



CHAPTER 11

MOBILITY AND ARTICULATION

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WHAT IS ARTICULATION?

Articulation, in an educational sense, is the creation of pathways or linkages to facilitate the movement of students between programmes and institutions. The notion of a vocational education pathway implies passage through a series of educational experiences or employment-related competency formation, which aim to progress through to an occupational destination. Further pathways may then lead a way to another occupation.

Educational articulation comes in different forms. For example, “vertical” articulation could be the advancement of students from general education to technical and vocational education and training (TVET) programmes at polytechnics, technical institutes, community colleges, industry training centres, etc. Another important form of articulation is the traffic of TVET graduates to programmes at universities or comparable institutions. Articulation can also exist within TVET systems or institutions. For example, students who successfully complete a skilled worker training programme might progress to a technician-level programme.

Consider also the concept of “reverse” articulation, which might take place when an individual who has partly or fully completed a university programme, or some other form of advanced studies, subsequently undertakes part or all of a TVET programme at a polytechnic or technical college. Reverse articulation may be the outcome of a university graduate deciding that he or she lacks practical knowledge or specific skills which are required for employment purposes, and which are conveniently available through a TVET institution. Such traffic is more likely when the status of TVET institutions as providers of relevant programmes in a community is high.

Successful articulation arrangements are often reflected in effective credit transfer practices. Credit transfer occurs when institutions agree to recognise the previous formal studies undertaken by a student and to grant to that student an agreed level of course credit for the new programme being enrolled in. Therefore, the receiving institution recognises that the student has previously achieved comparable knowledge and competencies to justify being given an exemption.

Intertwined with the concept of articulation is “recognition of the prior learning” (RPL) achieved by an individual. Such recognition is the sum of formal studies and other knowledge and competencies gained informally, perhaps as a result of skills acquired

during employment. Well-structured systems of education will provide for acceptance of candidates for further study, who rely to some extent on RPL for entry to formal programmes of study, with or without some degree of advanced standing.

Not all forms of articulation will result in credit transfer or RPL. There will be many instances where articulation simply results in the ability of a student to transfer from one programme to another without any credit being granted. Additionally, where a student does not satisfy entry requirements, some bridging studies may be necessary to redress any deficiencies.

THE IMPORTANCE OF ARTICULATION AND ITS IMPACT ON MOBILITY

The development of education for the world of work in industrial societies during the 20th century has reflected to some extent Taylor's and Ford's notions of labour management and production methods based on rigid organisational control, with work being broken down into increasingly simplified tasks the further down the hierarchy an employee is located. Such notions have been compatible with the development and delivery of terminal courses of study in vocational education, on the basis that a person need only be trained to undertake a circumscribed range of tasks, with professionals and managerial staff directing and supervising work.

Of course, Taylor's model of corporate organisation is still employed to some extent, particularly when production has been relocated to developing countries to take advantage of low wage costs. However, during recent decades, in the face of globalisation and the accompanying knowledge revolution, work has increasingly been re-engineered. Organisations tend to require adaptable and knowledgeable workers able to cope with change. Staff need to be capable of working in teams and dealing with tasks and duties that overlap. Employers are seeking those who have a background that predisposes "trainability" among their qualities (Dougherty, 1990).

Therefore, the previously widely held notion that after an initial cycle of general education, followed by specialist studies or training for skilled work or a profession, the individual need not be overly concerned with further education or training, has proved to be incompatible with reality. Rapid and continuing change is now the norm in almost all fields of human endeavour. Jobs which have existed for long periods of time can simply disappear overnight.

Changing occupational needs increasingly demand ongoing provision of lifelong learning, which may be a combination of formal courses, training or perhaps some form of on-the-job learning. The whole notion of lifelong learning encourages well-structured articulation arrangements and undermines the *raison d'être* for terminal courses of vocational education.

Effective articulation arrangements are a highly desirable feature of national educational offerings. Pathways created can directly influence the attractiveness of educational programmes and have considerable impact on participation rates and overall standings. In any case, an educational programme which is terminal in nature will be less attractive to potential students and their parents and be perceived as having a lower status than one which offers the possibility of realistic follow-on studies, either immediately or at a later time.

Programmes which provide effective articulation arrangements will advance the educational and, subsequently, the occupational mobility of an individual. Relevant

opportunities for articulation provide encouragement for the individual to capitalise on personal ability and enhance any possibility to conveniently move between occupations.

These notions are not new. In 1964, the joint UNESCO/International Labour Organization *Statement on Technical and Vocational Education and Training* contended that TVET should be organised so that “every person can continue his education until all his potentialities have been developed” (UNESCO/ILO, 1964). More recently the 1999 UNESCO TVE Congress held in South Korea considered the question of articulation in the context of improving systems of lifelong learning. The Congress recommended that

Australia: vocational education in upper secondary school and articulation

Until the mid-1980s, some Australian states had provided secondary technical education which operated in parallel to the academic streams of high schools in separate technical schools.

Although such programmes had been in operation in some states since about 1905, they were gradually discontinued in favour of providing general secondary education, which was directed at university entry.

Since the mid-1990s, there has been a reintroduction of TVET in upper secondary schools in quite a different way. In the new format, vocational studies have been integrated into the secondary curriculum, with the advantage that students can take such studies as part of the general secondary curriculum or treat the experience as pre-vocational studies which might progress to a career.

The decision to implement such programmes emerged from concerns that some broadening of the upper secondary curriculum was necessary to cater to young people who didn't wish to enter university. It received strong support from government, employers and unions, as well as from industry and

commerce, where programmes require paid work experience. Students completing a senior secondary certificate and a technical and vocational qualification are awarded dual testamurs.

Central to the success of vocational studies in secondary schools in Australia has been the development of sound articulation arrangements between secondary schools and universities/post-secondary vocational education providers. All these providers operate under the Australian Qualifications Framework, which was introduced in 1995 to provide a single nationwide system which applies to secondary schools, TVET providers and universities.

Because vocational studies undertaken in secondary school were drawn from the national vocational programmes also used by TAFE colleges and other providers, such as private vocational colleges and industry training centres, articulation has been a matter of course (Keating, 1998). These arrangements have also been accepted by the Australian universities (National Working Party, 2000).

national TVE systems develop “close interfaces with all other education sectors, particularly schools and universities, to facilitate seamless pathways for learners. The emphasis must be on articulation, accreditation and recognition of prior learning to enhance opportunities” (UNESCO,1999).

NATIONAL PRIORITIES

National systems of education and training that offer effective articulation opportunities are in a better position to address issues of lifelong learning as the nature of work changes, rather than try to manage redundancy or unemployment. National policy-makers can play an important role by trying to ensure that, as much as possible, realistic educational pathways are embedded in overall systems of education and training at the planning stage, even if economic constraints or other strategic considerations limit full implementation until a later time.

Many developing countries have ambitious objectives to establish new industries and service-oriented activities as quickly as possible. As a first step, low-cost, low-skill labour-intensive industries are frequently attractive. To move ahead to more rewarding economic outcomes, it is necessary for a country to increase the numbers of highly skilled personnel to support higher value-added industries. Such objectives are considerably more difficult to attain if the educational system does not have the capacity to upgrade its existing workforce to cope with new forms of work.

Such is the nature of technological change: it is increasingly difficult to make long-term predictions on how to structure initial and recurrent forms of vocational education and training. On one hand, industry often signals that individuals should be trained to undertake quite specific duties, and is frequently justifiably critical of the inability of TVET institutions or systems to translate industrial need into the competencies of programme graduates. Ideally, such objectives need to be harmonised with the needs of industry or commerce, but it is often difficult for educational authorities to predict labour market demands.

Such criticism of TVET by industry and other stakeholders may be, in part, a reflection of defective linkages. Nevertheless, the dilemma for the TVET authorities is deciding how much they should structure educational programmes to address the perceived immediate needs of industry and commerce.

The main focus of TVET, regardless of whether it is provided through an upper secondary-level programme, technical college, community college, polytechnic or industry training centre, should be to assist an individual to gain occupational competencies in a specific field, with the aim of gaining employment as a skilled worker or technician/paraprofessional. This objective should not be at the expense of general education (except in the case of short-term training arrangements), because it is important that an individual has exposure to broader aspects of education. An objective should be to permit graduates of any programme to advance to further studies if they have the inclination and demonstrated ability to cope. On the other hand, if a programme of study is overly specialised, particularly if it is more or less focused on specific skills training, it is less likely to provide the sort of preparation that would assist in providing an individual with future options.

Many countries have found that there is a significant mismatch between the output of TVET and higher education providers, and the needs of the labour market. This can result in severe unemployment or under-employment for programme graduates. It is

important that seeking to provide articulated pathways to further study for TVET graduates is not done by expanding unemployment.

In many countries there is something of a fixation for the attainment of a university degree, with any other outcome being seen as a failure by both students and their parents. The provision of articulation pathway should not be seen as having as its main objective providing students with a mechanism to attain a degree, regardless of ability. Such an outcome should be one of a range of options available to students.

It is not uncommon for students to enter a TVET programme after have been refused entry to a university. Such an outcome can trigger a feeling of failure in the individual. TVET programmes should be able to offer attractive pathways that can redress this situation and create an environment where the considerable expense incurred to that point, in both human and financial terms, can be redirected to the benefit of both the individual and the broader community.

Developing nations, particularly those that are still largely agrarian, frequently find that the modern sector is incapable of absorbing the output of TVET or higher education institutions and providing wage-paying employment. When considering articulated pathway solutions in response to perceived need, preparation for other forms of work such as self-employment also need to be a high priority.

Jamaican initiatives

The University of Technology (UTech), Jamaica accepts graduates from upper secondary school with a minimum of five Caribbean Examination Council subject credits (a general secondary education certificate). These credits may include technical subjects, but must also include mathematics and English language.

The university has franchise arrangements with a number of community colleges in Jamaica, whereby successful community college students can articulate to guaranteed places in UTech courses. Similar arrangements are currently being explored with community colleges elsewhere in

the Caribbean. Graduates from non-franchise Jamaican colleges are also able to apply for entry to UTech, and the university will evaluate the courses they have taken in their associate degrees or certificates.

Jamaica's Human Employment and Resource Training Trust (HEART) and the National Training Agency (NTA), as well as UTech have worked together to create an Engineering Technician's Certificate, which not only leads to employment in the workforce, but also has the option to articulate into a UTech engineering diploma or even the Bachelor of Engineering programme (George, 2001).

BARRIERS TO ARTICULATION

Countries that are at earlier stages of development may not perceive making effective articulation arrangements as an important objective. Indeed, in such instances the very opposite may be the case where demand for education at all levels is high and where

places in all forms of post-secondary education are limited and subject to stringent competitive entry requirements.

In many developing countries, it is quite common for the available funds supporting education to be prioritised towards delivery of primary and secondary education, with limited provision for funding TVET and university-level education. But it is common in many developing countries for primary-level education to fall short of universal provision, and secondary-level education to be available only to limited numbers of students. Nevertheless, most countries aspire towards universal provision of primary and secondary education, and reasonably open access to TVET and higher education, because they realise the importance of working towards an effective system of education in the long term so they might fully participate in the global economy and lift overall national standards of living in a sustainable manner.

Where barriers to articulation exist, they often appear at the interface between upper secondary vocational and university-level education. This situation arises, in part, because the secondary vocational education may not have sufficient academic content, and consequently it is frequently not possible for graduates to proceed to regular university studies. Sometimes such difficulties may be mitigated by indirect pathways being made available, whereby the students may undertake a post-secondary technical education programme which ultimately offers some prospect of further studies.

The same type of barrier frequently frustrates articulation arrangements between post-secondary TVET programmes and higher-level studies. Even though a graduate of a polytechnic or community college may have done well, the possibility of articulation to a related undergraduate degree may be very low or non-existent. This occurs because quota systems effectively preclude TVET graduates from transferring, with or without any courses credits, because available places are taken by students from the secondary academic or general stream.

PLANNING FOR EFFECTIVE ARTICULATION ARRANGEMENTS

There are a number of steps that can be taken by policy-makers and other stakeholders to encourage improved TVET articulation arrangements:

- Educational programmes should be designed to have clear entry and exit pathways. Pathways might provide for a range of outcomes, depending on the type of course and the capacity and inclination of the individual. A technical college, polytechnic or community college graduate might advance to further studies within a TVET institution, transfer to a university or similar institution or undertake further training on the job. All learners should have the option of going further, commensurate with their abilities and the demands of the job market.
- A national qualifications framework which spans TVET and university-level qualifications should be established. Such a framework will enhance the status of TVET because it will act to clarify the standing of programmes and foster recognition and transferability.
- If institutional bottlenecks occur which limit realistic articulation arrangements for TVET programme graduates, alternative delivery arrangements could be structured to meet demand. For example, open and distance learning (ODL) delivery could extend programmes to student groups that are excluded because of quotas, the

India: unresolved constraints to articulation

Although India is approaching universal provision of elementary education, the broad provision of secondary education is still an objective to be attained, but secondary participation is growing and is a high national priority. Within the current secondary education system at years 11 and 12 is located the Vocational Education Program (VEP), which is the vocational stream of upper secondary school and which runs in parallel to the academic stream. It is the largest TVET programme in India.

Around 30% of VEP graduates enter the job market within two to three years of graduation. However, experience has demonstrated that many students seek to proceed to further studies, especially to degree level at a university or a diploma at a polytechnic. In practice, however, effective pathways out of the VEP have proved difficult. Students coming from the academic stream get preference for admission to university and polytechnics because they better satisfy the entry requirements, which are set by individual institutions. Despite national policy providing that graduates of vocational courses should be given opportunities for

professional growth and career improvement through bridging arrangements, this has not been acted on broadly (*Government of India, 1986/1992*).

The whole question of articulated pathways for VEP graduates has been the subject of considerable debate in India since the early 1980s. There has been considerable pressure from students, parents and educators to improve arrangements. Some universities have moved to provide vocational subjects within their undergraduate degree programmes, but these subjects are not well connected to the studies in the VEP at this juncture. The use of flexible learning institutions, such as the Indira Gandhi National Open University (IGNOU) to assist in providing studies is seen as having great potential to address this demand (Mishra and Singh, 1998).

Clearly, the need for articulation in India is now well recognised and relevant policy is being debated. Changes to the economy and developments from the expansion of demand for secondary education may provide incentive for further refinement of articulation arrangements.

constraints of employment or geographic location. Increasingly, the potential for programme delivery using the Internet and other flexible delivery mechanisms will make it possible to cater to students who are currently beyond the reach of educational institutions.

- Post-secondary institutions should be encouraged to codify credit transfer and recognise prior learning arrangements. This will help create an environment where articulation practices are the norm.
- Where appropriate, bridging programmes to facilitate articulation can be created. Frequently articulation arrangements are poor because there is a lack of continuity

between programmes. Carefully constructed bridging or conversion programmes might conveniently and economically be delivered through ODL. They might also be built on knowledge and abilities already attained, and address any deficiencies. For example, a polytechnic diploma graduate may desire to articulate to a related university degree, but be refused admission on the basis of shortcomings in mathematics and science. A specially designed bridging programme should be capable of addressing such difficulties.

- Co-operation on curriculum design should be encouraged. It may, in many instances, be possible for TVET institutions and universities to collaborate when making changes to curriculum so that there is more synergy between related programmes. Not only can such co-operation make articulation more effective, but in some instances credit transfer arrangements might also be enhanced. However, collaboration should not be at the expense of the overall objectives of any programme. If such an outcome were to result, it is likely that the standing of courses could be compromised, with the inevitable adverse reaction by stakeholders.
- Where entry to university ordinarily favours school leavers selected from the academic stream of secondary school, there could be a modest quota made available for the entry of TVET programme graduates based on merit. This may be a very difficult matter for developing countries to address when available funds to support education tend to be rationed out, and the perception that less meritoriously qualified applicants were being given preferential treatment would need to be worked through.
- In some countries it may be feasible for private post-secondary institutions to improve articulation possibilities by making available places that are unavailable in government-funded institutions. Moves in this direction should take place within the umbrella of a national qualifications framework and quality-control systems so that, regardless of the funding arrangements used to support educational institutions, a consistent process exists to ensure a satisfactory outcome.

MOBILITY OF CREDIT AND LABOUR — SKILLS PASSPORT

Often individuals find themselves having to demonstrate their competency to undertake specific tasks in the absence of formal qualifications. This is an issue which commonly arises in the case of personnel who develop some skills and move around in the course of their employment, even from country to country.

Some countries, such as Malaysia and the Philippines, have accommodated this situation by instituting processes which test and assess the competencies of individuals to perform vocational tasks against defined national standards. This is effectively a form of recognition of prior learning (Alto et al., 2000). Such competency testing may constitute a substitute for formal qualifications.

Extending this concept to encompass the issue of a skills passport to record demonstrated competencies has been considered by a number of Asian countries through the ILO Asian and Pacific Skill Development Program, to regularise the supply of skilled workers to the Middle East. This initiative, proposed in 1988, sought to eliminate the need for separate skills testing of migrant workers by potential employers. It was intended that the skills passport proposal would be introduced on a trial basis in a number of countries, however this has not occurred (Azam, 1989). Instead, the ILO has

Promising signs from the Pacific

In Samoa, under a current AUSAID-funded Institutional Strengthening Project for the Education Department of Samoa, some TVET programmes in secondary schools are being developed, with a view to facilitating the articulation of students to further studies at the Samoa Polytechnic. There are, however, already examples of articulation in Samoa. Students graduating from the Samoa Polytechnic with a Diploma in Business (Tourism) can articulate to the degree programme at the National University of Samoa. Also Samoan students who complete a Certificate in Horticulture are able to continue their studies for a diploma at the university of the South Pacific. The university has various campuses located in a number of different Pacific countries, with the agriculture faculty located in Samoa.

In 2000, there was a memorandum of understanding (MOU) signed by the Samoa Polytechnic and the National University of Samoa, which formalises the co-operation between the institutions. The MOU provides for the establishment of a joint institutional committee of senior staff, which will also work together on the accreditation of academic programmes.

As well, there exists a Commonwealth of Learning project to assist in the development of TVET programmes for Pacific island nations using distance learning materials. The New Zealand Open Polytechnic is producing the actual learning materials. One of the objectives of this project, which was agreed to by the Education Ministers from Commonwealth island nations in the Pacific, is that this initiative should also co-ordinate the accreditation process between the countries involved (Lene, 2001).

subsequently supported the development of “regional model competency standards” in Asia to provide guides for the scope of skills and knowledge required for occupations, which might be used as a basis for vocational training programmes, testing and certification.

The EUROPASS programme, currently being implemented by the European Union (EU), is another example of a skills passport. It follows on from the Petra and the Leonardo I and II programmes which facilitated exchange of trainees between European Union states in the 1990s. EUROPASS aims to give employed workers the opportunity to gain skills in another EU state, and have that training recognised and documented. The vocational training activities undertaken by participants in the EUROPASS programme are negotiated between the partners in the country of origin and the host country. Each group of trainees is accompanied by an instructor. Unfortunately, the EUROPASS programme does not extend to individuals or full-time TVET students at this stage.

Encouragement for initiating the EUROPASS programme, has come from the relative difficulty in comparing the value of formal TVET qualifications issued by the different

authorities in the EU. The EUROPASS has also been seen as a step towards improving linkages between different European TVET systems and is perceived to have some parallels with the European Credit Transfer System (ECTS) used by many universities in Europe to facilitate exchange of individual students between member state universities. The ECTS system has been operating since 1985 on the basis of a mutual understanding, trust and agreement on a points assessment process. There is a hope that, in time, the EUROPASS system will replicate some of the features of ECTS (Kristensen, 1998; Thiele, 1999).

Singapore: the talented island

Singapore is a compact, strategically located, tropical island state that has no riches in minerals, nor even the capacity to feed itself given its small land mass. It emerged from the colonial era, with little industry and an education system not geared to address the demands of a society that intended to engage the world and prosper. The key resource in Singapore is the capacity and industry of its people, who now number in excess of three million. Over recent decades, the talents of the people have been developed through the Singaporean education system to enable that state to become a centre of high technology industry. Singapore has also emerged as a key regional hub for financial and other service industries.

The Singapore government has focused on meeting market-driven demands of manufactured exports and service industries in the context of maintaining social harmony. In particular, Singapore has continually moved to increase the overall level of skills as it has shifted further to higher value-added exports. These aspirations have been reflected in evolutionary changes to the education system (Ashton et al., 1998).

In 1980, the New Education System was introduced, which was based on merit-based streaming of students exiting primary school. Those not so academically inclined were directed into

vocational courses after the end of year 10, with the bulk of secondary students entering a polytechnic after year 11. Only the most gifted proceeded to university. This was followed in 1986 by the deliberations of the Singapore Economic Committee, which recommended that there should be further improvements, including an upgrading of the median level of education of the Singaporean workforce, provision of ongoing workforce training and retraining and expansion and improvement of all levels of post-secondary education.

Singapore's vocational education system is now very well integrated with the education system overall, and there is wide provision for TVET graduates to advance to further studies. For example, for those students who complete Institute of Technical Education skilled worker or technician programmes, there is the opportunity to commence a paraprofessional diploma course at one of the four well-equipped polytechnics. Likewise, students graduating from a polytechnic with a diploma enjoy considerable encouragement for further study, including income tax concessions for tuition fees. There are now some places available in government university programmes for the top achievers from the polytechnics, and more recently the government has supported the establishment of an Open University, which is linked to UK Open University.

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Since the 1980s, the Singaporean government has encouraged the delivery of higher education programme in-country by foreign universities, in conjunction with local professional associations (like the Singapore Institute of Management), and non-government educational institutions (like the LaSalle-SIA College of the Arts). As a result, a number of universities from Australia, the UK and the US deliver a range of degree programmes, with the main targets being polytechnic diplomates. The presence of these universities in Singapore has greatly widened the opportunity of polytechnic graduates to undertake further studies, and significantly reduced the need for students to go abroad for further studies.

Another interesting innovation is the Virtual College operated by Singapore

Polytechnic since 1997. The Virtual College delivers a range of interactive learning modules over the Internet. It is focused on providing continuing education and lifelong learning, as well as supplementing conventional lectures with supporting material. In a number of instances it is possible to undertake specific modules without having to attend any formal classes (Cheong et al., 2000).

So successful has been the integration of education and training with the economy that a recent World Bank study on Singapore found that the achievement of a well-balanced and relevant system of education was the outcome of carefully developed government policy and subsequent implementation. A rare compliment from that body (Selvaratnam, 1997).

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