaming of post-primary, post-junior secondary and post-senior secondary education … [It was also important to] strive for developing vocational education and gradually establish an education system for the simultaneous development of elementary, secondary and higher VET and general education, inter-sectoral linkages and their appropriate proportion'.

Clause 12 of chapter 2 in the *Vocational education law of China* issued in 1996 states that the country would: establish and strengthen a VET system, which has in it the co-existence of school-based VET and vocational training programs, good co-ordination and communication between schools within the system, and between the VET system and other education forms. This was the first time in Chinese history that formal regulations about the VET levels had appeared in legal documents.

Not only in documents, but also in practice, enrolment preference was given by some higher VET institutions to secondary VET school graduates with relevant special training backgrounds. However, some VET institutions had already tried experiments in forming linkages between secondary and tertiary VET. In 1985 for example, three secondary specialised schools under the administrative control of the Ministry of Education experimented with the '4–5 interlinking' pathways project.

However, 1998 was the year in which the formal stage of the focus on the development of higher VET began. In December 1998 the Ministry of Education issued its *Action plan of vitalising*

[6] National Education Commission, Department of Vocational & Technical Education (1997, pp.327–50).

education towards the 21st Century. This was the first time that it was specified in a formal policy document that China intended to 'gradually introduce a fly-over between general higher education and VET'.[7] This means that it intended to establish a VET system with linkages between secondary and tertiary VET. Only did China initiate a deliberate and purposeful strategy to set up a fly-over for the training and development of qualified personnel. Soon after this, in June 1999, the 'decision by the Central Committee of the CCP and the State Council on deepening educational reform and fully progressing human competence/qualities education' saw this ideal realised. It suggested that China 'must establish an education system which fits in with the socialist market economy and the inherent law of education, and which has linkages between different types of education. [In addition,] … it must provide school graduates with opportunities to continue their studies'. The document also stated that 'vocational and technical institutes (or vocational institutes) may adopt various ways to enrol graduates from general senior high schools and secondary VET schools. [This meant that] … graduates from vocational and technical institutes (or vocational institutes) can become undergraduate students in degree offering universities (which generally involves four or more years of studies) to further their studies after undergoing a certain selection process.' Since then, many places have experimented with developing linkages and acquired experience in the implementation of such an action plan.

Reasons for developing the linkages

The need to establish linkages is based on practical and theoretical factors. From a practical viewpoint the development of China's social, economic and technology systems demands VET training for life and the creation of linkages between all sections of the VET system. In the past the focus on the VET system was low and there were no continuing training pathways for students who graduated from secondary VET. To resolve the problem that the mass of secondary VET graduates had no higher learning institutions to go to and had bleak opportunities for employment, it was decided to raise the level of VET administration. Another driving force was the need to meet the pressing demands of social development for higher-qualified professional and technical personnel. In theory, the creation of linkages between secondary and higher VET was also based on international trends for developing education and training systems focussed on lifelong learning and developing mechanisms for improving the quality and outcomes of VET and for ensuring its healthy development.

Motivating for linkages between secondary and tertiary VET

With the arrival of the knowledge economy and rapid advances in science and information technology and the application of sophisticated technologies in the production of goods and services, there have been qualitative changes to the nature of work. This requires production workers to have higher professional skills, better educational backgrounds and knowledge of technology. Moreover, vigorous market competition has made enterprises realise that their own development and success is based on the availability of workers with higher-level practical and technical skills, and excellent knowledge. This means that workers must be knowledgeable about technology and also able to resolve on-the-job problems in production. This meant that there was a realisation that the former secondary VET system which produced intermediate level specialised skill workers for the production line could no longer meet the demands of these enterprises and employers. Advances in technology and its application in production had created conditions which required the Chinese VET system to shift its focus from secondary school training to higher-level training.

Moreover, great changes have taken place in the structure of the Chinese economy and labour market over the past 20 years. The economy has basically moved from being a planned economy to a market economy. The education system in turn must also adapt to changing economic structures

[7] Ministry of Education (1998).

and large-scale adjustments of industrial structures. The development of higher VET and the promotion of linkages between secondary and higher VET can be viewed as measures for assisting the Chinese VET system to adapt to the re-adjustment of economic structures and changes in the labour market.

Major drivers of secondary and higher VET linkages

With the improvement in general living standards, people's abilities to pay education fees have also improved. In addition, parents and students are no longer satisfied with only a secondary education. They yearn for a higher-level education. According to some statistics, there have always been 60% of junior high school graduates in Beijing who have wanted to continue studies in general senior high schools and universities. Between 1998 and 2000, tertiary education enrolments for the whole country increased from 1 080 000 to 2 210 000. This by far satisfied people's demands. In recent years, however, 'high consumption' has occurred in the labour market. The practice of seeking higher educational qualifications has increased the momentum for developing a higher level of education. Given this situation, individuals and their communities have increased the demands for a VET system which will enable individuals to enter higher levels of education.

Plans for linking secondary and higher VET and building a fly-over for the training of qualified personnel is analogous to the concept of 'thousands of armies going through single-log bridge'. In the Chinese traditional education system, young students could only gain admission to tertiary education institutions by passing the higher education entrance examinations. There was strong competition for entry to universities/colleges. The linking of secondary VET and higher VET has undoubtedly provided students with a pathway to higher learning. To a certain extent, the linkages have weakened the pressure related to 'going through single-log bridge'.

As already noted, China is in the process of changing from a planned economy to a market economy and the contradictions between industrial structure adjustment and employment are getting more serious day-by-day. Enterprises have adopted the policy of decreasing employee numbers and increasing their efficiency in production. More and more workers are becoming unemployed and the social pressure to gain employment has increased. The development of a higher VET system and the creation of linkages between secondary and higher VET can enable more secondary VET graduates to continue studies at higher VET. This will also improve the quality and skills of future workers. It will defer the needs of individuals to obtain employment when work is not plentiful and help to maintain social stability.

The creation and promotion of linkages between secondary and tertiary VET, which requires secondary VET graduates to study for another three to four years, and graduates of general senior high school to receive two to three years of vocational and technical education or training before going into employment, are the counter-measures undertaken by governments at all levels and individuals to solve the problems of unemployment in cities and towns.

Linkages as important mechanisms for the sound development of secondary and higher VET

In recent years, both secondary VET and higher VET have experienced problems associated with enrolments, quality of source students and difficulties in getting their graduates into employment. The causes for this are related to social values which do not hold secondary VET education in high esteem, government policy, traditional views and the general educational environment. In addition, a number of fundamental problems exist within the VET system itself, related to the quality of school administration and educational outcomes. One of the major factors restricting the healthy development of VET is that the linkages that are created are not effective, and that obstructions are encountered during the linking process. There are also no mechanisms for linking VET and general education. To maximise the benefits derived from VET and to raise the quality of education, an effective mechanism for establishing linkages between secondary and tertiary VET and developing VET in a sound way needs to be established.

In terms of maximising the benefits of education, the linkages which are developed should be more speedy and dynamic and in a variety of forms. At present, there is a clear division between the training goals of secondary VET and higher VET. This is due to inappropriate linkages between the two levels and poor overall planning of the curriculum. Moreover, there are no clear practical differences between the two systems. For example, curriculum design in higher VET shares many similarities with that in secondary VET. There is overlapping in teaching content and teaching materials. There are also few differences in the standards required for vocational/professional skills training. To a certain extent this state of affairs decreases the benefits that may be derived from VET and represents inefficient use of educational funding. Not only do these practices not conform to the principle of maximising educational benefit, but they also create more problems for the development of VET in China where education funding is already in great shortage.

In terms of teaching hours, it is only the amount of time allocated for secondary VET and higher VET training is specified that maximum benefits will be achieved. Hence, the establishment of linkages between secondary and tertiary VET, coupled with the practice of higher VET institutions recruiting large numbers of students who have graduated from relevant specialised secondary VET, will benefit the training of higher VET students.[8] Otherwise the low efficiency of higher VET will lead to two results. On the one hand, the demand and supply of VET will be removed from the goal of maximising educational benefit and efficiency. On the other hand, restricting the supply and demand of VET will adversely affect the further development of VET.

From the point of view of improving the teaching quality of tertiary VET, there is a need to expand the scale of the linkages being established between secondary and higher VET schools with similar specialised training. At present, higher VET recruits mainly two types of students for studies leading to academic credentials. One group comprises graduates from secondary VET schools and the other comprises graduates from general senior high schools. Through the linking of secondary and higher VET, graduates from secondary VET schools with similar or relevant specialised training will provide the major source of enrolments for higher VET. This will assist higher VET to improve its quality of teaching, expand its teaching efficiency and results and meet its training goals.

It is commonly accepted that enrolment criteria for higher VET should include basic knowledge from senior high school training as well as basic skills training in the relevant vocational field. Undoubtedly, those graduates from secondary VET schools will be able to better meet these criteria for enrolment than graduates from general high schools who have only knowledge and training in general subjects. The reason for this discrepancy is related to the process of skill acquisition. That is, it is customary for technical personnel to master professional/vocational skills through a learning process which begins with simple applications and progresses to more complicated applications. It is also to progress from elementary levels to senior levels. This means that higher-level professional/ vocational skills are usually developed from lower-level foundations. Only in this orderly and systematic way can the quality of higher VET training be guaranteed.

Today, the further development of VET to encompass higher levels of learning and the linking of secondary and higher VET, is inevitable. However, it must also be understood that China is a developing country. Although economic development has required millions of intermediate and junior-level, practical and skilled workers and operational staff, China now needs to stabilise the development of secondary VET. It needs to shift its focus from scale and quantity to quality. It also needs to extend VET so that it is no longer only concerned with providing before-job education but also emphasises both before-job and after-job commencement training.

Either in theory or practice, the linkage created between secondary and higher VET plays an important role in the further development of secondary VET. It is beneficial to the improvement of the quality of teaching in secondary VET. Consequently, the Chinese Government and departments of education have, in recent years, issued many policies and established many measures for creating linkages between the two levels of VET and increasing the percentage of enrolments in

[8] Yan, Xueyi (2000, p.11).

higher VET of graduates from secondary VET schools. Vocational schools at all levels benefit from the linking mechanism in terms of survival and development.

Linkages as a means to lifelong education

Education for life or lifelong learning has been one of the most influential trends in educational thought in the 20th Century. It has also had a great influence on the development of Chinese education in the past 20 years. The dividing line between the stages of life devoted to study and employment is becoming more and more blurred. Knowledge and skills acquired at one point in time can no longer satisfy the requirements of the changing workplace. The rapid change of occupations also creates a new demand for establishing an integrated and ongoing VET system, which links elementary, secondary and tertiary VET. This system will enable individuals to meet their career life development goals and to help the personal development of individuals and society in general. The need for individuals to engage in VET for life is inevitable.

Although China has currently in place a VET system focussed on the secondary VET of secondary specialised schools, skilled workers' schools and vocational senior high schools, this secondary VET sector is too centralised and oversized. This means that China's VET system is lacking an adequate level of higher studies and is not reasonably structured. These factors have obstructed the functions of VET and created problems for those wanting to enter higher education. At the same time, it has also had a negative effect on the building of a lifelong learning system. In Chairman Jiang Zemin's address to the Third National Educational Conference, he stated that the secondary VET system had 'made achievements, but from the general point of view it has only just begun'. The major task of the next 10 years is to build up a lifelong learning system with a focus on the further development of secondary VET and the establishment of linkages between secondary and tertiary VET.

Linkage models

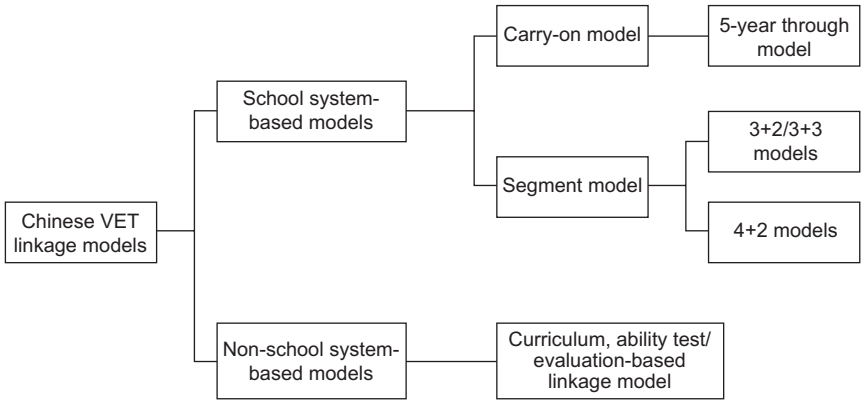
A model can be thought of as a set of standards which provide guidelines for action. Models of linkages between secondary and higher VET depict many and varied components. They deal with the key issues of enrolment regulations, length of studies, aims of teaching, design of specialised study fields and linkages between curricula. The establishment of linkages between secondary and higher VET is helping to develop the concept of lifelong learning in the Chinese educational system and especially in the VET system. It is also the result of active reaction and response to social economic development, development of humankind and the trend of educational development.

Although, as has been already noted, the concept of developing linkages between secondary and higher VET evolved in China a long time ago, it only appeared in practice a few years ago. However, from this time on practical implementation has proceeded at a rapid rate.

China has up until the present time developed its own linkage models. This paper describes the academic credentials and non-academic credentials model, based on the types of linkages that exist between length of schooling for students in schools and other aspects, such as source of students, policy on entrance examinations, specification of specialised study fields, curriculum design and sponsors. It also discusses the advantages and shortcomings of these linkages.

The linkages based on length of schooling for school-based systems can be categorised as the carrying-on model and the segment models. The non-school system based model can be divided into the curriculum-based linkage model and the examination-based linkage model. The relationship between these models is given below:

Figure 3: Relationship between the linkages model



The school system-based model

This model is divided into two types: the continuous pathway model and the segment model. The first one is basically the 5-year through model and the latter one is of three types: the 3+2/3+3 model, 4+2 model and 2+4 model.

The continuous pathway model

The major feature of this model is the five-year pathway. This is to enable junior high school graduates to have five years of schooling within the same school. The pathway links secondary and higher VET. Such schools organise their teaching into an initial segment of three years followed by a segment of two years.[9] During the first segment students are provided with general knowledge and skills training. The major subjects delivered in the first three years are general subjects. These subjects are designed to enable students to gain basic general knowledge and develop their general abilities. The second segment refers to the latter two years of the program, which are devoted to vocational skills and knowledge training. The major study areas are specialised field subjects including specialised field theory studies and vocational skills training. These two segments are complementary.

Both secondary VET (including secondary specialised schools and vocational senior high schools) and tertiary VET (including vocational universities, independent adult learning schools, higher specialised schools and vocational and technical institutes set up by general degree-offering universities), can apply this 5-year through model. So far 22 schools have been given formal approval by Chinese authorities to implement this model. However, many other schools in the country have also adopted it.

Early in 1983, this 5-year through model was first introduced at the Symposium on Levels, Standards and Length of Studies in Higher Engineering Education organised by the 2nd Department of Higher Education of the Ministry of Education. In 1985, the National Commission of Education started to conduct small-scale pilot programs in a number of industries. These included the aviation, mechanical and electrical, and seismological observation/earthquake prediction sectors. Three specialised schools were approved to test-run 5-year higher VET courses. In 1986, Xingtai Vocational and Technical School was given approval to run the 5-year higher VET program. In 1994, the National Commission of Education gave approval to Chengdu Aviation Industry School and nine other secondary specialised schools to run 5-year through classes. In December 1995, the National Commission of Education issued the report 'Summary of the Forum on Pilot Programs in Higher Vocational and Technical Education'. The document affirmed

[9] National Education Commission, Department of Vocational & Technical Education (1997, pp.327–30).

the 5-year through model as a linkage model for secondary and tertiary VET.[10] In June 1996, the National Education Commission approved Dalian Shipping School and seven other secondary specialised schools to conduct 5-year higher VET classes. The announcement stated: 'These eight secondary specialised schools conduct higher VET classes, which enrol graduates from junior high schools. The length of schooling is 5 years.' Currently, there are 22 schools in the country which have 5-year through VET programs.

The '5-year through model' enrols junior high school graduates, who have taken and passed the unified senior secondary education entrance examination. They are of similar and relatively high-quality educational backgrounds. This enrolment system provides a favourable condition for the success and quality of this '5-year through' model. In terms of teaching, it facilitates overall planning and avoids repetition of subject material. It also has advantages for the overall running of the school and helps to improve teaching quality and teaching outcomes. It enables students to learn and grasp professional skills and professional knowledge in a systematic way, to develop sound professional ethics and strong commitment towards their specified profession/vocation. In addition, it can ensure the quality of training of higher-level practical skilled personnel.

In some places the 5-year through model is implemented in slightly different ways. These approaches include '4/5' and '2+3' models'. Institutions offering these models of training, enrol graduates from junior high schools. The first two years apply the teaching plans of secondary specialised schools. Students study general knowledge subjects and some basic specialised field topics. After two years, students are streamed into higher specialised programs or secondary specialised school programs. This streaming is based on their study results and overall performance within their first two years at school. Outstanding students are channelled into the three years of higher specialised studies programs. If they pass the examinations at the end of the three years, the National Education Commission will issue them with a graduation diploma of specialised studies. Those students who are not channelled into higher VET will continue to study in the secondary specialised school program for another two years. This means that they will complete four years of studies at secondary specialised schools. Upon graduation, they will receive a certificate of secondary specialised education. The '4/5' and '2+3' models make full use of the streaming method and motivate students to achieve higher levels of learning.

Segment models

These models comprise mainly three types, the '3+2/3+3' model, the '4+2' model and the '2+4' model.

The '3+2/3+3' model

Students who graduate from 3-year secondary VET, through special entrance examinations ('3+X' entrance examinations), enter higher VET in relevant specialised training to study for two or three years. This is called the'3+2/3+3'model. Currently, higher VET entrance examinations commonly take the format of '3+X'. The '3' refers to three general knowledge subjects (for example, Chinese language, mathematics and one foreign language), while the 'X' refers to comprehensive specialised field examinations. The examination papers for the three general subjects are set by the local (usually provincial level) education administration department. The higher VET schools are usually involved in setting examination papers for the comprehensive specialised field component.

In 1985, the 'decision of the Central Committee of the CCP on Structural Reform of Education' suggested that higher VET should give priority for enrolment for similar specialised field training to secondary VET graduates and employed individuals with practical professional experience and good examination results. However, this did not happen until 1988. In that year, pilot programs (experiments) were approved by the National Education Commission and implemented in some general higher learning institutions. This pilot reform program has been in place until the present time. These special policies on enrolment have opened up opportunities for secondary VET

[10] Ibid, p.342.

graduates to continue their studies at a higher level through special forms of examinations. In this way secondary and higher VET studies are linked. In fact, schools in some places have adopted a selection or recommendation system for recommending some students for admission to higher VET without their having to take examinations. However, there is a quota on the number of students who can be admitted via these means.

The '3+2/3+3' model allows secondary specialised school graduates with similar specialised field training to progress into the higher VET school. This helps to utilise teaching resources more effectively and to train high-quality, senior-level professional/specialised personnel. However, because higher VET schools not only recruit graduates from secondary VET but also from general senior high schools, there is great variation in the general knowledge level and specialised skills and abilities of students. This makes it hard for teachers to teach these two different types of students at the same time. Furthermore, because this model is usually practised in two different levels of the VET system, there are discrepancies between the educational goals and educational tasks adopted by secondary and tertiary VET. Consequently, there are a number of problems affecting the development of substantial linkages using this model. These include repetition of content and low usage rate in higher VET of knowledge gained in secondary VET etc.

To enable more able students from secondary VET to continue studies at the higher VET level, the Ministry of Education needs to adopt and implement measures which will deal effectively with issues of recommendation, assessment and examination, etc. These will be necessary if there is to be an increase in the percentage of secondary VET graduates who are able to enrol in higher VET, and if the linkages between secondary and higher VET are to be further developed. Some cities have already implemented such measures. Beijing, for example, has decided to increase the total number of secondary VET graduates enrolling in higher VET to 30% or more.

The '4+2' model

In this model another two years are added to the original four years of secondary specialised training. Higher VET in this model mainly enrols secondary specialised school graduates with relevant or similar specialised training backgrounds. These students receive another two years of higher VET in the school. Students in this model gain admission into higher VET by means of recommendation. However, because there are large differences in students' backgrounds of study and training there are problems for teaching and administration.

The non-school system-based linkage model

This linkage is not school-based and refers to a pathway that involves flexible teaching methods and examinations, assessment or evaluation methods. It is not based on the length of time that students spend in school. This means that individuals who meet entrance standards through examinations or other evaluation processes are able to participate in higher VET.

This model provides substantial and strong linkages between the two systems. The fundamental element of this linkage is the curriculum and the skills developed through the curriculum, rather than the length of schooling or time spent in school. The method used is to examine potential students on their knowledge and skills of their selected programs, thus assessing their ability to study chosen courses. If a student has completed some courses and obtained some credit points, or has proved through higher VET entrance examinations or assessment processes, that she/he has the required ability and has attained the required entrance standards, she/he then can be admitted into a higher VET program.

Some locations in China have adopted a flexible system of teaching, where students obtain credit points for each course they study and successfully complete. This is called the credit points system. These arrangements enable secondary VET students to select appropriate study programs according to their specific needs, for example, aptitudes, available time, etc. Therefore, it may take students varying amounts of time to achieve the entrance standards required by higher VET. Some students may need three years, some may need two years and some others may need four or five years to

reach these standards. However, as long as they can pass the higher VET entrance examinations or prove that they have reached the entrance prerequisites through assessment, they are able to enter higher VET.

This model caters for students and workers who have graduated from secondary VET schools. Within what they regard as a suitable time-frame, these groups are able to sit for and pass higher VET entrance examinations or other forms of assessment. Such examinations usually comprise higher education examinations for adults in self-paced learning programs. The higher VET schools they enter are usually adult higher learning institutions or the training departments of adult learning colleges or departments of adult education in universities.

This model enables students to enter higher VET learning by means of examinations or other kinds of assessments and evaluations, without being restricted by time-frames, or requirements that do not suit their particular situations. These arrangements enable teaching to be customised to further meet the needs of individual learners and to provide for their specific aptitudes. It can also be an efficient use of educational resources and improve teaching outcomes. This model opens up a pathway to higher VET for secondary VET graduates who have taken up employment and represents a significant experiment that can be used to inform the construction of the system of education for life or lifelong learning.

In the recent years of educational reform, the development of a more flexible educational system has attracted more attention. In March 2000, the Ministry of Education issued the document *On issuing suggestions about promoting human quality education on an all-round scale and deepening reforms of teaching in secondary VET*. This document addressed the need to:

- ✧ actively create conditions for carrying out collaboration between full-time and part-time education systems
- ✧ allow adult students and students with special needs and circumstances to work and study and to complete their studies by segments.

In addition, the document instructed 'secondary VET schools to undertake pilot programs for implementing the credit points system and reforming teaching and administration, so that students would be free to choose their courses and study times according to particular social needs and individual interests and conditions/situations'.

This flexible teaching system helps to strengthen the development of linkages between secondary and tertiary VET.

Analysing the models of linkages between Chinese secondary and higher VET

Because closer linkages between secondary and higher VET were seen to meet the needs of the country, community and individuals, they were widely welcomed when they were first mooted. Both national-level departments of education and administrative institutions, and specific local VET schools, have all provided positive and active support for the development of these linkages and have made great progress. Although these linkages between different sectors of Chinese education were late in starting, once they had been initiated they developed at a very rapid rate. To this point, there are achievements in the following areas:

- ✧ Policies have been set up to guarantee that linkages will be developed

  The Ministry of Education has issued a series of policies and regulations, which stipulate that the construction of a VET system with linkages between secondary and higher VET is one of the main goals for the development of VET in China. These policies and regulations have provided direction for the development of Chinese VET. They have also eliminated ineffective rules and regulations. In the past, there were restrictions placed on secondary VET school graduates to enter higher VET. The elimination of such a rule has enabled the creation of these linkages. The policies also stipulate that China must actively promote the development of higher VET. This also makes it more possible for the linkages to be created. In addition, policy documents have

also promoted the methods and approaches for developing effective linkages. All these events and actions indicate that China has established a policy environment which supports and contributes to the development of linkages between secondary and tertiary VET.

- ✧ The Chinese models of linkage have been established

  Various types of linkage models have been derived from practical experience in China. These include models such as the '5-year through' model; and the '2+3', '3+3', '4+2' and 'Examination and assessment models'. A series of methods for creating the linkages have also been identified, including the development of joint training goals, overall planning of curriculum and implementation of the credit points system. These arrangements and guidelines will assist the further development of linkages and the construction of the 'fly-over' for the training and education of qualified personnel and the implementation of a system of lifelong learning in China.

- ✧ The linkages have pushed forward the reforms and development of secondary and higher VET in China

  To establish linkages between secondary and higher VET, secondary VET graduates must be able to demonstrate that they have the necessary skills and prerequisites for entrance into higher VET. Secondary VET has reformed its education and teaching to achieve this goal.

In view of its need to produce high-quality technical personnel for high technology industries, higher VET has significantly increased its enrolments of secondary VET school graduates. In addition, higher VET schools have also implemented reforms to enable them to build on the training backgrounds of students so that their prior learning will benefit them in their specialised fields of study. All these have given impetus to the development of secondary VET and higher VET in China.

China has a brief history in this area and has experienced the following problems:

- ✧ The linkages are to a large extent limited to length of schooling arrangements. The more intensive type of linkage has, as yet, to be fully developed.
- ✧ The linkages are mainly concentrated on the academic credentials education area and within the school-based education system. Non-academic credentials education and training have not been extensively used.
- ✧ There has not been a comprehensive system for developing linkages. For example, curriculum development is lacking and there are no scientific evaluation systems in place for the assessing of enrolment prerequisites.

Table 1: Comparisons between the linkage models

Linkage models	**For academic credentials education**			**Non-academic credentials education**
Content	Continuous pathway model	Segments models		Flexible models
	5-year through model	3+2/3+3	4+2	
Source of students	Junior high school graduates	Secondary VET graduates	Students having completed 4 years secondary specialised school	Secondary VET students and existing workers or youths with equal/similar education level
Policy on enrolment, entrance exams	Entrance examinations into senior secondary education	'3+X' exams, admission by recommendation	Recommendation based on previous 4 years studies results and comprehensive abilities	Higher education examinations for adult learning, other methods of assessment
Length of schooling	First 3/2 years for secondary VET, latter 2/3 years for higher VET	3 years of secondary VET, 2/3 years of higher VET	4+2	X+2
Specifications of specialised study fields	According to individuals preference	Matching the study/ training backgrounds	Matching the study/ training backgrounds	Matching the study/ training backgrounds
Providers	Mainly secondary specialised schools, some vocational senior high schools	Secondary VET and higher VET	Secondary specialised schools	Secondary VET schools, higher VET institutions
Advantages	1 reduces repetition of learning, reduces class learning hours, favourable for overall studies, improves teaching results 2 good quality of students source, high flexibility	1 increases students' initiatives/ enthusiasm for learning 2 utilises teaching resources more effectively	1 introduces competition system 2 easy to arouse student's enthusiasm for learning.	1 intensive form of linking 2 teach students according to their aptitude 3 economise resources 4 flexible
Disadvantages	1 lack of experience in conducting higher VET 2 poor flexibility in major studies offering	1 mismatch likely to happen with the linking 2 too much emphasis on general knowledge/cultural content in exams, easy to mislead secondary VET	1 length of school is too long, not flexible	1 still in the primitive stage, lack experience

Case studies in Beijing

Beijing, the capital of China, is situated in northern China. It has an area of 16 808 square kilometres. It has a population of 10.8 million, of which about eight million are urban residents and 3.5 million live in the counties. The city has 13 urban districts and five counties. Over the past five years, the economy in Beijing has been developing rapidly and soundly. The overall economy has become stronger and GNP per capita has reached US$2700.

The primary industry sector is referred to as the first industry, the manufacturing sector is referred to as the second industry and the services sector is referred to as the first industry. The '3, 2, 1' form of production has been completely established. The increased value of the third industry (that is, the services sector) increased from 50.1% of the Beijing's GNP in 1995 to 58.3% in 2000. Currently, the city's general index of social development and the index of information technology uptake rank in first place in the whole country.

Beijing is the political, economic, cultural and educational centre of China and has always had a strong foundation for educational development. It has a deep and solid economic base and rich educational resources. According to official statistics, in the 2000–01 academic year, Beijing had a total of 2169 primary schools with 743 100 students at school and 1159 secondary schools with 972 900 students. Of the secondary schools, 108 were secondary specialised schools with a total number of 119 400 students, 141 were skilled workers' schools with 70 856 students, general high schools totalled 760 with 691 400 students and 144 were vocational high schools with 90 283 students. In the 2000–01 academic year, Beijing had a total of 120 tertiary education institutions, of which 59 were general higher learning universities/colleges and 61 were higher learning institutes for adult learning. The total number of undergraduate or diploma students at school was 543 200. Of these, 282 600 were in general universities/colleges and 260 600 were at tertiary education institutes for adult learning.

Beijing has the highest standards of basic education in China and has the highest number of tertiary education institutions. By 1993, Beijing had achieved 9-year compulsory education ahead of other places in China. During the '9th five year plan' period, Beijing also achieved universal senior secondary education. The higher education sector in Beijing is also quite advanced. The gross entrance rate in higher education is 40%. Educational development plans for Beijing aim at achieving 40% of 18–22-year-olds enrolled in higher education by 2005 and over 50% by 2010. By 2010 new workers will have experienced an average of 14 years' schooling and it is also envisaged that universal higher education will also be achieved by then.

Since the implementation of economic reforms and the open-door policy during the past 20 years, VET in Beijing has been developing at a rapid rate. The proportion of schools delivering VET has increased substantially. Educational structures and school distribution have also become more rational. At present VET in Beijing is in the process of:

- ✧ developing higher VET
- ✧ adjusting, reforming, synthesising and improving secondary VET
- ✧ fully operationalising vocational training

- building and consolidating a modernised VET system in the whole area
- constructing a 'fly-over' for VET and general education.

Development of VET in Beijing

VET in Beijing is mainly concerned with two levels: secondary VET and tertiary VET. Secondary VET schools and higher VET institutions, such as vocational colleges and higher VET centres respectively, are responsible for admitting graduates from junior high schools and senior high schools into the next higher level of education and preparing them for future employment. At present, VET in Beijing has secondary VET as its major sector. With the further development of the economy and the education system, and higher labour force requirements for quality first-line workers and technical personnel, the central attention of VET will soon be shifted towards higher VET.

Development of secondary (academic credentials) VET

Secondary VET in Beijing has experienced large-scale development in the past 20 years. In the 2000–01 academic year, there were 399 general secondary VET schools in total. This represented 33.9% of senior secondary education institutions in Beijing. As a group, these schools had 281 600 students at school. Of these VET schools there were:

- 108 secondary specialised schools with 119 427 students
- 144 were vocational senior high schools with 90 283 students
- 141 skilled workers' schools with 70 856 students.

In addition, 61 of these schools were designated key or model schools at national, provincial or ministry level. In 2000, 75 296 students were enrolled in secondary VET, representing 53.3% of the total enrolments in senior secondary education. There were 65 890 students enrolled in general senior high schools, representing 46.7% of the total enrolments in senior secondary education.[11]

School types

Beijing secondary VET mainly consists of general secondary specialised schools, vocational senior high schools and skilled workers' schools. They are the major providers of secondary vocational and technical education and training. In the main, they offer academic credentials education at the senior secondary level of education. They also include secondary specialised schools for adult learning which, by 2000, had ceased to be independent systems of schooling.

Full-time general secondary specialised schools enrol graduating students from junior high schools through the unified entrance examinations for senior high school education in Beijing. Only a very small number of these schools recruit graduating students from senior high schools through the unified national tertiary entrance examinations. The length of studies at such schools is usually four years. In 2000, 26 988 students graduated and 27 567 new students were admitted. There were 117 928 continuing students at school. The majority of the study fields offered were in the field of engineering.

Study fields offered at schools

Course offerings are based on the study fields catalogue issued by the Ministry of Education. There are also a number of new course offerings referred to in the regulations of the Ministry of Education. The regulations state that: 'General secondary specialised schools may offer some "specific specialised" courses under the framework of a broad study field'. This means that some courses are offered to meet the demands of the community and are provided on the same discipline basis and

[11] Beijing Education Commission (2001, p.18).

according to the same basic training standards. On completion of these studies, students will be issued with secondary specialised education certificates recognised by the national government.

Vocational senior high schools are mainly sponsored and administered by the education departments of the district and county governments. They offer 13 major categories of study fields with over 200 specific specialised study areas. Major fields of study focus on the third industry (that is, the service industry sector). Length of schooling is usually of three years. In 2000, there were 35 667 students who graduated from these schools, 21 965 new enrolments and 90 283 continuing students.

Characteristics of vocational senior high schools

Vocational senior high schools have altered the major courses they offer in response to changing conditions in the labour market. Upon graduation, students receive vocational senior high school graduation certificates which are recognised by the state government.

Skilled workers' schools

The main goal of these schools is to prepare students to become skilled workers. They mainly recruit graduates from junior high schools, who will undertake two to three years of studies at school. As a group they offer over 200 fields of studies/training. Course offerings are aligned to the occupations that are identified in lists of occupational categories issued by the Ministry of Labour. Students who graduate from skilled workers' schools are generally employed by the departments of labour. Graduates receive skilled workers' school certificates recognised by the state government.

Length of studies and enrolment

The length of studies at secondary VET schools in Beijing is normally of three to four years, with three years being the norm. Recruitments or admissions are through unified senior high school entrance examinations held once each year in Beijing. Graduating students from junior high schools or individuals of equal educational level in Beijing can be admitted to these schools. There are also other ways in which enrolment for junior high school graduates is possible, including admission by registration or admission in advance. However, admissions via these methods are few.

Special fields of study

At present, secondary VET in Beijing offers 13 major categories of study fields with over 200 specific majors. Basically they cover all areas. By 2000 secondary VET had supplied 1.48 million graduates to society. These graduates are to be found in all sectors of the economy and account for 12%, 25% and 26% respectively of the total labour volume in the first, second and third industries. This has basically met the needs of economic development in Beijing.

Beijing has also developed a large number of new study fields designed to meet the needs of third industry development. Among these are life services, tourism, transportation, telecommunication, information and consultation services, finance and insurance, storage and real estate. Beijing has also developed and introduced a number of leading special fields of study, including applications of computers, application of electronic technology, mechanical and electrical unification, office management and foreign language for foreign trade.

Funding sources

The major source of funding (that is, 70%) for education in Beijing is derived from the government's expenses budget. Additional sources are from local taxes, tuition fees, profits from school-run businesses, donations from social groups and individuals, and funds by enterprises etc. In addition, some secondary VET schools are sponsored by industries, some by education departments of the government, some by collectives and some by the local communities.

The VET administration system

The administration of secondary VET is carried out according to the principle of 'division of labour with individual responsibility' by departments under the jurisdiction of the city, district and county governments. A leading group has been set up to establish an overall control system for the administration of VET. This group is under the leadership of the deputy mayor who is in charge of education and consists of leaders from the government's functional departments of education, planning, labour, personnel management, finance, economy and construction. This organisation is called the Beijing VET leading group. It is responsible for co-ordinating the overall development and reforming of VET.

Dual certificates education

The secondary VET schools discussed above offer education and training which lead to dual certificates or multiple certificates. The dual certificates comprise academic credential certificates and vocational qualification certificate/certificates of technical skill grades in specialised fields. The latter certificates are obtained through technical/professional/vocational appraisal examinations organised by specific professional or trades departments in the state or Beijing government. Departments of labour offer training for such certificates. The system encourages all secondary VET students to obtain dual certificates.

A variety of program offerings

Apart from offering diploma/certificate courses, schools also offer all kinds of spare-time educational programs for adult learning and ad hoc/short-term training programs. This broadens the involvement of schools in broader educational functions.

Increased opportunities for graduates

Secondary VET school graduates may go directly into employment, continue to study in higher VET or go to general university/college. In the main, secondary VET graduates in Beijing have good employment outcomes. In 1999, an average rate of 89% of graduating students went directly into employment after graduation. This increased to 91% in 2000. The percentage of graduates finding employment related to their specialised training backgrounds was 72% in 1999 and 75% in 2000.

Development of higher VET

Higher VET in Beijing began in the late 1980s and developed rapidly towards the end of the 1990s. In 1999, the Ministry of Education, the Beijing Education Committee and the Planning Committee began to implement the 'new model–new system' approach. Since then higher VET has developed rapidly in terms of school numbers, student enrolment numbers and percentage of enrolments of students with relevant training backgrounds. In addition, a comprehensive network of higher VET institutions has been established. In urban districts, the Beijing United University, Haidan Day University and Beijing Youth Political Studies Institute, are involved in higher VET provision. In rural Beijing, six universities have set up branch campuses. Other city-level universities also run specialised field training programs of higher VET. (In the main students in general universities in China are all provided with accommodation on campus. However, students at Haidan University do not live on campus.)

Higher VET providers

There are three major methods for conducting higher VET in Beijing. These include higher VET programs run by universities, higher VET programs conducted within secondary VET schools, and higher VET programs jointly provided by secondary VET and higher education.

General universities/colleges run higher VET classes, such as those run by the Institute of Applied Technology of Beijing Industry University. VET classes are also conducted by self-sponsored,

self-funded and self-developed universities run by the local communities and subsidised by government, for example, Haidan Day University. VET programs are also conducted by vocational and technical institutes which have been independently established, including the Beijing Institute of Industry and Technology. These institutes have been established in recent years with approval from the Ministry of Education. They were formerly national-level key secondary specialised schools, or schools amalgamated with vocational universities. Institutes may be established as a branch campus of an existing university, or institute of higher VET belonging to a university (for example, the Changping Vocational and Technical Institute of Beifang Jiaotong University, and the Institute of Higher VET of Beijing Industry and Trade University). There are also higher VET classes run by independent tertiary education institutions for adult learning, such as the higher VET class of horticulture offered by the Beijing Agriculture Management Training Institute.

According to 2000 preliminary statistics, there were between 13 000 and 14 000 student enrolments in higher VET in Beijing. The quota for students with relevant background training for schools/universities offering higher VET programs was 5300 students. There were 29 general universities sponsored by ministries, of which 11 were sponsored by the city government. There were 22 workers' universities, 13 management training institutes run by ministries, and six management training institutes run by the city government. There were also two education colleges and one radio and television university. There were 19 schools that were second-level institutes and three schools were independent vocational and technical institutes.

Length of studies

Apart from the Beijing Industry Vocational and Technical College which offers the '5-year through' system, other providers offer two- to three-year programs. Students receive upon graduation a university diploma, which is recognised by the government. Currently, there is a very small number of higher VET programs offering university degrees. For example, the Vocational and Technical Teachers College of Beijing United University offers degree programs. This university has also began to offer other higher VET university degree programs in applied technology.

Target students and enrolment methods

Higher VET programs mainly recruit graduates from general senior high schools and secondary VET, and employed individuals of equal educational level, through the national unified tertiary entrance examination or the '3+2' model examination in Beijing. Students can also enter higher VET directly from secondary VET. The majority of enrolments are for graduates from general senior high schools. Enrolments for individuals in employment are the lowest in number. These are provided in table 2.

Table 2: Higher VET in Beijing (unit: person)

Year	No. of students	Enrolment numbers		
		Total	Graduates from general senior high	Graduates from secondary VET
2000	26 489	11 720	6 370	5 350
1999	16 689	9 682	6 860	2 822
1998	5 827	1 696	1 896	800
1997	3 869	1 999	1 421	578

Source: Beijing Education Committee 2001, p.30.

Establishing specialised fields of study

With higher education extending its plans for increasing enrolments, higher VET in Beijing has expanded the number of specialised fields of study that it is able to offer. In 2000 there were over 170 fields of study in higher VET. These 170 fields of study fall into three major categories: liberal arts, engineering and teacher training. In addition new fields of study have been introduced to meet

the changing needs of society and the workplace. These include subjects in information security, electronics and information technology, acoustic and visual technology, and acoustic engineering.

Increasing the numbers and types of fields of study on offer in higher VET has provided a means for responding to the economic and social developments that are being experienced in Beijing. More specifically, increased VET provision represents a major means of helping the capital city to speed up the development of a modernised service industry and a high technology industry, and to become an international and cosmopolitan city.

Source of funding

The VET schools that are run by the local community and subsidised by the government are self-supporting. However, all the government-run schools rely on funds from the city government's budget, tuition fees from students and other means of fund-raising.

Employment opportunities for students

The system of higher VET was developed in the process of the nation moving from a planned economy to a market economy. Therefore it has a strong market focus. This means that the employment of higher VET students is controlled by developments in the labour market. In addition, students from different study backgrounds have different employment outcomes. There are data to indicate that within seven months of graduation, the employment rate of higher VET students is above the 80% mark, while the employment rate of students in some specialised fields is even higher. For example, almost every year graduates from Beijing United University who have studied tourism, fashion design, interior design and some other popular specialised areas, have all found employment two or three months before their graduation. However, university diploma graduates and graduates from higher VET are beginning to experience difficulties in obtaining jobs, with higher VET graduates experiencing more problems in finding employment.

The higher VET administration system

Higher VET institutes in Beijing are under the management of three levels of administration. These are the Higher Education Office of Beijing Education Committee, district/county education bureaus and colleges. Enrolment is under the control of the higher education entrance administration offices of the city, districts/counties and colleges. Colleges have the 'autonomy to set up their fields of specialised studies', and their ability to run higher VET is 'evaluated by experts/specialist consultants'. This is the basic policy for the administration of fields of study. Colleges/schools are required to follow the basic principle of being 'flexible in adapting to social needs while maintaining the stability of course offerings'.

A breakdown of numbers of schools, schools and teaching staff in the Beijing educational system appears in appendix A.

Basic models of linkages between secondary and higher VET

Characteristics of inter-sectoral linkages in Beijing

The characteristics of the linkages between secondary and higher VET in Beijing are related to the respective histories of the two sectors. To accelerate the development of higher VET, the former National Education Commission issued the principle of 'three reforms and one addition'. However, due to historical reasons, there were hardly any vocational universities and very few independent higher specialised institutes in Beijing. As a result, Beijing has initiated many schemes for developing higher VET. Today there are over five different arrangements for the delivery of higher VET and three or more different arrangements for the delivery of secondary VET. There are varying specifications for training, length of studies, standards of curriculum and so on. Thus, Beijing has developed a VET system which is based on multiple pathways, multiple systems and multiple models.

In terms of linkages, there are linkages between secondary VET and tertiary VET, and also higher VET with full degree-offering universities. Students may access higher VET through specific entrance examinations, or identified pathways between secondary VET and tertiary VET.

Higher VET recruits secondary VET graduates with relevant specialised training backgrounds through specialised examinations. This has become the major form of linkage between the two systems in Beijing. Students, having completed studies for two to fours years in secondary VET, are admitted into higher VET through specially designed relevant specialised entrance examinations. They continue their studies for another two to three years in higher VET.

Pathways for linkages between secondary and higher VET

There are six ways for secondary VET students in Beijing to access higher VET or general higher education. These are via:

1 the '3+X' examinations organised by the Beijing examination office and the higher VET colleges involved in recruitment

2 direct entrance from pathways which lead from secondary VET to tertiary VET, and which have been jointly developed by the two sectors (that is, the '3+2', '3+3' or '2+3' models)

3 the '5-year through' model in secondary specialised schools

4 national unified entrance examinations (these are for students who want to enter degree or diploma courses in higher education)

5 Beijing higher VET self-paced learning examinations (these are for students who want to enter higher VET self-paced learning programs)

6 recommendation provided by secondary VET schools.

Graduates from general senior high schools may take national unified entrance examinations or the specially designed relevant specialised examinations of the '3+X' model to enter higher VET programs.

Ways for higher VET graduates to enter full degree courses at university

Other forms of linkages also exist between the higher VET system and the higher education system. Higher VET graduates may enter full degree programs at university through national higher education self-paced learning examinations in relevant specialised fields, or by taking and passing higher education examinations for adult learning conducted by individual universities. This allows them to gain entry into the 'diploma into degree studies' program run for self-paced learning students. On passing the examinations associated with specified subjects, students are issued with a university degree certificate, which is recognised by the state government. There are also preliminary discussions being held for implementing the 'diploma into degree' model within higher VET colleges. The city government is currently developing policies on this issue.

Major models for linkages between secondary VET and higher VET

There are principally two types of linkages between the two VET systems in Beijing, one is the examination model and the other is the linkage between school systems (length of studies) model. As secondary VET and higher VET have separate systems for administration, they also have individual school length systems. Therefore, the examination model is the more popular means for linking the two systems.

The examination model

The individual entrance examination in relevant specialised fields model

This model is also called the '3+X' model. The '3' refers to Chinese language, mathematics and foreign languages. These subjects belong to the category of general knowledge subjects. Examinations

of these three subjects are set centrally by the Beijing Higher Education Entrance Examination Office. These examinations are usually held at the same time as the national unified entrance examination for tertiary education, in July each year. These examinations are based on secondary VET textbooks and set separately from the national tertiary entrance exams. The 'X' refers to one subject in the comprehensive specialised course or two subjects from the foundation course of specialised studies fields or vocational skills course. The college that recruits students determines the examinations for these. The college(s) organise the examination papers, administer the examinations and mark the papers. The colleges involved in enrolment decide on the proportions of the examination which will be devoted to testing 'specialised theory' and 'practical skills'.

Regulations on waiving examination requirements in this model.

The Beijing Institute of Examinations has established regulations for the waiving of examination requirements. These stipulate that individuals who apply for enrolment in fields of study relevant to their training background, and also hold skill appraisal certificates (qualifying them to operate as lathe operators, fitters, electricians or chefs) or secretary qualifications, may be exempted from specialised field examinations. These skill appraisal certificates or qualifications are centrally printed by the national Ministry of Labour and Social Welfare and issued by Beijing Bureau of Labour and Social Security Welfare.

Individuals who also qualify for these exemptions are holders of computer grades certificates, and national computer application examination certificates issued by the Examination Centre of the Ministry of Education, and the holders of certificate of accounting issued by the Beijing Bureau of Finance. This means that all people who have obtained vocational/professional certificates issued by the administration department of that industry or trade/professional associations are exempted from the specialised section of the examination with the approval of the enrolling college. The certificates are converted to points. For example, the first grade or primary grade certificates receive 120 points; secondary grade certificates receive 150 points.

This 'relevant specialised examination' applies to recruiting graduates who have a relevant field training background from the three types of secondary VET schools. There are also general senior high school graduates who are enrolled through this method.

Methods of enrolment

A basic entrance requirement score is established for the whole city. According to the requirements of the specific study field, individual colleges will admit those applicants whose examination results are higher than this score. Students with higher examination results are given priority for enrolment. This model assesses both academic standards and practical skills of the candidates and is viewed in a positive light by students and colleges.

Experiments with this method started in September 1996. In that year, about 1000 secondary VET students entered higher VET through this kind of examination. In 1999, the Ministry of Education issued a policy on increasing the enrolments for higher VET. An enrolment quota of 10 000 was given to Beijing higher VET. In fact, over 200 specialised study fields in 46 general universities/ colleges were running higher VET programs. There were also 24 colleges that had enrolled 2822 secondary VET graduates through the relevant specialised examination model.

Table 3: Higher VET enrolments in Beijing in 1999

	Enrolments	Percentage
Secondary VET graduates	2822	29.15%
General senior high graduates	6860	70.85%
Total	9682	

Source: unpublished data from Department of Education, Beijing.

Table 4: Breakdown of secondary VET graduates into higher VET in Beijing in 1999

1999	No. of candidates	Percentage in total no. of graduates	No. of enrolments	Percentage of enrolments
Sec. VET graduates	4826	5%	2822	58.47%

Source: unpublished data from Department of Education, Beijing.

Self-paced learning examination for the higher education model (pilot programs of higher VET)

The self-paced learning examinations of higher VET programs were formally begun in Beijing in 1998. This new model of VET was designed by the Beijing Education Committee, Beijing Bureau of Human Resources, Beijing Bureau of Labour and Social Welfare Securities, and Beijing Educational Examination Institute. It applies to graduates from general senior high schools and secondary VET. It was developed in response to the government's desire to properly channel graduates from senior secondary education into higher VET pathways, to meet the demands of higher VET development and to implement the government's policies on preparing students for employment. Other aims were to help train senior-level practical and technical personnel, to provide opportunities for graduates from senior secondary education to continue studies at a higher level and to create favourable conditions for employment.

These self-paced learning programs are based on a VET curriculum. Students are assessed on their knowledge of theory in their specialised fields and on their standards of professional competency by way of national academic examinations and professional skills/competency appraisal. This represents a new initiative in developing higher VET in multiple forms.

Institutions wanting to offer such programs must undergo a rigorous assessment and approval process. They mainly recruit graduates from general senior high schools and secondary VET with relevant or a similar specialised training background. There are two types of providers of this model of learning. One category of provider comprises general universities or colleges, such as the Institutes of Training at Beijing Haidan Day University. The other type comprises independent schools of adult higher learning.

Examinations for graduation

Students may graduate from self-paced learning programs by undertaking two examinations. One examination is organised by the Beijing Tertiary Education Self-Paced Learning Examination Office or the like, and the other is organised by relevant specialised professional training and assessment bodies. The Higher Education Self-Paced Learning Examination committee will issue students who have passed these examinations with tertiary education diploma certificates. Such certificates are recognised by the state government. On graduation, students are awarded two certificates, an academic certificate and a professional qualification certificate/skill grades certificate. At present, only a few specialised study fields are offered via this model.

Students may be involved in self-paced learning programs on a full-time or part-time basis. Classroom teaching approaches are used in order to guarantee the quality of learning. Students must attend classes and examinations at the specified class and university.

The universities/colleges involved in such programs must strictly follow the rules and regulations on the administration of self-paced learning examinations. These are set by the Vocational Training Office of Beijing Bureau of Labour and Social Security Welfare and the Beijing Adult Learning Examination Consultation Centre. Unified enrolment, unified teaching administration, unified teaching plans and teaching materials, unified examinations and vocational competency assessment, and unified tuition standard are all mechanisms to ensure that a unified approach to self-paced learning is adopted.

Models of length of schooling

'3+2' or '2+3' linkages

In view of the fact that Beijing had very few independent higher specialised colleges, thus a weak foundation for the implementation of higher VET programs, the former Beijing Higher Education Bureau in 1993 issued a policy document which directed universities and colleges to collaborate with key secondary specialised schools. This stated that 'some general universities/colleges [were] to collaborate with some key secondary specialised schools in conducting pilot higher VET classes/ programs, for adopting the '3+2' system (that is, three years for secondary specialised school education and two years for higher VET education). [They were also to] enrol students with relevant specialised training backgrounds.'

The aim of this policy was to develop senior-level practical personnel to meet the urgent needs of construction projects for modernisation.

Over the past few years, a number of well-established vocational senior high schools have been conducting this model of training in conjunction with general universities/colleges and adult learning colleges. They have adopted the '2+3' model. The first two years of the program are devoted to the implementation of secondary VET training plans. At the halfway mark, students sit for academic examinations which are administered by the partner university/college. Based on their results in this examination students are streamed into the higher VET program, or continue in the secondary VET program for the remaining three years.

The '5-year through' model

Some national-level key secondary specialised schools have been upgraded to conduct these programs. Due to the strict control of the national government on secondary specialised schools conducting 5-year higher VET, there are only about a dozen such schools who are able to run these programs. Of these only one school is in Beijing.

Linkage methods

The linkage methods that apply to this model are based on providing for the enrolment of junior high school graduates. The entrance requirement scores for junior high school graduates is slightly higher than that for graduates of secondary specialised schools. However, higher VET programs are only offered in the available specialised study fields. Screening for entrance into higher VET occurs at the halfway mark.

Linkages between secondary and higher VET curricula

The linkage of curriculum and teaching materials must be the pivotal feature of the relationship between secondary VET and higher VET. Due to historical reasons however, the three types of secondary VET in Beijing have independent teaching administration systems. As a result there is a lack of unified curriculum standards. This means that there is no central agency to co-ordinate curriculum administration for programs aiming to link secondary VET and higher VET pathways. In addition, the orientation of higher VET institutions is not clear and there are no standardised curricula. There are also no established linkage structures between secondary VET and higher VET in terms of training goals, standards for qualified personnel, teaching methods, characteristics of teaching, etc.

In spite of these difficulties the pilot programs have achieved some progress.

A modular curriculum

Pilot projects for implementing a modular curriculum and an integrated or comprehensive form of curriculum have been in place in Beijing secondary VET for years. The theoretical foundation for these approaches is based on the principle of 'broad foundation, flexible modules'. This modular approach divides the former curriculum into four major areas: general knowledge, technical

foundation, specialised subjects and practical field training. Teaching content is designed in modules and is based on providing students with the knowledge, skills and abilities required for specific vocations. Although all the modules are discrete entities they are related to each other in some way. Teachers may select and combine the teaching modules according to the standards that have been set and according to specified training goals. This modular curriculum is flexible, adaptable and practical and helps to prevent the repetition of teaching content in secondary and higher VET programs.

Another method that has been used is to build a 'general foundation platform' for all the specialised fields, by designing a set of curriculum 'plates' to be applied in the first stages of secondary VET. Specialised subjects are then added according to the needs of specific study fields in the latter part of the schooling. Strengthening teaching in foundation courses is aimed to improve students' adaptability for undertaking specialised fields. For example, the Beijing Radio Industry School has carried out innovations in their engineering courses. During the secondary VET stage, specialised subjects are offered in modules. Students can select and combine the modules according to their individual needs. This is beneficial in terms of training qualified personnel of different types and levels. The modular curriculum provides continuity in terms of length of studies and fits in with the concept of education for life or lifelong learning. It also helps to develop a seamless pathway between elementary, secondary and tertiary VET.

Establishing the credit points system

To strengthen the linkages between secondary VET and other forms of VET, Beijing Education Committee encourages the establishment of a credit points system. At present, pilot programs are implemented in 11 schools designated by the Beijing Education Committee. There are also pilot programs in district and community schools (for example, in Chaoyang District). Early in 1998, Chongwen District commenced the pilot project 'Big VET School' where students from nine vocational senior high schools are allowed to study cross-institutional programs.

The credit points system is based on the awarding of a specified number of points for qualifications attained. It allows students to complete studies ahead of the designated time and to prepare for higher VET enrolment by studying the general knowledge and specialised subjects of other general schools. The credit points system also provides students with a broader range of subject choices. These in turn, help them to better prepare for employment and meet their requirements for higher level studies and self-development. It also opens up opportunities for employment. Professional qualification certificates and skill grade certificates gained by students and issued by the state government are recognised in their relevant specialised studies program.

Beijing has commenced implementing the credit points system in higher VET. This means that secondary VET graduates who enter higher VET may be exempted from studying certain specialised subjects based on the credit points that they have already received for prior studies. This is to avoid repetition of secondary VET studies in higher VET.

Strengthening basic general knowledge education in secondary VET and unifying curriculum standards for the three types of secondary VET

It is commonly believed that general knowledge education is not strong in secondary VET. Although it is specified in the goals of training that secondary VET graduates should attain the standard of knowledge expected in the general senior school level, in reality it is very hard for secondary VET schools to achieve this goal. This has produced difficulties for the creation of linkages between secondary VET and higher VET. To raise the standard of secondary VET graduates so that they meet higher VET entrance requirements, and to give the same value to secondary VET graduation certificates as is given to the general senior high school graduation certificates, it is essential to strengthen general knowledge education in secondary VET. To do so, the Beijing Education Committee has taken measures to standardise the general knowledge curriculum to develop unified teaching materials (textbooks) for the four basic subjects, and to

organise unified examinations on general knowledge subjects (which do not involve certificates). In particular, Beijing has implemented unified curriculum standards which are based on the 2000 syllabi for secondary VET issued by the Ministry of Education. Unified textbooks for Chinese language, mathematics, foreign languages and computer studies have also been designed and published. These textbooks were to be introduced in autumn 2001. The unified examinations on general knowledge subjects aim to unify, standardise and consolidate the teaching of general knowledge subjects in secondary VET.

In 2000, the Ministry of Education organised and formulated trial syllabi of seven general knowledge foundation courses. These were Chinese language, mathematics, English, physical and health education, basis of computer application, physics and chemistry. It also published proposed syllabi for 16 basic specialised study fields, such as mechanics of mechanical engineering, mechanical drawing, basis for electrical engineering, basis for electronic technology, etc. These syllabi are the guiding documents for the standardisation of curriculum in Beijing. Higher VET also regards these documents to be the basis for the enrolment of secondary VET graduates into relevant study fields. Today all of the secondary VET schools in the whole country are now required to implement these syllabi.[12]

To enable students to reach the required standards of general knowledge, secondary VET and higher VET have also conducted 'supplementary' or 'bridging' courses. These can be used to supplement general knowledge studies for secondary VET students who wish to enter higher VET programs and to prepare students for the '3+X' examination. Short-course bridging classes can also be conducted once students have been admitted to higher VET.

Curriculum linkages in the '5-year through' model

The process of linking secondary VET and higher VET under this model is relatively straightforward. This is due to the fact that there is a defined pathway between the two systems. The first two years of the training is mainly focussed on common courses, while the training in the latter three years is focussed on specialised studies. The school is responsible for developing the overall planning and design of programs for training in knowledge, skills and quality structures for secondary and higher VET stages. In this way the principle of keeping consistent the delivery of specialised training and avoiding repetition of curriculum and teaching is adhered to.

Curriculum system in the '5-year through' model

There is only one school implementing this model of training in Beijing—the Beijing Industry Vocational and Technical Institute. This school has removed the previous distinct division between three sections of teaching: general knowledge foundation courses, basics of specialised fields and specialised course, and developed a curriculum system of 'two plates' (common courses and specialised courses). This model reduces the focus on theoretical studies, puts more emphasis on the practical side of training and is concentrated on developing students' across-the-board or general abilities. Vertical skills training in a specific field is a secondary concern. The curriculum structures inherent in this model are based on the principle of 'broader foundation, comprehensive training'.

Characteristics of curricula

Common courses

Common courses aim to develop liberal/human qualities and general abilities in students, so that they will develop into socially mature individuals. The development of professional ethics is also emphasised. Although students are encouraged to have a healthy respect for the scientific method, they are also not strictly bound to the dictates of various branches of learning. The diversity of disciplines and the need to provide for smooth transitions between secondary and higher VET are major considerations in the design of these courses.

[12] Announcement of proposed syllabi by the Ministry of Education, Zhijiaocheng [2002] no.7.

The school has developed the courses of *functional English training*, *functional Chinese language training*, *foundations of applied mathematics* and *foundations of information technology*. These courses have been offered for six years in higher VET programs and have been very successful. In addition, the school's positive experiences with *functional English training* have been promoted in other schools/colleges.

Specialised courses

The fundamental purpose of specialised courses is the development of vocational skills. The development of these courses is in accordance with the principle of 'comprehensiveness and implementation'. Distinctions between branches of learning are blurred and the principle of being 'focussed and functional' is emphasised. In addition, the content of the curriculum is closely related to the requirements of the workplace and skills training.

Specialised courses are delivered in specialised classrooms, laboratories and practical field training settings, with the whole process of learning focussed on skills training. These arrangements help to develop the vocational skills of students. A good example is the Beijing Industry Vocational and Technical Institute's automobile utilising engineering course. The consultation committee for this specialised field has developed a professional ability analysis chart that identifies 15 areas of professional responsibility and 72 different tasks associated with these areas. Based on this analysis, a total of 35 subjects have been designed in order to provide the relevant training. These include nine common courses and 26 special courses. Practical field training accounts for 48% of the training.[13]

Curriculum linkages in the '3+2' model[14]

In this model, students study for three years in secondary VET schools (these are mainly four-year schools) and two years in universities/colleges involved in the provision of higher VET. Teaching plans and curricula are developed jointly by secondary VET and higher VET partners. Teaching plans for the two years of higher VET take into account what has been outlined in the teaching plans for the first three years of secondary VET. This ensures that there is continuity between the two stages of VET and that repetition is avoided. Secondary VET students progress to higher VET by means of a test of general knowledge.

In particular, the teaching plans of the '3+2' model take account of learning requirements for both stages. A flexible modular curriculum is delivered in the first two-and-a-half years of secondary studies, with the remaining half-year of secondary studies devoted to elective subjects. This assists transition to higher VET processes and the development of effective linkages between secondary and higher VET.

The curriculum modules for the secondary VET stage of the '3+2' model include the basis of general knowledge, foundations of specialised studies, specialised courses and electives. The linkage to the higher VET stage is by means of the elective subjects. Curriculum modules for the higher VET stage of the program comprise professional qualities, specialised knowledge and practical skills. In addition, schools implement different teaching plans according to the specific situations and needs of students, or provide within the same teaching plan, more freedom and choices for students.[14]

Policies on linkages between secondary and higher VET

The Beijing Education Committee has established a series of policies on developing linkages between secondary and higher VET. These are described below.

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[13] Hu Dingzhang, Liu Yiwen, 'Constructing 5-year higher VET curriculum system with a focus on ability training', Beijing Industry Vocational and Technical Institute.

[14] '3+2 model in higher VET teaching plan of computer subjects', by consultation committee for computer subjects of secondary VET in China (draft), Oct. 2000.

Blurring the boundaries between the three types of secondary VET and accelerating the unification of secondary VET

The unification of secondary VET is crucial to the development of the linkages between secondary and higher VET. Based on Ministry of Education's objective to unify all three types of secondary VET under the umbrella term of 'secondary vocational and technical education', the Beijing Education Committee has established goals for building a fly-over style education system, which links all the different forms of VET in Beijing. A fly-over can be understood to mean a system of flexible and interlinking pathways which enable individuals to move between various levels of the education and training. The committee plans to complete building the fly-over by 2002.

Unifying standards of the basis of general knowledge foundation courses for all the districts

From the end of the 1990s, the Beijing Education Committee has established a unified general knowledge curriculum which includes the three major areas of Chinese language, mathematics, foreign languages and computer studies. New textbooks for these courses have been produced and standards for unified examinations on general knowledge courses have been developed.

Adopting systems for applying credit points, flexible study and administering student records

The flexible study system has been implemented in secondary VET. Students are allowed to complete their studies in segments. This has meant that there is no longer only one chance in a lifetime for students to enter higher VET. It has also broken down inflexible classifications of branches of learning and altered the student record administration system. Thus the flexible system has provided learners with multiple-choice, multiple-chance education.

Beijing started to reform its student record administration system from the start of November 2000. Schools now have the power to decide and process students' applications for transfer from school to school or from study field to study field. However, this is restricted to secondary specialised schools and vocational senior high schools. In some district and county schools, students are allowed to transfer from vocational senior high school to general senior high school. This has enabled a small number of students who have achieved excellent results in general knowledge subjects to transfer into general senior high schools, and some students in general senior high schools, who have difficulties in keeping up with studies, to transfer to vocational senior high schools.[15] A complementary system has been established between schools, between specialised study fields, and between academic credentials education programs and short-course training programs. This system allows students to transfer to other specialised study fields or other schools. Students who have transferred from other types of secondary education schools can claim credit points for the studies they have completed in the original school or program.

Broader channels for entry into higher VET by secondary VET students

A 'recommendation' method has been put forward to ensure that the more outstanding students enter higher VET. This allows schools to recommend outstanding students for admission into higher VET.

There have also been efforts to expand pilot projects focussed on the development of linkages between secondary and higher VET, and applying segment models of education (that is, '3+2', '3+3', '2+3' models) for arranging VET. The mid-term screening system has also been implemented.

In the first three years of these programs VET teaching is focussed on secondary VET, in the latter two or three years the focus is on higher VET. In addition, measures have been taken to realise to full advantages the resources available to both systems. For example, higher VET is able to provide diverse branches of learning and specialised subjects, laboratory facilities and information

[15] Beijing Education Committee (2000).

technology. Secondary VET has practical field training facilities and conditions, and has closer relationships with industry and trades sectors.

Abolishing the restrictions on secondary VET students in tertiary education examinations and increasing the ratio of secondary VET students in higher VET enrolments

To achieve the goal of having 30% of secondary VET graduates enrolling in institutions of higher learning, Beijing has relaxed its standards for higher VET enrolments, making policies more favourable for secondary VET graduates. In 2000, following the instruction of 'new system, new model' issued by the Ministry of Education, Beijing abolished the restriction on secondary VET students taking national unified tertiary entrance examinations and today secondary VET graduates are allowed to apply for tertiary education entrance. The proportion of secondary VET graduates in higher VET enrolment has also been increased, students who have graduated from secondary VET graduates in previous years are also able sit for entrance exams.[16]

Experiments or pilot programs in running comprehensive senior high schools

In 1996 Beijing implemented a number of pilot programs in comprehensive senior high schools. These pilot programs were aimed at strengthening and expanding the general knowledge curriculum in outstanding secondary specialised schools and vocational high schools. In this way, students' general knowledge and their overall liberal/human qualities could be improved. Another aim is to delay streaming in education, in order to build in students a solid foundation for the further study of some higher-level theories in a specialised field of technology, or for self-development purposes. At the same time this approach has provided another opportunity for students who have entered vocational schools to continue with education and training. Today there are 17 comprehensive senior high schools. In 2000, there were over 10 study fields offered. A total of 1638 students were enrolled.

Increasing the scale of higher VET through multiple pathways

Beijing government has established plans for the further development of higher VET and created favourable conditions for the development of direct linkages between secondary and higher VET. In addition it has increased the number of institutions offering higher VET programs and the number of higher VET enrolments. It has also increased higher VET funding and broadened study field options.

In July 1999, the Beijing government adopted a new administration system for higher VET.[17] Based on policy documents issued by the central government ([1999] no.2 document issued by the National Development and Planning Committee, and no.2 document issued by the Ministry of Education, no.2 [1999]), the Beijing Government stipulated that: 'Five categories of schools may run higher VET. These include:

- ✧ general universities/colleges
- ✧ general specialised colleges
- ✧ tertiary institutes of vocational and technical education (second grade college) in general universities
- ✧ schools of higher learning for adults qualified to become VET colleges
- ✧ small numbers of national-level key secondary specialised schools combined with relevant fields of adult schools of higher learning.'

In June 2000, the Beijing government issued an amendment document. This stated that: 'All the current available general specialised schools, apart from a small number of specialised fields, should

[16] Beijing Education Committee (1999).
[17] Ibid.

strengthen reforms and development in study fields, goals of training, curriculum etc, so as to speed up the transitional period towards higher VET.'[18]

From 1998, Beijing has also established higher VET examinations for those involved in self-paced learning programs. Experiments or pilot programs for the development of a multiple-form or flexible higher VET system has begun.

Increasing the quantity of higher VET specialised study fields

In 2001, 119 new specialised study fields were introduced into higher VET. The length of studies in these fields is two or three years.[19] Some of these 'new' study fields have been converted from existing study fields in universities/colleges and in colleges of adult learning. These new fields not only help to increase the enrolments of secondary VET students into higher VET, but also broaden the range of specialised study fields. This will also encourage more secondary VET students to apply for entrance into higher VET.

Improving the reputation of higher VET and attracting more secondary VET students into higher VET

Another method for attracting more secondary VET students into higher VET and debunking the traditional view of higher VET being 'second class education' has been proposed by the Beijing Education Committee with the following conditions. 'Plans for enrolment in tertiary education, general specialised education and higher vocational education are to be deliberated and issued at the same time. Enrolment is to be processed at the same time. Higher VET graduates are to be issued with the same diploma/certificates as other higher specialised colleges. General specialised education and higher vocational education are to be equally treated.'[20]

[18] Beijing Education Committee, Jingjiao ji [2000] no.042 document.
[19] www.bjedu.org.cn
[20] Beijing Education Committee, Beijing Planning Committee, Jingjiao ji [1999] no.020 document.

Case studies in Hunan Province

Hunan Province is in the central part of southern China, to the south of Dongting Lake and comprises 14 cities/prefectures. Its area is 211 800 sq km, which is 2.2% of the total area in China and the eleventh largest region in China in terms of area. Its total population is over 64 million, made up of 51 ethnic nationalities. It is the seventh largest region in terms of population. The economy of this province is currently at the mid-level of development in China. In 2000 its GDP was 369 188 billion yuan (RMB). GNP per capita was 5590 yuan (RMB). Its comprehensive capacity ranks in twelfth place among the 31 provinces, municipal cities and autonomous regions.

Overview of education in Hunan Province

Hunan has a long and glorious history of education. Early in the Spring and Autumn Period (770–476 BC), education in the Chu state (the current Hunan region) was well developed. At that time it could be compared with education in the states of Lu and Liang and was one of the education centres in China. In the Song Dynasty (960–1279), Yuelu Academy of classical learning was established in Changsha in 976, and Shigu Academy of Classical Learning was established in Hengyang in 997. These two academies represented the first academy-style education in China. In modern and contemporary history, many famous political and military figures in China were from Hunan Province, such as Tao Shu, Wei Yuan, Tang Peng, Zeng Guofan, Zuo Zongtang,Tan Sitong, Mao Zedong, Liu Shaoqi and others.[21]

In 2000, there were 93 500 schools of all levels and 14.14 million students at school. Compulsory 9-year education was by and large realised in urban areas in 1991 and in the whole province in 2000. There is a senior secondary level school for an average of 100 000 people. In 2000 the primary school entrance rate of school-age children was 98.42%. The junior secondary school entrance rate of school-age people was 95.86%. The ratio of junior secondary school graduates in senior secondary education was 48.17%. The gross rate of higher education entrance was 12.57%. Each year about one million person/units undertook training. At present, Hunan education is consolidating the achievement of 9-year compulsory education, popularising senior secondary education, accelerating efforts to popularise higher education and devoting major efforts to developing higher VET and adult education (see table 5).

[21] Tao Shu (1778–1839): a very important minister in the Qing Dynasty; Wei Yuan (1794–1857): pioneer of reformists of school of thinking in China, famous works include 'Hai Guo Tu Zhi' and 'Yuan Shi Xin Bian'; Tang Peng (1801–1844): a well-known thinker and scholar, works include 'Fu Qiu Zi', 'Ming Lin', 'Zhi Xin Bi Chu Gao', etc; Zeng Guofan (1811–1872): a very important minister in the Qing Dynasty; Zuo zongtang (1812–1885): a very important minister in Qing Dynasty; Tan Sitong (1865–1898): one of the six leaders in the Reform Movement in 1898; Mao Zedong (1893–1976): one of the greatest political, theoretical and military leaders in China, and one of the major founders and leaders of CCP, Chinese Liberation Army and the people's Republic of China; Liu Shaoqi (1898–1969): one of the major leaders of CCP and PRC, great revolutionary, politician and theorist in China.

Table 5: Number of students in all types and levels of schools in Hunan Province

Category of education	Category of school	No. of schools	No. of students at school
Higher education	University/college	52	253 000
	Higher learning for adults	31	201 000
	Higher VET institutes	11	51 000
Secondary education	General senior high school	712	626 000
	Secondary VET	683	472 000
	Junior high school	3 793	3 292 000
Primary education	Primary school	34 521	6 639 000
Pre-school education	Kindergarten	5 473	629 000

Source: unpublished data from Department of Education, Hunan Province.

A comparison of the number of students in secondary and higher education institutions for Hunan Province appears in table 6.

Table 6: Comparison of number of students at secondary and higher education per 10 000 population in Hunan Province with the whole country

Category		Hunan Province	China	Difference	Ranking
Senior secondary education	General senior high school	95.79	95.41	0.38	19
	Vocational high school	32.75	39.97	-7.04	16
	Secondary specialised school	39.55	38.88	0.67	12
Tertiary education	General university/college	38.75	42.56	-3.78	15
	College for adult learning	30.80	29.69	1.11	13

Source: unpublished data from Department of Education, Hunan Province.

VET in Hunan Province has been established as a complete system in its own right with higher VET as the leading sector and secondary VET comprising the greater component. There are linkages between academic credentials education and non-credentials education, VET and general education and adult education, as well as linkages between secondary and higher VET. In 2000, there were 962 secondary VET schools in the province. Of these, 121 were general secondary specialised schools, 510 were vocational high schools, 164 were adult secondary specialised schools and 167 were skilled workers' schools. The total number of new enrolments of these four types of schools was 241 100. There were 604 800 students at school. These two figures were 42.7% and 50.9% in the whole of senior secondary education sector in Hunan.

The further breakdown numbers are: new enrolments of 63 600 into secondary specialised schools, with 258 300 students at school; 126 800 new enrolments into vocational high schools, with 241 800 students at school; 28 400 new enrolments into adult secondary specialised schools, with 58 800 students at school; 23 200 new enrolments into skilled workers' schools, with 45 700 students at school.

There are 145 institutions of higher VET in the whole province. Among these are 11 independent VET colleges, 11 technical institutes (higher-level skilled workers' schools), 44 general universities/ colleges, 14 institutes of higher learning for adults and 65 general secondary specialised schools-run higher VET classes/programs. Hunan Agriculture University and Hunan Normal University have set up second-level VET institutes to offer higher VET. The total annual new enrolment of higher VET in Hunan Province was 26 800. There were 51 000 students in higher VET programs. In addition, 245 000 people received workers training and 4 169 900 persons/units of farmers undertook training.

Types of education involved in linkages between secondary and higher VET

There are four components in the Hunan education system: primary education, secondary education, adult education and tertiary education. VET consists of school-based VET and vocational training programs. School-based VET is related to academic credentials education; vocational training is related to training which leads to professional qualification certificates, skill grade certificates and training certificates. School-based VET represents the major VET provision in Hunan. It comes under the responsibility of administrative departments of education. Vocational training is an important part of vocational education in Hunan. It is under the control of administrative departments of labour.

Linkages between secondary and higher VET comprise the association of secondary and higher VET with the education system, and connections between VET and other types of education. Within the education system, apart from linkages between secondary VET and tertiary VET, there are also linkages between specialised field diploma studies and degree studies in higher VET, as well as between (academic) degree-based higher VET and postgraduate studies. Therefore, the linkages of secondary and higher VET to be discussed in this section will touch upon basic education, adult education and higher education, and education and training at secondary and tertiary levels.

Secondary education

Three categories of secondary education with 13 types of schools are involved in linkages between secondary and higher VET.

General secondary schools

Junior high schools in the main provide general education at the year 5–9 level, with a small number providing general education at the year 6–9 level. They recruit primary school graduates. Students, upon graduation, may enter general senior high school, secondary VET and the 5-year model higher VET. In addition 51.9% graduates from primary schools will enter employment either with or without training.

Senior high schools provide senior secondary education at the year 10–12 level. They recruit graduates from junior high schools. Graduates may enter general universities/colleges and higher VET programs of adult higher learning institutions. A proportion of these graduates enter employment with or without training.

Secondary VET

Vocational junior high schools recruit primary school graduates and deliver Year 5–9 compulsory education which includes some VET content for learning. These schools operate mainly in economically underdeveloped areas. Graduates will enter senior secondary education or employment.

General secondary specialised schools recruit junior high school graduates, carry out secondary vocational education and are mainly sponsored by industries/trades. Graduates enter higher VET, adult higher learning or employment.

Vocational senior high schools recruit junior high school graduates, carry out secondary vocational education and are mainly sponsored by education departments. Some graduates enter higher VET, while others will go into employment.

Skilled workers' schools provide non-academic credentials education, recruit junior high school graduates and carry out secondary vocational education. Teaching content coincides with the requirements of professional qualification certificates. Schools are mainly sponsored by departments of labour and graduates enter higher VET or directly into employment.

Comprehensive senior high schools are still at the experimental stage and recruit junior high school graduates and carry out secondary education with a combination of general and vocational education. They have usually been converted from former general senior high school or vocational senior high schools. Graduates enter universities, higher VET institutes, higher learning institutes for adults, or go directly into employment.

Secondary vocational training comprises non-academic credentials education and includes secondary vocational education. Training is delivered via apprenticeships or training programs run by training agencies, programs run jointly between schools and enterprises and government and non-government organisations. Training includes on-the-job training, job-transfer training and continuing education. On completion of training programs, trainees are issued with training certificates. They may also apply to be assessed for skill grade certificates, professional qualification certificates, or job-requirement certificates (for example, electrician's licence, driver's licence, accountant's licence).

Adult secondary education

Adult secondary specialised schools mainly recruit junior high school graduates, carry out secondary education for adult learning and are chiefly sponsored by departments of education. Graduates enter higher vocational education or higher specialised education or go into employment.

Workers and staff secondary school, cadres secondary school mainly admit junior high school graduates or young workers with equal educational record. They provide secondary education for adults and are mainly sponsored by enterprises and industries/trades. Graduates enter higher VET or go into employment.

Radio and television secondary specialised schools mainly admit junior high school graduates or their equivalents, provide secondary specialised education and are sponsored by departments of education. Graduates enter higher VET or go into employment.

Farmers' secondary specialised education schools admit junior high school graduates or their equivalents and provide secondary education for adults. Mainly sponsored by departments of education, such schools are usually set up in the counties. Graduates enter higher VET or go into employment.

Teacher training schools recruit primary teachers or graduates from junior high schools and provide teacher training for secondary school teachers. They are run by county-level education departments. Graduates enter higher VET or go into employment.

Correspondence secondary specialised schools admit graduates from junior high schools or individuals with equal educational levels of achievement. They provide adult secondary education. Graduates enter higher VET or go into employment.

Tertiary education institutions

There are three categories of tertiary education with 11 types of schools.

General higher education institutions

General degree-granting universities/colleges mainly provide undergraduate and postgraduate education. Some universities/colleges also run specialised education programs. Undergraduate programs admit graduates from general senior high schools, secondary VET and adult secondary schools, or individuals with equivalent educational records. Undergraduate education is mainly sponsored by the central government provincial/city departments. Graduates enter postgraduate studies or go into employment.

General higher specialised education institutes recruit graduates from general senior high schools, secondary VET schools, adult secondary schools, or individuals with equivalent educational records.

They provide specialised education and are mainly sponsored by relevant departments of provincial and city/prefecture governments. A small number of graduates goes on to undertake undergraduate studies, while the majority of graduates go directly into employment.

Higher VET

Vocational and technical institutes admit graduates from general senior high schools, secondary VET schools, adult secondary schools, or their equivalents. They provide higher vocational education and are mainly sponsored by provincial-level industries and city/prefecture governments. A small number of graduates go on to undertake undergraduate studies, while the majority go into employment.

Institutes of technology, also known as higher skilled workers' schools in other provinces, provide non-academic credentials education and also admit graduates from general senior high schools, secondary VET schools, adult secondary schools, or their equivalents. They provide higher vocational education and senior level skilled workers' training.[22] They are mainly administered by labour departments of the provincial government and sponsored by provincial level industries/ trades. Graduates go directly into employment.

VET teacher training colleges belong to second-level colleges of general universities and admit graduates from general senior high schools, secondary VET schools, adult secondary schools, or their equivalents. They provide higher VET undergraduate education. A very small number of graduates from these colleges enter postgraduate studies, while the large majority of graduates go directly into employment.

Senior level vocational training providers deliver non-academic credentials education and higher vocational education. Enterprises, training agents and schools run training classes/programs. Programs include training for senior-level professional positions or duties; professional in-service training, continuing education, preparation for examinations for professional credentials certificates or skill grade certificates. Upon completion of the training program, trainees are issued with certificates of training. Upon passing examinations they are issued with professional qualification certificates or skill grade certificates.

Adult higher education

Correspondence or evening universities run by general universities/colleges admit graduates from general senior high schools, secondary VET schools, adult schools or their equivalents and provide undergraduate and diploma courses in higher specialised education for adult learning. Teaching is mainly carried out by correspondence or in evening classes. A small number of graduates from specialised diploma studies enter undergraduate studies. The great majority of graduates go directly into employment.

Radio and television universities admit the same types of students as are admitted by correspondence or evening universities and provide undergraduate and diploma courses in higher specialised education for adult learning. A small number of graduates from specialised diploma studies take up undergraduate studies, and a small number of undergraduate students enter postgraduate studies upon graduation. The majority of both types of graduates go directly into employment. These radio and television universities are sponsored by the departments of education in the provincial government.

Workers' higher learning schools recruit workers who have graduated from senior high schools or have equivalent educational backgrounds. They provide adult higher learning education. Graduates enter undergraduate studies or employment. These schools are mainly sponsored by provincial government departments and large enterprises.

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[22] Skilled workers are classified into eight grades: grades 1–3 are junior-level workers; grades 4–6 are middle-level workers; grades 7–8 are senior-level workers.

College of administrators (administration cadres) admit graduates from secondary education schools or their equivalents. They provide adult higher education. Graduates may go on to undertake undergraduate studies from specialised diploma studies or into employment. These schools are mainly sponsored by provincial government departments and industries/trades.

Teacher training colleges recruit junior high school teachers, or graduates from senior high schools or their equivalent. They provide teacher training specialised education. Graduates may go on to undertake undergraduate studies or employment. These schools are mainly sponsored by education departments of city/prefecture governments.

Tertiary education self-paced learning examinations are for individuals who choose to acquire qualifications through independent studies and examinations. There are no entrance selection examinations for these programs. On passing the national examinations on the subjects of a specialised field, the learner is issued with the academic certificate/diploma by the national government. Following this the individual may enter a higher level of learning accordingly, or go directly into employment.

Many of the institutions described above offer a variety of educational programs; for example, Hunan Agriculture University offers undergraduate and postgraduate education, as well as specialised education at both secondary and tertiary levels. In addition to the standard university discipline faculties and departments, the university also has an adult education college and a vocational education institute, and conducts adult and vocational education programs. Many secondary specialised schools and higher VET institutes have also implemented a variety of programs.

Table 7 details the numbers of students at schools and colleges involved in providing educational pathways which led from secondary school to higher VET in 2000. In addition to their relative size, this information also shows the diversity of providers

Table 7: Numbers of students at schools and colleges involved in linkages between secondary and higher VET in 2000 in Hunan Province

Schools/colleges	Number
General high school	1 258 219
Tertiary education self-paced learning exams	372 644
General senior high school	260 515
General institution of higher learning	101 020
Vocational senior high school	88 245
General secondary specialised school	63 625
Higher specialised school	48 916
Study-leave programs of correspondence university and evening university	28 512
Adult secondary specialised school	28 397
Institute of technology	22 300
Skilled workers' school	22 300
Radio and TV university	21 646
Vocational and technical institute	13 655
Workers' higher learning school	10 553
Vocational junior high school	5 202
Comprehensive senior high school	5 168
Teachers' training college	5 005
Workers and staff secondary specialised school	4 776
Farmers' secondary specialised school	4 613
Radio and TV secondary specialised school	3 895
College of administrators	2 901
VET teachers training college	762

Source: unpublished data from Department of Education, Hunan Province.

Table 8 provides details on the number of schools in Hunan Province involved in linkage programs in 2000.

Table 8: Numbers of schools involved in the linkages in 2000 in Hunan Province

Schools/colleges	Number
General high school	3793
Vocational senior high school	495
General senior high school	275
Skilled workers' school	167
General secondary specialised school	144
Teachers' training school	101
General institution of higher learning	52
Workers and staff secondary specialised school	51
Farmers' secondary specialised school	30
Higher specialised school	29
Comprehensive senior high school	29
Vocational junior high school	24
Workers' higher learning school	21
Cadres secondary specialised school	16
Vocational and technical institute	13
Radio and TV secondary specialised school	12
Institute of technology	11
Teachers' training college	5
Tertiary education self-paced learning exams	5
Correspondence secondary specialised school	5
College of administrators	4
VET teachers' training college	2
Radio and TV university	1

Source: unpublished data from Department of Education, Hunan Province.

Basic pathways and linkage models

Basic pathways

Linkages between secondary and higher VET in Hunan Province were initiated in 1986. As years went by, they became more and more developed. At present, there are nine pathways that describe these linkages.

Graduates from secondary VET enter relevant higher VET

Graduates from secondary VET sit for general tertiary education entrance examinations. Successful candidates are admitted into specialised training courses or undergraduate courses in higher specialised institutes. The length of studies is three years for specialised training and four years for undergraduate courses. Students who have passed the examinations are issued with the higher VET certificate of specialised training or higher VET undergraduate studies certificate. Undergraduate students of higher VET who pass English language examinations, are issued with a bachelor's degree.

The adoption of these arrangements has removed the 'dead-end' or terminal nature of secondary VET. It provides informal confirmation of the equal value of secondary VET and general senior secondary education. This assists secondary VET to strengthen its teaching of general knowledge courses and to broaden the career opportunities of its graduates. However, one problem that may arise from this is that the preparation for entrance examinations may result in teaching that is focussed on preparing students for higher VET entrance examinations to the detriment of the subjects not included in the exams. This will lead to deviation from the original training goals of

secondary VET. A breakdown of the number of schools participating in higher VET entrance exams, institutes admitting secondary VET graduates and new enrolments from secondary VET schools is presented in table 9.

Table 9: Secondary VET graduates into higher VET in Hunan Province

Year	No. of secondary VET schools participating in higher VET entrance exams	No. of higher VET institutes who admit secondary VET graduates	No. of new enrolments from secondary VET
1986	0	0	0
1990	56	4	340
1995	80	8	970
2000	120	57	6143

Source: unpublished data from Department of Education, Hunan Province.

Table 10 provides information on the universities offering higher VET courses at the undergraduate level and the number of new enrolments in these courses.

Table 10: General universities offering higher VET undergraduate courses in Hunan Province

Year	No. of universities that offer higher VET undergraduate courses	No. of new enrolments
1990	1	180
1995	2	753
2000	2	762

Source: unpublished data from Department of Education, Hunan Province.

Continuous pathways between secondary and higher VET

These programs are conducted by secondary VET schools either independently or conjointly with other secondary VET schools and higher VET institutes. They apply '3+3' or '4+2' models of training. The '3+3' model involves three years in secondary VET and three years in higher VET; the '4+2' model involves four years in secondary VET and two years in higher VET. The secondary VET stage is under the administration of the secondary VET school and students register in secondary VET. The higher VET stage is administered by the higher VET institute and students register in higher VET. The six-year curriculum is planned in collaboration between the two sectors, but implemented in two stages. Each stage has its own teaching plans and these plans must be completed within the stage. In 2001 new enrolments in this model totalled 2000.

Students in specialised training programs can be upgraded into undergraduate courses

Trials of this model started in 2001. Higher VET students, as well as students of higher specialised institutes and adult specialised institutes, after two years of studies in their higher VET institute, are selected into undergraduate courses of universities to study in the relevant specialised study fields. This enrolment has a certain quota. This upgrading can be done within the same university or across institutions. Institutes of adult higher learning and general universities can admit graduates from higher VET, higher specialised education and adult higher education into their undergraduate courses. This model helps to raise students' enthusiasm for learning and improves the qualification level of practical technical personnel. By providing a pathway for higher VET students to enter undergraduate courses, the pressure caused by declining employment opportunities for skilled personnel is eased. The problem is that, in order to make this model more attractive to students, this upgrading may cause higher VET teaching to become general undergraduate course teaching. This will affect the appropriate design and adjustment of specialised fields in higher VET.

Linkages between specialised training and undergraduate courses

This model is still at the experimental stage. In developing linkages between specialised training and undergraduate courses, a university and institute of specialised studies will draw up an agreement, which must be approved by the provincial department of education. The specialised institute will adopt the teaching plans of the university. In the first two years of the program, students will register with and undertake their studies in the specialised institute. In the next two years of the program, students will remain in the institute, but the university will be responsible for the delivery of courses. For some courses, the university will send its teaching staff to the institute to teach the courses. Students will register with the university and their student records will be administered by the university. At the moment, specialised students are limited to only upgrading to practical technical fields. Upon graduation, students will be issued with graduation certificates of undergraduate studies from the university. The implementation of this model of training helps to fully utilise the resources of higher specialised education, mobilise the specialised institute's enthusiasm and expand the scope of undergraduate education. In addition students of specialised studies welcome this model. However, universities are to some extent worried about the quality of teaching.

Linkages between undergraduate course of higher VET and postgraduate studies

Graduates from undergraduate courses of higher VET provided by the education department sit for entrance examinations which will admit them to postgraduate studies. Successful candidates are admitted into the general university or research academy to undertake master's degree studies. Students who have obtained the master's degree can then pursue doctoral degree studies. Details on the number of graduates from undergraduate courses in higher VET going into master's degree studies between 1990 and 2000 are provided in table 11.

Table 11: Number of undergraduate students from higher VET into postgraduate studies in Hunan Province

Year	No. of graduates from higher VET undergraduate courses	No. of students in master's degree studies
1990	57	6
1995	579	8
2000	794	8

Source: unpublished data from Department of Education, Hunan Province.

Linkages between comprehensive senior high schools and higher VET

This model is in the experimental stage. It has been designed to combine general and vocational education in senior secondary education and to link this with higher VET. There are two types of comprehensive senior high schools. The first type focusses on secondary VET and implements the '2+2' or '1+2' model. On entrance into the school, students will register as having both secondary VET and general senior high school student status. In the first stage of the program students undertake study in general knowledge subjects. In the second stage, the school will conduct the first round of streaming of students based on their individual characteristics/situations and preferences. Students will then either go into the general senior secondary high school or into the senior secondary vocational program. In the last year of the program, there is another round of streaming to determine whether students will remain in the same programs or move to different level programs. On graduation, students obtain an education certificate in secondary VET or general senior secondary education.

The other type of comprehensive senior high school focusses on general secondary education. This type of school usually applies the '3+1' model. In the third year at school, students study general senior high school courses and some VET courses. At the end of the three years of study, students may sit for tertiary entrance examinations as general senior high school graduates. They may also choose to remain at school for another year to study VET courses. This will enable them to obtain two educational certificates, a secondary VET certificate and a general secondary education

certificate. They can either sit for tertiary entrance examinations or take up employment. This dual certificate system appeases students' and parents' apprehension for their education and employment opportunities, and raises the educational/cultural standards of secondary VET students. The problem with this model is that the actual teaching in such schools places too much focus on the content of general senior high school studies and the teaching of specialised subjects is not strong. To some extent it may adversely affect the development of secondary VET.

Linkages between vocational education and adult education

Secondary VET students may obtain the diploma of specialised training or certificate of undergraduate studies by:

- ✧ gaining admission into adult higher learning study programs by passing adult higher learning entrance examinations
- ✧ passing self-paced learning examinations or higher education credentials examinations organised by locally sponsored institutes or training colleges, examinations of 'registered audio-visual students' organised by the radio and TV university, and examinations of website education colleges of universities.

This model is wide in coverage, broad in scale and flexible in form. It widens channels for VET school students to achieve career success. The main disadvantage associated with this model is the negative effect it has on students' specialised learning at school.

The '5-year through' model

Pilot programs implementing the '5-year through' model commenced in 1995 and this has now become a major model for linking secondary and higher VET in Hunan Province. Junior high school graduates enter higher VET directly through senior secondary entrance examinations. The length of the total study program is five years. Although there is no distinct division between secondary VET and higher VET stages, the first three years typically follow secondary VET teaching plans, and the latter two years follow higher VET teaching plans. Students must complete both secondary VET and higher VET to complete the program. Students who pass the examinations are issued with a higher VET special training certificate (that is, a diploma).

The main advantages of this model are that it can rely on a good source of students from junior high schools, it facilitates the development of combined plan for teaching and it guarantees teaching quality. The disadvantages relate to the long training/education cycle, the inability of the model to be very flexible in adapting to the rapid structural changes taking place in industry and the lack of subject choices in the secondary VET stage. A breakdown on the number of schools and number of students participating in the 5-year through programs between 1995 and 2000 is provided in table 12.

Table 12: Students in 5-year through model programs in Hunan Province

Year	No. of schools	No. of students
1995	1	260
1996	1	440
1997	1	200
1998	4	510
1999	7	1 790
2000	76	15 749

Source: unpublished data from Department of Education, Hunan Province.

Linkages between general senior secondary education and higher VET

Graduates from general senior high schools gain admission into higher VET through general tertiary education entrance examinations. On graduation, students are issued with a tertiary specialised training certificate (diploma). At present, graduates from general senior high schools are

the major source of students for tertiary vocational education. At the senior secondary education stage, general senior high school students are able to transfer into a secondary VET school at any time and obtain the secondary VET certificate after completing the specified courses at the VET school. However, very few students take up this option, as it is not very appealing to them.

This model has established an important foundation for the linking of basic and vocational education. It has broadened the pathways to successful futures for senior high school graduates, strengthened the vitality of general senior high schools and expanded the source of students for higher VET. Disadvantages associated with this model are that general senior high school graduates normally lack the psychological readiness for tertiary higher VET, suffer from having 'not enough' background in general knowledge studies and 'too much' background in specialised studies. Table 13 provides a breakdown on the number of general senior high school graduates transferring to higher VET between 1998 and 2000.

Table 13: Number of general senior high school graduates into higher VET in Hunan Province

Year	No. of recruiting schools	No. of new enrolments
1998	1	492
1999	3	1 726
2000	13	13 238

Source: unpublished data from Department of Education, Hunan Province.

Among the nine different models already described, six involve linkages within the vocational education system, one represents the linkage between vocational education and adult education, and two are concerned with linkages between general education and vocational education. Table 14 provides details on the number of students enrolling in the various linkage programs in Hunan Province.

Table 14: Models of linkages between secondary and higher VET in 2000 in Hunan Province

College/institute	Number
General senior high school into higher VET	13 238
Secondary VET into relevant higher VET	7 600
Secondary VET students enrol in radio and TV university registered audio-visual students	4 412
Continuous program between secondary and higher VET	2 000
5-year through program	1 700
Diploma of specialised training into tertiary undergraduate course	1 000
Higher undergraduate students into master's degree studies	8
General senior high into higher VET undergraduate course	0
Comprehensive senior high school into higher VET	0
Secondary VET students obtaining specialised self-paced learning exams	0

Source: unpublished data from Department of Education, Hunan Province.

Basic forms

The nine listed models can also be described as having a school system focus or a curriculum focus.

The school system focus model

This model concentrates on the linkage between secondary education and tertiary education, and between secondary academic credentials education and tertiary academic credentials education. Entrance examinations and selection of students enable secondary education certificate holders to access higher education. School education, academic credentials education, entrance examinations

and length of schooling, play a decisive role in the linkage. This is a structural form of linkage and represents the major linkage model being implemented in Hunan Province.

The curriculum focus model

This model is based on the curriculum providing the major linkage between secondary and tertiary VET. Students who have completed secondary VET may choose to enter higher VET programs by taking entrance examinations. Consideration is given to both school-based education and short-course training programs, and between academic credentials education and non-academic credentials education. Unified curriculum standards, regulated course/subject examinations and the credit points system, play a decisive role in this model. This is an intensive form of linkage.

Sometimes the two models are complementary and cannot be distinctly separated.

Mechanisms for linking secondary VET and higher VET

The establishment of common training goals and standards, streamlining of specialised study fields, development of common curriculum, unification of different schooling systems, and the establishment of continuous pathways, are major mechanisms for developing effective linkages between secondary VET and higher VET. In addition, pathways based on entrance examinations, credit points conversion and recognition of prior qualifications, also provide opportunities for students to move between secondary and higher VET.

Training goals and training standards

Common training goals are central to establishing successful linkages between secondary and tertiary VET. Both secondary and higher VET form part of the Chinese VET system, and the aim of both is to train frontline specialised personnel. The only differences between the two are to be found in the goals and standards of training applied. The goal of secondary VET is to train high-quality workers and junior and intermediate-level skilled workers. Higher VET aims to train senior-level technology workers. Because the training goals for both VET sectors are similar, albeit with differing standards of training, the problems for the development of linkages between secondary and higher VET are few.

However, there are problems experienced in the development of linkages between general senior high school and higher VET. Graduates of these schools generally need to spend some time in supplementary training before they are able to successfully move into the higher VET stage.

Specialised study fields

Although the specifications of secondary VET specialised studies are not identical to those for higher VET, there are some similarities. There are over 200 specialised study fields in secondary VET, but only a few dozen of such fields in higher VET. Normally, there are a number of secondary VET specialised fields that can be aligned to one higher VET specialised field. However, there is a substantial number of secondary VET specialised fields which cannot be located in higher VET specialised fields. In addition some of the secondary VET specialised fields do not continue into further studies. Students need not upgrade to higher VET before going into employment. The linkages of specialised study fields between secondary and higher VET are usually based on general categories of specialised studies. Secondary VET graduates are admitted into identical or similar specialised fields in higher VET.

Common curriculum

As already noted, the curriculum is central to the creation of effective linkages. At the same time, however, it also provides some problems for the development of effective linkages. Different types of VET schools have adopted different curriculum systems. From 2000, 5-year higher VET schools

in Hunan introduced a common curriculum system. From 2001, secondary VET also started to follow a unified disciplines (fields of study) program, teaching plans and examination standards. In addition, the 3-year higher VET system started to adopt the unified curriculum. Linkages between the five general knowledge subjects in secondary and higher VET have also been established. Details on these are provided in table 15.

Table 15: Linkage plan of textbooks for five general knowledge subjects in secondary and higher VET in Hunan Province

Curriculum type	Secondary VET textbooks	Tertiary VET textbooks
Moral education	*Marxist philosophy*	*Introduction to Mao Zedong thought*
	Introduction to market economy	*Introduction to Deng Xiaoping theory*
	Morality and law	
Chinese language	*Chinese language*, book 1–4	*Chinese language for higher VET*
Mathematics	*Maths,* book 1–4	*Maths for higher VET*
		(edition for liberal arts fields)
		(edition for science and engineering fields)
English	*English,* book 1–3	*English for higher VET*, book 1–3
Computer applications	*Computer application,* part 1	*Computer applications*, part 2

Secondary VET schools use the textbooks set for secondary VET studies. The 5-year model higher VET uses secondary VET textbooks in the secondary VET stages of the program and higher VET textbooks in the higher VET stages. The 3-year higher VET institutions whose students are from both secondary VET and general senior secondary education, use higher VET textbooks. Higher VET programs enrolling students from secondary VET in the *Computer applications* subject will use the text book *Computer application*, part 2. Those enrolling students from general senior high schools will use the text *Computer applications*, parts 1 and 2.

The '5-year through' model is the only model used to provide pathways between specialised courses and practical field training courses. Currently, there exists substantial repetition in secondary and higher VET specialised courses. For practical field training courses, there are also some reversed sequences. In addition, other courses, such as aesthetics education, environmental protection and entreprenuership education, are not properly linked. See tables 15 and 16.

Unification of school systems

Although the linkages of school systems in Hunan Province are varied, there are two major categories. These are described below.

Linkages between separate systems of education

This represents the major form of linkage between secondary and higher VET. Secondary VET and higher VET conduct separate forms of education, with secondary VET graduates entering higher VET through entrance examinations. In each of the secondary VET and higher VET sectors, there are several types of schooling systems. The majority of secondary VET is conducted at three-year schools. There are also some two-year or four-year schools, however. Although the majority of higher VET is concentrated in the three-year programs, there is also some higher VET delivered in two-year and four-year programs. The four-year programs in higher VET are usually undergraduate courses (that is, degree courses). Linkages between the systems have enlarged the pool of students for higher VET. However, differences in length of schooling, large diversities in specialised study fields and complicated assessments of skills in secondary VET, have provided problems for the success of these linkages. These problems have also been exacerbated by the focus of higher VET on relevant specialised entrance examinations and general knowledge and theoretical subjects. In addition the quality of teaching in higher VET has also suffered.

The continuous pathway model

This model is based on the development of plans for locating secondary and higher VET along one continuous pathway (for example, the '5-year through' model). This model is effective in the linking of secondary and tertiary VET, because teaching can be planned for all the five years of the program.

Entrance examinations, credit points conversion and recognition of educational certificates

Higher VET specialised entrance examinations apply to two levels: undergraduate studies (that is, tertiary degree studies) and higher VET specialised diploma studies. Students from 17 specialised field categories may undertake these examinations. Graduates from vocational senior high schools, vocational secondary specialised schools, general secondary specialised schools (including teacher training schools), adult secondary specialised schools and skilled workers' schools, are all eligible to apply for these examinations.

The teacher training field only recruits graduates from secondary teacher training schools, while graduates from other fields may choose to apply for any specialised field. The '3+X' assessment model is applied in these examinations. Examination subjects are Chinese language, mathematics, English and specialised fields. Each candidate may choose one specialised field for the exam. Non-related field entrance examinations are also divided into two levels: undergraduate courses (degree studies) and specialised training (that is, diploma) courses. The '3+X' model is also applied. Examinations include Chinese language, mathematics, English language and a comprehensive examination on liberal arts or science and engineering. Details on the '3+X' model are provided in table 16.

Table 16: '3+X' model in higher VET relevant specialised entrance examinations in Hunan Province in 2001

No.	Specialised category	Exam subjects
1	Teachers training	*Psychology; pedagogy*
2	Planting	*Foundations of agricultural technology; planting technology*
3	Marine culture	*Foundations of agricultural technology; breeding technology*
4	Mechanical and electrical engineering	*Foundations of mechanical engineering; foundations of electrical engineering*
5	Electronic and electrical engineering	*Foundations of electronic technology; foundations of electrical technology*
6	Computer application	*Personal computer operation system and its application; foundations of data base*
7	Architecture	*Building structure; building construction technology*
8	Tourism	*Introduction to tourism*
9	Medical and health work	*Anatomy and tissue embryology; physiology*
10	Finance and accounting	*Foundations of accounting; industrial and commercial accounting*
11	Commerce and trade	*Foundations of accounting; marketing*
12	Office work management and secretary work	*Foundations of clerical work; practical writing*
13	English	*English grammar; English reading*
14	Fashion and clothing	
15	Arts and crafts	
16	Music	
17	Dress art and modelling	
18	General knowledge subjects	*Chinese language; mathematics; English*

At present, the linkage between secondary and tertiary VET is primarily achieved at the *school systems* level.

The credit points conversion model, however, is in the experimental stage. In this model the school allocates credit points for each subject based on the number of teaching hours and hours spent in practical field training. Each point accounts for 16–18 hours of teaching. Public welfare activities, military training, school entrance education programs and graduation education programs, also attract credit points. In general, 32–36 hours of such activities/programs account for one point. For the three-year specialised studies programs, there is a minimum total number of 170 credit points; for the four-year program the minimum total number is 220 credit points; for the '5-year through' or '3+2' model programs the minimum total number is 270 credit points.

Schools conducting the pilot programs in these models allow students to undertake cross-institutional or cross-specialised fields studies according to the individual interests, situations and social needs of students. Students are also allowed to undertake part-time studies and to complete studies by segments. The credit points conversion system is still in its developmental stage and research is being conducted into the most appropriate methods for assigning credit points for programs conducted in different schools, relevant specialised fields, academic credentials education, vocational qualifications training and various forms of short-term training.

China has adopted a unified academic credentials system. This means that educational certificates recognised by the state government can be converted within all types of secondary and higher VET.

Main policies for developing linkages between secondary and higher VET

Background

Developing VET and higher VET.

From around 1985, the national government launched the policy for developing vocational education and promoted it energetically. In 2001, the government of Hunan Province held a conference on VET and adult education work to strengthen the development of VET in the Province. Although prior to 1999, the national government's policy was to steadily develop the higher education sector, in 1999, the policy was to actively develop higher education and to expand admission into higher education.

Reforms to higher education

The expansion of entrance into higher education was mainly in the areas of higher VET. This was intended to promote the popularisation of higher education.

Decentralising the administration of higher VET

Responsibility for the overall planning and administration for higher VET was moved from the central government to the provincial governments. Local governments and schools were also given power for development planning, admission and graduation certificate management.

Nationally, this new administration system has been developed to enable higher VET institutions to better meet labour market needs and to develop institutional autonomy. In addition, it also means that the government no longer assigns individuals to jobs (as before) and that there are no longer requirements for students to alter their certificate of residential status. Tuition fees are now set according to what it costs to provide the education.

The Hunan Government has also implemented policies that take account of local needs. Today, higher VET students are able to alter their household registration when they move to higher VET institutions, and the provincial government issues graduates with graduation certificates and dispatch certificates after they have found an employer/employing unit. In addition, tuition fees represent only a certain percentage of the total cost of training.

Developing higher VET with available teaching resources

Existing vocational universities, independent institutes of adult higher learning and higher specialised schools, have been converted into higher VET institutes by a process of reform, re-organisation and changes to the school system. In addition, a number of secondary specialised schools have also been converted into higher VET institutes.

Diversifying the provision of higher VET

The development of higher VET has occurred not only in relation to academic credentials education but also in vocational training.

Preventing the decline of secondary VET

From 1999 onwards, secondary VET in Hunan began its downward spiral. To prevent further decline the provincial government introduced a series of policies to implement linkages between secondary and higher VET to boost the development of secondary VET.

Policies on the linkages between secondary and higher VET

Increasing the pathways between secondary and higher VET

Because China has in place a unified national entrance examination system, the student admission policy has become the key issue to be resolved in the development of linkages between secondary and higher VET. In 1986, Hunan Province began to allow graduates from vocational secondary specialised schools (that is, senior secondary education) and general senior high schools to enrol in VET teacher training colleges to undertake studies in four-year undergraduate courses or in three-year specialised training courses. In 1994, it also introduced the '5-year through' model. In 1999, graduates from adult secondary specialised schools, skilled workers' schools and general secondary specialised schools, became eligible to enter higher VET institutes. The following year former graduates of secondary VET schools were also able to enrol in higher VET. In 2001, students in higher VET specialised courses were allowed to upgrade to undergraduate courses, and begin studies in the continuous '3+3'model of secondary and higher VET. So far Hunan has by and large established an effective pathway between secondary and higher VET.

Blurring the dividing line between the two different types of VET

To promote the secondary/higher VET linkage, the Department of Education of the Hunan Government issued a policy in 2000 aimed at blurring the dividing line between secondary VET schools. This brought the vocational senior high schools, general secondary specialised schools and adult secondary specialised schools, under the umbrella term of 'secondary vocational schools'. These three types of schools were required to display five common features, including a unified curriculum set-up of specialised fields, a defined school system (that is, length of schooling), curriculum standards, examination management and administration of student records. Specific measures have been implemented to achieve these arrangements.

At the tertiary level, similar policies were applied to bring higher vocational education, independent specialised education and adult higher learning institutes, under one unified system. These measures were taken to enable these sectors to share the responsibility for the training of qualified practical specialised personnel of high technology. Pilot projects on the credit points and flexible study systems have also been conducted in both secondary and higher VET sectors.

In terms of responsibility for secondary vocational education, adult education, independent higher VET institutes and independent adult institutes of higher learning, came under the control of the Department of Vocational Education and Adult Education of the provincial Department of Education. This was to avoid the separation between secondary and higher VET and to guarantee a co-ordinated development of secondary and higher VET linkages.

Perceived benefits

The aim of opening up choices for individuals was to construct a lifelong education system. Diversified choice was also viewed as a mechanism for improving vocational skills, employment opportunities and occupational transfer skills for qualified individuals. It was also viewed as a means for providing many pathways for students wishing to enter higher education. In the past, entering secondary VET programs meant that students could only become intermediate-level skilled workers and remain as such for the rest of their lives. This also meant that they had no chance for further studies in higher education.

Increasingly it became clear that if the secondary VET system continued to be regarded as an education system solely focussed on preparing individuals for employment and one which did not provide pathways into further studies or opportunities for lifelong education, it would cease to be viable. Individuals would not go into secondary VET to improve their practical technological skills, or to acquire skills to help them meet changing skill demands required by evolving occupations and frequent changes of jobs.

The conventional view of general senior high school education was that it would lead to higher education. In fact this was the sole aim of students who undertook general senior secondary education. Having gained admission to a general senior high school meant that students were on a university-bound pathway. Students who could not get onto this pathway were not adequately prepared for entry into the workforce. To a certain extent this limited the development of young students. The linkages that have been developed between secondary and higher VET have broadened students' opportunities for developing all of their talents.

These linkages also help to develop skilled professionals and technicians, improve educational structures and educational outcomes, and promote social development. The development within the higher VET system of high technology professionals and technicians cannot be effective unless linkages are also created with secondary VET, general education and adult education. If secondary VET is limited to the 'dead-end' type of education which is only focussed on training for specific types of occupations, and general tertiary education concentrates only on producing academic elites, there would be no place for the training of high technology professionals, technicians and skilled workers. Only by constructing a 'fly-over' with linkages between all types of education, can full use be made of available human and educational resources.

The development of linkages between the VET sectors has benefits for the continuous development of secondary VET, expansion of higher VET and the establishment of flexible arrangements for the training of vocational and technical personnel. China is a developing country and it needs millions of intermediate and junior-level practical specialised personnel. For this purpose, great efforts should be devoted to the development of secondary VET. In the past, however, increased enrolments in higher VET were accompanied by declining enrolments in secondary VET. The teaching resources were also heavily drained. These factors presented problems for the continuous development of secondary VET. However, the creation of linkages between secondary and higher VET sectors has provided a new mechanism for the survival of secondary VET and contributed to its further development. In addition, it has increased its attractiveness to students.

Perceived problems and concerns

One must keep in mind that the linkage between the two sectors is only at a primary stage of development, being basically limited to academic credentials education and the school-based education system. This means that linkages have not been applied to non-academic credentials education and short-term training programs. Furthermore, the development of effective connections between the two systems is more concerned with the length of time students spend in each sector, rather than with the integrating role that can be achieved by a common curriculum. By concentrating on linkages that are based solely on time spent in secondary programs and higher

VET programs, there is a risk that secondary VET programs will not slot neatly into higher VET programs. The saying 'the lips of donkeys do not match the jaws of horses' can be used to describe pathways that cannot be effectively linked on the basis of length of schooling. It seems that there is still a very long way to go before linkages centred on the curriculum (that is, intensive linkages) become the norm. Furthermore, this type of linkage has only been applied to the pathway between employment and higher education. All the other pathways have been intentionally or unintentionally directed towards higher education. Vocational education continues to be regarded as a 'second class citizen' to other forms of education and proper streaming for the development of human resources has not yet been achieved.

Suggestions for improvement

Adopting a well-balanced and theory-based approach

The implementation of linkages between secondary and higher VET must be guided by appropriate educational, economic and management principles. This means that linkages should be based on psychological theories of human cognitive and motor skill development, economic theories of maximisation of benefits and pedagogical theories of lifelong learning.

There is also a need to find a balance between learning from international approaches and taking into account the needs of local situations, satisfying people's short-term study demands and those required for long-term planning, and between accelerating higher VET development and ensuring the ongoing development of secondary VET.

The principle of establishing open, adaptable, standardised and co-ordinated linkages between secondary and higher VET should also be adhered to. By creating linkages between various types of VET schools and institutes, eliminating obstacles and resolving pressures, there will be substantial benefits for each sector. Schools can operate with high efficiency and human resources can be properly deployed to satisfy the demands of the labour market.

Simultaneous launching of enrolment policies and development of appropriate curriculum

When policies for encouraging the creation of linkages between secondary VET and higher VET, and between general education and vocational education are launched, a curriculum should also be established so that it can be implemented when the linkages are implemented. However, basic education, vocational education, adult education and higher education come under four different administration systems, with each system being responsible for developing its own curricula, hence the difficulty in establishing curriculum linkages between the systems, and creating interlinking pathways between secondary and higher VET. This means that when secondary VET graduates enter higher VET, they experience problems related to repetition of subject matter, disjointedness, lack of balance between subject matter and reversal of learning sequences. These difficulties have had a major and negative impact on teaching outcomes.

Incorporating focus on linkages into regular government planning processes

The development of linkages between secondary and higher VET should become part of government general planning processes. As well as requiring the involvement of education departments, it is also important to involve other government departments in the process. This means that departments dealing with human resources and business management systems will need to adjust to the new requirements. In addition, governments should also consider the development of effective linkages in their plans for institutional reform and economic and social development.

In addition, plans for further developing the linkages between secondary and higher VET should be included as part of the general business of government planning activities. Only in this way can these linkages be developed in a scientific and standardised manner.

Case studies of individual institutions

Changsha Aviation Vocational and Technical Institute

General introduction

Changsha Aviation Vocational and Technical Institute was a previously general secondary specialised school and school for adult higher education. Formally established as one institute in March 1998 through the approval of the Ministry of Education, it is an independent institute sponsored by the central government. Its task is to train senior-level practical technical personnel for the aviation maintenance system and for local economic development. It is the only higher VET institute in Hunan which has been approved by the Ministry of Education to act as a role model for other institutes.

The institute has 332 staff members, of whom 165 are full-time teaching staff. Of these, 45 hold senior specialised professional titles and 73 have intermediate-level titles. The institute is made up of four faculties: aviation engineering, mechanical and electrical engineering, electronic engineering, and economics and trade. In addition there are 15 higher VET specialised fields offered: aircraft and engine maintenance, mechanical and electrical unification, practical electronic technology, computer technology and application, modern commerce and business studies, etc. A total of 4000 students are at the school. Of these 3200 students (80%) are enrolled in specialised studies. Students are from 27 provinces (municipalities and autonomous regions). Graduates take up employment in 17 provinces (municipalities and autonomous regions). In recent years, the employment rate of graduates has remained at 90% and above.

The institute occupies an area of 230 000 square metres. Its buildings comprise about 100 000 square metres. Fixed assets are 0.1 billion yuan (RMB) in total value. The library has a collection of over 150 000 books. The institute has 350 computers, 10 aircraft and 12 aircraft engines for teaching. The institute has well-equipped laboratories and practical training workshops. In addition there are eight external field-training bases which provide regular field training for students.

Types of educational provision

There are three major types of educational programs offered by the institute. These include:

- ✧ undergraduate course of higher VET (the government regulated quota for this year's intake is 140 students)
- ✧ specialised training (diploma) of higher VET (3-year higher VET; 5-year higher VET; adult higher education)
- ✧ secondary VET (3-year secondary specialised education).

Forms of linkage between secondary and tertiary VET

These include linkages between 3-year higher VET specialised training courses and:

- ✧ secondary VET (for example, vocational senior high school, vocational secondary specialised school, general secondary specialised schools)
- ✧ general senior high school
- ✧ linkages between the general junior high school and the 5-year higher VET specialised training course.

There are also linkages between higher VET specialised training courses and higher VET undergraduate courses, and between higher VET specialised training courses and university general undergraduate courses. Specific mechanisms for linking various pathways include: connection between specialised training and undergraduate studies, specialised training upgrading to undergraduate studies, self-paced learning examinations and distance education.

Practical implementation

Linkages between lower and higher VET are manifested through training goals, teaching plans, curriculum design, administrative structures and the professional development of teachers. The school also aims to improve the standards of its practical field training bases.

Training goals

Higher vocational education is an important part of higher education and comprises the higher level of vocational education. The goal of higher VET is to train specialised personnel in areas of practical high technology to meet the needs of production, construction, management and service. Thus individuals must have both the necessary theoretical knowledge and strong practical skills.

Teaching plans

In designing teaching plans for higher VET specialised training programs the common goals of training and differences between students from different education backgrounds must be taken into account. Generally speaking, for students from general education backgrounds (including graduates from general junior and senior high schools), an emphasis should be placed on developing their vocational/professional abilities and skills, as well as on improving their level of theoretical knowledge. For students from VET backgrounds (including those from vocational senior high schools, vocational secondary specialised schools and general secondary specialised schools), attention should be given to improving standards of theoretical knowledge while also developing vocational consciousness and skills.

Curriculum design for students with VET backgrounds

Bearing in mind that students from secondary VET have already obtained a certain vocational awareness and mastered a certain amount of basic knowledge and specialised skills, the institute has adhered to the following guidelines:

- ✧ Theory subjects must be linked with secondary VET and lead on from secondary VET (for example, the *electrical engineering technology*, *analogue electronic technology* and *digital electronic technology* offered in the course, Applied Electronic Technology).
- ✧ Practical training should focus on developing students' applied technical skills during the process of operation skills training. For example, in the field of computer technology and application, practical training is offered in *common use software*, *network design and construction*, *network management and maintenance*, etc.
- ✧ Foundation courses do not emphasise systematic and complete studies and are focussed on providing 'necessary and enough for use' knowledge. There will be an emphasis on specialised foundation courses serving the needs of specialised courses, and general knowledge foundation courses serving the needs of specialised foundation courses and specialised courses.
- ✧ Specialised courses stress practical, comprehensive and up-to-date knowledge and skills. This means that they must reflect new technology, new design and new materials. For example, the field of numerical control application studies, has combined *principles of metal cutting and cutting instruments*, *machine tool* and *machine tool fixture* into one subject—*foundations of machinery manufacturing*. Other subjects, including *techniques of special treatment (processing)* and *advanced manufacturing techniques* etc. have also been developed.

School administration

The school has also implemented the following administrative structures.

- ✧ Students in the 5-year higher VET program are treated as secondary VET students in the first two years of the program and as higher VET students in the last three years of the program. This is to take account of their age and physiological characteristics.

- ✧ Students may take elective subjects in both areas to improve their knowledge of liberal arts and professional skills, and to develop all-round qualities.
- ✧ The school has adopted a multiple certificates system. On graduation, students not only receive the relevant education certificate, but also obtain certificates covering computer applications and certificates of English. They will also acquire skill grade certificates (or professional qualification certificates) related to their specialised training fields.

Teacher professional development

In terms of teacher development, the aim of the school is to improve teachers' academic qualification levels and to increase the ratio of teachers with two certificates (that is, academic and professional/technical certificates).

Practical training

The school aims to increase the effectiveness of laboratory and practical field training by improving the modernisation standards of practical field training bases.

Advantages of implementing linkages between secondary and tertiary VET

There are three major ways in which benefits of linkages between secondary and tertiary VET are experienced.

- ✧ A linkage is created between secondary and higher VET. Students, especially outstanding students of secondary VET, can choose not only to go into employment, but also to further their studies at a higher level. This helps to raise students' enthusiasm for learning. In addition, the higher VET system can have more opportunities to select quality students and improve the quality of its teaching.
- ✧ Creating an interlinking pathway between secondary VET and higher VET enables students to spend a long period of time in the vocational education system. This helps them to develop their vocational/professional awareness and to develop their vocational skills and vocational adaptability. This not only increases students' employment opportunities, but also enables them to establish themselves in jobs once they enter employment. In addition, it also provides them with more possibilities for success in their future careers.
- ✧ Linkages between the sectors also help to improve the educational system and more effectively deploy VET resources. They give impetus to higher VET development, while encouraging the further and effective development of secondary VET.
- ✧ Implementing the linkages helps to build up a system of lifelong education and achieve connections between the different types and levels of education.

Changsha County Vocational Senior High School

General introduction

Established in 1983, Changsha County Vocational Senior High School is a state-owned comprehensive rural secondary vocational and technical school. From 1996 to 2000, the school was twice evaluated and approved by the Ministry of Education to be a 'national-level key secondary vocational school'. The school occupies a total area of 314 mu (1 mu = 1/15 hectare). Its building area is 40 200 square metres. Currently the school offers 11 specialised studies fields—modern planting, animal husbandry and veterinary studies, business English, office automation, industrial and civil construction, computer application, clothing and fashion designing, automobile driving, rural medical doctor, electronics and electrical appliances, electronic accounting, etc. There are 44 classes. A total of 1806 students are studying for an education certificate at school and 1200 people undertake short-course training programs each year. There are 145 staff members on the payroll.

The school's mission is based on four major principles. These are to:

- ✧ meet the needs of the countryside and local farmers
- ✧ run agricultural programs for the countryside and for farmers
- ✧ train qualified personnel
- ✧ promote processes for developing high yield of production and popularise science and technology to revitalise the rural economy.

Education systems

There are three streams of education provided at the school. These are:

- ✧ vocational senior high school
- ✧ general secondary specialised school
- ✧ 5-year higher VET.

Linkages between secondary and higher VET

The following three major types of linkages between secondary and higher VET have been established in Changsha County Senior Vocational High School.

Combining of secondary and higher VET (continuous model)

The school runs this program in conjunction with the higher VET institute and recruits graduates from junior high schools. Students study Chinese language, mathematics, foreign languages, physics, electronic technology and other basic subjects for their first two years at the school. After this they move into higher VET without having to take entrance examinations.

Linking secondary and higher VET in relevant specialised programs

The school offers courses listed in the 'disciplines (fields of study) catalogue' and according to the teaching plans issued by the provincial department of education. After three years of studies in this program, students may seek employment or enter higher VET through relevant specialised entrance examinations.

Moving into higher VET by undertaking self-paced learning examinations

While they are undertaking secondary VET courses at school, students may also be involved in self-paced learning programs in higher VET. Some students obtain secondary VET certificates as well as higher VET certificates on completion of the 3-year school program. Some of these students may need to undertake another year of self-paced learning studies after graduation from the school in order to qualify for the higher VET certificate.

Major benefits

Creating a pathway for secondary VET students to further their studies at a higher level

The development of pathways for enabling secondary VET students to enter further studies helps to increase students' motivation for learning. It also promotes the healthy development of secondary VET. In the past, secondary VET did not lead to higher studies and was regarded as a 'dead-end' or terminal education system. Students had no aspirations to be engaged in further studies and their motivation for learning was low. In addition, parents were not willing to enrol their children in secondary VET schools. Today this situation has changed and people perceive secondary VET to provide more opportunities for students to acquire skills for employment, increased income and opportunities for higher education. As a result, there has been an increase in the enthusiasm of students for learning and parents are willing to send their children to undertake secondary VET studies.

Helping to develop students' vocational awareness and skill development

The development of linkages between secondary and higher VET provides students with more employment opportunities. It also helps to meet the need for accelerating measures for the advancement of science and technology and the innovation of production processes. Although teachers taught students some practical skills in the previous secondary VET system, students lacked the ability to apply the science and technology processes they had learnt. As a result they were unable to meet the demands of rapidly developing science and technology industries and their employment opportunities were quite narrow. By undertaking higher VET studies, students are now able to acquire more solid theoretical foundations for knowledge and develop better practical skills. This added training and education not only helps them to improve their opportunities for employment, but it also assists in the continuous progress of science and technology throughout China.

Satisfying differing needs for education

The establishment of different types of linkages between the various sectors, and between lower and higher levels of education, helps in the construction of an effective lifelong education system. It also enables different educational objectives to be achieved. In the past, attention was focussed on transferring practical techniques and skills to students, and the need to develop underpinning knowledge and theory was often overlooked. With the establishment of linkages between secondary and higher VET, attention is now being focussed on the delivery of both practical skills and studies of basic theories and knowledge. In addition, students are taught knowledge and skills which will help in their future self-development and enable them to meet the demands for lifelong learning. The cycling and spiralling concept of 'constant study—improve personal quality (level of competence)—maintain competitive advantage—improve quality' will certainly push forward the continuous development and evolution of society.

Vocational and Technical Education College of Hunan Agriculture University

Hunan Agriculture University was established in 1986 as a teacher training department. It was formerly called the Hunan Agricultural College and was established in 1951. It adopted its current name in 1994.

Its major task is to train specialised subject teachers for rural vocational senior high schools. The university offers 23 specialised fields in teacher training.

Admission of relevant specialised students

A total number of 4212 students were admitted from relevant specialised training fields of secondary VET in the past 16 years. Of these 2681 have graduated from the university. The breakdown numbers for these years are provided in table 17.

During this period, there have been 252 students from specialised training programs (diploma course) and 2433 from undergraduate courses; 60 students came from general senior high schools, with the remaining students from secondary vocational schools and who had passed the relevant specialised entrance examinations. The college produced its first graduates in 1990. Up to 2001, there has been a total of 2681 graduates. A breakdown of these details is provided in table 18.

Among these students, there were 248 graduates from specialised training courses and 2433 students from undergraduate courses. Over 80 graduates entered postgraduate programs to undertake master and doctoral degrees.

In 2000, Hunan Agriculture University recruited 41 teachers from secondary VET schools into the master's degree program for the first time. These were from 11 provinces/municipalities across the country. These students studied in the three specialised fields of crop cultivation and farming, animal nutrition and feed, and agricultural economics management. In 2001, 84 secondary VET

teachers enrolled as master's degree candidates in fruit growing, clinical animal husbandry and business management programs.

Table 17: Total number of students admitted from relevant specialised training fields of secondary VET between 1986 and 2001

Year	Undergraduate course	Specialised training (diploma)
1986	90	Not available
1987	90	Not available
1988	90	Not available
1989	150	30
1990	180	Not available
1991	180	Not available
1992	182	Not available
1993	290	30
1994	299	34
1995	351	40
1996	404	30
1997	391	59
1998	431	29
1999	332	Not available
2000	354	Not available
2001	398	Not available

Table 18: Graduates produced by the college from 1990 to 2001

Year	Undergraduate course	Specialised training course
1990	57	Not available
1991	119	Not available
1992	119	30
1993	116	Not available
1994	180	Not available
1995	180	Not available
1996	212	31
1997	324	71
1998	265	Not available
1999	333	30
2000	421	57
2001	355	29

Linkages in specialised study fields between secondary and higher VET

The VET college has the benefit of being able to provide the full range of disciplines, a strong teaching force, good equipment and facilities, and a rich library collection which is based at Hunan Agriculture University. Over the last 16 years it has set up 23 specialised fields of study. These study fields cater for the primary, secondary and third industry sectors.

Training for the primary industry sector comprises nine specialised fields of study: agricultural skill/ technique, veterinary studies, animal husbandry, aquatic product, horticulture, garden/park, biotechnology, agricultural environment protection, means of agricultural production, etc. Altogether 2588 secondary VET students with background training in the specialised fields like rural household economy, animal husbandry and veterinary studies, fruit growing, modernised planting, modernised cultivation, etc. have been admitted into these study fields.

Training for the secondary industry sector comprises four specialised fields of study: food processing, mechanical and electrical (engineering), agricultural mechanisation, automobiles and tractors. A total of 667 secondary VET students who had undertaken studies in food processing, rural household economy, machinery, electronics and electrical engineering, and automobile driving, have been admitted to these programs.

Training for the third industry sector comprises the following 10 fields of study: computer maintenance and application, economics and trade, agricultural economics management, accounting, business management, marketing, land management, industrial and commercial management, finance, and business English. A total of 957 secondary VET students who had studied in the area of computing, finance and accounting, clerical work, business and commerce, and English have been admitted to these programs.

Curriculum-based linkages between secondary and higher VET

Although VET students have a relatively low level of general knowledge, they generally have a reasonable level of specialised knowledge and skill. They also have a strong vocational commitment and are hard working. Because of these student characteristics the university has implemented a number of innovations. Firstly it has aimed to recruit new students for the different departments, it has emphasised practical skills and broadened study fields and has set directions according to demand.

It has extended the field of agricultural techniques by including the study of crops, nursery and fertiliser application; the area of horticulture has been widened to include fruit growing, vegetables and flowers. It has combined the separate fields of animal husbandry and veterinary studies into one major field of animal husbandry and veterinary studies. It has also combined the separate fields of animal husbandry and fresh water farming into one major field of animal husbandry and fresh water farming. There were also major modifications made to original teaching plans. These changes removed the sections already covered in specialised foundation courses and specialised subjects in the secondary VET curriculum.

The university has also implemented the 'three segments system' which is designed to increase students' general underpinning knowledge and understanding of theory, to expand specialised study fields and to set training directions according to student needs. In establishing theoretical foundations courses and basic knowledge fields, an emphasis was placed on the development of basic abilities and skills training.

Secondly, in addressing the need to provide training that takes into account students' needs and situations, the university has tried to implement a system whereby students will only have one teacher for a particular course or subject. In this way teachers can establish good rapport with students. Moves have also been made to increase course hours in general knowledge classes. Before being admitted to the university, students must take supplementary studies of basic knowledge to enable them to be ready for university studies. By and large students from different sectors or backgrounds will reach the required standards by undertaking these supplementary studies.

Thirdly, in developing its teacher training programs the university took into account the situation in rural vocational education, provided for the systematic delivery of courses in pedagogical theory and established arrangements for effective field practice placements. The university has also compiled teaching materials for its students and has offered *rural vocational education* as a major program. In addition, it has introduced the concept of 'the second classroom' to promote the activities of 'three writing and one speech' (that is, *handwriting in fountain pen*, *Chinese brush and chalk*, and *common spoken Chinese*), science and technology projects, social practice and simulated teaching, etc. These activities have been developed to improve students' overall quality and competence and their teaching skills. Training programs at the university focus on all the principles of teacher training, combine classroom teaching with extra curriculum activities and develop in student teachers the human qualities they will need when they eventually move into secondary VET schools.

In this way the university is gradually putting in place measures for developing qualified specialised secondary VET teachers who have a 'solid foundation, broad knowledge, high-level skills and management abilities'.

In 1995, the over-supply of specialised subject teachers in rural vocational schools led the university to initiate modifications to its goals for training. Since that time it has implemented innovations in curricula and training methods, and placed an emphasis on the development of basic and practical skills in students. These have been aimed at developing qualified professionals who are not only qualified to teach in secondary VET schools, but who are also able to engage in popularising science and technology in the countryside and working in management positions in these fields. This will divert some graduates into agricultural technology areas and encourage students to study for double certificates or undertake postgraduate studies. The curriculum has shifted the emphasis on specialised field structures to comprehensive field structures. This has improved the comprehensiveness of the training enabling it to be more effective in developing students' multiple skills and talents.

Education and training in Australia

There are four major sectors in the Australian education and training system. They are:

- *schools*, including pre-schools, primary schools, secondary and senior secondary schools
- *vocational education and training (VET)* which involves publicly owned technical and further education (TAFE) institutions, private provider colleges, community facilities, schools and workplaces all over Australia
- *higher education*, which is provided in universities
- *adult and community education (ACE)* which provides a range of programs via a variety of providers.

In the past the ACE sector was mainly engaged in providing courses intended for hobbies, interests and personal enrichment. However, since the 1970s it has also become heavily involved in providing adult basic education courses. These courses provide individuals with basic language and living skills to assist them to participate in and contribute to society. As it also became evident that ACE students were using skills learnt in ACE to acquire employment-related skills, the sector also began to offer vocational education and training courses.

Schools sector

In Australia, the school sector comprises government and non-government schools. Of some 9500 schools in 1999, there were 6970 (73%) government schools and 2620 (27%) non-government schools.

The number of full-time students in schools in 1999 was over three million. Of these, 2 247 700 (70%) attended government schools and 978 980 (30%) attended non-government schools (Australian Bureau of Statistics, 2000).

In Australia, the ministers and statutory authorities appropriate to the various states and territories decide school policies, curriculum, course accreditation, student assessment, resource allocation and utilisation, and teacher employment and professional development. The governments of the states and territories also take responsibility for providing programs for increasing access and equal opportunities for all students (regardless of social or ethnic background and geographic location).

The government school system

The eight states and territories of Australia are responsible for their own government school education which ensures that all children of school age have free access to education with parents only having to pay minimal charges for the cost of school excursions, stationery and extra-curricula activities. The states and territories bear the majority of the financial responsibility for these.

The Commonwealth Government also provides financial support to government schools to ensure that school education offers students educational programs directed towards the achievement of the Commonwealth's priorities for schooling. These are aimed at ensuring that all students are allowed to realise their full potential, so that they leave school with the knowledge, skills and attitudes appropriate to their post-education destinations. Another aim is to provide students with a sound

foundation for undertaking further education and training, so that they are able to participate successfully in the workforce, and contribute to, and benefit from, Australian society.

The non-government school system

Almost all non-government schools or private schools have some religious affiliation. In 1999, almost two-thirds (65%) of non-government school students were enrolled in Catholic schools. Non-government schools must be registered by the government and must show that they can provide certain minimum standards of education and satisfactory premises.

While education in government schools is mainly free, education in the non-government schools incurs tuition fees ranging from a few hundred dollars per year in some Catholic schools to many thousands of dollars per year for senior secondary education in elite independent schools. A recent survey of fees in 200 schools shows that parents who want to give their children an elite private school education must contribute about $13 000 (AUD) per year to cover the cost of tuition. They must also put aside about $5000 (AUD) per year to cover the cost of school camps, uniforms, levies, sports clothing, stationery, textbooks, excursions and lunches. These figures were quoted for elite schools in the state of Victoria. Figures for private school education in the smaller states may be slightly lower.

Non-government schools are supported by a number of funding sources including government grants. Commonwealth funds are allocated to non-government schools to ensure that non-government school education achieves the Commonwealth's priorities for schooling. From 2001 to 2004, Commonwealth funding for non-government schools is allocated according to the measure of the socioeconomic status (SES) of school communities, based on the residential data of students (DEST 1999, 2002).

Non-government schools also receive financial assistance from their respective states' and territories' governments. The financial assistance is usually provided to assist non-government schools to meet their interest payments on outstanding debts, to recoup some monies for the fees lost through the offering of scholarships and to meet the costs of accommodating students in boarding schools.

Structure of schooling

Schooling for Australian children is compulsory from the age of six to 15 years of age (up to 16 years of age in Tasmania). Most children will start pre-school at the age of four or five years. Typically students will start school at the age of five or six years and complete six or seven years of primary schooling depending on the state or territory concerned. Students in remote areas where travel to school is difficult (for example, on cattle stations in outback Australia) may also access distance learning through School of the Air arrangements.

Students will commence lower secondary schooling from the age of 12 or 13 years. Depending on the state or territory in which they live, these students will complete their compulsory education by the time they are 15 or 16 years old. Once they have completed their compulsory education, students can leave school and go into employment, participate in post-school vocational education and training or commence their senior secondary schooling. Once students have completed compulsory schooling they may also enter apprenticeship or traineeship pathways which combine employment with structured training offered by post-compulsory (non-school-based) VET institutions.

Students who decide to continue their secondary school studies will undertake two years of senior secondary school education. They may undertake these studies by remaining in the same school, or in some states, by attending a senior secondary college. Depending on the state or territory in which they live, they will complete their Senior Secondary Certificate at the age of 17 or 18 years. These last two years are known as Year 11 and Year 12.

Some states (for example, South Australia and Queensland) also make it possible for students to remain for an extra year, known as Year 13. Sometimes students who have been unsuccessful in

obtaining employment directly after successfully completing Year 12 will return to school for this extra year. At other times students who have been successful in completing Year 12 but would like to add more subjects to their qualifications may also return for an extra year.

There are also students who return to school for an extra year to repeat Year 12 studies so that they may improve tertiary entrance scores if they have not been successful in being admitted to TAFE or university courses of their choosing. Students who have not been very successful in the final Year 12 examinations and have achieved low scores with respect to the total cohort, may choose to repeat Year 12. In addition, those who have been quite successful in examinations and have achieved higher-than-average scores but would like to improve on these so that they may be able to enter more competitive courses, may also choose to repeat Year 12.

There are also arrangements for school leavers and other adults to return to education to acquire senior secondary qualifications and obtain the necessary qualifications or scores for entrance into university or other institutions of further studies. In some states these arrangements are attached to the TAFE sector, in other states these arrangements are provided by the school sector.

While undertaking their senior secondary school education, students may follow diverse pathways. They may undertake general subjects which will enable them to enter university, or a combination of vocationally-specific subjects and general subjects, which may lead them to further studies in post-school VET or university, if they achieve the required tertiary entrance scores. Students are also able to engage in part-time, school-based apprenticeships or traineeships that enable them to complete their senior secondary certificates and also be involved in paid work. These can be converted to full-time apprenticeships or traineeships once the student completes secondary school studies.

As the states and territories of Australia are responsible for their own school education system, there is no common school curriculum across the nation. Nevertheless, Australian students are exposed to a curriculum that provides coverage of English language, arts, mathematics, science and technology, social studies, humanities, the creative and performing arts, physical education and foreign languages.

Participation and retention rates

In 1999, the age participation rates for full-time students were 92.8% for 15-year-olds, 80.8% for 16-year-olds and 61.8% for 17-year-olds.

Apparent retention rates are in the main higher for female students than for males. The apparent retention rates are higher for students attending non-government schools than those attending government schools. Table 19 provides a breakdown of the apparent retention rates for males and females according to schooling sector.

Table 19: Apparent retention rates of full-time secondary students, from Year 10 to Year 12 for 1999 (%)

	Males	Females	Persons
Government	68.9	79.9	74.4
Non-government	63.5	75.8	69.6
Total	79.6	87.6	83.6

Source: ABS (2000).

Over the last 30 years or so, the proportion of students remaining in the school education system beyond their compulsory years has increased substantially. The apparent retention rates of full-time secondary students from Year 10 to Year 12 increased to 74.4 % in 1999 from 46.4% in 1985. Increases in the proportion of students completing senior secondary schooling has important implications for the curriculum provided in senior secondary years of school. Previously, senior secondary schooling was directed towards university entrance. Today students are able to engage in a number of education and training pathways.

The vocational education and training (VET) sector

In Australia the VET sector is concerned with providing training for school students, school leavers and individuals desiring qualifications or upgrades to existing qualifications, or wanting to acquire new skills. In addition it is also concerned with providing bridging courses for those who want to enter certain programs but lack the necessary literacy or numeracy skills or prerequisites. Typically, VET programs leading to qualifications are undertaken through public or private registered training organisations (RTOs). Although private provider colleges and adult and community education providers are becoming increasingly important providers of VET, the majority of VET provision takes place in TAFE institutes. Some enterprises, schools and universities also have RTO status.

Detailed information about the Australian vocational education and training sector is provided in subsequent chapters.

The higher education sector

The higher education sector mainly refers to the universities of Australia. There are 43 public higher education institutions and three private universities in Australia. There is also a range of privately funded institutions (such as theological colleges) offering higher education courses.

The Commonwealth Government has the primary funding and policy-making responsibility for the public higher education system, while the states and territories are responsible for legislation relating to the establishment of universities and accreditation of the higher education courses of the private providers.

Funding of the higher education institutions

To ensure that the public higher education institutions achieve the Commonwealth Government's program of supporting a diverse and accessible higher education sector of international standing and meeting Australia's social and economic needs, a total of $5.5 billion in Commonwealth funding was allocated to higher education institutions in 2000. The level of public funding of public higher education institutions in Australia represented 0.9% of total GDP in 2000.

Participation in higher education

In 2000, just over 695 000 students were undertaking studies in the higher education sector. Of these, there were over 285 000 who were commencing students. The total number of students in the higher education sector in 2000 represented 5.5% of the working population in the 15–64 years age group. The characteristics of higher education students are shown in table 20.

The proportion of female students in the higher education sector is higher than that for males. In 2000, 55% of all students in the higher education sector were females.

Higher education students can undertake studies on a full-time, part-time or external basis. In 2000, approximately 60% of higher education students were undertaking their studies on a full-time basis and about a quarter of them were engaged in part-time studies. In Australia, the two fields of study undertaken by about half of all higher education students were the *arts, humanities and social sciences* and *business, administration and economics*.

On the whole, about 14% of all students in the higher education sector during 2000 were overseas students. The proportion of overseas students who commenced their course in 2000 was increased to almost 19%. Table 20 provides a breakdown of these numbers.

Table 20: Summary of student numbers for 2000

	Commencing students		All students	
	No.	%	No.	%
Gender				
Males	126 777	44.4	311 371	44.8
Females	158 741	55.6	384 114	55.2
Total students	**285 518**	**100.0**	**695 485**	**100.0**
Type of enrolment for major course				
Full-time	173 116	60.6	407 877	58.6
Part-time	70 916	24.8	192 247	27.6
External	41 486	14.5	95 361	13.7
Total students	**285 518**	**100.0**	**695 485**	**100.0**
Broad field of study for major course				
Agriculture, animal husbandry	4 119	1.4	11 136	1.6
Architecture, building	5 674	2.0	15 463	2.2
Arts, humanities and social sciences	67 261	23.6	170 237	24.5
Business, administration, economics	76 394	26.8	180 503	26.0
Education	31 520	11.0	73 680	10.6
Engineering, surveying	16 565	5.8	50 780	7.3
Health	31 576	11.1	79 731	11.5
Law, legal studies	13 418	4.7	36 331	5.2
Science	46 459	16.3	115 396	16.6
Veterinary science	504	0.2	1 864	0.3
Non-award course	8 122	2.8	8 807	1.3
Total students*	**285 518**	**100.0**	**695 485**	**100.0**
Citizenship				
Australian	220 724	77.3	574 012	82.5
New Zealand	2 271	0.8	4 348	0.6
Permanent resident	8 997	3.2	21 518	3.1
Overseas	53 526	18.7	95 607	13.7
Total students	**285 518**	**100.0**	**695 485**	**100.0**

* Students undertaking a combined course are coded to two fields of study and as a consequence the sum of the field of study column will be larger than the amount shown for the total. This is also the case for the percentage column.

The Australian VET sector

The Australian vocational education and training system provides Australians with the skills they require to enter the workforce for the first time, re-enter the workforce after absence, re-train for a new job and upgrade their skills for an existing job.

The Australian VET system is complex and is the joint responsibility of the national (that is, Commonwealth) government and the eight state and territory (that is, provincial) governments.

The national government, through the former Commonwealth Department of Education, Training and Youth Affairs (DETYA), now reconstituted as the Department of Education, Science and Training (DEST) and each state and territory training authority, have prime policy and operational responsibilities for implementing agreed national VET decisions in their respective jurisdictions.

The states and territories own a network of public TAFE institutions. They provide two-thirds of the funding and are responsible for:

- ongoing management of government providers and registration of non-government providers in vocational education and training
- implementation of the national recognition framework, which is progressively replacing the former national curriculum arrangements
- management of the state and territory training profiles
- allocation of funds to vocational education and training providers
- collecting and reporting information under agreed national reporting arrangements.

In the VET sector, the key national decision-making body is a council of ministers responsible for training from the national and state/territory governments (known as the Australian National Training Authority (ANTA) Ministerial Council—ANTA MINCO). This ministerial council is the mediator between the Commonwealth and states and territories on training issues, particularly those involving national consistency, high-quality outcomes for students and the development of a training system that meets the needs of industry and training.

Training providers

In the past, vocational education and training in Australia was mainly delivered by TAFE institutes, with state and territory authorities charged with the responsibility for strategic directions, planning and funding. Apprenticeship training was exclusively delivered by TAFE. In 1992, the Australian National Training Authority was established to ensure greater co-ordination of policy and planning in vocational education and training, and to co-ordinate the distribution of national funding to states and territories. Today vocational education and training programs, including apprenticeship and traineeship programs, are delivered by a wide range of providers in both government and private sectors as shown in table 21.

Table 21: Providers of vocational education and training in Australia, by sector

Government sector	Private sector
TAFE institutes	Private providers, not in receipt of government funds
Agriculture colleges	Private business colleges
Some higher education institutions	Enterprises providing training to their employees
Multi-sector providers and campuses	Suppliers providers training in product use
Some secondary schools	Unregistered community providers
Registered community providers	
Aboriginal education providers	
Private providers under contract to governments	

Today VET programs are provided by:

- ✧ around 100 TAFE or other government institutes (such as agricultural colleges providing VET programs) operating at some 1000 separate locations around Australia
- ✧ some 600 community education centres
- ✧ almost 1500 other registered training providers such as training organisations, schools, business enterprises who provide formal training, special industry training centres, etc.

It is also important to note that there are over 3500 registered training organisations in Australia. This means that not all of them are providing publicly funded VET programs in any one year.

With the opening-up of the training market which occurred in the mid-1990s, non-public and community-based providers were also able to tender for government funding to provide either training for apprentices or trainees or for other groups for which the government had in place special labour market programs. Today increasing amounts of public VET funding are now available for competitive tendering amongst TAFE, community-based and private training providers.

The funding of VET

VET in Australia is funded from government and private sources. For example, private sources may come from enterprises purchasing training for their employees. Individuals also make contributions through the payment of fees. In 1998, it was estimated that the total expenditure on vocational education and training amounted to $8.5 billion or 1.5% of GDP.

The Commonwealth Government and state and territory governments contributed almost half (44%) of this expenditure, mainly through the provision of recognised training under the auspices of the ANTA agreement. Private business enterprises invested a similar amount on training (45%), almost half of which was expended in the provision of in-house training for employers.

In 2000 the total public share of the expenditure on recognised vocational education and training was $4.16 billion.

Reforming the VET system

In the mid-1980s the Commonwealth Government began to implement economic and industrial reforms to enable the Australian economy to become competitive in an increasingly globalised marketplace. The reforms introduced the restructuring and downsizing of Australian industry, the deregulation of financial markets, the gradual removal of tariffs on foreign imports and the floating of the Australian dollar. As non-competitive industries (such as the clothing, textiles and footwear industries) were gradually exported to countries where labour was cheaper, it became increasingly evident that Australia would need to alter its mix of trade if it were to remain competitive in international markets.

Traditionally, the majority of Australian exports were primary products and resources (for example, wool, meat, grains, dairy products, minerals). With the internationalisation of the economy and the

removal of tariffs on certain manufactured goods, a focus was placed on the production of value-added goods and services as major sources of exports. At the same time, rapid advances of information and communication technologies and other technologies, meant that the nature of work was changing. In view of these changes it was becoming very clear that if Australian industry were to remain competitive in the new economy, then it would need to develop a skilled and flexible workforce that could adapt to these changes. To ensure a steady stream of these skilled and flexible workers it was decided to implement major reforms to the VET system.

The first change was to ensure that industry had a greater voice in the design of the training system. The Employment Skills Formation Council (ESFC) was established and charged with reforming the apprenticeship and traineeship system and designing a new entry-level training system. The new system was to be based on eight major principles:

- ✧ competency-based training and assessment
- ✧ flexible and multiple linked pathways to allow for articulation, credit transfer and recognition of prior learning
- ✧ more vocational training opportunities for those who were not bound for universities and enabling adults to enter apprenticeships and traineeships
- ✧ fair access to training for all groups and especially those identified groups from disadvantaged backgrounds (for example, women, Aboriginal and Torres Strait Islanders, people from non-English-speaking backgrounds, people with a disability, sole parents, early school leavers, homeless and unemployed persons, and persons from remote and rural locations)
- ✧ integrated delivery networks which enable secondary schools, TAFE institutes, private and community providers to build partnerships and to collaborate in the sharing of expertise and facilities for the delivery of accredited vocational training
- ✧ responsiveness to industry and clients
- ✧ a mixture of incentives for industry, education and training providers, students and trainees.

The new entry-level training system was to be called the Australian Vocational Certificate Training System. It was then renamed the Australian Vocational Training System. With a change in governments in 1994 it became the Modern Apprenticeship and Traineeship System. It now is known by the name of New Apprenticeships. A fuller description of the system of New Apprenticeships appears later on in this report.

A competency-based training system

A competency-based training system was selected as the most appropriate form of training for the creation of a skilled and adaptable workforce. In theory this meant that as long as individuals could demonstrate that they had achieved the necessary competencies to the required standards, they could be deemed competent. This provided a mechanism for individuals to acquire qualifications through the recognition of prior learning. In addition existing workers could apply for the recognition of their current competencies.

In theory CBT also meant that individuals could accelerate their training and reduce the amount of time required to obtain a certain qualification. In practice, however, although it was possible for apprentices to accelerate their off-the-job training programs so that they completed these in two years rather than three years, many of the restrictions on the total amount of time it took to become a qualified tradesperson still remained.

Competency standards developed by industry were to form the basis for new national curricula. Competency standards bodies were charged with developing the standards and a national training board was set up to endorse these different industry standards. Industry training and advisory bodies (ITABs, already in operation in many states and territories as industry training councils) were charged with promoting the benefits of training to their industries and providing advice to governments on

training arrangements, products and resources required by industry. These bodies were also to provide information on critical training issues, priorities and recommendations. This information was then used by state governments to inform strategic planning processes. The information was also to be used by enterprises, training providers and market research organisations.

Training delivery and the issuing of qualifications in the VET sector, which had historically been developed on a state-by-state basis, meant that qualifications or courses completed in a state were not always recognised in, or easily transported to, another state. A national framework for the recognition of training was also established to ensure consistency across state borders. Although in theory national curricula based on competencies provided the means by which qualifications or prior learning could be recognised across state borders, in practice the national curricula that were established were slow in being implemented and the competency standards on which they were based proved to be too prescriptive.

In 1994 a study conducted by Allen Consulting Group (1994) indicated that the uptake of competency-based training by training providers was slow and the competency standards that had been developed were overly prescriptive. These findings provided a basis for simplifying the competency standards and making them much more relevant to industry. They also provided the direction for the development of national industry training packages which were to replace national curricula and accredited courses.

National training packages

National training packages are developed by ITABs, recognised bodies or enterprises to meet identified training needs of specific industries or industry sectors. They refer to:

- ✧ an integrated set of nationally endorsed competency standards, assessment guidelines and qualifications
- ✧ direct assessment of competencies, including gathering of evidence to show competence
- ✧ development and delivery of training which suits individual needs or customised training
- ✧ learning in a work environment (on-the-job, work experience, work placement, work simulation or by a combination of methods) which leads to verifiable workplace outcomes
- ✧ assessment guidelines or alternative (but equally valid) processes for assessing people with disabilities, people from a non-English-speaking background, Indigenous Australian and rural and remote learners
- ✧ language, literacy and numeracy workplace needs are built into the competency standards and advice on assessment.

In addition, only a registered training organisation (RTO) whose registration covers all or part of a training package can deliver the endorsed components. The assessment process must be conducted by those who have the training package competencies to the level being assessed and the competencies for assessors contained in the Training Package for Assessment and Workplace Training.

The first national training package was endorsed by the National Training Framework Committee in July 1997. By January 2002, 75 training packages had been endorsed. Of these seven had been developed by specific enterprises. National training packages are endorsed for three years. After eighteen months they must undergo a review and submit a review report to the Australian National Training Authority. Following the review, the training package is revised and enhanced and after consultation with the industry, the enhanced training package is submitted for endorsement for the next three years.

Flexible delivery of training

Another important characteristic of the Australian VET system is its focus on flexible delivery. With the introduction of competency-based training it was also decided to free up the way that training was delivered. This meant giving students and other clients more choice as to how, when and where they undertook their training. This meant that the traditional 'lock-step' method of training (often associated with classroom teaching) was to give way to flexible delivery customised wherever possible to individual needs and abilities. Flexible delivery encompassed delivery via interactive video, distance resource-based education, online learning and self-paced learning in classrooms or in venues which were remote from classrooms. Teachers were to become facilitators of learning, that is, they were to assist students to access learning materials and to provide guidance to them during learning.

In theory, a flexible system of training allows individuals to enter training programs at any time, to undertake assessment on demand and to exit programs when they have completed these. In practice, many providers have had to place some constraints on this flexibility and they have implemented some rules to ensure that students do complete modules in a certain minimum time-frame. In addition, some providers have implemented classroom-based lectures or information sessions during the term to ensure that students are provided with guidelines to help them in their learning. Students may wish to come to such sessions so that they are better able to continue their self-paced study. Although choices about how, when and where they engage in training is available to students, in practice the great majority of students (over 80%) are still choosing the traditional class-based method of delivery.

The reforms have also made it possible for a variety of providers to be involved in delivering accredited VET training. The opening-up of the training market meant that the monopolistic control of TAFE was being threatened and that TAFE itself needed to improve its delivery in terms of meeting client needs and to be more enterprising in providing fee-for-service activities.

Australian new apprenticeships

A very significant feature of Australia's VET system is the apprenticeship and traineeship system. The apprenticeship system has been in place in one form or another since 1805 in Australia, having developed from the British system of indentured apprentices that had operated for hundreds of years.

Traditionally, apprenticeships in Australia involved people under 20 years of age participating for four years in a training contract, typically with one day per week off-the-job training in a TAFE college or other VET provider and four days per week training on the job. Apprenticeships were restricted to certain trade-based occupations, largely in the manufacturing, building and construction, printing and hairdressing areas. Apprentices were paid lower wages than fully qualified and skilled tradespersons in the same field.

In 1985, Australia introduced a new form of structured training for young people called traineeships. The intention was to expand structured training for young people to a range of new industry areas not covered by traditional apprenticeships such as agriculture, horticulture, manufacturing utilities, and transport and storage. More recently, traineeships have expanded into areas such as retailing, tourism and hospitality.

Like apprenticeships, traineeships involve trainees in one day, or sometimes two days, per week in off-the-job training. Similar to apprentices, trainees are generally paid lower wages than fully trained adult workers already trained and working in the same areas. However, there are instances of companies who have hired adult apprentices from their existing workforces, keeping these apprentices on the same wage levels as they were receiving as adult workers.

The number of apprentices and trainees in a contract of training with an employer reached record levels of over 318 600 at June 2001 from under 130 000 in 1985 (NCVER 2001).

The key features of this trend are:

- ✧ a rapid growth in the four-year apprenticeships from 1985 to the early 1990s
- ✧ an equally rapid decline in apprenticeship members from the early to the mid-1990s, with numbers in training at 30 June stabilising since 1993 at around 123 000 to 125 000
- ✧ a major expansion in shorter traineeships since the mid-1990s.

Another important development has been the removal of any age barriers to participation in apprenticeships and traineeships over the last decade or so. Today less than 30% of apprentices/trainees are under 20 years of age. Around one-third are more than 25 years of age, as shown in table 22.

The other important issue with the development of Australia's apprenticeship and traineeship system, is the shift that has occurred in the types of occupations that apprentices and trainees are engaged in, particularly in the last decade. Some of the traditional trades areas in the metal trades, manufacturing, building and electrical areas, have declined in relative importance. The shifts in the patterns of apprenticeship/traineeship training have largely followed changes in the occupational structure of the Australian labour market as a whole.

Table 22: Characteristics of apprentices and trainees in Australia, 2001

Age group	Number in training* Contracts ('000)			Proportion of age cohort (%)		
	Males	Females	Persons	Males	Females	Persons
15–19 years	71.8	33.9	105.8	10.3	5.1	7.8
20–24 years	65.0	24.6	89.5	9.2	3.6	6.5
25–39 years	45.8	26.7	72.6	2.1	1.2	1.7
40–64 years	28.3	22.4	50.7	1.0	0.8	0.9
Total 15–64 years	**210.9**	**107.6**	**318.6**	**3.2**	**1.7**	**2.4**

Note: *As at 30 June 2001.
Source: NCVER data as at September 2001.

New apprenticeships

The most recent development of this system of training in Australia is the establishment of new apprenticeships on 1 January 1998. The new apprenticeships system covers all former apprenticeships and traineeship arrangements and does away with the distinction that formerly existed between apprenticeships and traineeships.

There are now no restrictions on the occupations covered. Flexible, rather than fixed amounts of on-the-job and off-the-job training can now be provided according to employer and trainee requirements. Other important features of the new apprenticeship system include:

- ✧ 'user choice', where employers can select their own vocational education and training provider for the formal (that is, off-the-job) component (in the past employers were only able to send their apprentices or trainees to the nearest TAFE college)
- ✧ the option of undertaking the formal part of the training entirely in the workplace
- ✧ allowing training contracts to apply to part-time as well as full-time employment situations
- ✧ the option of commencing the training program while still at school
- ✧ subsidies and incentive programs to employers to encourage them to take on new apprentices, to encourage training at higher skill levels (as measured by the level in Australian Qualifications Framework) and for successful completion of the training program.

The creation of user choice arrangements in new apprenticeships has been a particularly important new development. These arrangements were put in place to allow more discretion for individual clients and their employers who had entered into a contract of training (apprenticeship, traineeship) to select their own training provider. Under these arrangements public funds flow to those registered training providers who had been chosen by employers and trainees to deliver the training. Under user choice arrangements employers and trainees may also choose how the traineeships will be delivered. They may opt for training to occur totally on the job or to choose a mixture of on- and off-the-job training.

Although new apprenticeships are an important part of the Australian vocational education and training system and in 1999 approximately 6% of young people were employed under an apprenticeship or traineeship, the importance of this mode of training should not be overstated. For example, in recent years the number of Australians involved in an apprenticeship or traineeship in a year is only about 20% of the number who undertake vocational education and training with providers in receipt of public funds.

Gaining a qualification

Australian Qualifications Framework

The Australian Qualifications Framework (AQF) describes the range of Australian qualifications and linkages between these qualifications. It was designed to provide consistent recognition of the outcomes achieved from education and training across all sectors of senior secondary schooling and universities. It also includes recognition of the integration of learning in the workplace with structured training. Its aim was to provide a clear and rational system of national qualifications which enabled the operation of flexible and articulated pathways between the sectors. It was also designed to accommodate the needs of an increasingly deregulated training market.

There are six different core VET qualifications being offered under the AQF. They are shown in table 23. A seventh qualification, the senior secondary certificate, is also offered by some TAFE institutes.

Table 23: Australian Qualifications Framework (AQF)

Schools sector	VET sector	Higher education sector (i.e. university)
		Doctoral degree
		Masters degree
		Graduate diploma
		Bachelor degree
	Advanced diploma	Advanced diploma
	Diploma	Diploma
	Certificate IV	
	Certificate III	
	Certificate II	
Senior Secondary Certificate of Education	Certificate I	
	Statement of attainment (part qualification)	

Source: Australian Qualifications Framework Advisory Board to MCEETYA, 1998.

The VET qualifications can be attained in various ways. These include:

- ✧ through school-based VET programs
- ✧ through the classroom in a TAFE or other registered VET provider as a full-time or part-time student

- ✧ in the workplace through a structured training program
- ✧ in an industry training centre
- ✧ through 'off-campus' modes such as open or distance learning
- ✧ through various combinations of the above.

The AQF system in the VET sector is designed around a set of competency standards that need to be achieved in different training programs, rather than qualifications being set according to the amount of time taken to undertake a course of study. Thus, different people will take different amounts of time to complete any given VET qualification. Nevertheless, it generally takes individuals about six months of full-time equivalent study time to complete a Certificate I or II, Certificates III and IV about one year and diploma and advanced diploma programs about two years. There are some diploma and advanced diploma programs which take about three years of full-time equivalent study time to complete.

Students who successfully complete the requirements of a recognised course or training package qualification with a registered training organisation are entitled to a certificate or diploma under the AQF. In addition, they may also apply for advanced standing or credit transfer for subjects or units of competency they have completed with another registered training organisation. Students may also be awarded a qualification through assessment only pathways, or through the recognition of prior learning or current competency processes. In most instances the certificate is issued by the registered training organisation on application by the student.

Students who have successfully completed one or more subjects or training package units of competency with a registered training organisation are also entitled to formal certification of this achievement. This is usually provided in the form of a statement of attainment.

Standards for units of competency are specified in the national training packages already described, while standards for subjects which form part of national courses are specified in curriculum documentation. Teaching staff are required to follow these standards when assessing their students. The use of externally-set examinations was once widespread in the TAFE sector but has been largely superseded by local assessment arrangements, which may be tailored to meet the needs of students and employers while still maintaining the specified standards for competency.

Accreditation of VET in Australia

A fundamental feature of the Australian vocational education and training system is that training programs which lead to the awarding of recognised qualifications must be accredited. In the past this accreditation was generally given at the state or territory level via accreditation boards established by the state or territory training authorities. Occasionally, training programs were also developed and approved at a local level by TAFE institutes.

Since the early 1990s, however, arrangements have been made to ensure that all courses and subjects accredited by the state and territory training authorities are available for use and formally recognised throughout the whole country. Accreditation under these arrangements was usually for a period of five years and national courses and modules (that is, subjects) were listed on a national register. However, these arrangements are now being replaced by a system of national training packages, which are designed to meet industry requirements and are approved at national rather than state or territory level.

As noted previously, an important change took effect on 1 January 1998 with the introduction of the Australian Recognition Framework (ARF). These new arrangements involved moving the emphasis to the registration of training organisations (RTOs), with associated quality assurance requirements. These arrangements, in conjunction with the implementation of national training packages, will eventually replace the system where each training course was assessed for national

accreditation. Moreover, it is expected that the majority of national courses will be replaced eventually by programs structured around nationally-endorsed training packages.

However, since training packages are industry-specific, not all vocational education and training activity will necessarily be covered by national training packages. In particular, many general education programs, pre-vocational programs and programs which are designed as preparation for vocational education and training, may not be covered by national training packages.

In national training packages the focus of training is on outputs, specified in terms of qualifications and units of competency, which are the building blocks of qualifications. The training packages are developed under the supervision of industry training advisory boards and submitted to a national recognition body for approval. Once approved they are published and distributed by Australian Training Products.

Details of national training packages are placed on the National Training Information System (NTIS), an electronic resource that can be accessed via the internet. It includes details of the registered training organisations that are approved to conduct each training program and issue qualifications. The NTIS replaces the former national register of courses and modules. However, to facilitate the transition to the new arrangements, the NTIS also includes listings of those national courses which are still current.

Training package qualifications and units of competency are recognised nationally. Moreover, the new arrangements enable students to move more freely among RTOs and even to undertake one part of a qualification with one RTO and the remainder with another. These possibilities are important in a country as physically large as Australia, where students or workers sometimes travel great distances to undertake their training or to take up employment.

Quality assurance is generally the responsibility of state and territory training organisations, which have overall responsibility for the management and delivery of publicly-funded training programs and for monitoring the issuing of recognised qualifications by non-government organisations. Quality assurance requirements are included in the registration requirements for all RTOs, both government and non-government.

For training providers and students, there is a number of important advantages favouring accredited programs:

- ✧ They allow recognised qualifications or statements of attainment to be awarded, facilitating flexibility and portability.
- ✧ Public funding is only provided for accredited programs. This is important for non-government providers who tender on a competitive basis for public funds, while for students, undertaking an accredited, publicly funded program, generally means lower fees.
- ✧ Under the arrangements for the Goods and Services Tax (GST), which were implemented on 1 July 2000, fees charged for accredited vocational education and training programs are exempt from the GST, but non-accredited programs are subject to GST.

Finally, it should be noted that much of the training undertaken in the private sector and by employees takes the form of short, specific-purpose programs for a particular student group. The majority of this training falls outside the arrangements for formally accredited programs but is nonetheless important in Australia's total training effort.

Accreditation of VET providers in Australia

Accreditation of vocational education and training providers is now covered by the ARF, which was implemented on 1 January 1998. Under these arrangements, the accreditation of both public (that is, government) and private (that is, non-government) providers, is covered by a single framework. Recently the ARF was incorporated into a broader framework, called the Australian Quality Training Framework (AQTF).

Before 1998, separate arrangements existed for public and private providers of vocational education and training:

- For public providers (namely TAFE institutes), no formal registration or quality assurance requirements existed as these providers were established under government legislation or regulations. However, many TAFE institutes were subject to the requirements specified in performance agreements with state and territory training authorities and many also sought and obtained endorsement as quality-endorsed organisations under the International Standards Organisation (ISO) 9000 series standards.
- Registration requirements existed for private and community providers. The specific requirements varied among the state and territory training authorities. However, in all cases, registration requirements were to be met before providers were able to receive public funds.

A number of state and territory training authorities continue to use performance agreements as a means of managing delivery by public providers and to ensure accountability. These performance agreements specify, among other things, the amount and type of vocational education and training to be delivered, the amount of money which will be paid for the delivery and in some cases include output targets with associated payment provisions.

When private providers receive public funds to deliver training, the state or territory training authority enters into a formal contract and the private provider becomes a registered training organisation (RTO).

For private providers, the advantages of being an RTO are that it:

- enables the provider to bid for and receive public funds to deliver vocational education and training programs
- allows the provider to issue nationally-recognised qualifications, making the programs offered by the provider more attractive to the would-be students
- enables the provider to deliver or supervise the formal component of the training of new apprentices and to receive payment for this service.

Australian Quality Training Framework

In June 2000 a review of the Australian Recognition Framework (ARF) resulted in a name change and the introduction of more stringent standards for registering of organisations and for implementing quality assurance processes. The ARF was subsumed into the Australian Quality Training Framework and along with training packages constitutes the two major components of the National Training Framework (NTF). The AQTF was fully operationalised by June 2002.

The NTF incorporates two of the major principles of the Australian VET system—the need for industry leadership and the need for a nationally-consistent system. As already noted, the Australian Recognition Framework was first introduced in 1998. It prescribed the conditions for the registration of organisations wanting to deliver VET in Australia and established quality processes for monitoring and auditing the delivery of VET. It also established the principle of mutual recognition, which meant that all registered training organisations were obliged to recognise the qualifications awarded by another registered training organisation within the same state or territory or across state and territory borders. The mutual recognition of qualifications by RTOs was to enable the transportability across state borders of qualifications or part-qualifications.

By 2000, a review of the implementation of the ARF revealed that aspects of this framework were not working and that national standards for registration were not being applied consistently throughout the nation. There were also inconsistent standards for the monitoring and auditing of registered training organisations. In addition, providers and national companies providing training across state borders had also been experiencing difficulties. This meant that rather than having one national system for the registration of organisations there were still similar but separate registration

systems. At the June 2000 ANTA MINCO meeting it was decided to put in place clearer and higher standards for RTOs, more consistent processes for the auditing of RTO practices and registration of training organisations.

MINCO also considered and accepted draft standards and the name change. The AQTF comprises the Standards for Registered Training Organisations and the Standards for State and Territory Registering/Course Accrediting Bodies. These standards were to be progressively implemented over a 12-month period.

The standards for RTOs make the rights and obligations of RTOs clear and explicit in order to avoid any ambiguity and to introduce national consistency. They will be applied equally to all RTOs to support the smooth operation of mutual recognition processes. In addition, RTOs delivering training or assessment across state and territory borders will be able to operate according to one nationally consistent set of rules and for registration and audit. The standards for state and territory registering/course accrediting bodies will also mean that these bodies will have confidence in the registration and course accrediting decisions made by their counterparts in other states and territories. Approaches to auditing will be more relevant and transparent and state and territory registering/course accrediting bodies will be able to refer to improved benchmarks in supporting RTOs in continuous improvement processes.

VET participation in Australia

The number of students/trainees in publicly funded VET programs in Australia has grown very strongly over the past decade. Ten years ago, under one million people participated in VET in Australia. In 2000, about 1.75 million people out of the total population were undertaking a publicly funded VET program. This represented about 9.1% of the total population. About 1.71 million of the working age population (that is 15 years to 64 years) was in publicly funded VET. This represents over 13.2% of the population aged 15 to 64 years.

This level of participation has resulted in Australian participation rates in VET being high. In terms of the different age groups, VET participation rates in 2000 were:

- 28.5% for 15–19-year-olds
- 20.2% for 20–24-year-olds
- 12.6% for 25–39-year-olds
- 8.6% for 40–64-year-olds.

Characteristics of VET participants

Most VET participants in Australia are part-time students. In 1999, half of all VET participants were enrolled in programs of less than 100 hours of training. Only around 10% of Australia's VET students are undertaking courses as full-time, full-year students. The proportion of female students/trainees in VET in Australia has now almost reached 50%.

The proportion of Australia's VET students/trainees who are school age students, early secondary school leavers or entry-level trainees is relatively small. Only 20% of all VET students/trainees are under 20 years of age, although they account for one-third of the total training hours delivered (see table 24).

Most VET participants are adults who are training or re-training for job-related purposes. One-quarter of all VET participants in Australia are over 40 years of age. In fact, in Australia a VET student/trainee is far more likely to be an adult who is already employed and upgrading his or her job skills, than a young person who is studying in VET to gain an entry-level vocational qualification.

Australia is a highly urbanised country, yet around one-third of VET participants are undertaking their VET program outside a major metropolitan area (as shown in table 24).

Table 24: Characteristics of VET participants in Australia, 1999

Characteristic	Proportion of clients (%)	Proportion of total hours of training delivered (%)
Sex		
Male	51.0	52.2
Female	49.0	47.8
Total	**100.0**	**100.0**
Age		
Under 15 years	0.4	0.2
15–19 years	20.8	31.2
20–24 years	15.6	22.5
25–29 years	11.7	11.6
30–39 years	20.0	17.9
40–49 years	16.1	11.5
50–59 years	7.7	3.9
60–69 years	1.4	0.6
65 years and over	1.5	0.6
Age unknown	4.7	1.7
Total	**100.0**	**100.0**
Geographic region		
Capital city	56.4	61.0
Other metropolitan	6.9	7.2
Rural	30.0	25.1
Remote	3.7	2.7
Outside Australia	0.7	1.9
Region unknown	2.3	2.0
Total	**100.0**	**100.0**
Total ('000)	**1 647.2**	**331 882.5**

Participation of disadvantaged groups in VET

Members of disadvantaged groups are students who are currently being identified as being most susceptible to under-participation and performance in the vocational education and training sector. These members include students:

- ✧ from Aboriginal or Torres Strait Islander descent
- ✧ with a disability
- ✧ from a non-English-speaking background
- ✧ who live in rural and remote areas
- ✧ women.

In Australia, the vocational education and training system at all levels encourages equitable participation and outcomes for all Australians.

Although people with disabilities are still under-represented in VET, Australia has progressively improved its VET delivery for members of other equity groups. Participation of Indigenous people, migrants and people whose first language is not English, people living in rural or remote areas of Australia and women, are to the point where they are equitably represented in the total VET student/trainee population.

Measuring the performance of the sector

National strategy for elevating skills and qualifications

In 1991, ministers for vocational education and training set targets for participation and attainment of post-compulsory education and training. These were known as the Finn targets and applied to 19-year-olds and 22-year-olds (Finn 1991).

The targets for 19-year-olds stated that by 2001, 95% of 19-year-olds:

- ✧ will be participating in or have completed year 12; or
- ✧ will have completed Years 10 or 11 and be participating in recognised education and training; or
- ✧ will have completed Year 10 or 11 and will have completed some formally recognised education and training.

The targets for 22-year-olds stated that by 2001, 60% of 22-year-olds:

- ✧ will be participating in education and training programs leading to AQF Level II qualification; or
- ✧ will have attained AQF Level III qualifications or above; or
- ✧ are participating in, or have completed, higher education studies such as degrees and diplomas.

The annual national report of the Australian National Training Authority, Volume 3 (ANTA 2001) indicates that even though there has been some improvement in the system the Finn targets for that year would not be achieved.

Key performance measures

In Australia, the Commonwealth Government and state and territory governments have agreed on eight key performance measures (KPMs) to apply to the national vocational education and training system. The measures provide the means to:

- ✧ assess progress against the national strategy for Australia's vocational education and training system
- ✧ prompt improvements in vocational education and training products and services to clients
- ✧ demonstrate the value of vocational education and training to individuals, employers and the nation
- ✧ hold the system publicly accountable.

The eight KPMs are:

1. Skill outputs produced annually within the domain of recognised vocational education and training.
2. Stocks of vocational education and training skills against desired levels.
3. Employer views on vocational education and training.
4. Student outcomes from vocational education and training.
5. VET client groups participation, outputs and outcomes.
6. Public expenditure *per publicly funded output.*
7. Public expenditure *per total recognised output.*
8. Total expenditure on vocational education and training.

KPM 3 and KPM 4 are discussed in detail in the following section.

KPM 3: Employer views on VET

Employers' views on VET are important measures of the effectiveness of the VET system in meeting the needs of industry. The criteria used to measure employer views are:

- ✧ employer views on the appropriateness of VET graduates' skills
- ✧ employer perceptions of training
- ✧ employer satisfaction with the training provided.

Employers' views on the relevance of vocational education and training graduates' skills have improved steadily over the years. In 2001, 69% of employers of recent graduates agreed that 'the system is providing graduates with skills appropriate to employers' needs'. This has risen since 1995 when 56% of employers of recent VET graduates held this view.

The general views on vocational education and training by employers of recent graduates are shown in table 25.

Table 25: General views on vocational education and training by employers of recent graduates, Australia, 2001, by attitude statement (% agree)

Attitude statement	Proportion of employers agreeing with the statement
Relevance of training	
The VET system is providing graduates with skills appropriate to employers' needs	69
Employers should have more input into course content	80
The VET system does not take into account the needs of employers	33
The VET system needs to provide more practical job skills	77
There should be more work experience or work placements as part of vocational training	84
Value for money	
Training pays for itself through increased worker productivity	74
It is more cost-effective to recruit trained people than to train people on the job	46
Qualifications	
On-the-job skills are more useful than skills obtained through formal education	63
Qualifications whould be based on what they person can actually do rather than how many years of training they have completed	85
It is difficult to tell what a person can actually do from their educational qualifications	76

Source: NCVER, Employer Satisfaction Survey, 2001.

Overall, employers of recent VET graduates believe the VET system has taken notice of their needs. Nevertheless, one area viewed less favourably by employers was course content, with 81% believing they (employers) should have more input into course content.

Student outcomes from VET

Vocational education and training students generally undertake training for vocation-related reasons. Findings from the *2001 Student outcomes survey* indicate that VET graduates chose to study in the VET sector to:

- ✧ get a job or own business
- ✧ get extra skills for their job
- ✧ try for a different career
- ✧ get a better job or promotion
- ✧ meet the requirement of their current job

✧ gain the necessary skills to enable admission into another course.

On the whole, TAFE graduates achieved their main reason for undertaking training in the VET sector. Six months following the completion of their VET course, some 77% of graduates indicated that they believed they had wholly or partly achieved their main purpose for undertaking training in the VET sector.

In particular, graduates who chose their course as a requirement for their job, or to get extra skills for their job, reported very high levels of achievement as their main reason (95.1% and 93.5% respectively).

Employment outcomes for TAFE graduates

Many TAFE graduates are gaining employment six months following the completion of their training. Table 26 shows the employment status of graduates before and after training. The proportion of graduates in employment increased by eight percentage points. Much of this increase is a result of graduates moving from the status of 'not looking for work' to employment.

Table 26: Graduate labour force participation before and after training, Australia 2001

	Before training (%)	After training (%)
Full-time work	36.5	46.7
Part-time work	29.0	25.1
Total* (full-time and part-time)	**66.6**	**26.6**
Looking for work (unemployed)	13.5	11.9
Not looking for work (not in labour force)	14.1	14.2
Total**	**100.0**	**100.0**

* Total working includes 'not stated' for full-time and part-time. ** Includes 'not stated'.
Source: NCVER Student outcomes survey, 2001.

Employed graduates

Gaining a vocational education and training qualification also provides opportunities for many employed graduates to move to a higher skilled occupation. Six months after training at a technical and further education institute, 23% of graduates employed before and after training progressed to a higher-skilled occupation. Individuals with jobs in the lowest-skilled occupations before commencing their training were more likely to move to more-skilled occupations after their training. Major areas of movement occurred in the following occupation categories:

✧ labourers and related workers: 27% of employed graduates moved into tradespersons and related workers category and a further 10% moved into the intermediate clerical, sales and service workers category

✧ elementary clerical, sales and service workers: 23% of employed graduates moved into the intermediate clerical, sales and service workers category

✧ intermediate production and transport workers category: 22% of employed graduates moved into the tradespersons and related workers category

✧ intermediate clerical, sales and service workers category: 7% of employed graduates moved into the associate professionals category and a further 6% into the professional category.

Unemployed graduates

Following the completion of their training in the VET sector, many unemployed graduates are obtaining jobs. Almost half of graduates who were unemployed prior to the commencement of their VET course had work within about six months of completing their training in the VET sector (47%).

Of those graduates who remained unemployed, a large proportion was participating in further studies. Of these some 38% remained unemployed, 18% were in further study and of 14% who were not in the labour force, 10% were also in further study.

Further study

After completing their training in the VET sector, many TAFE graduates often go on to do further study. Many do so while working, others while looking for work and some as an alternative to working or seeking work.

After completing their VET course in 1999, 40% of graduates undertook further study. The major reasons for undertaking further study are usually work-related: 'to get a job or own business' (29%), 'to get a better job or promotion' (19%) and 'to get extra skills for my present job' (15%).

Linkages between lower and higher AQF levels

Any examination of the linkages between school and post-school VET programs must take account of the fact that students may complete Certificates I, II or III while still at school. On the other hand, they may undertake Certificates I, II and III, diplomas and advanced diplomas once they have left school. For this reason it makes more sense to speak about the linkages between competency profiles for the different AQF level qualifications. The following two examples indicate the units of competency required for each of the AQF qualifications in textile production and production and trade qualifications in engineering.

Example 1: Textile production qualifications

Take the case of the qualifications available in the textile production area. The certificates at the lower end of the framework relate to units of competence for production workers, while those at the higher end of the scale refer to tradespersons, leading hands, supervisors and managers. Table 27 outlines the different competencies required for Certificates I, II, III and IV in Textile Production.

Aligning careers with qualifications

In developing training packages different industries have aligned qualifications with possible career pathways for their sectors. This information provides existing and aspiring workers with an outline of what is required to enter different career structures and to upgrade their skills. An example of how the textile, clothing and footwear industry has achieved this appears in table 28. For this industry sector AQF I to III relate to jobs available in production, AQF IV to VI apply to middle management jobs and AQF VII and VIII to senior management positions.

Table 27: Example of units of competency profiles* in textile production—Certificates I, II, III and IV

Certificate I	Certificate II in Textile Production (Intermediate)	Certificate II in Textile Production (complex or multiple processes)	Certificate III in Textile Production	Certificate IV in Textile Production
Example: general hand	*Example: yarn/fabric mover*	*Example: machine fixer*	*Example: leading hand*	*Example: quality technician/officer*
Perform tasks to support production	Select, transfer, remove materials/ product	Monitor, adjust and maintain machines	Control production	Organise and interpret tests
		Perform maintenance procedures		Analyse textiles and develop product specification
Apply quality standards	Apply quality standards	Apply quality standards	Apply quality standards	Implement and monitor continuous improvement systems and processes
Follow defined occupational health and safety procedures and policies	Follow defined occupational health and safety procedures and policies	Follow defined occupational health and safety procedures and policies	Follow defined occupational health and safety procedures and policies	Supervise/monitor an established record system
			Manage operations to achieve planned outcomes (AQF III)	Manage operations to achieve planned outcomes (AQF IV)
			Set up machines for product change	
	Example: textile production operator—weaver, spinner, knitter, dyehouse operator, textile printer	*Example: textile repairer*		Manage the design and development of documents/reports/ work-sheets
				Participate in machine/product research and development
	Operates machines for production	Repair product		
		Co-ordinate work of team or section		
		Provide one-on-one training on the job		
	Apply quality standards	Apply quality standards		
	Follow defined occupational health and safety procedures and policies	Follow defined occupational health and safety procedures and policies		
	Perform minor maintenance			

Source: Australian Light Manufacturing Industry Training and Advisory Board, 2000.
* Titles of units of competence have been used.

Table 28: Certificate qualifications available in one industry sector: textile, clothing and footwear

Textiles, clothing & footwear	AQF-I	AQF-II	AQF-III	AQF-IV	AQF-V (Diploma)	AQF-VI (Advanced diploma)	AQF-VII/VIII Senior management
Textile production	Textile operator General hand	Product dispatcher Team leader Fixer Quality inspector	TCF Mechanic Leading hand	Shift supervisor Dyehouse assistant	Textile technologist Sales and marketing manager Supply and distribution manager Dye chemist	Designer HR manager Production manager Sales and marketing manager Supply and distribution manager Textile technologist Dyehouse manager	Factory manager General manager Operations manager
Cotton ginning		Assistant cotton ginners Head press men Seasonal workers	Shift supervisors Cotton ginners Head press men TCF mechanic	Supervisor Training officer/ assessor	HR manager Sales and marketing manager Supply and distribution manager	Production manager Sales and marketing manager Supply and distribution manager Accountant	General manager Operations manager
Headwear and millinery	Headwear/ millinery operator	Headwear/ millinery assistant	Milliner	Headwear/ millinery small business proprietor			
Footwear production	Footwear operator	Footwear operator: maker, machinist, tablehand Dispatch operator	Footwear tradesperson: cutter, maker, grader, machinist, leading hand, team leader	Supervisor Training officer/ assessor Junior pattern maker TCF technician	Patternmaker Production manager HR manager Sales and marketing manager Supply and distribution manager	Designer Production manager Sales and marketing manager Supply and distribution manager HR manager	Factory manager General manager Operations manager
Hide, skin and leather		Hide, skin and leather operator	Leading hand Hide, skin and leather operator	Supervisor Training officer/ assessor	Leather technologist HR manager Supply and distribution manager Production manager Quality manager	Leather technologist HR manager Supply and distribution manager Production manager	General manager Operations manager
Laundries	Laundry Operator Dispatch operator	Laundry operator: team leader Repairer Inspector Dispatch operator	Team leader/ supervisor Laundry operator Repairer Inspector Dispatch operator	Supervisor Training officer/ assessor	Production manager Supply and distribution manager	Production manager Operations manager	General manager
Dry cleaning	Receiver/ despatcher/ counter hand Dry cleaning operator	Leading hand Presser Dry cleaning operator Repairer Receiver/ despatcher	Dry cleaning tradesperson	Small business proprietor Supervisor Training officer/ assessor			
	Production			Middle management		Senior management	
	Existing workers						
	New apprenticeships						

Source: Australian Light Manufacturing Industry Training and Advisory Board, 2000.

Example 2: Engineering production and trade qualifications

Linkages between school and post-school programs in engineering can also best be understood in terms of linkages between lower-level competencies (that may be obtained in secondary school) and higher-level competencies (that may be obtained in TAFE or post-school VET provider). They are most easily depicted for students in apprenticeship pathways. For example, a student who is undertaking engineering studies (say, metal fabrication) in secondary school and also has access to workplace experience, is in a similar position to a first year apprentice.

Training package qualifications for the metal and engineering occupations comprise foundation, core and specialisation units of competency. Foundation units comprise competencies that are an essential part of every job and prerequisites to higher-level units. Core units are common and required in the industry. The number of core units increases for each qualification level. Specialisation units describe the diverse range of competencies required in the industry. Core and specialisation units are divided into bands to acknowledge the different levels of difficulties inherent in each of the skills. Core units are described in terms of bands 1 and 2; specialisation units are described in terms of bands A and B. Band B skills are more difficult than band A skills. There are some units which belong to both bands.

Each unit of competency has designated unit weight points, with each qualification having a specified number of points. The units selected for the qualification must have a combined points total value which is not less than the points specified for the qualification. In addition, the points for a specific unit can only be counted once.

Foundation competency units are required for all qualifications and comprise the following:

- ✧ undertake interactive workplace communication
- ✧ apply principles of occupational health and safety in a work environment
- ✧ apply quality procedures
- ✧ plan to undertake a routine task.

Core competency units are divided into different bands and are provided in table 29.

Competency standards units for Certificate III ‘production’ and ‘trade’ qualifications are also arranged in terms of the skills required for the different streams.

Table 29: Core competency units according to bands for engineering qualifications

Band 1 core competency units	Band 2 core competency units	AQF	Industrial classification
Apply quality systems		Certificate II in Engineering—Production	C12 (e.g. production workers)
Organise and analyse information Operate in a work-based team environment Assist in the provision of on-the-job training Measure with graduated devices		Certificate II in Engineering—Production Technology	C11 (e.g. production workers in areas requiring extra skills)
Plan a complete activity Perform computations—basic Perform computations Perform computer operations		Certificate III in Engineering—Trade/Production	C10 C9 C8 (e.g. tradespersons and some production workers who may be working in specialist areas requiring extra skills, e.g. machining shops)
	Write reports Research and prepare presentation and reports Use graphical techniques and perform simple statistical computations Operate in an autonomous team environment Interpret quality specifications and manuals	Certificate IV in Engineering—Higher Engineering Trade Diploma of Engineering	C7 C6 C5

Source: Manufacturing Engineering and Related Services Industry Training Advisory Board, 2001.

The requirements for the different qualifications up to diploma level available under the engineering training package are provided for each qualification in table 30. It is evident from this table that all qualifications must contain the foundation units already described. However, the number and types of core and specialisation units either increase or become more complex as the level of the qualification increases.

Table 30 shows how higher-level qualifications build on lower-level qualifications. However, we can also understand the linkages between the different levels by understanding the types of skill levels required at the different stages of a particular qualification. For example, where first year apprentices will be learning basic skills and undertaking tasks which are appropriate for this skill level, third year apprentices will be learning and applying far more complex knowledge and skills. In Australia the great majority of industrial awards require apprentices to be under a contract of training for a definite period of time before they achieve tradesperson status. This is the case even though they may complete the formal coursework or training in a shorter period of time. An example of the different types of experiences, skills and knowledge expected of metal fabrication apprentices in the different stages of their programs, may be described in the following way. This example does not account for different ways of working in different enterprises and there may be cases where apprentices are expected to perform more complex skills at earlier stages of their programs.

Table 30: Requirements for AQF qualifications and classifications for engineering trades and beyond

Certificate I in Engineering: minimum points = 16; industry classification outcome = C13 ✧ All foundation units ✧ + 16 points drawn from specialisation band A other than those required for Certificate III qualifications
Certificate II in Engineering—Production: minimum points = 32; industry classification outcome = C12 ✧ All foundation units ✧ + 2 points of band 1 core units for C12 ✧ + 30 points from specialisation A other than those required for Certificate III qualifications
Certificate II in Engineering—Production Technology: minimum points = 64; industry classification outcome = C11 ✧ All foundation units ✧ + 10 points of band 1 core units for CII ✧ + 54 points from specialisation A units other than those required for Certificate III qualifications
Certificate III in Engineering—Production Systems: minimum points = 96; industry classification outcome = C10 ✧ All foundation units ✧ + 20 points of band I core units required for C10 ✧ + 40 points in units drawn from the 'production stream' specialisation A units ✧ + 36 points in units drawn from specialisation A units (including dual band A and B units)
Certificate III in Engineering—Mechanical Trade: minimum points = 96; industry classification outcome = C10 ✧ All foundation units ✧ + 20 points of band I core units required for C10 ✧ + 40 points in units drawn from the 'mechanical stream' specialisation A units ✧ + 36 points in units drawn from specialisation A units (including dual band A and B units)
Certificate III in Engineering—Fabrication Trade: minimum points = 96; industry classification outcome = C10 ✧ All foundation units ✧ + 20 points of band I core units required for C10 ✧ + 40 points in units drawn from the 'fabrication stream' specialisation A units ✧ + 36 points in units drawn from specialisation A units (including dual band A and B units)
Certificate III in Engineering—Electrical/Electronics Trade: minimum points = 96; industry classification outcome = C10 ✧ All foundation units ✧ + 20 points of band I core units required for C10 ✧ + 40 points in units drawn from the 'electrical/electronics stream' specialisation A units ✧ + 36 points in units drawn from specialisation A units (including dual band A and B units)
Certificate III in Engineering Technician: Year 12 + 40 points or AQF III + 12 points; industry classification outcome = C9 ✧ All foundation units ✧ + Completion of Year 12 including appropriate maths and science subjects ✧ + 14 points of designated band 1 core units ✧ + 26 points from specialisation band A and/or Band B units (including dual band A/band B units) and/or band 2 core units (minimum points from band B/band 2 core) OR ✧ Completion of units to meet the requirements of a Certificate III in Engineering—Trade or Production ✧ + 12 points in units drawn from specialisation band A and/or band B units and/or band 2 core units (including dual band A/band B units)
Certificate IV in Engineering—Higher Engineering: minimum points = 132 points or AQF III + 36 points; Industry classification outcome = C7 ✧ All foundation units ✧ + 20 band 1 core units required for C10 ✧ 112 points from specialisation band A and/or band B units (including dual band A/band B units) and/or band 2 core units (minimum of 12 points from band B/band 2 core) OR ✧ Completion of units to meet the requirements of a Certificate III in Engineering—Trade ✧ + 36 points in units drawn from specialisation band A and/or band B units (including dual band A/band B units) and/or band 2 core units (maximum 24 points from band A)
Diploma in Engineering: Year 12 + 80 points or AQF III + 60 points; industry classification = C5 ✧ All foundation units ✧ + Completion of Year 12 including appropriate maths and science subjects ✧ + 14 designated band 1 core units ✧ + 16 points of band 2 core units for C5 ✧ + 50 points in units drawn from specialisation band A and/or band B units (including dual band A/band B units) and/or band 2 core units (maximum 24 points in band A) OR ✧ Completion of units to meet the requirements of a Certificate III in Engineering—Trade ✧ + 16 points in band 2 core units required for C5 ✧ + 44 points in units drawn from specialisation band A and/or band B units (including dual band A/band B units) and/or band 2 core units (maximum 24 points from band A)

Source: Manufacturing Engineering and Related Services Industry Training and Advisory Board, 2001.

First year apprentices

During the first six months of an apprenticeship, the apprentice is expected to observe what, how and why certain things are done. During this time the apprentice is learning all of the basic skills and knowledge that apply to working in metal fabrication and generally getting a feel for the

industry and the occupation. At times she/he may be asked to perform some basic skills. During the second six months the apprentice may be asked to set up equipment required for certain tasks. This will require him/her to set up the oxyacetylene set, turn on the oxyacetylene set, use a welder, run a tape measure, use the basic trade tools and measure and cut steel at a basic level. At the same time the apprentice will be expected to attend off-the-job training courses (at TAFE or other RTO) for one day a week, or for a block of weeks throughout the year.

Second year apprentices

During the second year of the apprenticeship more complexity is introduced into the on-the-job and off-the-job training and the work the apprentice is required to do. The second year apprentice is taught how to read and understand drawings. The employer will expect that, by the end of his second year, the apprentice will be more versatile and will be able to find the steel and cut it in various shapes and sizes. The apprentice will continue to attend off-the-job training.

Third year apprentices

During the third year the apprentice will further develop these skills. She/he will also be expected to work independently and be responsible for basic jobs. For example, she/he will be engaged in steel work for structural steel. This might include making a basic steel frame, for example, a set of handrails for a building. The apprentice will continue to attend off-the-job training. Generally most apprentices complete their off-the-job training during the third year of the apprenticeship. There are also instances of some apprentices accelerating this formal off-the-job training and completing it in a shorter time.

Fourth year apprentices

During the fourth year the apprentice is expected to work independently and to take on increased levels of responsibility. She/he is expected to operate and perform work to trade level standards. In addition, because she/he is also getting a wage which is 90% of a tradesperson's wage, the fourth year apprentice is expected to be a productive part of the work team.

Outcomes for students in VET-in-Schools programs

As the growth in the number of students involved in VET-in-Schools programs nationally has only occurred in the last few years, it is still too early to conduct meaningful national longitudinal studies on the further education and training and labour market destinations of students who have undertaken these programs. However, some initial evaluation studies of the programs have been conducted by state jurisdictions which were early to introduce the programs into their state's curriculum and by the Enterprise and Career Education Foundation (ECEF) who sponsored some of the programs.

Polesel et al. (1999) report on the destinations of 1997 Year 12 students in their second year out of school who studied VET-in-Schools programs in Victoria. More than half of the students who took these programs were still studying, including those in apprenticeships, and one in five were in full-time work.

Misko and Slack (2001) report on a national school leaver destination study of students who had participated in structured workplace learning programs supported by the Enterprise and Career Education Foundation. The sample represented about 15% of 1999 school leavers who participated in structured workplace learning. The study reports on the initial post-school destinations of survey respondents.

The results of the survey for those students who completed Year 12 and participated in a structured workplace learning program suggest that about two in five students were in full-time work; one in ten students were in part-time work; just over a third were in full-time study and less than one in

ten (7.5%) were unemployed. However, there were differences in post-school outcomes depending on the particular vocational course studied at school. More than half of the students undertaking building and construction, automotive, metal and engineering, and light manufacturing courses, progressed into full-time employment and more than half of these students who were in employment had secured an apprenticeship. However, students who entered the labour market directly from school and who studied community services and health programs, information technology, art and entertainment, and retail, had relatively high unemployment rates.

Case studies in Queensland

Senior secondary education in Queensland

Senior secondary education in Queensland takes place in Year 11 and Year 12 which are the last two years of secondary school. It is delivered in government and private high schools which have been given charters to provide education and training which best meets community aspirations and objectives, and prepares students for making the transition from school to work or further studies. Further studies may be undertaken either in universities or institutions of technical and vocational education and training. On completion of senior secondary education the student is provided with a senior school certificate.

A student's progression from school-based studies to post-school VET and university studies, is mediated by the Queensland Board of Senior Secondary School Studies (QBSSSS). QBSSSS is responsible for establishing the rules and regulations for awarding the senior certificate to students who complete their senior secondary education. It is also responsible for the calculation of tertiary entrance data.

The board has divided subjects offered in schools into two major categories: board subjects and board-registered subjects. In addition, students are also able to undertake school-developed subjects, and subjects that are not board-registered subjects but are offered by schools or other registered training organisations as stand-alone VET subjects.

As already noted in the overview of the Australian VET system, all VET qualifications must be delivered by a registered training organisation (RTO). In Queensland the board has delegation under the *Training and Employment Act* (2001) to accredit courses, recognise training programs and short courses, and register schools to deliver to VET courses to AQF Certificate Level II. This enables schools to become RTOs in their own right so that they can deliver VET courses which will lead to national qualifications or part qualifications. All Queensland schools, through delegation by the board, are RTOs.

Board subjects

Board subjects are approved by the board and are offered across the state. Results of assessments are recorded on the senior certificate and are used in the calculation of an OP (overall position) and a selection rank. These subjects are generally regarded as being more academic and demanding of students. Although many of the board subjects can be taken for the first time in Year 11, there are some subjects (for example, *mathematics B* and *mathematics C*, *chemistry*, *physics*, *music*, *languages* and *graphics*) which may prove more difficult to study if students have not taken them in previous years.

Board subjects can be counted towards a student's OP score which can then be used to calculate the tertiary entrance data. A student's OP score depends on how well students perform in these board subjects. Board subjects may also lead to nationally-accredited VET qualifications. (Details on the calculation of tertiary entrance data are provided in appendix B.)

Board-registered subjects

Board-registered subjects are of two major types. There are school-developed subjects and what are called study area specifications (SAS). The work components of both of these programs need to be approved by QBSSSS before they can be recorded on the senior certificate. SAS subjects refer to particular study areas and have embedded in them nationally accredited VET qualifications or modules and units of competency towards such qualifications.

Stand-alone VET subjects

Schools are also allowed to offer accredited vocational education modules or courses as stand-alone courses to higher AQF certificate levels (for example AQF III) if they have the expertise and the facilities to deliver these and are able to increase their scope of registration to encompass these higher-level qualifications. Otherwise they must work in partnership with another registered training organisation whose scope for registration includes the delivery and assessment of such programs. Results of these courses may be recorded on the senior certificate.

School-based part-time new apprenticeships

These part-time new apprenticeships (apprenticeships or traineeships) are offered to Year 11 and 12 students. Under these arrangements students sign a contract of training with an employer, attend school for a certain number of days per week and undertake paid work for the remainder of the week. Typically they will also undertake courses related to their apprenticeship or traineeship either from the school, if it is registered to provide the training, or a TAFE institute or other registered training provider, if the scope of the school's registration does not include these programs. In many cases these apprentices and trainees are employed by a group training company who then hires them out to host employers. Trainees can spend a maximum of 15 hours per week in the workplace. Most trainees tend to spend one full eight-hour day at work. During the holidays they are able to resume a full work load if their employer has work available for them.

It is generally expected that these school-based apprenticeships or traineeships will lead to the completion of Certificate II in the respective field and convert to full-time apprenticeships or traineeships on completion of Year 12.

Externally moderated school-based assessment

Unlike other states in Australia, Queensland has decided to forego secondary school student examinations set and marked by an external body for externally moderated school-based assessment. This means that (excepting for some isolated subjects) schools are responsible for teaching and assessing their students. However, the results of school-based assessments which lead to the senior certificate or the calculation of data for tertiary entrance, are moderated by the board via board-appointed panels of subject experts.

As has already been noted, schools must submit their subject work programs for approval to the board before they are able to offer a particular subject as part of the senior certificate. These programs detail what and how schools intend to teach in a particular subject and how they will go about conducting assessments. Once assessments have been conducted, the panels of subject experts will examine samples of student work and compare these across all schools delivering the same subject.

External examinations are also used to provide a senior certificate to students who are not attending a secondary school. These include mature-age students and students of school age who cannot attend a secondary school either because of remoteness from school, disability or chronic illness. External examinations are also available for Year 12 students who wish to study subjects not available at their school. These examinations may be taken at a number of examination centres throughout metropolitan and country Queensland.

Linkages between schools and post-school VET institutions

Credit transfer

Under the Australian Qualifications Framework all qualifications are arranged in a 'flexible interlinking sequence' which enables students to step from one qualification to the next, providing credit and recognition for current skills and knowledge. For example, if the modules completed in the AQF Certificate II and III program match directly the modules required for the diploma or advanced diploma programs, then the student will receive advanced standing or credit transfer for these courses.

In theory, then, advanced standing or credit transfer in higher VET courses should be available to students who receive VET qualifications, from schools as RTOs, or from schools working in partnership with TAFE institutes and other private RTOs. This represents the formal component of the linkage. In practice, these arrangements are not always adhered to.

This is because, in many cases, teachers of the higher-level VET providers believe that students in schools may have only covered certain components of specific modules in their school studies and as such need to complete other desired components. In addition, it is sometimes difficult for a close match to be found between the subjects completed at school and those offered by TAFE. Nevertheless, if the student has completed a module with the same name and the same code as those offered by TAFE, then he/she must be given credit transfer or advanced standing for this course. TAFE institutes or VET providers have a different set of requirements for the modules they deliver in their programs.

Other collaborative arrangements

However, there are other linkages between schools and VET institutions that are not concerned with credit transfer or advanced standing for past qualifications. These linkages refer to the development of collaborative relationships between the two sectors to ensure that students have access to specific programs and are not disadvantaged by high fees. In these cases collaboration between the sectors may involve the sharing of facilities and equipment and the teaching of courses.

There are three main ways in which TAFE or other VET institutions can collaborate with schools to deliver training for school students. They may incorporate school students into already existing classes, create special classes for school students within their timetable, or have their teachers or instructors teach students within school settings. For some institutions, incorporating students into existing programs can be difficult, especially if students have not had the same prior training, or have little or no experience of work. It can also be difficult if school students do not act in a mature way while they are in class with non-school students.

Other examples of collaboration include teachers from TAFE or other VET providers working with school teachers to develop training programs and conducting assessments of workplace competencies.

Vocational certificate pathways

As already noted there is a range of certificate qualifications under the Australian Qualifications Framework (AQF) available to students. These are awarded for the achievement of specific national industry competencies outlined in the industry or enterprise-specific training packages. These qualifications prepare students for jobs which require varying levels of skills.

The Department of Education, Science and Training (formerly DETYA) produces a career information resource for students in secondary schools. This career information resource is called the *Job guide* and is available online and in hard copy. It provides career information for students in secondary schools (DEST 2000; DETYA 1999).

The 1999 *Job guide* informed students that if they wanted to explore career and training options they must first of all determine the jobs they would really like to do and then find out about the entry level required for each of the jobs outlined in the job chart. The job chart classifies occupations according to level of skill required for entry. These skill levels range from level 1 to level 4. Skill levels are also described in terms of the AQF qualifications required.

Typically level 1 jobs require either a Year 10 qualification or AQF Certificate I qualification. These types of jobs (generally called low-skill or unskilled jobs) are gradually disappearing from the Australian industrial landscape. Level II jobs have a skill level which is equivalent to a Certificate II or III qualification, or three years' relevant experience. The completion of an apprenticeship or traineeship prepares individuals to enter jobs at this skill level. Level III jobs involve a level of skill which is equivalent to a diploma or advanced diploma, while level IV jobs involve a level of skill which is equivalent to a bachelor degree or higher.

There are many jobs which can be entered at each of these levels with the opportunity for workers to upgrade their skills and qualifications by further training. Certificates I and II are generally associated with production or process workers. These workers often perform routine jobs and require supervision. Certificate III jobs are generally associated with trade qualifications, autonomous and independent work, the supervision of others and the ability to teach others a new skill. Certificate IV qualifications, diplomas and advanced diplomas involve more advanced technical or specialist knowledge and skill, and prepare individuals for para-professional, technician or managerial positions. Degree qualifications (generally delivered by universities) apply to professional occupations (for example, teachers, engineers, doctors, dentists, architects, accountants).

Beerwah State High School

Beerwah State High School provides general academic and vocational educational and training (VET) opportunities for its students. In addition, it provides opportunities for students to combine school with part-time work, in the form of school-based part-time apprenticeships and traineeships.

Although the school has RTO status delegated via QBSSSS it has also established linkages with the local TAFE college and two group training companies for the delivery of traineeship and apprenticeship programs. General academic subjects leading to tertiary entrance are provided by general school teachers within the school. VET subjects are provided by teachers within the school who have the necessary industry qualifications and experience to deliver such subjects, or lecturers from local and metropolitan TAFEs and other private RTOs.

VET programs and pathways

A major overarching objective of the high school is to ensure that all students, whether or not university bound, understand the world of work and gain a competitive edge within the labour market once they exit school. To this end the school has made it mandatory for students in Year 11 to acquire the Certificate I in Work Education, which is a nationally recognised VET qualification. This qualification requires students to be involved in 60 hours of work placement. The school has allowed those students who are involved in part-time employment (not attached to a traineeship or apprenticeship) to count this experience towards the qualification.

The school timetable has been structured in such a way as to allow all students in the senior school to have a non-timetabled day. On this day students can arrange to either fulfil their traineeship or apprenticeship responsibilities, engage in part-time work or catch up on academic study. Any weekend work undertaken is also recognised as part of the school vocational program. This means that the student has the flexibility to use the non-timetabled day as a free day.

Part-time school-based apprenticeships or traineeships

Wide coverage

In August 2001 there were 68 Year 11 and 12 Beerwah students who were in school-based part-time apprenticeships or traineeships. They were undertaking programs leading to AQF Certificates II and III qualifications in agriculture, business and office administration, animal studies, automotive, clothing and textiles, construction and furnishing, community services (aged care, child care), engineering, electronics, horse-racing (stablehand and thoroughbred), horticulture, hospitality operations, information technology, library information studies and small business.

They are generally hired to one of two group training companies who are then responsible for all of the paperwork and administration involved in starting up or continuing the contract of training. The group training companies then hire the trainees out to host employers for a fee. The host employer provides work and on-the-job training for the apprentice or trainee and is responsible for monitoring trainees in the workplace. The two group training companies involved with Beerwah are Community Agency for Development, Employment and Training (CADET) and Sunshine Coast Regional Group Apprentices Ltd (SCRGAL).

The RTO partners in the program are responsible for conducting training and assessment and include the local Cooloola Sunshine Institute of TAFE (CSIT), Wide Bay Institute of TAFE (WBIT), Southbank Institute of TAFE (SBIT) and Northpoint Institute of TAFE (NPIT) the Sunshine Coast Business Academy (SCBA) and the Australian Vet Nurse Resource (AVNR).

The off-the-job component is generally conducted through block training, meaning that the training sessions are delivered consecutively in a block of time, say a week or two. Off-the-job training can also be delivered by the RTO at the workplace. This is especially important when a particular module, like that dealing with customer service, requires lecturers to observe trainees interacting with customers in the workplace.

Although it is the students' responsibility to find transportation to the TAFE or the private provider delivering the off-the-job training, the employing group training company will make arrangements for any student who is genuinely experiencing transportation difficulties.

Strict selection processes

Students who would like to undertake a school-based apprenticeship or traineeship at Beerwah are expected to undergo a strict selection process. In the final year of junior secondary school, which in Queensland comprises Year 10, students and their parents are asked to attend a general information session about apprenticeships and traineeships. In particular, the school will outline the commitments required of school-based apprentices and trainees and make its students and parents aware that these work and training programs should not be viewed as part-time jobs and that they are intended for those who want to achieve VET qualifications and industry experience. The school is especially interested in having parents attend these sessions because it expects parents to support students throughout the traineeship or apprenticeship and to understand the commitments that are required.

Consultants from group training companies will also meet students and parents at these information sessions. Here they will respond to student and parent questions about pay and conditions, advise students of their legal obligations in a contract of training and outline the attitudes and behaviours expected from students in the workplace. They will also provide information on credit transfer and opportunities for students to convert to full-time apprenticeships or traineeship programs on the completion of secondary school. They will also inform students of the extra effort that will be required to complete their TAFE training and the need for them to manage their time to enable them to co-ordinate work and TAFE responsibilities with the rest of their school work.

The school has decided that a demonstrated commitment on the part of the student to being involved in the program is the major criterion for acceptance into the program. Before students are

even considered for an interview for selection into these programs, they must undertake pre-training sessions related to occupational health and safety, harassment in the workplace, presentation and interview skills, body language, and resume writing. Should students miss more than one of the pre-training sessions, then they are not considered for the program. This rigorous approach is taken to instill in students the attitudes and values expected in the workplace and to ensure that employers who provide the work for students will take on Beerwah students as trainees. So far the approach has been successful.

In addition, students must also undertake in their own time, a five-day work placement in a similar field to the traineeship they want to enter. During this work placement trainees need to find out as much as they can about the company and research other workplace issues. Employers are asked to complete an assessment sheet on the trainee and comment on the trainee's attitude, appearance, punctuality and aptitude for a traineeship in the field. These assessment sheets are then forwarded to the relevant group training company for review.

Once a student has completed the five-day placement and all the pre-training sessions, he/she is eligible for an interview with the prospective employer. If a student completes all of these components satisfactorily, then he/she is selected into the apprenticeship or traineeship program.

Once accepted into the program the student will typically spend one day in the workplace and four days at school. Each quarter a report prepared by the RTO will be forwarded to the school.

There are stricter contract requirements for apprentices to be engaged in continual work during the program and time schedules that are more regulated. For this reason the group training company, South Coast Regional Group Apprentices Ltd (SCRGAL), tends to encourage students to enter a traineeship which can be completed at school and then be converted to a full-time apprenticeship.

Other collaborative arrangements

Beerwah also uses the services of Cooloola Sunshine Coast Institute of TAFE, the Community Agency for Development, Employment and Training (CADET) and SCRGAL to provide feedback and advice on VET training programs and school-based apprenticeships and traineeships. In addition, representatives from these organisations are included in meetings of the Vocational Education Reference Group. This group comprises the local employer association, the two group training companies, the local district council, the local TAFE, four local employers and Training Queensland. This body meets once a term per school to identify concerns in relation to training and to discuss future developments.

Linkages between school VET and post-school VET programs: Hospitality operations

School-based VET

One of the VET programs available to students at Beerwah is the hospitality operations course, which can be delivered entirely by the school, as a SAS subject. This course may lead to AQF Certificate I or II and students are expected to undertake five core modules and one elective. However, many students decide to do two or three electives. The five core modules include:

- ✧ working with colleagues and in teams
- ✧ working in a socially diverse environment
- ✧ understanding health and security procedures
- ✧ developing and updating hospitality industry knowledge
- ✧ following workplace hygiene procedures.

Examples of electives include:

- ✧ bar operations
- ✧ restaurant service
- ✧ wine service
- ✧ gaming operations
- ✧ housekeeping
- ✧ food and beverage
- ✧ cookery
- ✧ reception and front of house duties
- ✧ food service.

School-based traineeships, hospitality operations

The hospitality operations course is also available to students who decide to undertake a part-time school-based traineeship. However, once a student becomes a trainee, the course is directed towards the achievement of AQF Certificate Level II. This course is delivered by TAFE. Trainees are expected to do the same five core modules as regular students, but in addition they must complete six electives dealing with a variety of hospitality operations. Trainees will spend part of their week at work. The number of hours per school week that students may engage in work ranges from two hours to 15 hours. However, during their holidays it is possible for trainees to work a full-time load. Typically trainees at Beerwah undertake a full-time, eight-hour day in the workplace.

Post-school VET qualifications

As already noted, under the Australian Qualifications Framework all qualifications are arranged in a 'flexible interlinking sequence' which enables students to step from one qualification to the next, providing credit and recognition for current skills and knowledge. For example, if the modules that have been completed in the Certificate II and III program match directly with the modules required for the diploma or advanced diploma programs, then the student will receive advanced standing or credit transfer for these courses. Generally these diploma programs are encouraged for those with industry experience.

Certificate III programs

Once students have completed a part-time, school-based traineeship they may enrol in further studies at TAFE which lead to AQF Certificate III in hospitality operations. In this course they are expected to complete nine competency units and ten electives. This means that the post-school program also involves increased numbers of modules and increasingly more complex units of competency than those provided in the school-based program. For example, where students may be introduced to the basic skills and knowledge connected with wine service in the Certificate II program, these will be fine-tuned during the Certificate III program. Here, learning will become more specialised to enterprise needs as well as broadened to include different styles of foods and wines. The Certificate III program will include supervisory skills modules which will prepare students for supervising others and will teach new employees a new job.

Diploma and advanced diploma programs

A student may wish to enrol in a diploma or advanced diploma program. The diploma and advanced diploma courses also comprise more theoretical knowledge than the Certificate II or III courses. Where the Certificate II course prepares students for entry-level and operative positions and the Certificate III course prepares students for more senior and supervisory positions, the

diploma and advanced diploma programs are focussed on preparing students for management positions and on understanding the laws and regulations which apply to hospitality operations.

Diploma and advanced diploma programs can also be used to articulate into higher qualifications. Already there are partnerships between universities and RTOs to ensure that the maximum amount of credit for diploma and advanced diploma programs is available to students who enrol in related degree programs.

Student outcomes

In 2000 there were 50 Beerwah students who signed up for an apprenticeship or traineeship. Of these just over a quarter (28%) did not continue with the program. In 2001 a total of 36 students signed up for the program and by August 2001 only one of these students had dropped out of the program. This means that the great majority of students who have taken up a part-time, school-based traineeship or apprenticeship at Beerwah have continued with this form of training and employment for the duration of their secondary schooling. In addition, the great majority of students who have completed the school-based traineeship and apprenticeship programs have either gone into full- or part-time employment (often with their host employers), taken up full-time apprenticeships or traineeships, or gone on to further studies at TAFE.

These are positive outcomes and are in part due to the rigorous selection methods, and in part due to the strong encouragement given students to complete their traineeship programs. For example, students must provide a very strong reason for wishing to cancel their training contract. There are reasons for this. One reason is that completing the traineeship or apprenticeship program is perceived to be beneficial for students in the long run. Another reason is that the school does not wish to forego the financial incentives it receives on the completion of each contract of training.

Toowong College

Toowong College provides training for senior secondary school students which will lead them either directly to the workplace, to TAFE or other VET training provider, to university or to all of these destinations. Students who are bound for university undertake only academic subjects or such subjects in conjunction with some VET courses or modules.

VET programs

Toowong College has been involved in running VET programs since 1990. At this time all but one of the subjects delivered in school were board subjects which were in the main suited to the more academic students. Because it was estimated that about 40% of Toowong students generally went directly into jobs, TAFE or into unemployment, the principal and parents decided that the academic curriculum did not meet the needs of all Toowong students. To deal with these realities the college decided to establish a VET-in-Schools program which would provide a relevant curriculum for students. This was based on the assumption that students would be more likely to stay on at school and complete Year 12 or Year 13 if the culture of the school was more encouraging.

Because in reality no high school is in a position to provide training for all industry sectors, the college decided to establish collaborative arrangements with TAFE and other VET providers. These arrangements enabled cohabitation and collaboration. This means that students can undertake VET programs delivered by TAFE or other RTOs either at TAFE or other VET institutions, or by the school. Having students attend TAFE colleges for training was especially attractive as it meant that students could access a wider range of courses and could develop a sense of responsibility and so improve their self-confidence.

Today the college provides opportunities for students to undertake specific trade-based courses through extended registration arrangements with a neighbouring TAFE and attend courses at other local or metropolitan TAFE colleges or private VET providers.

Like all high schools in Queensland, the college has RTO status delegated by the QBSSSS to deliver VET modules which lead to national qualifications. It is also now in a position to deliver VET qualifications in its own right with RTO status for the delivery of programs like hospitality, business, arts and community services. In this regard it acts like a TAFE and a high school.

Toowong has decided on a very flexible approach to the provision of vocational education and training and provides training for generic and industry-specific national qualifications. An outline of the generic and industry specific qualifications to the different AQF levels is provided in table 31.

Table 31: Generic and industry-specific certificates available to Toowong students

Generic certificates	Industry certificates—AQF I and II	Industry certificates—AQF II and III
Certificate III in Work Practices	Hospitality (Certificates I and II)	Child Care (Certificates II and III—Family Services)
Certificate I in Work Education	Engineering (Certificate I—Pre-vocational)	
Certificate I in Work Readiness	Information Technology (Certificate II)	
Certificate I in Vocational Education	Office Administration (Certificates I and II— Business)	
	Construction (Phase I and II—Basic Industry Skills, Fit-out and Finish)	
	Furnishing (Certificate I—Workplace Practices)	
	Horticulture (Certificate I—Foundation Horticultural Skills)	
	The Arts (Certificate II Arts—VAPA, Screen Studies)	
	Multimedia (Certificate II Arts—Multi-Media)	
	Printing and Graphic Arts (Certificate II)	
	Music Industry Skills (Certificate I)	
	Sport and Recreation (Certificate II)	

University extension programs in conjunction with one of the major universities are also provided for university-bound students.

Linkages between school and post-school pathways

The linkages between VET programs completed in secondary school and VET programs undertaken in post-school institutions must be understood in terms of the competencies achieved and in terms of the pathways chosen. After secondary school studies (which may for some include a part-time, school-based traineeship or apprenticeship) students may wish to continue on certain VET pathways by entering an apprenticeship or an institutionally based diploma program.

Part-time school-based traineeships

Toowong provides opportunities for students to undertake part-time traineeships. Here students complete a minimum of eight hours of paid work per week in a specific industry, while they are still at school. Typically this means spending one day per school week in the workplace. They complete a Certificate II level qualification, either at school or at TAFE. Qualifications gained on successful completion of these traineeships can be used to articulate into further VET qualifications. For example, many traineeships are converted to full-time apprenticeships or traineeships or can be used as experience to gain further full-time employment.

Post-school apprenticeship pathways: engineering

Students who complete a qualification (say Certificate II) in engineering at secondary school and who go into an engineering apprenticeship at the completion of their secondary schooling, may

obtain credit transfer from TAFE for their engineering studies at school. However, credit transfer is only available to students who have been deemed competent; that is, students who have demonstrated that they are able to successfully apply the appropriate knowledge and skill to workplace tasks and to the standards required under the training package. This means that they will have had to be assessed either in the workplace or in an appropriate or simulated workplace environment. However, this credit transfer is only made available to apprentices who have gained an apprenticeship within 12 months of completing the original qualification.

If the apprentice has only completed the off-the-job components and has not had the opportunity to demonstrate the required workplace competency standards, then the off-the-job components completed are acknowledged and do not have to be repeated.

The only way that a secondary school student who has completed a Certificate II qualification in engineering can enter a Certificate III course is for the student to enter into an apprenticeship.

Institutional pathways

A student who has completed Certificate II in engineering and secondary school studies may also want to undertake further engineering studies without becoming an apprentice. This student must undertake a diploma program and therefore will need to satisfy certain entry requirements and apply through the Queensland Tertiary Admission Centre. If the student is successful in obtaining entrance to a diploma program, then he/she must apply for credit transfer for the units of competency already completed in the certificate course. If the TAFE believes that these units of competency fit within the diploma program then credit transfer is awarded. This means that they may not get acknowledgement or credit transfer for everything accomplished in the past.

Linkages with providers

The college has a special relationship with Yeronga TAFE which provides training for students to Certificate II level in workplace practices, engineering, furnishing and horticulture. It also provides training to Certificate I level in foundation horticultural skills. Training is provided by Yeronga teachers either within the school or at the TAFE campus. The school also works in conjunction with the Open Learning Institute to provide first-aid training for teachers and for students. It has a partnership with Southbank TAFE to deliver printing and graphics arts and QUANTM, a private RTO, to deliver multi-media studies. Toowong also provides music industry skills programs under the auspices of an RTO based in the state of Victoria.

Where training is provided at the TAFE campus, students need to travel to the TAFE campus to attend classes. In the main, students are able to take taxis to these classes.

Toowong is now able to deliver its own commercial cookery programs as it has a commercial kitchen and has hired a chef to deliver the Certificates I and II qualifications. This enables students to articulate into the diploma course delivered by the College of Tourism and Hospitality (COTAH) of Southbank TAFE once they have completed school.

Since 1 July 2002 the functions of the Queensland Board of Senior Secondary School Studies were incorporated into a new authority called the Queensland Studies Authority.

Case studies in South Australia

In South Australia, student progression from school-based studies to post-school vocational education and training (VET) or higher education studies is mediated by the Senior Secondary Assessment Board of South Australia (SSABSA).

SSABSA's major functions are to develop and approve syllabi for stage 1 (Year 11) and stage 2 (Year 12) studies, assess student achievement in these years, and prepare and maintain records of assessment. SSABSA is also responsible for certifying achievement in Year 12 and issuing the South Australian Certificate of Education (SACE) to senior secondary school students who have completed stage 1 and stage 2 studies.

To be eligible for a SACE qualification, senior secondary school students must complete a set of compulsory subjects (to be taken from humanities and science fields of study) and a spread of subjects to provide a balanced program of studies. Senior secondary school students have the option of undertaking subjects which are classified as general education (that is, *English*, *chemistry*, *physics*) or those which are relevant to vocational education and training.

Vocational education and training contributes towards the SACE in the following two ways.

VET embedded within SSABSA-accredited subjects

VET can be embedded in any SSABSA-accredited subject or across a range of SSABSA-accredited subjects. This includes the compulsory subjects within SACE at stage 1 (that is, *English*, *Australian studies* and *mathematics*) and subjects that belong to group 1 (arts/humanities/social/cultural studies) and/or group 2 (mathematics/science/technology) of stage 1. VET can also be embedded in language-rich and/or quantitative/experimental subjects at stage 2 (appendix C provides a list of subjects in each group).

A school program that embeds VET within a SSABSA-accredited subject must ensure that national competency standards or outcomes of vocational education and training are clearly mapped against the SACE objectives without having any of these objectives compromised. Generally, a SACE unit consists of 50 to 60 hours of effective programmed school time. The VET component therefore, should not exceed 40 hours of programmed school time for any one SACE unit.

VET recognised as SACE units

Senior secondary school students may undertake up to a maximum of eight VET units of competency as part of their SACE programs. Where students undertake units of competency, which comprise a total of 50 nominal hours of instruction time, they will be granted status for one SACE unit.

General and vocational and education and training pathways

Following the completion of a SACE qualification, senior secondary school graduates have many and varied vocational and educational pathways. Typically, students who have chosen general or

academic subjects as part of their SACE programs are bound for university.[23] Nonetheless, these students may also commence further training in the VET sector. Students who have undertaken embedded VET subjects as part of their SACE programs are also eligible for further studies in the higher education or VET sectors. Students who have undertaken VET programs and been awarded SACE units on the other hand, are generally not eligible for higher education. These students may undertake further training in the VET sector.

Under the AQF, senior secondary school graduates who have completed VET units of competency and choose to undertake further training in the VET sector, should receive advanced standing for the VET modules that they have completed at school.

There is also a small percentage of students who will come back to secondary school to repeat Year 12, so that they can achieve the appropriate score for university entrance in their selected fields. There are others who come to complete Year 13 to improve their chances of getting a job.

A number of high school graduates also choose not to undertake further training altogether. These individuals may choose to enter directly into the labour market or to defer studies and/or employment until they feel they are ready.

The following section describes, with examples, the vocational and educational pathways for senior secondary school students following the completion of their SACE. The particular emphasis will be on the linkages between school-based studies and post-school VET.

Windsor Gardens Vocational College

Windsor Gardens Vocational College is the first vocational college in South Australia. The college provides students with general and vocational education and training to enable them to complete their SACE and also to achieve VET qualifications. The college also aims to assist students to reach their full potential by allowing the students to explore different academic and/or work-related pathways which will assist them in making informed decisions about their futures.

Vocational pathways

Students at Windsor Gardens Vocational College can choose from the following six vocational patterns:

- ✧ food processing, hospitality and tourism
- ✧ community services and health
- ✧ building, construction and furnishing
- ✧ manufacturing
- ✧ information technology/multimedia
- ✧ multi-arts.

Windsor Gardens Vocational College has established linkages with local institutes of TAFE to deliver VET modules to their secondary school VET students. This means that the college can provide access to programs which rely on the appropriate expertise, facilities and resources of institutes.

For instance, an association has been established with Torrens Valley Institute of TAFE to deliver training to its students who are undertaking training in the community services and health vocational pattern. This program requires students to attend Torrens Valley TAFE at Tea Tree Gully

[23] In South Australia, university entrance depends on a Tertiary Entry Rank (TER) score. This score ranks students who have completed stage 1 and stage 2 subjects in order of achievement for selection to university studies or to certain programs in VET institutions.

campus (located just six kilometres from the college) to complete units for the Certificate III in Community Services/Community. Similarly, the delivery of the competencies for the metal machining and engineering vocational pattern involves students with an interest in this vocational area to attend an appropriate course at a TAFE institute for one day a week.

At Windsor Gardens Vocational College, all students undertaking studies at stage 1 are obligated to complete a number of compulsory subjects, including *English*, *Australian studies* and *mathematics*. These students are also required to undertake two subjects from the arts/humanities/social-cultural area and two from the mathematics/science/technology areas of learning. In addition, these students are allowed to select four of any stage 1 subjects or four units of 50 hours of VET.

During stage 2, it is compulsory for students to undertake a subject in the arts/humanities/social-cultural and mathematics/science/technology areas of learning. In addition, students are able to select either any stage 1 subject or 50 hours of VET, or any stage 2 subjects.

For example, stage 1 students who have chosen the food, hospitality and tourism vocational pathway or pattern are obligated to complete two units of *English*, one unit of *Australian studies* and one unit of *mathematics*. Furthermore, these students are required to complete a one-unit subject from the arts/humanities/social-cultural group and a one-unit subject called tourism. These students are also expected to choose two subjects from the mathematics/science/technology area of learning. Moreover, it is necessary for students undertaking the food, hospitality and tourism vocational path to undertake Certificate I in Food and Hospitality and two one-unit stage 1 subjects of 50 hours of VET.

Table 32 shows examples of the integration of vocational education and training and general education for students who have chosen the food, hospitality and tourism, building, construction and furnishing, and information technology vocational patterns.

During stage 2, it is compulsory for students who have chosen the food, hospitality and tourism vocational path to enrol in a two-unit subject from the arts/humanities/social-cultural group such as tourism. These students are required to undertake a subject from the mathematics/science/technology area of learning and any stage 2, a two-unit sequence such as food and hospitality. Furthermore, these students are required to select four subjects from any stage 1 subject, any stage 2 subject, any unit of 50 hours of VET or any two-unit sequence.

Preparation for the workforce

Students undertaking VET as part of SACE have the opportunity to undertake workplace learning within an industry. Workplace learning assesses the key competencies and skills learnt at college within the work environment. Some skills and knowledge may be learnt and assessed on the job.

For instance, students at Windsor Gardens Vocational College who have chosen food, hospitality and tourism, building, construction and furnishing or information technology vocational patterns are required to undertake a minimum of ten working days of work placement. The exposure to workplace experiences allows students the opportunity to work with a number of different workplace personnel. Students are also able to gain a better understanding of their personal skills and abilities.

Following the completion of their stage 1 and stage 2 studies, students who have chosen the food, hospitality and tourism vocational pattern are able to seek employment in the hospitality or tourism industry at a basic level such as kitchen hand or housekeeper.

Students who have chosen the building, construction and furnishing vocational pattern may find employment through an apprenticeship or traineeship in bricklaying, carpentry or tiling.

On the whole, school students undertaking studies in VET as part of their SACE are well-equipped for the workforce. School-based VET, comprising workplace learning programs, has enabled students to develop and practise work-related skills that could be applied to a formal workplace situation.

Table 32: The integration of VET and general education

				Food, hospitality and tourism	Building, construction and furnishing	Information technology
STAGE 1	Compulsory 1 unit subjects	Subjects	English	English	English	Vocational English
			English	English	English	Vocational English
			Australian studies	Australian studies	Australian studies	Australian studies
			Mathematics	Maths	Maths	Business maths
	Compulsory 1 unit subjects	Groups	Group 1 arts/humanities/ social-cultural	Free choice	Free choice	Business studies
			Group 1 arts/humanities/ social-cultural	Tourism	Free choice	Free choice
			Group 2 Maths/science/ technology	Free choice	Furniture construction or computer-aided design (CAD)	Computing foundations
			Group 2 maths/science/ technology	Free choice	Free choice	Practical information processing
	Stage 1 or 50 hours VET for each unit	Free choice	Any stage 1 subject **OR** 50 hours VET	Food and hospitality Certificate I	Building Certificate I	Practice Firm
			Any stage 1 subject **OR** 50 hours VET	Food and hospitality Certificate I	Building Certificate I	Free choice
			Any stage 1 subject **OR** 50 hours VET	Free choice	Building Certificate I	Free choice
			Any stage 1 subject **OR** 50 hours VET	Free choice	Building Certificate I	Free choice
STAGE 2	2 unit subjects	Free choice	Any stage 1 subject **OR** 50 hours VET	Free choice	Free choice	Free choice
			OR Any stage 2 subject/2 unit sequence	Free choice	Free choice	Free choice
			Any stage 1 subject **OR** 50 hours VET	Free choice	Free choice	Free choice
			OR Any stage 2 subject/2 unit sequence	Free choice	Free choice	Free choice
	Compulsory 2 unit subjects	2 unit sequence	Group 1 arts/humanities/ social-cultural	Tourism	Free choice	Business studies
			Group 2 maths/science/ technology	Free choice	Furniture construction	Information technology
			Any stage 2 unit sequence	Food and hospitality	Free choice	Personal information processing
				Food and hospitality		Business documents or desktop publishing

Preparation for further studies

Students undertaking vocational patterns at Windsor Gardens Vocational College are also eligible for dual accreditation of SACE and VET qualifications.

These individuals are able to receive advanced standing for the modules they have undertaken through recognition of current competency (RCC) or recognition of prior learning (RPL) should they wish to continue further training in the vocational education and training sector.

Following the completion of stage 1 and stage 2 studies, students who have chosen the food, hospitality and tourism vocational pattern, are eligible for further training in commercial cookery or food, hospitality/tourism courses at TAFE institutes.

Students who have chosen the information technology vocational pattern may choose from a range of information technology courses available at university (for example, Bachelor of Information Technology or Bachelor of Engineering) or at TAFE (for example, Certificates II–IV and Diploma in Information Technology).

The building, construction and furnishing vocational pattern provides students with useful knowledge about the practical aspects of the vocation. These students may also find the industry-related skills beneficial when seeking employment.

It is also possible for students at Windsor Gardens to take advantage of specialist information technology vendor programs, like those provided by CISCO Systems Inc., as part of their school program. Students may acquire CISCO certification in programs like network administration and network engineering. Such programs are very expensive if students were to access them at TAFE or at a private VET provider. However, they are of minimal cost to students who undertake them during secondary studies at the school.

The school also provides training for hearing-impaired students and integrates them with hearing students in practical as well as theoretical classes. When hearing-impaired students are integrated in normal classrooms they have access to extra help in the classroom.

Willunga High School

Willunga High School provides general and vocational education and training for students. General education in the senior school generally aims to prepare students for entry into university, while vocational education and training aims to provide students with opportunities to experience and train for the workplace while they are still at school.

A focus on vocational education and training at Willunga High School and in particular on viticulture, commenced in the mid-1990s in recognition of and response to community needs and the needs of students from diverse socioeconomic backgrounds.

Students may undertake a number of VET programs at Willunga High, including food processing, horticulture, hospitality, information technology and business administration. Because the lack of transport to local and metropolitan institutes of TAFE had prohibited most Willunga students from accessing VET programs off campus, the school decided in 1996 to become a registered training organisation. Since that time it has been able to offer off- and on-the-job VET programs to its students as well as to local unemployed and employed adults.

As an RTO, Willunga High School is registered to provide the following VET qualifications:

- ✧ Certificates I, II and III in Food Processing (Wine)
- ✧ Certificate I in Production Horticulture (Floriculture)
- ✧ Hospitality (Kitchen Operations and Operations)
- ✧ Certificate II in Information Technology
- ✧ Certificate II in Business Administration.

Students at Willunga High School can participate in VET training in three ways. They may undertake full certificate courses over one or two years, individual units of competence as part of a SACE subject, or through credit transfer where they have completed and passed the overall requirements for a course or subject which has dealt with the specified competencies. The VET unit, while not specifically taught, may be covered while completing the overall requirements of a course. In this case, students are deemed to have completed the unit if they have passed the subject. This process is known as ‘credit transfer’.

Linkages to general education

In South Australia, SSABSA is responsible for the development and approval of syllabus for stage 1 and stage 2 studies. Hence, the integration of general education and vocational education and training for students at Willunga High School is similar to that for students at Windsor Gardens Vocational College.

Generally, there is a required pattern of subjects that must be followed to satisfy the requirements of the SACE. Students are required to complete a number of compulsory subjects at stage 1 and stage 2 and a selection of subjects from the arts/humanities/social-cultural, maths/science/ technology, language-rich and quantitative/experimental areas of learning.

All students undertaking VET as part of their SACE receive dual accreditation, both towards their SACE and towards an Australian Qualifications Framework qualification.

Preparation for the workforce

Students undertaking VET as part of SACE are expected to undertake a significant number of hours of on-the-job training to gain appropriate practical and relevant industry experience. So that Willunga students can obtain the relevant on-the-job training and experience required for VET courses, the school operates as a business and is registered as Waverley Park Business Enterprises.

Waverley Park Business Enterprises comprises five auxiliary businesses (committed to making a profit), in which students are responsible for management and budgeting processes. This involvement allows them to acquire the relevant competencies and experience for the different VET qualifications (including business and retail, viticulture, tourism and hospitality, child studies, design, furniture, photography and automotive). The five auxiliary businesses are:

- ✧ Waverley Park Catering which provides opportunities for students to acquire the relevant competencies for hospitality programs related to kitchen operations, cookery and restaurant and function service.
- ✧ Waverley Park Wines which provides opportunities for students to acquire the relevant competencies for growing grapes and tending vines. Willunga High School owns ten acres of vineyard on the school property and has used this to establish a number of enterprises to give students the real-life experience of running a business. Through Waverley Park, students learn every aspect of viticulture, including managing a vineyard and tending vines, as well as how to turn grapes into wine. They also make a range of products to complement the wine, including racks and boxes for packaging.
- ✧ Waverley Park Olives which provides opportunities for students to acquire the relevant competencies for growing and tending olives.
- ✧ Waverley Park Events which allows students to acquire competencies and experience in arranging tourism events, photography and marketing.
- ✧ Waverley Park Furniture Construction which allows students to acquire the competencies for furniture construction.

All businesses provide students with opportunities to acquire business and retail skills.

In addition, the school has established close relationships with industries such as McLaren Vale Winemakers' Association, BRL Hardy and local nurseries. These links ensure that the training provided at Willunga High School meets the needs of industry standards and employers.

Preparation for further studies

Willunga High School students in senior secondary years are able to select pathways and subjects which have relevance to their post-school future. There are three main pathways: the tertiary pathway, vocational pathway and employment pathway.

Students who choose to undertake further training in the VET sector receive advanced standing for the modules completed while at school.

Benefits and concerns

Benefits

One of the major benefits of these collaborative relationships between schools and post-school providers is the facilitation of sharing of human resources and facilities. This means that the school can continue to provide training for students where programs have few enrolments. In addition, these relationships allow students to access post-school programs while still at school and while also completing their general education.

There are also cultural and social benefits derived by teenagers from staying in a school environment. They can continue to interact on a social level with students of their own age groups and interests and they remain in the pastoral care of schools during their adolescent years.

Providing vocational skills for 'high academic achievers' helps these students to be engaged in part-time or casual jobs while they are pursuing university studies. These pathways also help students who are 'non-achievers' in the academic sense to gain knowledge and skills which will prepare them for the world of work and provide an entry into specific occupations. They also lay the foundation for continuing with further vocational studies in the future.

Concerns

Ensuring that students are channelled into appropriate pathways which do not limit their future career options has always been a major concern of schools. If students in schools are encouraged to opt for new vocational pathways without completing their general education, then their flexibility for entering different training pathways may be reduced. There may also be cases where students on vocational placements in industry are offered a job by employers. If they are not appropriately counselled they run the risk of accepting the employment without considering the consequences of leaving school before completing their basic qualifications.

In the context of progression to programs offered by post-school providers, another concern relates to the issue of credit transfer or advanced standing for studies or competencies acquired in school-based VET programs. Vocational subjects are promoted to secondary school students on the basis of their counting towards VET qualifications and that they do not need to be repeated once the student goes on to further studies. Post-school providers may not provide advanced standing to students who have completed relevant modules at school because they have different prerequisites for certain programs, or because they do not agree that the school has provided comprehensive training, or that the student has acquired the workplace competencies. If students, parents and teachers in schools find that this advanced standing is not provided to students when they leave school, then the willingness for schools to channel students in these pathways may be severely reduced.

Training packages are continuously being revised to keep up to date with industry needs, therefore schools need to keep abreast of these changes and embed the appropriate units into SACE-accredited subjects. This is also another time- and labour-intensive responsibility for schools.

The Australian VET system is predicated on the availability of flexible and seamless pathways which allow individuals to pursue training, and update and upgrade skills and qualifications as required. If this is to become a reality for all students, the VET system must ensure that the qualifications or part-qualifications students complete at school provide them with advanced standing in relevant courses once they leave school and pursue further training.

Major comparisons and the way ahead

Shared concerns

A comparison between the Chinese and Australian VET systems in terms of linkages between lower and higher VET, indicates that in both countries there is a concern with the provision of multiple and interlinking pathways between different sectors of the education and training system. This concern is predicated on the need for the training and development of a skilled and flexible workforce able to meet the demands of economic systems which are becoming increasingly globalised and knowledge-based, and workplaces which have been affected by major advances in science, information technology and telecommunications. In addition, VET sectors in both countries are very much aware of their need to customise training to meet the needs of all individuals as they progress through life and to supply relevant skills and knowledge training for a labour market which is continually in flux.

During the last decade both China and Australia have introduced major reforms to prevailing systems of vocational education. However, it must be kept in mind that change, whether it be in China or Australia, may not always be automatically implemented, or implemented according to the envisaged time-lines or processes desired by the instigators of reform. Often the implementation of change takes time for people, firstly to accept the value of and requirement for the change, secondly to understand what is required of them to put in place processes which will faithfully implement change and thirdly time to put these processes into practice.

In China, the implementation of reforms to the VET sector is still in the early stages and full-scale implementation will take considerable time. This is not because of reduced commitment to reform but because the Chinese VET sector comprises far larger numbers of students and schools, than does the Australian VET sector. In addition, implementing reforms in the Chinese VET sector may also require considerable government funding, which in a developing country must also be allocated to the implementation of other economic and social reforms.

Increased government subsidies and support

The attachment of government subsidies to support legislation for reform will also hasten the speed of change. In Australia, government funds have underpinned the implementation of legislated reforms with respect to opening up the training market to private providers, provision of funds for implementing VET-in-Schools programs and provision of subsidies to providers, employers and other intermediaries for the implementation of reforms related to new apprenticeships.

Government in Australia has played a major role in the funding of VET and until recently there were no tuition fees to be paid by students accessing government-funded VET. Today, although tuition fees are minimal for students in government-funded programs and vary according to different providers, students are expected to pay some fees whether they are in institutional-based pathways, or in integrated off-the-job, on-the-job pathways or applying for the recognition of prior learning.

In China, governments have also provided subsidies for the implementation of pilot programs especially in relation to streamlining of the VET system. Traditionally however, students have had to pay for education at the secondary level. Funds have also been derived from sponsors of

vocational education, local taxes, enterprises and fundraising by schools. If VET is to develop in ways that will provide relevant training for industry, then the need for increased subsidies for the provision of VET will need to be addressed.

Improved quality assurance measures

Processes for quality assurance and reviews of implementation processes have also been established to ensure that a system of continuous improvement and quality assurance will underpin the provision of VET in Australia. In addition, the initial and continued registration of providers is also dependent on evidence of their capacity to provide high quality training.

Although processes for continuous improvement are necessary to ensure currency and appropriateness of processes and programs, frequent change of direction may also affect the commitment of providers to implement reform. In the quest to ensure that the system remains responsive to any difficulties experienced with the implementation of original reforms, policy-makers may run the risk of not providing enough time for the faithful implementation of these reforms before changes to these reforms are introduced. This is true of the Australian VET system as it is for the Chinese VET system.

Increasing opportunities for lifelong learning

In both China and Australia there is a focus on providing opportunities to enable citizens to engage in lifelong learning. In Australia, demographic shifts will mean that in 20 years time just over 40% of the Australian population will be 45 years of age and over. In addition, the pool of younger workers will have declined considerably. This means that employers will increasingly rely on older workers to supply required skills.

The need to continually upgrade skills and knowledge through a process of lifelong learning will require a VET system that allows all individuals to acquire relevant skills throughout different stages of their lives. The Australian VET system, through its flexible and open approach to training and the packaging of training into modules, allows individuals to step in and out of the system as they require. There are already signs that older age groups are increasingly availing themselves of vocational education and training in Australia.

China is also interested in providing opportunities for citizens to engage in lifelong learning. From a practical viewpoint, China's social, economic and technology development demands that workers continually upgrade their skills. The creation of linkages between all sections of the VET system will enable students to continue with further studies, so that a pool of highly trained technicians and professionals is available to meet the demands of social progress and economic development.

Increased role for industry

Australia has had a long history of apprenticeship training in traditional trade areas and a more recent history of traineeships in other industry areas. These arrangements have involved employers in the provision of on-the-job training for apprentices and trainees. With the implementation of the reforms of the early 1990s, industry was given an increased role in deciding on the direction of training. It was given formal responsibility for the development of competency standards that formed the basis of national curricula and for the development of formal policy related to VET. This means that policies related to the development of flexible and articulating pathways between the education sectors were also developed with industry involvement. Industry is also charged with the development of training packages in Australia.

In Australia, the integrating role played by curriculum and a competency-based and modular approach to training in the early days of VET reform, was to be usurped by training packages. Although training delivery based on these training packages continued to be competency- and module-based, the units of competency aligned to different levels of qualifications provided the integrating role between lower and higher VET.

The training packages spell out the competency standards that must be achieved to attract a certain level of qualification, they do not set out the means by which these competencies must be attained. This means that providers are free to decide on which learning materials they will use to enable students to achieve the required competencies. In addition, assessment-only pathways also enable individuals to acquire qualifications through the assessment of competencies without having to undergo a formal program of training. These pathways are open to existing workers as well as students.

Although in theory training packages should provide directions for a natural progression between lower and higher levels of qualifications, in practice this does not always happen. The success of the training packages to prevent unnecessary repetition depends on the ability of training package developers to draft units of competence which reduce overlap between progressively higher levels of qualifications.

Chinese industry does not have close interaction with the school system, even though in some cases they have acted as sponsors of local vocational education programs. In addition, it currently finds itself in a time of major change as the Chinese economy is transformed from a planned economy to a market economy. As a result, its ability to spend time on the development of curriculum or strategies for skill development, or for intense interaction with the VET sector, has been somewhat limited and may continue to be so in the short term. Where this involvement has occurred, it has been, because of the special interest of leaders within individual enterprises, rather than as a result of government prescription. However, if VET is to be one of the major vehicles for providing workers with the skills and knowledge relevant to enterprise needs, then there must be some mechanism that will enable regular discussions between VET teaching professionals and industry personnel.

Using the curriculum to integrate the pathways

Providing flexible pathways that enable individuals to move within and between levels of qualification has also been a major goal of the Australian VET system. Competency-based training organised in units of competency and then delivered in modular form has been one way to facilitate the development of these pathways. In Australia competency-based training was introduced into the VET system in a major way in the early 1990s. Training was to be according to national curricula made up of units of competency that could be combined to form different levels of qualifications. These national curricula, made up of national modules and established for different levels of industry qualifications, played an integrating role between lower and higher VET. In 1997 these national curricula were superseded by industry and enterprise-based training packages. However, the units of competency remained the main building blocks of qualifications.

The term ‘curriculum’ is currently not used to describe competency standards and assessment guidelines available in Australian training packages, but in a sense these play the role of ‘curriculum’ by providing direction for the learning and its assessment and acting as a major linking agent between lower and higher VET.

In China reforms to the vocational education system revolve around the creation of linkages between various sectors of vocational education and the creation of linkages between lower and higher VET. In addition, there are also pathways leading from higher VET into tertiary or higher education. The majority of these linkages are based on the amount of time individuals are expected to spend in secondary VET before they can move into higher VET.

There has also been some attempt to ensure that the curriculum in both sectors provides an integrating means for ensuring that students engage in progressively more specialised courses and programs as they move through the system. However, curriculum-based linkages have generally only been developed at the local level by secondary VET and higher VET institutions working in collaboration to provide integrated curricula that avoid repetition of subject material at higher levels of training.

Nonetheless, effective curriculum linkages have been experienced in the '5-year through' model programs and in general courses. However, problems of repetition and inappropriate sequencing (that is, basic skills are delivered in higher VET while advanced skills are delivered in lower VET) have been more evident in the specialised courses and practical field training programs.

In addition there has been an attempt to free up opportunities for graduates of secondary VET to enter higher levels of training. Competency-based training has also been introduced to some extent in the Chinese VET system; however, this is still at an early stage.

Integrated qualifications framework

The Australian Qualifications Framework (AQF), however, provides the overall integrating framework for pathways between lower and higher VET. These pathways are predicated on the principles of mutual recognition of the Australian Quality Training Framework (AQTF) which establishes that any registered training organisation must accept the qualifications awarded by another registered training organisation. This principle enables the application of credit transfer and advanced standing for those wishing to transfer their studies to another program or institution.

There is, however, no national specification of the number of credits or amount of advanced standing that universities must apply to a VET qualification. There may be approved arrangements between the VET and university sectors in some states and territories to award an agreed amount of advanced standing for a VET diploma or certificate.

There is no equivalent to the AQF in the Chinese VET system. However, China is also beginning to experiment with a system of credit points for numbers of hours involved in training so that credit transfer and advanced standing can be applied for those who move between the pathways. Although there is no specific national policy on credit transfer that applies throughout the country, there is a set of guidelines that is available to institutions. The absence of a nationally consistent policy on credit transfer means that the credit points system operates differently within the different institutions. Students who have studied the same subject but in different schools may not always receive the same number of credit points for this subject.

However, presently, a number of pilot programs have been established to trial the implementation of nationally consistent arrangements for articulation based on prior qualifications. For example, if a student has acquired a skill grade certificate issued by the Ministry of Labour and Social Security, or Ministry of Education, the higher VET institute may waive the need for the student to undertake the specialised skills entrance examination. In addition, graduates from secondary VET schools who undertake further studies in higher VET, will not need to repeat certain subjects that they have completed in the secondary VET school.

The Chinese Government has issued a series of important policy documents to guide the creation of these linkages between secondary and higher VET nationwide. These include:

- *Decision of the Central Committee of the Communist Party of China on education system reform* (1985)
- *Suggestions by the State Council on the implementation of 'Outlines for reform and development of Chinese education'* (1994)

- *Vocational education law of the People's Republic of China* (1996)
- *Action plan for vitalising Education Towards the 21st Century* issued by the Ministry of Education (1998).

These policies and regulations have established goals for China's secondary VET and higher VET systems. The goal for secondary VET is to develop intermediate level technical personnel and workers with good all-round qualities and comprehensive vocational skills to work in front-line production, services, technology and management. The goal for higher VET is to train higher-level specialised personnel for first-line production, construction, management and services, and who are educated in all of moral, intellectual, physical, aesthetic and other areas.

Although both China and Australia have issued relevant policies to enable vocational pathways to be interlinked, the major difference lies in the way these policies have been implemented at the national level. In Australia the Australian Qualifications Framework specifies a nationally consistent framework for the awarding of qualifications and national industry training packages align units of competency to qualifications. Coupled with this is the Australian Quality Training Framework which specifies a national set of agreed standards to ensure the quality of VET in Australia. This includes standards for registered training organisations and standards for state and territory registering/course accrediting bodies. These arrangements should in theory enable the operation of effective linkages between the different pathways.

The Chinese regulations are rather general and provide in-principle recommendations for the creation of interlinking pathways between secondary and higher VET to local governments. The lack of clearly specified training goals for secondary and higher VET, has to a certain extent, limited the implementation of effective linkages between the two sectors. However, this has also allowed more space and freedom for local areas to develop linkages that suit their particular situations.

The translation of policies or guidelines into practice whether it be in China or Australia is not always as straightforward as it first appears. Although the national training packages should provide the means for interlinking secondary and higher VET pathways, there are still instances of repetition in higher-level programs of material covered in lower-level programs. These problems should gradually disappear as providers become more familiar with the requirements of training package qualifications and the auditing of registered training organisations becomes more stringent.

Promotion of moral education

The Australian VET system is focussed on the development, achievement and demonstration of industry-specific and a number of generic competencies required for workplace success. However, there is little focus on the all-round development of individuals. To a certain extent this is mainly undertaken within general education and especially within private school general education. By contrast the Chinese VET system aims to promote all-round development by providing for moral education.

The development of citizens with a keen sense of professional ethics and moral responsibility to their society is paramount for the success of a system predicated on the principles of fairness and justice for all. Implementing moral education or professional ethics programs can be used to strengthen Australian VET. This means that, in addition to developing industry-specific competencies and generic workplace competencies, students will also have the opportunity to acquire and further develop the values and attitudes that are appropriate to their occupations and to their functioning in society.

Different ways for doing the same thing

China and Australia have developed their own practical approaches for the creation of linkages between secondary and higher VET. China has focussed on developing linkages based on the amount or segments of time to be spent in secondary and higher VET (for example, as in the '2+3', '3+3' and '4+2' models). Australia has developed a system based on the identification of industry competency standards (that is, training packages), and national frameworks for qualifications (that is, the AQF), and for quality assurance (that is, the AQTF); a qualifications framework. In addition, the Australian system allows individuals to receive recognition of prior learning either through credit transfer arrangements, or through the assessment of current competencies. This means that as long as training and assessment is conducted by registered training organisations VET can be delivered and assessed in institutions or in workplaces. Such arrangements have facilitated the development of effective linkages between lower and higher VET.

However, the linkage issues did not become a focus in China until the end of the 1990s. Since then China has placed significant emphasis on the development of these linkages and has already achieved some remarkable success in this field. However, it is also important that at the national level more attention is placed on the specification of clear training goals for secondary VET and higher VET, and on the development of guidelines for curriculum-based linkages between the two sectors.

It is reasonable to conclude that China needs to do more in terms of national promotion of the need to establish successful linkages between the two sectors. However, being the most populated country in the world and in the process of social and economic transition, China needs time to establish an effective system for linking lower and higher VET programs.

However, it is also clear that, in the absence of a national system prescribing how these linkages must be established, local areas have been able to exercise a great deal of freedom, initiative and creativity in establishing their own arrangements. Local areas know better their needs and are in a better position to be able to make a quick response to the vocational needs of their communities. It would be a mistake to believe that the Australian system, because of its national focus, is overly prescriptive. The only prescriptions relate to the competency standards that must be achieved, the qualifications that apply to this achievement and the assessment guidelines that must be respected. This means that as long as the competency standards identified by industry or enterprises are achieved, it does not matter how the training is delivered or acquired. This forms the heart of the Australian system and demonstrates its flexibility for individuals, institutions and enterprises alike.

Comparing the two systems

Table 33 provides a brief comparison of some of the features of the two systems in terms of political, educational and funding responsibilities for VET. It also compares VET providers, the various vocational pathways available in the system and the linkages between lower and higher VET.

Table 33: A comparison of the major features of the VET systems of the People's Republic of China and Australia

	People's Republic of China	Australia
Location of ministerial responsibility for vocational education and training	*Central government responsibility* Ministry of Education Ministry of Labour and Social Security Welfare Other ministries of industry and trade: ✧ Technology department of Ministry of Health, ✧ Technology department of Ministry of Natural Resources ✧ Technology department of Ministry of Transportation and Communication ✧ Ministry of Railways ✧ Personnel and Education department of China Civil Aviation Bureau *Local level responsibility: county level administration* Local departments of education Local bureau of labour and social welfare Other bureau of industry and trade	Ministerial Council for Vocational Education (ANTA MINCO) has overall responsibility for strategic policy, national objectives and priorities Australian National Training Authority (ANTA) responsible for providing advice to ANTA MINCO and developing, implementing and reviewing national VET policy Department of Education, Science and Technology (DEST) formerly Department of Education and Youth Affairs (DETYA) administers vocational education and training at federal (national) level Separate state departments of education, training and employment or their equivalents administer vocational education and training in the different states and territories Separate state and territory training authorities responsible for development, implementation and reviewing of policy at state and territory levels
Funding of vocational education and training	Sponsors of vocational schools Enterprises Local taxes Student tuition fees Donations from social groups and other individuals Fundraising by schools	Commonwealth Government and state and territory governments Financial resources of private providers Enterprises Fundraising by schools and institutions
Types of vocational pathways	✧ 5-year through model ✧ segments model ('3+2', '3+3' and '4+2' models) ✧ entrance examinations ✧ credit points conversion ✧ recognition of educational certificates '3+X' model	A combination of institutional and employment-based pathways leading to qualifications ✧ institutional pathways where all theory and practical training is done at TAFE or other registered training organisation and not attached to employment ✧ apprenticeships and traineeships (new apprenticeships): combination of employment and workplace training delivered by workplace supervisors and off-the-job training delivered by registered training organisation ✧ new apprenticeships: fully on-the-job training supported by teachers from registered training organisation ✧ part-time, school-based apprenticeships and traineeships: combination of on-the-job training in work and completion of studies in school.
Accredited VET providers	*Secondary VET institutions* ✧ junior secondary vocational high schools ✧ general secondary specialised schools ✧ vocational senior high schools ✧ skilled workers' schools ✧ comprehensive senior high schools ✧ secondary vocational training agencies *Adult secondary VET institutions* ✧ adult secondary specialised schools ✧ workers and staff secondary schools, cadres secondary schools ✧ radio and television secondary specialised schools ✧ farmers secondary specialised education schools *Tertiary VET institutions* ✧ vocational and technical institutes ✧ higher skilled workers' schools ✧ VET teacher training colleges ✧ senior level vocational providers	*Public and private training organisations who have been registered to deliver AQF qualifications in specific areas under scope of registration:* ✧ public and private secondary high schools ✧ public and private senior secondary colleges ✧ enterprises ✧ adult and community education providers ✧ industry providers (employers associations, trade unions) ✧ assessment-only providers ✧ universities ✧ group training companies
Developing linkages between lower and higher VET	✧ 5-year through model ✧ segments model ('3+2', '3+3' and '4+2' models) ✧ entrance examinations, credit points conversion and recognition of educational certificates '3+X' model ✧ increased focus on pathways to enable lifelong learning	Units of competency from national training packages are combined to deliver qualifications or part qualifications under the Australian Qualifications Framework (AQF) Assessment-only pathways allow for the recognition of prior learning and current competency Increased focus on pathways to enable lifelong learning
System of qualifications	Qualifications delivered by institutions and central examining bodies	National qualifications framework (Australian Qualifications Framework} Licences for certain occupations delivered by industry licensing boards

The way ahead

Establishing adequate administrative and funding arrangements

It is clear that if both countries are to develop skilled and adaptable workers required by increasingly globalised and knowledge-based economies, they will need to implement strategic policies for the provision and smooth operation of flexible interlinking pathways between all levels of VET. These policies will provide for the establishment of appropriate administrative structures and adequate funding to support the further development of flexible pathways, the provision of quality and industry-responsive skills training and valid and relevant assessments.

Developing closer ties with industry

If training providers are to deliver relevant skills training and conduct relevant and valid assessments, then they must have access to accurate information on the demand for and supply of skills and qualifications in the labour market. The collection of this information is heavily dependent on the development of close ties with industry and other relevant stakeholders.

Improving quality assurance measures

In addition, systems must also incorporate adequate measures for quality assurance. In terms of pathways these quality assurance processes will facilitate the effective operation of credit transfer, advanced standing and recognition of prior learning processes. They will also help to minimise unnecessary repetition in higher qualifications of subject matter included and already assessed at lower qualification levels.

Improving access to new technologies

Rapid advances in information technology, telecommunications, and science, means that at all levels there have been major changes to the way that work is done. If VET is to prepare workers for this new order then the delivery of training must harness the power of these new technologies. This is especially the case if access to appropriate training is to be provided for individuals in remote and disadvantaged locations, or those whose work or life commitments preclude them from attending traditional forms of training.

Providing adequate funding for access and equity

The governments of both China and Australia have instituted access and equity policies aimed at enabling all citizens, regardless of ethnicity, social and economic background, gender, disability and remote location, to engage in lifelong education. However, unless adequate funding and resources are made available for training subsidies, for the installation of necessary telecommunications and information technology infrastructure and the provision of learning support, then it will be difficult to achieve these goals.

In view of the ageing Australian population, the VET system in Australia will also have to work out ways for providing relevant and appropriate training for older workers.

Concluding remarks

The Chinese and Australian VET systems both aim to develop skilled and flexible workers for economies which are becoming increasingly knowledge-based and globalised. A secondary objective is the provision of access to lifelong education through the opening-up and linking of pathways between the various sectors of VET and between VET sectors and higher education. The speed with which these aims will be achieved for both countries, will depend on the extent to which national and provincial governments in both countries provide sound administrative and fiscal environments, to facilitate the implementation of training reform aimed at opening up pathways.

In summary, both countries have paid a great deal of attention to opening up the pathways through the creation of effective linkages between higher and lower VET and have made substantial progress. However, both have approached the problem in their own unique ways and can learn from the diverse approaches of the other in solving often similar problems. Although there is a need for China to increase its effort in encouraging further national development of these linkages, there is also a need for Australia to ensure that its system is implemented in the way that was envisaged.

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Appendix A: General education in Beijing

Table A1: General education of all levels in Beijing

	No. of schools	No. of students at school	No. of full-time teaching staff
Total	**5 458**	**2 299 433**	**167 040**
I. postgraduate students	(177)	63 990	
1. higher education	(50)	55 083	
2. institutions of research	(127)	8 907	
II. degree and diploma students at general higher education	59	282 585	34 952
III. general secondary education	1 159	972 930	60 847
1. secondary specialised schools	108	119 427	4 648
2. skilled workers' schools	141	70 856	3 704
3. general secondary schools	760	691 353	48 903
Senior high schools	302	179 002	12 873
Junior high schools	458	512 351	36 030
4. vocational high schools	144	90 283	7 067
5. work-study schools	6	1 011	229
IV. primary schools	2 169	743 109	58 002
V. special education schools	24	7 807	644
VI. kindergarten	2 047	229 012	12 595

Appendix B: Tertiary entrance in Queensland

Tertiary entrance in Queensland

If students wish to study at university on completion of their secondary schooling, they must also satisfy additional requirements. Typically, they will need to be eligible for an overall position (OP) score at the end of Year 12. This means they must study at least five board subjects per semester, and at least three of these must be studied across four semesters. Each subject studied for a semester contributes five weighted semester units (WSU) towards OP eligibility. This means that a student will require 100 WSU over four semesters if they are to be eligible for an OP. The OP ranks students in one of 25 bands, with band 1 being the highest band to band 25 being the lowest band. Students in the higher bands are offered places within courses they have selected before students in the lower bands. There are also courses which require students to have studied specified subjects for a designated number of semesters.

Students who occupy the same OP rank at the completion of Year 12 are eligible for a field position (FP). FPs are used in conjunction with OPs to produce a tertiary entrance rank. FPs rank students on their achievements in up to five board subject areas studied in Year 11 and 12. Only students who are eligible for an OP may be eligible for an FP. Where OPs rank students in 25 bands, FPs rank students in similar ways across just ten bands.

During Year 12, students who are OP and FP eligible, must sit for the Queensland Core Skills (QCS) test. However, students who are not eligible for an OP or FP may choose to take the QCS in order to improve their selection rank. The QCS test is based on the senior curriculum but not focussed on any particular subject area. It tests the skills learnt from a combination of subjects. The test produces a result for each student that is then reported on the senior certificate. It also produces group information which then enables examiners to adjust scores to achieve fairness between different subject groups within schools and between schools in the state. This information is then used to determine a student's OP. The results of students who are OP ineligible are not used to calculate the group results.

Students who undertake board-registered subjects (as opposed to board subjects) may have their results in these subjects used in the calculation of a non-OP selection rank.

The Queensland Tertiary Admissions Centre (QTAC)

QTAC is responsible for co-ordinating and administering student admissions to tertiary institutions in Queensland. It receives information from QBSSSS on the academic results of Queensland students who have applied for tertiary courses. Where students have applied for tertiary entrance to institutions in other states in Australia, the board will also send information on their results to the relevant tertiary admission centres in these states.

Appendix C: SACE subjects

Table C1: South Australian Certificate of Education (SACE) subjects

Arts/Humanities/Social and Cultural	Mathematics/Science/Technology
Art/Geography	Accounting
Business studies	Information technology
Hospitality studies	Applied mathematics
Catering	Photography
Japanese	Automotive technology
Child studies	Physical education
Legal studies	Biology
Craft	Physical education
Media studies	Biology
Dance	Specialist volley
Modern history	Business mathematics
Design	Physics
Music	Chemistry
Drama	Practical information processing
Retail	Construction technology
Enterprise activities	Production horticulture
Study skills	Metal/Pure mathematics
French tourism	Wood science
Work studies	Fashion
	Design and construction
	Stablehand
	General mathematics
	Viticulture
Quantitative/Experimental	*Language Rich*
Accounting studies (P)*	Business studies (PAS)
Maths 1 (P)	Japanese (P)
Applied maths (S)	Drama (S)
Maths 1 and 2 (P)	Legal studies (S)
Automotive technology (P)	Drama studies (P)
Metalwork (S)	Legal studies (P)
Biology (P)	English (PAS)
Nutrition (P)	Media studies (P)
Business maths (S)	English studies (P)
Photography (S)	Modern history – Europe (P)
Chemistry (P)	Geography (P)
Physical education (PAS)	Visual arts studies (P)
Furniture construction (S)	
Physical education (SAS)	
Information technology (S)	
Physics (P)	
Science (S)	

Arts/Humanities/Social and Cultural	Mathematics/Science/Technology
	Additional Units
	Agriculture (S)
	Desktop publication (S)
	Art (S)
	Food and hospitality (PAS)
	Child studies (PAS)
	Music (P)
	Craft (S)
	Personal information process (S)
	Dance (S)
	Small business management (S)
	Dance (P)
	Tourism (S)
	Design (S)
	Vocational studies (S)

*(P): PES – publicly examined; (PAS): publicly assessed subject; (S): SAS – school assessed.

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.

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