

Technical and Vocational Education and Training in an Ageing Society

Experts meeting
proceedings

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*Tom Karmel and
Rupert Maclean
Editors*

Publisher's note

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Foreword

The ageing of the population sits alongside globalisation, climate change and the knowledge revolution as areas which are transforming societies, including the ways in which we organise and go about our work. Technical and vocational education will be directly affected by the ageing of the population.

This significant and worldwide phenomenon motivated an international meeting of a number of technical and vocational education and training (TVET) research agencies, hosted by the National Centre for Vocational Education Research (NCVER) in Adelaide in October 2006. Experts from NCVER, the UNESCO International Centre for Technical and Vocational Education and Training (Bonn, Germany), the National Council of Educational Research and Training (Delhi, India), the Colombo Plan Staff College for Technician Education (Manila, Philippines), and the Korea Research Institute for Vocational Education and Training (KRIVET, Seoul, Korea) met to present papers on various aspects of TVET in an ageing society.

This publication is the result of this meeting and contains the presented papers and comments by discussants. The papers are also to be published in the *UNESCO–UNEVOC international handbook of TVET*.

The papers appearing in this publication will be of interest to people and organisations who are beginning to think about these issues. What emerges from the papers is a picture of a worldwide trend that touches many aspects of TVET and the labour market, but one which needs to take into account the very different economies and societies of the world.

Tom Karmel
Managing Director, NCVER

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Overview

Tom Karmel
Rupert Maclean

TVET in an ageing society

One of the most striking features of the modern world is its changing demographic profile. In almost any policy arena, the issue of demographic change (or ageing) sits alongside globalisation, climate change and the knowledge revolution as areas which are transforming societies, including the ways in which we organise and go about our work activities.

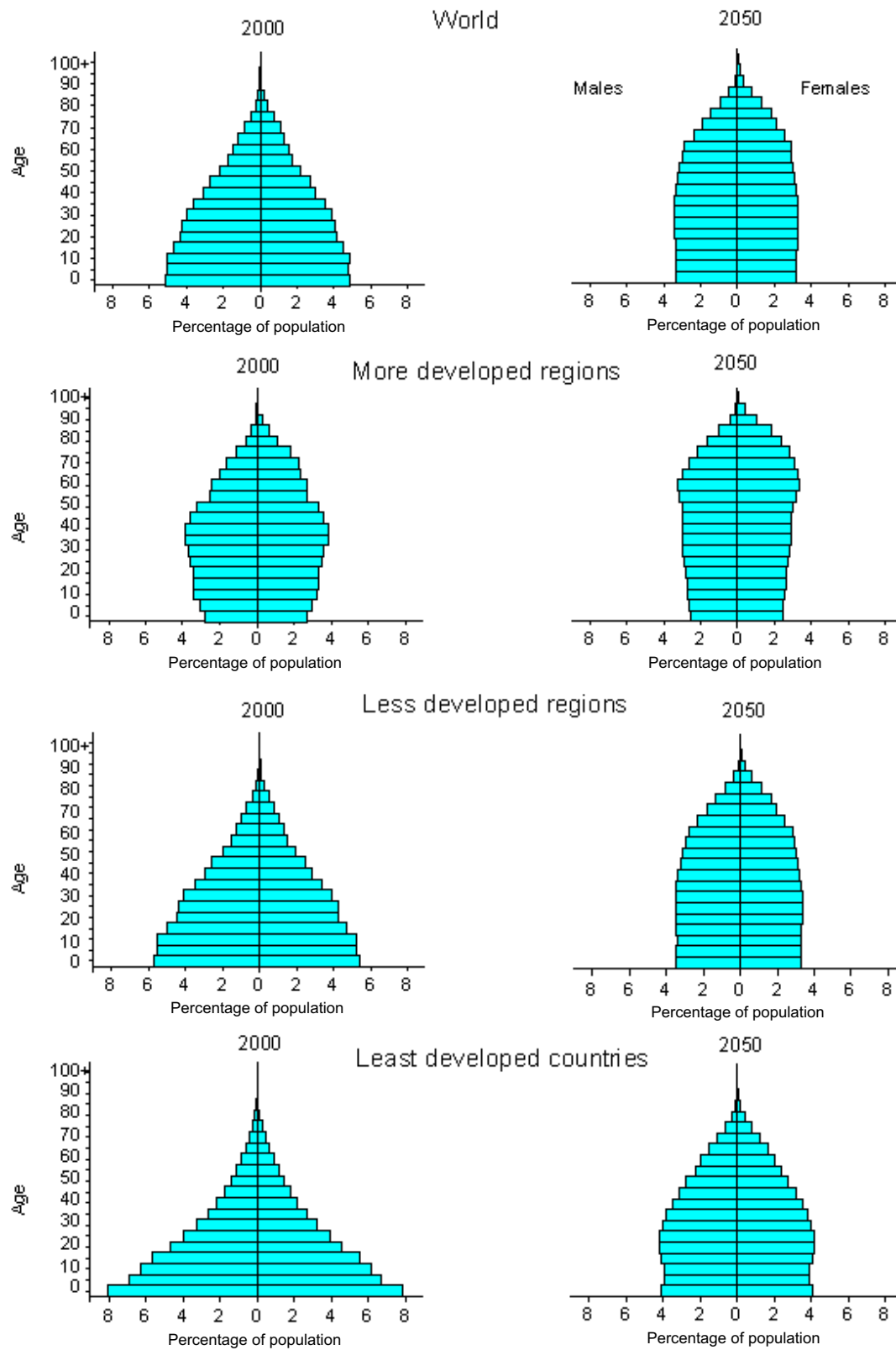
While ageing has particular salience for developed countries, in fact, the phenomenon is actually more dramatic in developing countries. By 2050, according to United Nations projections, 22.1% of the world's population will be 60 years or older, compared with 10% in 2000. The percentages of older persons will be rather less than this in developing countries, but the magnitude of the change demographic profile is arguably greater, as can be seen from figure 1. Age pyramids will be a thing of the past (they already are in developed countries). Indeed, our metaphors for age structures will have to change.

This significant and worldwide phenomenon motivated an international meeting of a number of technical and vocational education and training (TVET) research agencies, hosted by the National Centre for Vocational Education Research (NCVER) in Adelaide in October 2006. Experts from NCVER, the UNESCO International Centre for Technical and Vocational Education and Training (Bonn, Germany), the National Council of Educational Research and Training (Delhi, India), the Colombo Plan Staff College for Technician Education (Manila, Philippines), and the Korean Institute of Vocational Education and Training (Seoul, Korea) met to present papers on various aspects of TVET in an ageing society.

The first thing that stands out about the papers presented is their variety. While ageing as a theme resonates widely, its implications are widespread and will affect many different aspects of TVET. This is not a simple issue where a standard piece of research or analysis will suffice.

For convenience we have divided the papers into two sections. The first section deals with the issue at a broad policy level, while the second contains four papers, each considering a particular aspect of TVET in an ageing society.

Figure 1 Population pyramids: Age and sex distribution, 2000 and 2050



Source: United Nations Secretariat (1998)

Policy frameworks

The first paper, ‘Policy framework on re-training for re-skilling of older workers through specialised TVET programs’ by TJ Tesoro Gayondato and Myong Hee Kim of the Colombo Plan Staff College for Technician Education, provides a framework for transforming the role of older workers. The authors first argue that the mindset of older workers needs to be changed. They then provide a number of conceptual models for the TVET system for addressing the needs of older workers, and finally discuss the roles of the various players: institutions, industries, small- and medium-size enterprises and government agencies.

The discussion of the paper was led by Di Booker, of the TVET provider in South Australia, TAFE SA.¹ As Booker notes in her written comments, the paper generated lively discussion around social, economic and learning issues, and the differences between developed and developing countries. Booker warned against unwarranted assumptions, in particular, the presupposition that the majority of the aged is un- or undereducated. TVET needs to build on the previous education and experience of this cohort. In terms of next steps, the challenge is to put Gayondato and Kim’s policy framework for TVET institutions into action. Finally, in terms of integrating the main players—government, industry, TVET and small and medium-size enterprises—there may be a role for multilateral agencies such as the World Bank.

The second paper, ‘Reskilling for all? The changing role of TVET in ageing societies of developing countries’ by Rupert Maclean and Margarita Pavlova, representing the UNESCO–UNEVOC International Centre, also takes a high-level perspective. While ageing of the population is more pronounced in developed countries and certainly has received more attention, Maclean and Pavlova point out that ageing poses a serious set of issues for developing countries:

... the tempo of ageing in developing countries is more rapid than in developed countries, thus developing countries are likely to have less time than the developed countries to adapt to the consequences of population ageing.

The ageing of the population in developing countries will have very direct economic consequences. The employable population will shrink in relative terms and older people living at subsistence levels will be particularly vulnerable because of insufficient numbers of young people to support them. The paper looks at the experience of both developing and developed countries in dealing with older workers. It then presents a model of human activity (activity theory) which might be applied to learning for older people, and goes on to discuss some issues of particular pertinence for developing countries. Notable issues are the low status of vocational education and a disregard by the TVET system of the needs of the informal sector of the economy—which is so important for many developing countries. The authors suggest two major objectives to be pursued: training the workforce for self-employment; and raising the productivity of the informal sector. Finally, the paper touches on how policy-makers might go about developing strategies for retraining older people in developing countries.

Meredith Baker, Australian Government Department of Families, Community Services and Indigenous Affairs, opened the discussion on Maclean and Pavlova’s paper. She made a number of observations, beginning with the point that the very rapid ageing in developing countries is associated with very positive developments (in particular, reductions in infant mortality). Further, she warned against focusing solely on retraining older workers as the solution to ageing and, to emphasise this point, described the Australian Government’s policy response: a focus on the ‘the three Ps’—expanding the *population*, increasing labour force *participation*, and increasing workforce *productivity*; the notion of ‘well governed flexibility’; and the release of the Australian Government’s (2002) *Intergenerational report*. She also raised the question of whether wider issues may be more

¹ TAFE = technical and further education

important than ageing; for example, getting markets working, addressing basic literacy and numeracy issues, and the effectiveness of TVET systems. Discussion raised a number of other points, including the idea of sustainability, the role of the informal sector and the effect of international migration.

The final two papers in the section take country-specific perspectives. JS Rajput, National Council of Educational Research and Training Campus, considers 'The changing context of TVET for the workforce in India' and Hong-Geun Chang, Korea Research Institute for Vocational Education and Training, looks at 'The reform of TVET system in Korea in an ageing society'.

A couple of pertinent facts bring home the point that ageing is an issue in India. First, the Indian aged population is currently the second largest in the world. Secondly, in the 100 years to 2016 it is expected that India's population will have increased five times, but the aged population by 13 times. While issues relating to ageing are important, Rajput argues that, in an Indian context, they are not necessarily the most pressing. Rather, the critical priorities are unemployment among youth and adults, the universalisation of elementary education, and the need to put more emphasis on TVET rather than on more academic education. It is also important to pay more attention to non-formal and open and distance education. This is not to say the issues concerned with ageing are not important. However, the overarching challenge is to have 'a well-balanced, spread-out and dynamic system of technical and vocational education', while making use of the productive talents of all members of society, including older people.

Bill Martin, Flinders University, opened the discussion of Professor Rajput's paper by sharing his immediate response: a realisation of the size and complexity of Indian society. He agreed that ageing was not the foremost issue for India and noted the many challenges that India faced in building an effective TVET system. The variety of TVET providers suggested to Martin that a key challenge for Indian policy was to bring out the best of these institutional forms by matching the needs with the form that serves it best. Finally, he highlighted, on a positive note, that India may have the luxury of time and the lessons of the developed countries in formulating a response to the ageing workforce.

In contrast to the Indian situation Chang notes that 'Many are concerned that Korea will surely be driven into catastrophe if it fails to respond wisely to the situation' (of its population ageing at an unprecedented speed). Indeed the Korean Government has established the Presidential Committee on Aging Society and Population Policy. With this as background, Chang's paper systematically analyses the vocational competency development system, noting that the participation among adults (from 25 to 64 years) is particularly low in the Organisation for Economic Co-operation and Development (OECD) context, and that many groups (including workers of small- and medium-sized firms, non-regular workers, people with low education) have little exposure to vocational programs. The paper argues that the middle and older populations need attention—in addition to the standard groups of youth, employed workers, and the unemployed. The paper concludes that the issues of globalisation, knowledge information, and the ageing of the population make it imperative to reform the Korean vocational competency development system, which has been traditionally centred on the industrial workforce. It has to be transformed into a system which is flexible and innovative and one which fosters knowledge workers and ensures equal opportunities for competency development for all.

The discussant, Josie Misko of the National Centre for Vocational Education Research, finds the notion of 'vocational competency development as a common right' of particular interest. In pursuing their conceptualisation of a new approach to vocational competency development in Korea, she suggests that the author might also investigate: how to ensure that workers are informed about rights to training and how to encourage them to undertake training; how the needs of workers with low literacy and numeracy can be addressed; the particular case of women making the transition from domestic work; and the relatively low retirement age of Korean workers.

Specific aspects of ageing and TVET

Four papers considered specific policy issues that emerge from a consideration of TVET and ageing.

Tom Karmel and Koon Ong, National Centre for Vocational Education Research, focused on the trades in Australia in their paper 'Will we run out of young men? Implications of the ageing of the population for the trades in Australia'. They noted that almost all new entrants into the trades are young men and speculated that the ageing of the population has the potential therefore to have a large impact on the trades workforce. In their paper, they present the results of a statistical exercise in which flows into and out of the trades are modelled. This supply focus is then contrasted with a view about the likely size of the demand for tradespersons. Their findings suggest that the ageing of the population does not in fact have serious implications for the supply of tradespersons. Rather, what is important is the attractiveness of employment in the trades versus other occupations. Moreover, the authors do not expect the age distribution of the trades workforce to change significantly, in contrast to what is happening in many other occupations.

Lynne Bennington, Head of the School of Management at RMIT University, opened the discussion. (The written version of her comments acknowledges the assistance of Alan Montague who took a very active part in the discussion.) She observes that Karmel and Ong's conclusion—that the ageing of the population does not have particularly serious implications for the supply of tradesmen—is similar to conclusions drawn in Canada (McMullin, Cooke & Downie 2004). What intrigues Bennington is what lies behind the models presented in the paper. Why are there so few female apprentices? Why do the majority commence before the age of 24 years: is it the low wages or age discrimination? Why have shortages in some trades been so persistent? Bennington argues that a systems approach is required to model the supply of and demand for tradespersons and, rather provocatively, suggests that the authors have not asked the right question. Would a better question have been *if there are currently shortages, why will these not continue?* However, this question is straying from the ageing theme of the seminar and so perhaps should be left for another day.

The second paper in the section, 'Ageing labour force and retraining of workers in Korea', was presented by Jihee Choi, Korean Institute of Vocational Education and Training. Choi introduces her paper with the observation that the process of ageing has been particularly rapid in Korea when contrasted with developed countries, such as France, Germany, the United Kingdom and the United States. For example, it took 14 years for the proportion of persons aged over 65 years to increase from 7% to 14% in Korea, compared with 115 years and 41 years, respectively, in France. The rapidity of this demographic transformation, together with the adverse labour market for older people (most workers are forced out of their workplace far earlier than full retirement at between 55 and 60 years) make the retraining of older persons a critical issue. In addressing this issue, Choi points to a number of factors: a high proportion of older workers are self-employed; older workers are a low priority for companies and their participation in training is at a very low rate; and older people comprise a very heterogeneous group. Finally, she argues that retraining of older workers needs to occur before people retire and that training should be directed towards helping them plan for their formal retirement and the world of work they face in the future. That is, the focus needs to be on career development.

Phil Loveder, National Centre for Vocational Education Research, opened discussion about this paper with the comment that the challenges faced by older workers in maintaining a career is a universal theme, not one peculiar to Korea. He echoed Choi's sentiment that changing demographics provide an opportunity to review employment policies and pointed to the OECD's active ageing approach as a good starting point: an emphasis on prevention and early intervention; attention to transition points over working lives; a longer-term perspective for social security systems; and a whole-of-life approach. Co-discussant, Libby Hicks-Maitland from the South Australian Department of Further Education, Employment, Science and Technology suggested that the challenge is to break down the barriers faced by older workers.

The theme of the importance of employment for ‘retired’ persons is carried further in ‘Technical entrepreneurship development for the aged’ by Man-Gon Park and Suresh K Dhameja, Colombo Plan Staff College for Technician Training. The authors observe that self-employment is the best alternative for many older people because employers are not particularly friendly towards them (hence the terms, ‘senior entrepreneurs’, ‘third age entrepreneurs’, ‘silver entrepreneurs’ and so on). Such economic activity is important for both the individual and overall society, not least for social as well as economic reasons. TVET has an obvious role in assisting these people in becoming successful entrepreneurs. The problems of becoming a successful entrepreneur are well known, with many small businesses disappearing in the initial years. While all young businesses face economic survival issues, the circumstances of older people differ from those of their younger counterparts. Older people are less well placed to be able to wait out lengthy periods before success. However, they often have better financial resources, tend to have the respect accorded to older members of society and have existing networks. The paper discusses the role of TVET institutes in assisting older people. This includes the provision of technical and technology information training (specifically for trades suitable for older people), the establishment of business incubators and science parks, and the promotion of technical entrepreneurship for older people. Two areas of particular relevance to this group are social entrepreneurship (giving back to the community) and use of the internet (cyberpreneurship). The authors conclude on an uplifting note:

The ‘package’ of knowledge, wisdom and experience that so often comes with age is part of an inner awareness that cannot be traded, sold or stolen. It should, however, be activated, amplified and utilised in all the crossroads, fields and storefronts of society, and in the windows of our creative imaginations.

Alan Montague, RMIT University, was the discussant for this paper. Montague commended the paper, noting that ageing is often seen as a problem, leading to an ageist outlook, rather than the positive view of possibilities as taken in the paper. He also commented on the importance of taking cultural issues into account, the crucial role of small businesses in the economy, and the need to guard against the assumption that developing countries need to learn from developed countries rather than vice versa. Montague introduced two initiatives from the Australian experience that are worth consideration in other countries: the New Enterprise Incentive Scheme that assists unemployed people to start their own business and group training companies that employ apprentices and trainees and place them with host employers.

The final paper, ‘The ageing TVET workforce in Australia: Issues and challenges’ by Hugh Guthrie and Phil Loveder, both of the National Centre for Vocational Education Research, looks at a very practical issue for the VET sector. The workforce in the public technical and further education (TAFE) system has a particular problem because of the bulge of full-time TAFE practitioners and administrators who are approaching retirement age. The challenge for TAFE is to ‘capture’ the knowledge and industry goodwill acquired by this group and to train remaining staff to take over when this group leaves. Progressive disengagement from full-time work, succession planning, and helping practitioners currently in part-time jobs move into full-time employment are suggested as major ways for dealing with these challenges. Standing in the way of effective workforce development and replacement in most states and territories, however, is a lack of good data on retention and attrition. This then affects the extent to which TAFE systems and local providers are able to plan for the future.

The discussant for this paper was Rupert Maclean, UNESCO–UNEVOC International Centre for TVET, in Bonn, Germany. Maclean commended the authors for a thoughtful and useful contribution to the debate through their identification of important issues, concerns and prospects relating to the demographic challenges associated with the ageing TVET workforce in Australia. He noted that the matter of an ageing workforce has important implications for labour supply and demand. Despite its importance, this is an under-researched area which warrants greater attention. For example, more research is necessary to ascertain whether ageing and the workforce is more an issue for males than for females. Maclean notes that it would also be interesting to explore the

benefits of an ageing TVET workforce, given the implied high level of experience of older employees. Finally, he suggests that this study of Australia provides a useful foundation of information which could be augmented by further studies of other countries to identify points of similarity and difference.

Concluding comments

The range of papers presented in this volume highlights the importance of ageing as an issue right across the world. For us, the most important points to come out of these papers are: the variety of aspects that need attention; the desirability of seeing ageing as an important issue rather than as a problem; and the need to reflect on the issues. We note also that a balanced perspective is always needed. In many countries it is not the number one issue, and the fundamental challenges in developing countries need to be kept in mind: economic development, poverty and low levels of education. Even in relationship to TVET, the number one priority is to have a well-functioning TVET system, before specifically dealing with the needs of older workers.

However complicated the issue of TVET in an ageing society is, we trust that this volume will provoke thoughtful consideration by those with responsibility for TVET.

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Policy framework on retraining for reskilling of older workers through specialised TVET programs

TJ Tesoro Gayondato

Myong Hee Kim

Inter-Governmental International Organization
Colombo Plan Staff College for Technician Education
for Human Resources Development in Asia and
the Pacific Region
Philippines

... the transition to a positive, active and developmentally oriented view of ageing may well result from action by elderly people themselves, through the sheer force of their growing numbers and influence. The collective conscious of being elderly, as a socially unifying concept, can in that way become a positive factor.

(International Plan of Action on Ageing)

Introduction

One of the greatest social challenges of the twenty-first century is the ageing of human society. A number of commentators have highlighted that the increasing numbers of older people in the world today represent a phenomenon never previously experienced.

Current generations are among the first in history to be raised with the expectation of living to an old age. They are the forerunners of a longevity revolution that will be felt for centuries to come. Some 20% of all people who have ever lived past the age of 65 years are now alive. So profound is this demographic revolution that every aspect of social life and society is affected.

Retraining for the reskilling of the 'third age' will be an essential part of the new set of public policies and programs. According to recent studies, the potential areas for learning to meet the evolving economic and social needs of an ageing population are: individual health; strengthening community and family; productive employment; and self-enrichment. The prospect of retraining for the reskilling of older workers is a highly promising area and responds to the third and fourth areas.

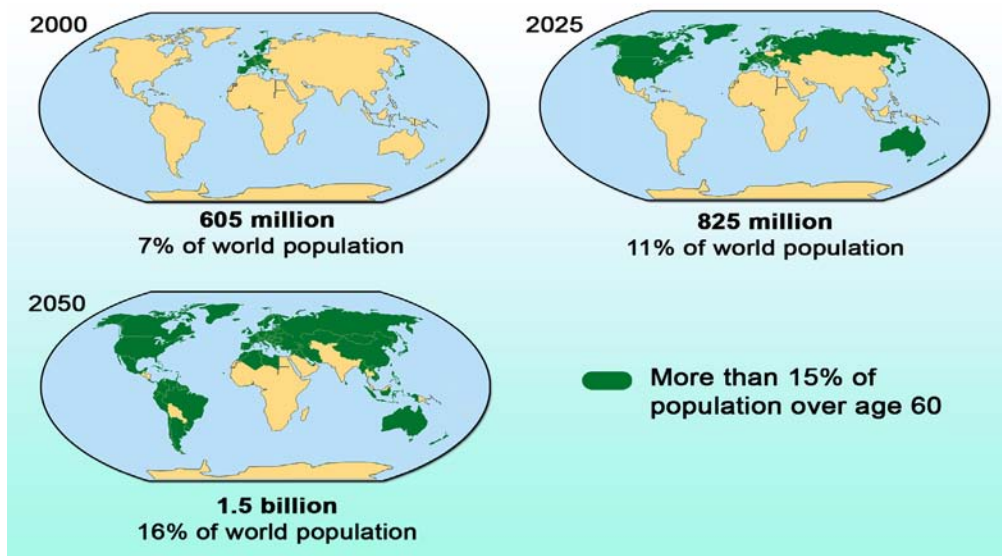
This paper discusses the changing environment, potential opportunities, challenges and issues relating to the policy directions and strategy-setting for specialised technical and vocational education and training (TVET) for an ageing society. The presentation discusses the areas for growth and the changes and shifts in the socioeconomic realities that play major roles in the shaping of policy measures and strategies relating to the development of programs for the retraining of older workers in TVET, particularly their use of delivery modes using new technologies and other alternatives. The major challenge is choosing strategies that suit the specific environment, which is primarily composed of industry, small and medium enterprises, TVET institutions and government agencies.

Global and regional issues and challenges for the ageing society and TVET systems

Global and regional issues of the ageing society

The global phenomenon of the increasing number of aged people points to the potential for the slowing-down of economic growth, capital markets, investment and trade in countries worldwide. By 2050, the European countries, Japan, Russia and China will face the most immediate impact of ageing, with more than 15% of the population aged over 60 years (see figure 1) In addition, the developing regions of Latin America, Asia and Africa will also have a significant percentage of aged population.

Figure 1 The world's ageing population

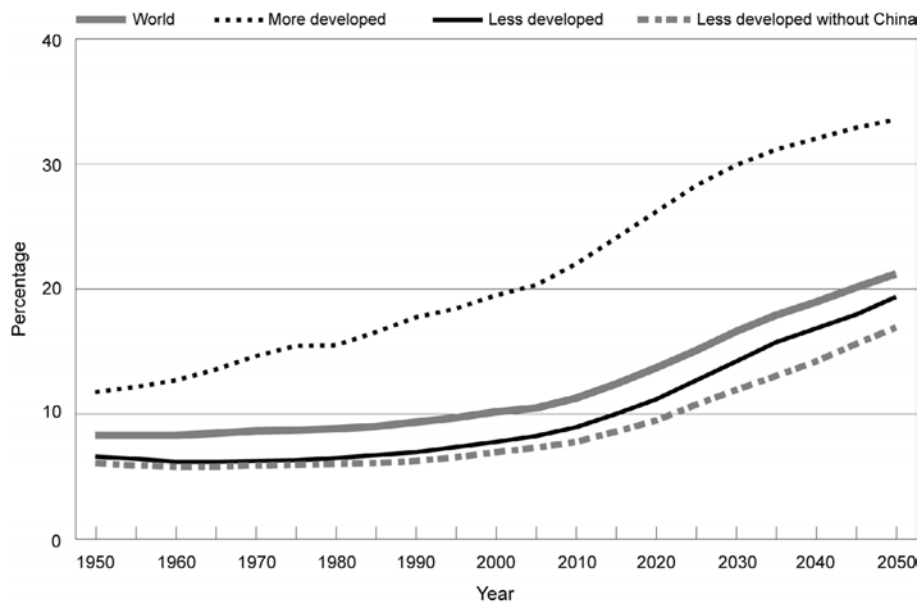


Furthermore, by 2050 the rate of increase in the share of population aged 60+ is projected to be highest among more developed countries (34%) and lowest among least developed countries (17%) (United Nations 2003) (figure 2).

A 1999 Expert Consultative Meeting highlighted the demographics of ageing to include the awareness of the increasing median age, which reflects reductions of fertility in many regions and almost all individual countries of the world. The Vienna Convention Report (1999) shows that, by 2020, the world as a whole is expected to have a median age of 30.9 years. The more developed regions will have an estimated median age of 42 years. In the less developed regions the figure will be 29.1. Thus the world is becoming distinctly older, with an increasing proportion of older people and a declining proportion of children in the total population. This report further stated that, as early as 2020, the population aged 60 years and over is expected to exceed 13% of the total world population.

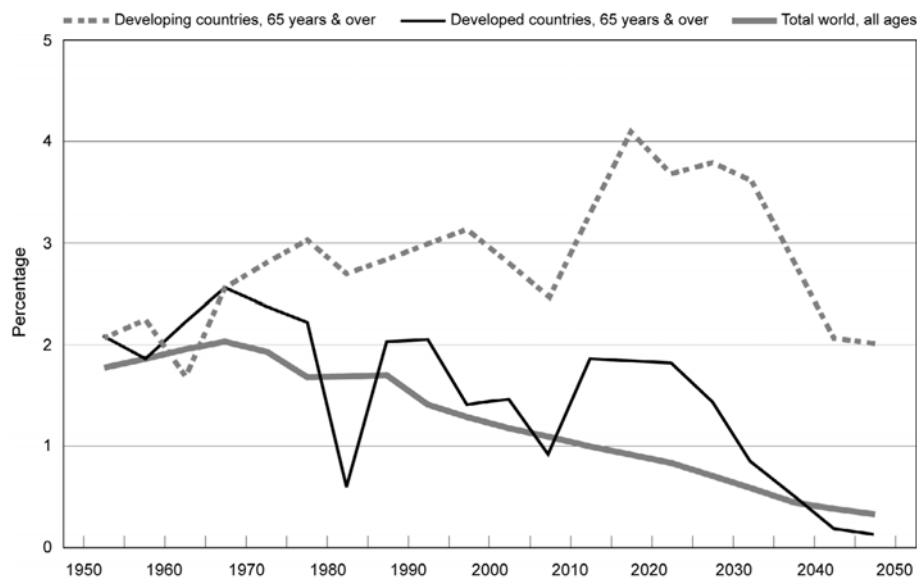
Figure 3 indicates that the relative growth of the older population in developing countries, most of which are in Asia and the Pacific region, will increase between 2010 and 2020.

Figure 2 Rate of increase in the share of population aged 60 and above



Source: United Nations (2004)

Figure 3 Growth of older population in developed and developing countries



The Asia and Pacific countries in particular have risen from the ashes of the Second World War as new independent states; the past few decades have seen countries in the region undergo a tumultuous period of civil conflict, political challenges and, lately, an unprecedented period of growth.

In a region where the living environment is continually changing and where more and more individuals are expected to live beyond 60 years of age, older workers need specific life skills, such as change-management, self-reliance, trainability, independence, positive thinking, flexibility and foresight, all of which may be developed through training and development, called here *retraining* for *reskilling* of older workers.

To achieve this, these older people need enabling agents, such as the government, TVET institutions, industries and small-to-medium businesses to provide the environment for fostering lifelong education, skills-upgrading and retraining for reskilling, so that their minds and bodies are

fully occupied. Many need support in making the transition into old age a time for fulfilling individual aspirations and for adjusting careers and lifestyles, as well as family life.

Challenges faced by the ageing society

In the midst of unprecedented developments in technology worldwide, Asia is among the world's regions undergoing transition. The passing of traditional society is evident in the sense that the once-traditional villages are rapidly becoming modern urbanised centers. Increasing diversification and shifting social roles and functions are now very much in evidence.

In terms of information communications technology development, the Southeast Asian countries are progressing well. Singapore reflects the qualities of an information-endowed country. In many urban areas in Southeast Asia, the internet is becoming a part of the information sector, with numerous hardware manufacturing entities located in the region. Consequently, information services, such as call centers, are showing positive growth.

Hand in hand with the rapid and far-reaching technological developments is the considerable potential in the countries of the region for exploring the policy directions, strategies, approaches and challenges related to developing TVET programs for retraining, particularly in new technology areas, for the ageing society.

The rapidly expanding aged population has particular demands and needs. These include: retraining for employment, income security, housing and environment, health and hygiene, social welfare and family. Community-based training centers, close-to-the-family activity centers (such as churches, markets, malls, schools, sports centers, multi-purpose halls, and so on) must be tapped to generate wider participation of this group of older people in training. Skills retraining needs to be addressed by the appropriate sector—the TVET sector. Mobile technologies and e-community centers are innovations which may be investigated and developed for promoting new businesses and enterprises focusing on aged entrepreneurs.

Need for reskilling of older workers through retraining

During the 1960s, the policy of requiring all employees to retire at the age of 65 years and encouraging some employees to retire at an even earlier age began. Today, retirement is accepted, together with its ideological justifications. Sadly, rather than being a sign of status, retirement is merely the next stage in the life cycle, where individuals are no longer expected to be social contributors.

The old have come to serve as a balance between the supply and demand for labour in a highly differentiated, specialised, and interdependent market system. Their employment opportunities in such a system have become a function of the population–age structure, with openings varying by sector according to the rate of young people reaching working age, and as a function of corporate intervention in the marketplace.

The processes of 'modernisation' have regularised the structural unemployment of the older workers. This situation indicates the phenomenon of change.

Change occurs when something ends and something new or different begins. The period between these two points is called 'transition'. In this stage people have to learn to let go of the old and embrace the new. Usually it means moving from the familiar to the unknown.

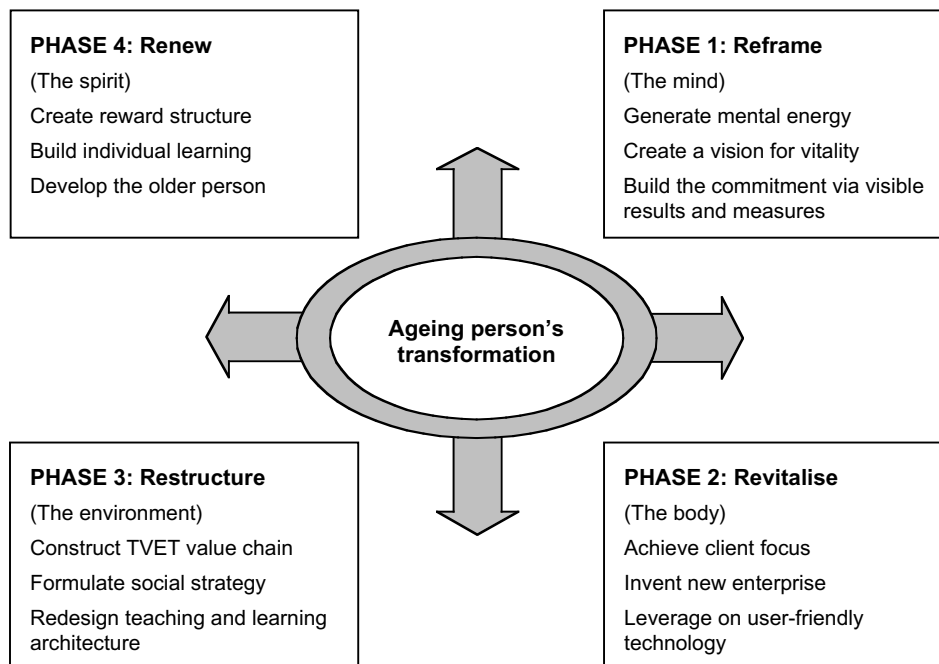
Changing the mindset of older workers

Earlier in this paper I noted the two relevant areas that have potential for teaching and learning interventions by the TVET program providers. These are their economic and social needs—for

productive employment and self-enrichment. Henry Ford's unforgettable quote is 'anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young. And the greatest thing on life is to keep your mind young.'

Figure 4 shows the ageing person's transformation process in four distinct phases to ensure a proper mindset for retraining for reskilling. These phases holistically cover the mind, body, environment and spiritual dimensions of an ageing person as s/he prepares her/himself for the challenges of taking up a new life skill or a segment of a lifelong career.

Figure 4 Model for enabling agents for transformation of the older person through retraining and reskilling



Change management through retraining in the TVET system

Enabling agents during the transition stage of older workers may be TVET institutions, non-government organisations, community leaders, and other formal or informal organisations. In the process of transformation of older people, the following are the strategies which may be effectively utilised in bringing about this change intervention program using the basic change-management strategies developed by Warren Bennis and Michael Mische (1995). Figure 5 is an adaptation of the model, here used for older workers retraining for reskilling.

In figure 5, the government serves as the key input factor for leading development of planned change for the ageing society's transformation. Resources from the other enablers like industry, education and training institutions, and even small and medium enterprises and businesses, provide the necessary resource inputs to the entire transformation process.

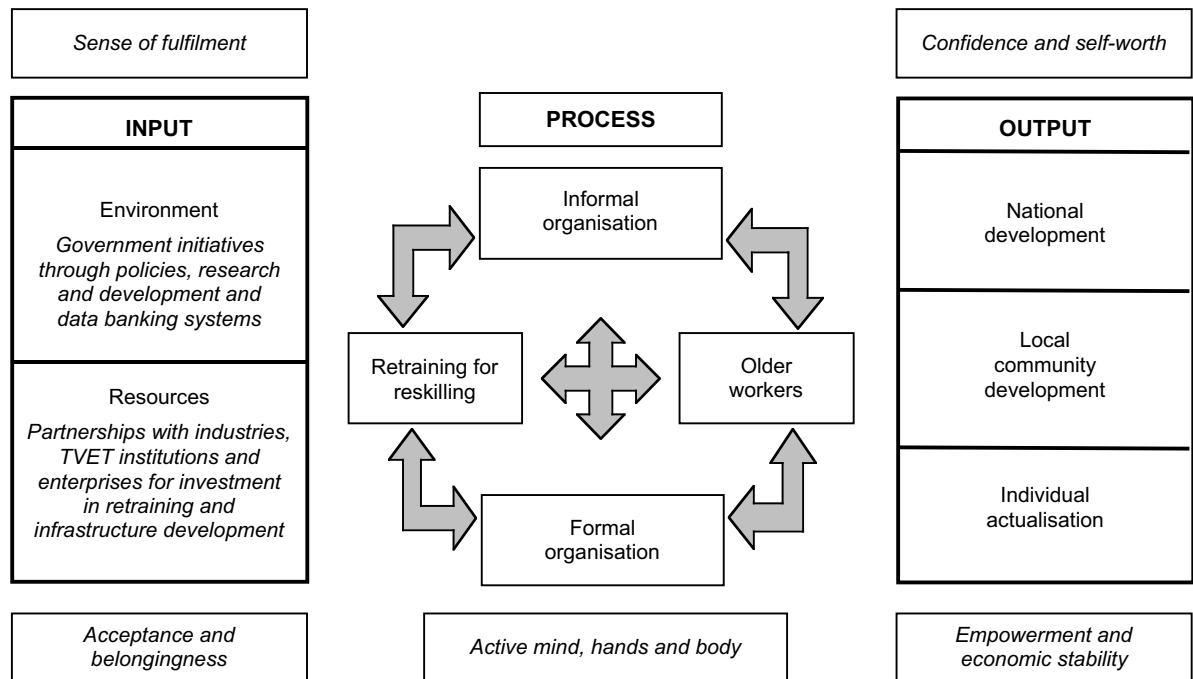
The core process involves the alignment of the needs of the older workers with the retraining interventions as demanded by those sectors of society which would benefit from the provision of new or adapted skills of the older workers. These should be matched by the support system provided by both the formal organisation and the informal organisations to which the older worker belongs.

Many benefits are realised from the retraining of older individuals: the national economy benefits; local communities benefit; and the individuals themselves benefit.

Empowerment of older workers through their achievement of economic stability is necessary to challenge the status quo in order to initiate and sustain planned change. Bennis and Mische (1995)

define empowerment as removing bureaucratic boundaries that box people in and keep them from making the most effective use of all their skills, experiences, energies and ambitions. Empowerment allows the older workers in the organisation to develop a sense of ownership over parts of the change plan that are uniquely their responsibility, while at the same time demanding that they accept a share of the broader responsibility and ownership of the work.

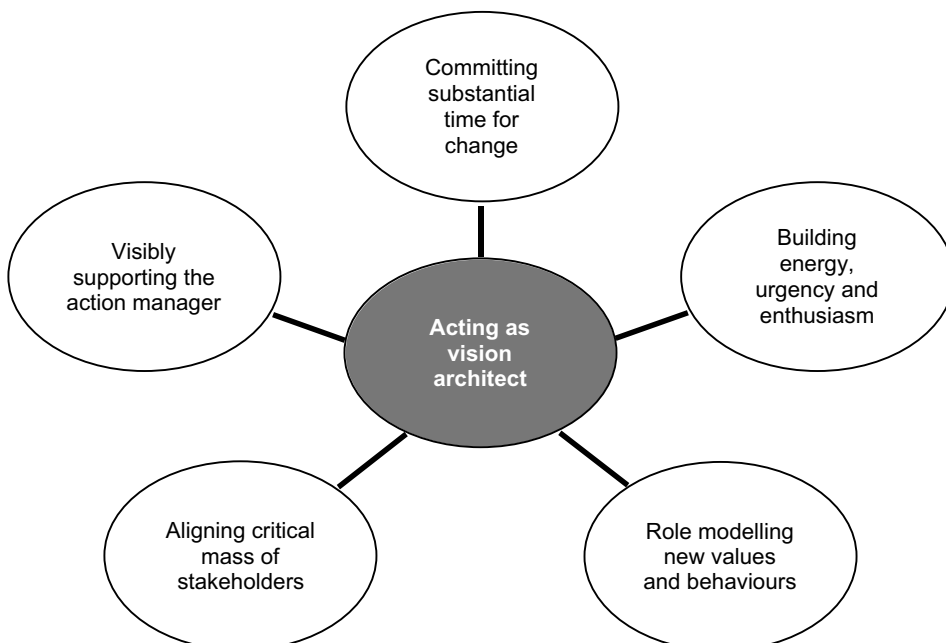
Figure 5 Congruence model for retraining of older workers



Role of change leaders in TVET institutions

Change leaders in TVET must have the following essential qualities to be able to create the enabling environment in order to plan, mobilise, implement and monitor retraining and reskilling programs for older people, as depicted in figure 6.

Figure 6 Essential qualities of a change leader



The manager with responsibility for special TVET programs should provide the older members of society with the opportunity to acquire upgraded skills and competencies for daily functions and even potential work roles. There is need for individuals and groups to acquire the ability to appreciate other cultures and traditions, while mindful and proud of their own.

There are four action ‘P’s’ used by the action manager and the change leader during the transformation process of the elderly during their reskilling and retraining efforts: prepare, plan, present, and pronounce.

Table 1 The four action P’s for older workers in the transformation process

4 P’s	Actions
PREPARE	<ul style="list-style-type: none"> ✧ Have a good reason for developing the special TVET program on retraining for reskilling of older workers. ✧ Assess your older workers for change. ✧ Prepare the people, especially those who will undergo reskilling and retraining. ✧ Consult those affected for possible suggestions on how best to implement the program for them.
PLAN	<ul style="list-style-type: none"> ✧ Involve the older workers in the planning of the retraining for reskilling program and encourage their input. ✧ Make contingency plans, anticipate potential problems. ✧ Establish clear objectives, action points, timetable and key persons responsible for each activity. ✧ Create transition groups and structures, develop policies and procedures. ✧ Communicate the need for change and get feedback. ✧ Track your progress. ✧ Put a respected person in charge of the change process.
PRESENT	<ul style="list-style-type: none"> ✧ Refocus attention to the vision. ✧ Get your message across clearly, using simple language. ✧ Be positive. ✧ Present the need for change in a positive way. ✧ Tell the truth and explain the need for everyone to make adjustments. ✧ Discuss support mechanisms that will help everyone affected during the transition process.
PRONOUNCE	<ul style="list-style-type: none"> ✧ Affirm your personal support to your team. ✧ Ask for commitment to partner with your organisation in the change process. Solicit comments and queries. ✧ Listen with empathy. ✧ Assure older workers that all suggestions/comments will be passed to higher management.

Proposed policy framework for retraining of older workers

Sectors involved in policy formulation

Amidst the changes in the learning landscape, technology is emerging as a primary mode for delivering education to the learners in the formal and non-formal sectors. A number of issues require policy consideration to generate awareness of and interest in the retraining and reskilling of older workers through the TVET system.

There are four main sectors involved in the formulation and development of the policy framework for the retraining for reskilling of older workers. They are the: the government sector, the industry sector, TVET institutions, and small and medium enterprises (SMEs).

The government provides policies and developmental strategies that must be regularly and continuously reviewed and assessed to be responsive to the needs of ageing society. They should provide: job models for the job seekers from the ageing workers’ groups; lifelong career-

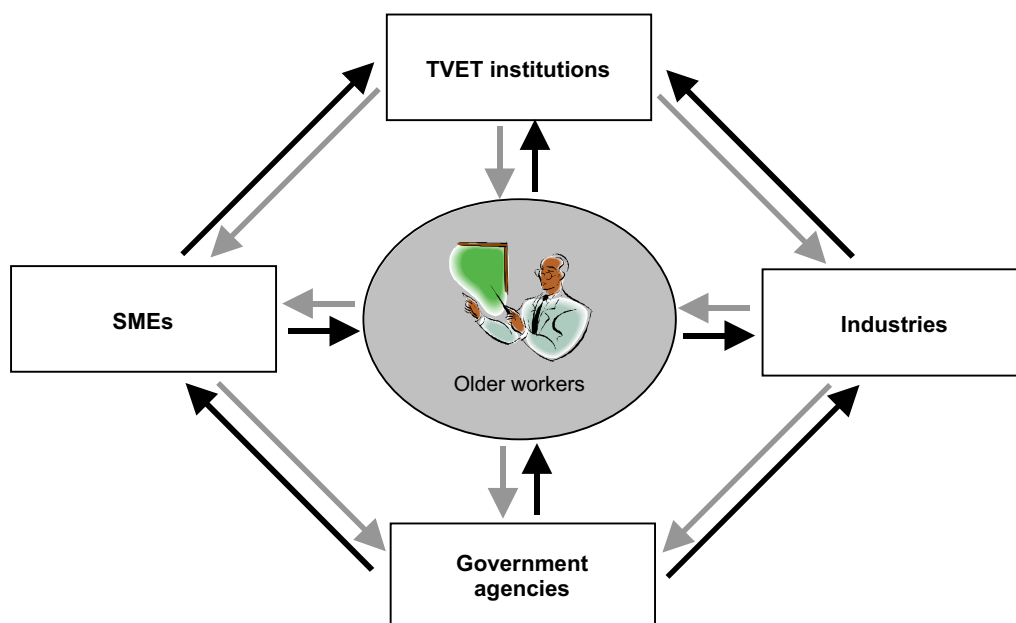
management services to the older workers to match the needs and demands of industries and business; and support for retraining for reskilling programs through TVET institutions.

Industry provides the necessary financial resources needed for investing in the recruitment of older workers and for providers' necessary support systems. Industry should provide older worker-friendly environments to ensure a safe, convenient and conducive workplace and working environment. Industry should lead the development of job models for older workers.

The role of TVET institutions is to design and develop the training modules necessary for the implementation of retraining for reskilling courses, based on job models provided by government, industry, and small and medium enterprises. The training needs of older workers also need to be taken into account. TVET institutions should provide lifelong learning interventions for continuous upgrading of the skills and knowledge of the older members of society.

Older workers are provided with the necessary training by the TVET sector to become entrepreneurs. The small and medium enterprises can assist TVET institutions by providing relevant hands-on training in various technologies to these budding entrepreneurs. The government can also play an active part by providing suitable policies, in terms of infrastructure, financial and other requirements, to these older workers to set up their own small and medium enterprises.

Figure 7 Sectors for policy formulation



Integrated policy frameworks

The perspectives for developing human resources management models for retraining older members of society is conceptualised in the following framework for policy development and implementation at the global, national and local levels.

Global change leadership

Various internationalised change leadership models may be used to effectively address the needs of the ageing society. The Colombo Plan Staff College for Technician Education (CPSC), as an intergovernmental organisation and a specialised agency of the Colombo Plan, presents a policy framework called the CPSC Model for Global Change Leadership. Its purpose is to demonstrate the effectiveness of its education programs in bringing about planned change in its member countries in the Asia Pacific region and the rest of the world.



CPSC Mandate: To provide leadership in the Colombo Plan Region by designing and conducting various programs and courses in different levels (including the older workers) primarily intended to equip TVET institutions' senior managers and administrators in the member countries with up-to-date knowledge and skills in relevant human resource development areas brought about by globalization and internationalization.

Focus Area (FY 2005–2006): Reskilling of the Ageing Society:

- ◆ Cross-cultural communication skills development
- ◆ Conferences in the Internationalization of Education
- ◆ Synergistic technology transfer of new ICT skills to the ageing sector
- ◆ Reskilling towards standardized international language for greater understanding among senior officials in Regional and Global TVET
- ◆ Re-tooling in the new technologies
- ◆ Reskilling programs in electronic, mobile and ubiquitous teaching and learning systems
- ◆ Development of thinking skills
- ◆ Re-integration for Institutional knowledge and memory
- ◆ Analytical and problem-solving competencies
- ◆ Familiarization with change or crisis and management models
- ◆ Building of the CPSC Alumni and Retirees Society

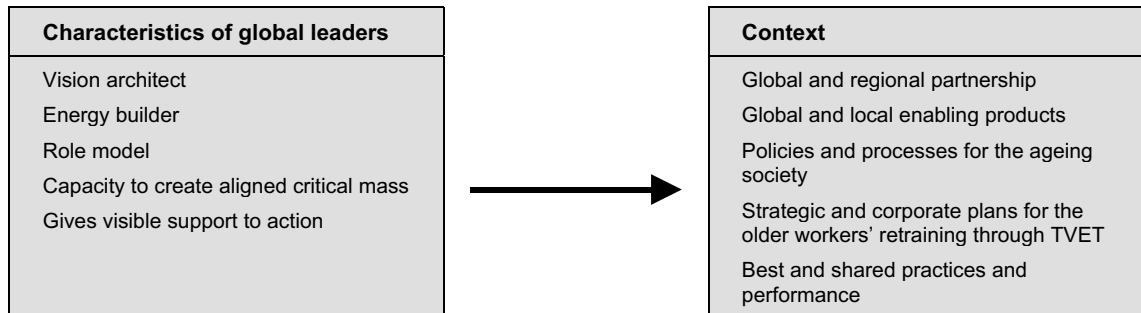
As the only regional institution established specifically to enhance the quality of TVET, the Colombo Plan Staff College provides leadership by designing and conducting various programs and courses at different levels. Starting in the fiscal year 2005–06 a series of focused studies are being undertaken to look at various aspects of the reskilling of the ageing society, including reskilling in standardised international languages for greater understanding; cross-cultural communication skills development; re-integration for institution knowledge and memory; internationalisation of education; synergistic technology transfer of new information communication technology skills.

These activities are primarily intended to equip TVET institutions' senior managers and administrators in the member countries with up-to-date knowledge and skills in relevant human resource development areas brought about by globalisation and internationalisation. They are likewise trained to develop thinking skills, analytical and problem-solving competencies, and appropriate change- or crisis-management models that are necessary to meet the demands of expanding technological developments in a global market economy.

The key focus areas are: global and regional partnerships with TVET institutions and relevant international and regional organisations and transnational industries and business enterprises; strategic and corporate planning exercises to address issues related to older workers' retraining within formal or informal organisations; promotion of the best practices, as well as shared management practices utilising accreditation and certification and quality systems management; policies and processes for the ageing society with strong support from the Colombo Plan Staff College's governance and related diplomatic and ministerial focal agencies; and studies on emerging global and local products utilised for upgrading of TVET training systems.

The left-hand box in figure 8 represents the characteristics of effective global leaders; these are the universal qualities of visioning, energising, role modelling, aligning of the critical mass and support of action management.

Figure 8 Proposed policy framework—global change leadership



National framework for retraining older workers through TVET systems

The collective personality of a country is visualised when leadership drives whom and what the nation should be. The mind maps shown in figures 9 and 10 serve as the charter that provides consistency of purpose for the nation. These may be utilised in the development of strategies for retraining older workers through the TVET system: mission or values; strategic thrust or value chain; goals or road map; and review of resource allocation, evaluation and recognition. Moreover, the interplay of the key sectors—government, TVET institutions, industries and small and medium enterprises—with the older workers group are elaborated below. These two figures collectively represent the national framework.

Figure 9 Key sector relationships for older worker retraining

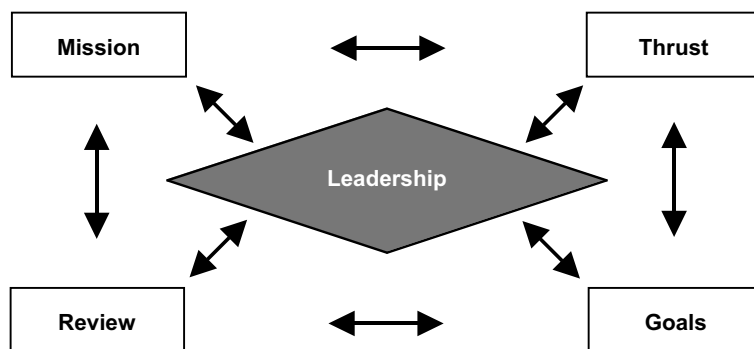
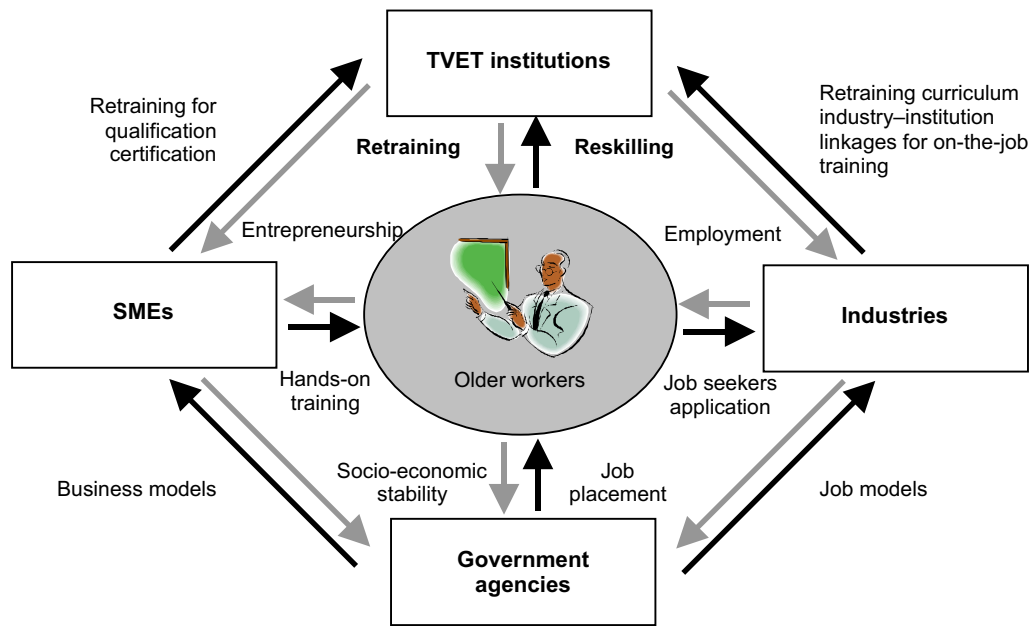


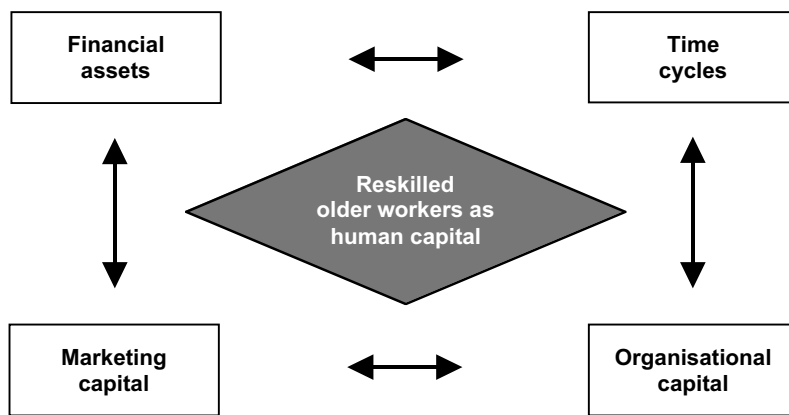
Figure 10 Relationships between key sectors in older worker retraining



Policy fundamentals for local TVET application

The framework for local TVET application is centered on the human capital or the abilities and talents of people. The other contributors are: financial assets, which are the core capability which enables the strategic resources to perform; time cycles, which refers to the management of time in both the external and internal environments; organisational capital, which is comprised of the five S's of *strategy, systems, structures, style* and *synergies*; and marketing capital, which is interchangeably called goodwill. Human capital and organisational capital are most critical in our globalising environment.

Figure 11 Proposed policy framework: Local TVET application



These three frameworks—the Global Change Leadership Model, the National Retraining for Older Workers Framework, and the Local TVET Application model—are combined to create an integrated methodology, which is activated through shared management practices.

These multi-level policy frameworks, taken as an integrated whole, have the following features:

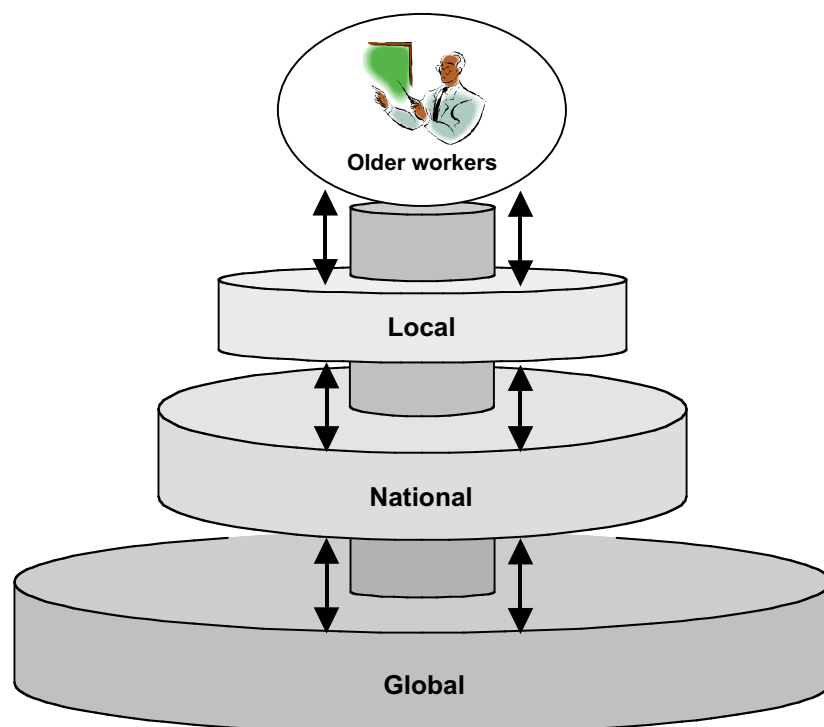
- It is a logical construct that integrates business principles and practices into a single, interactive methodology of management. This framework is a prerequisite for an effective global–national–local organisation.

- The globalising environment provides the tempo of change through: *partnerships*; (strategic and corporate) *plans*; (global and local) *products*; (policies and) *processes*; and (best and shared practices and) *performances*. These business enablers may be termed as the 5 P's in the global environment.
- The national sub-environment emphasises the connectivity of people, and the relational, rational and creative elements of management are highlighted through the driving force and vision of national leadership.

The local processes are involved in operational management with a focus on value-added enterprises.

The comprehensive and integrative processes provide a coherent and consistent flow of ideas, information and communication at each level of environment. The policy framework is structured to serve as a mind map in the implementation of appropriate programs to ensure the development of the world's and the nation's important resource—the older members of our society. Figure 12 demonstrates the relationships between the various levels and the older worker.

Figure 12 Global–national–local relationships and the older worker



Conclusions

The world's older population is increasing at a significant rate, resulting in corresponding socioeconomic implications for individuals, local and national governments and international development agencies. The rapidly expanding old-age population has particular demands and requirements which need to be addressed through retraining for reskilling, leading to productive employment and self-enrichment.

However, there is no focused national or regional development program among the countries cited above that can be considered as specific to the 'older workers' or the ageing society. Some early work in this area through the development of policies has been undertaken in a number of developed and developing countries, although these were inadequate in terms of the specific focus and importance necessarily required by the ageing society.

To manage the rapid change in both the macro and micro environments of the ageing society, there is a need for enabling agents, such as the government and TVET institutions, to provide the environment for fostering lifelong education, skills-upgrading, retraining, reskilling and re-tooling. Educators and TVET administrators in the region have to develop strategies which respond to the learning needs of the ageing population.

The change leaders for the realisation of specialised TVET programs for older workers should provide the opportunity for the ageing society to acquire upgraded skills and competencies for not only daily living, but also for employment opportunities and for the creation of small and medium enterprises, leading to greater economic stability and empowerment.

The four main sectors involved in the formulation and development of the policy framework are the decisive focal areas for the successful implementation of retraining programs, since they can become the enabling-change institutions for retraining for reskilling of older workers at the national level.

In the future, lifelong learning for the 'third age' will be an essential part of public policies and programs. In the Asia Pacific region where the living environment is continually changing, older workers need new sets of life skills, starting with a reframed mind, revitalised body, restructured environment and renewed spirit. Older people who have been retrained through the facilitation of international and regional organisations with responsive TVET institutions will have gained a holistic and change-adaptive lifestyle. It will be essential for those organisations implementing these models to embrace the experience and contribution that older people bring and to recognise the role they have in developing the new global change leaders of the future.

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Discussant's comments

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Synopsis of paper

The paper set out to provide an overview of the changing demographics and the potential, challenges and issues for policy direction and strategy-setting for technical and vocational education and training (TVET) in an ageing society.

The authors provided comprehensive figures of the world's ageing population and comparisons between developed and developing countries, identifying that the main demands of the older population would be employment, income security, housing, environment, health and hygiene and social welfare and family.

A model of learning was presented which indicates that the older generation's transformation process from the familiar to the unknown will include moving through phases that include reframing the mind, revitalising the body, restructuring their environment and renewing the spirit.

Enabling agents were identified to include government agencies, TVET institutions, industry and small and medium businesses, with a key role being played by TVET institutions in the change or empowerment process of older workers through retraining. A model for the development of an integrated policy framework was developed which elegantly outlined the interrelationship of these organisations.

Four actions were identified as essential for TVET institutions to initiate change that results in the provision of retraining courses and services for older people. These are preparation, planning, being present for staff, and pronouncing or affirming support and commitment.

Comments

The paper generated considerable discussion around a range of government policy, social, economic and learning issues. Key differences between developed and developing countries (for example, support processes, pensions, dependence on family, taxation systems etc.) were discussed. A significant issue for some countries is whether in fact they have (or will have in the future) the resources that can be diverted to the continued education of older people at the expense of investment in youth.

Of relevance to the direction of TVET institutional policy would be further research into whether education levels are increasing or decreasing as the population ages. We need to be careful that in considering this issue in a global context we are not generalising about educational levels of the

older community. We should not assume that the majority of the aged population is un- or under-educated. The challenges to TVET will also include the need to build on this cohort's education and work/life experiences.

The underlying theme of the paper is that a holistic approach to training is required to enable older workers to either remain in work or to take new directions, and this led me to consider the concept of 'work ability' developed by the Finnish Institute of Occupational Health (FIOH) under the guidance of Professor Juhani Ilmarinen. The model considers the impacts of health, competence and individual values and motivation on the ability to remain in work and also 'looks at the work environment; the demands of work, community and organization at work and management and leadership. As an integrated approach, work ability also extends outside the work environment to factors that are known to influence work ability such as family, friends and relatives and the broader social and policy environment.' <<http://www.businessworkageing.org/newsletters/April%20Pg5.htm>>.

While the paper provides a policy framework for TVET institutions, the next step would be to consider how this framework can be put into action and to identify the issues relevant to the development of training curriculum that targets the needs of older people. Questions that may need to be considered include, will they want to:

- be fast-tracked through courses
- undertake training on a casual as needs basis or as formal programs.

Additional questions include:

- what additional processes for recognition of prior learning or current competencies will need to be considered
- what might be the teaching and learning methodology barriers etc.
- what are the lifelong learning imperatives of this age cohort.

The paper identifies that 'TVET institutions shall provide lifelong learning interventions for continuous upgrading of skills and knowledge of the elderly members of society'—perhaps retraining should not just be an 'add on' but a component of the lifelong process?

The paper outlines a process for the integration of government, industry, TVET and small and medium enterprises as influencers in the training and retraining process, but we need to consider whether there are other organisations and agencies that need to be included. What is the role of funding and multilateral agencies such as the World Bank, Asian Development Bank, multinational industry bodies etc.?

Not included in the written paper but outlined during the presentation was the case study of how the model of an integrated policy framework is being practised at the Colombo Plan Staff College. It would be interesting to look at this model in a wider context and consider how this fits in the TVET circle of control.

Conclusion

The paper and presentation provide an excellent starting point for the development of debate on an appropriate policy framework with the potential to inform the practice of providing retraining and lifelong learning opportunities for the older population.

Re-skilling for all? The changing role of TVET in ageing societies of developing countries

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Introduction

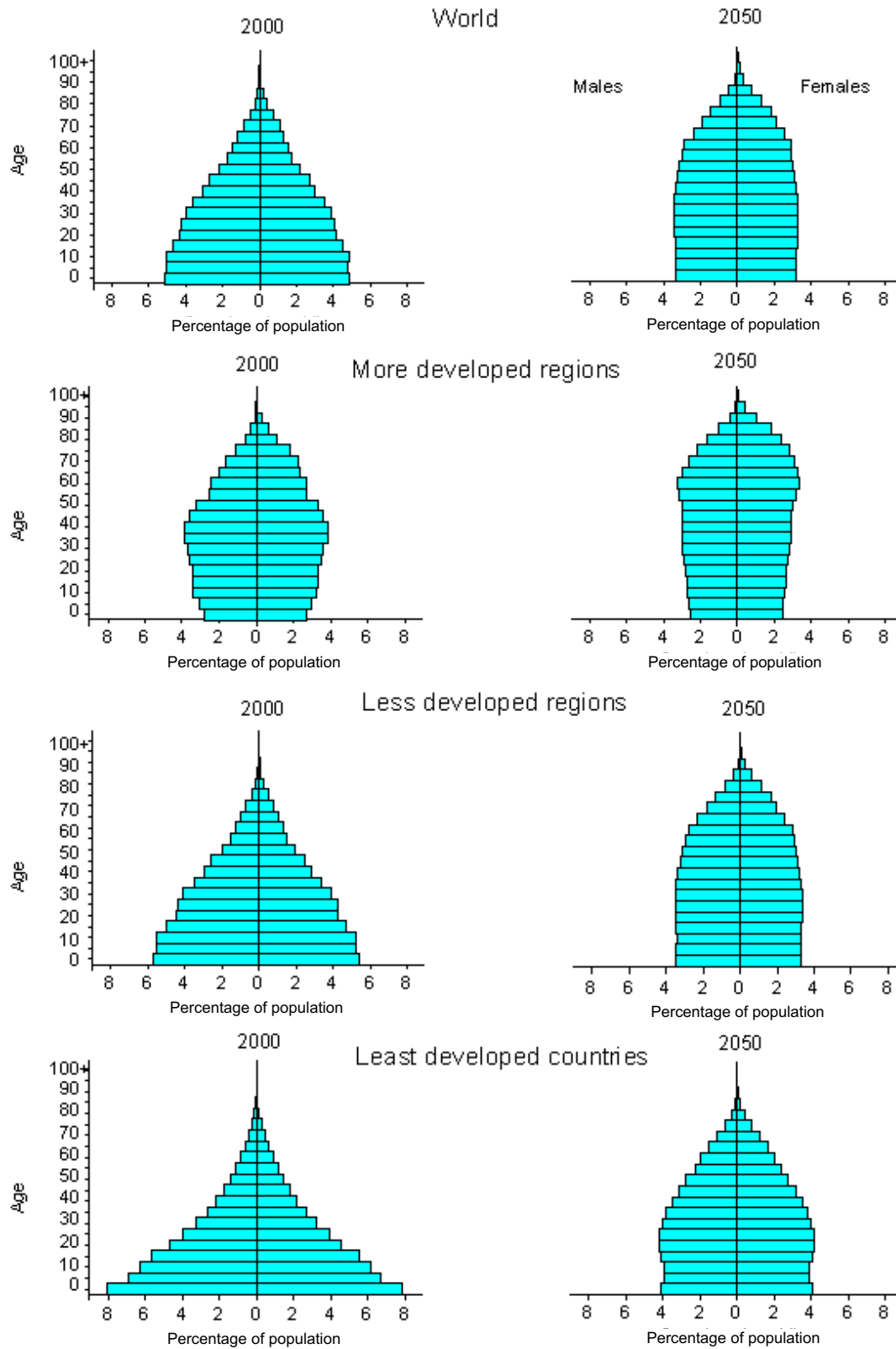
The changing age profile of the world's population is now a well-established fact. Research undertaken by the United Nations Department of Economic and Social Affairs demonstrates that, by 2050, 22.1% of the world's population will be 60 years or older (in 2000 it was only 10%). However, a closer look at those statistics reveals that the situation in developed and developing countries is quite different. For example in Europe in 2000, 19% of the population was aged 60 or over, while in Asia this was only 8% (United Nations Secretariat 1998). Even within the Organisation for Economic Co-operation and Development (OECD) countries (for example, Turkey, Mexico and the United Kingdom) there are differences in demographics.

However, modelling done by the United Nations demonstrates that the rate of ageing in developing countries is more rapid than in developed countries, thus developing countries are likely to have less time than developed countries to adapt to the consequences of population ageing. For developing countries age-related reforms are often not at the top of the political agenda, since other pressing issues, such as poverty alleviation, skill development for youth, and unemployment capture most attention. There is thus an urgent need to explore the issue of the ageing population in developing countries and identify some approaches and strategies for dealing with this important emerging issue.

Population in statistics

Over the past few years, the world's population has continued on its remarkable transition path from a state of high birth and death rates to one characterised by low birth and death rates. At the heart of that transition has been the growth in the number and proportion of older people. Such a rapid, large and ubiquitous growth is something new for our civilisation. Modelling of the population profile demonstrates that by 2050 the tendency for population ageing is evident across the globe. Figure 1 shows the rate of ageing for the different regions in the world.

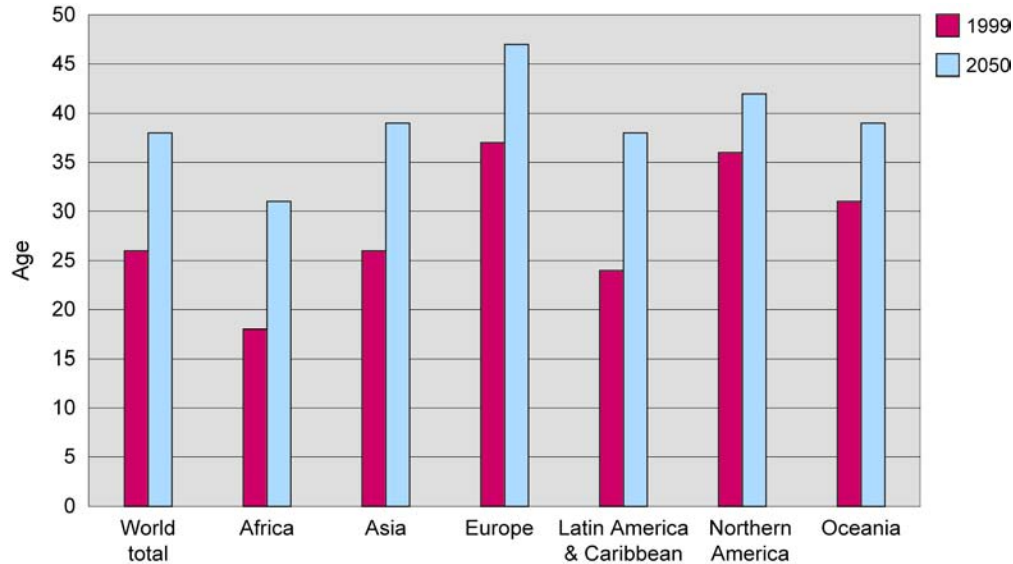
Figure 1 Population pyramids: Age and sex distribution, 2000 and 2050



Source: United Nations Secretariat (1998)

Figure 2 shows the median age by region. It illustrates that the difference between the current and future median age is much larger for Africa, Latin America and Asia than it is for Europe and Northern America. The high speed of change for the developing world is also evident.

Figure 2 Median age by region, 1999–2050



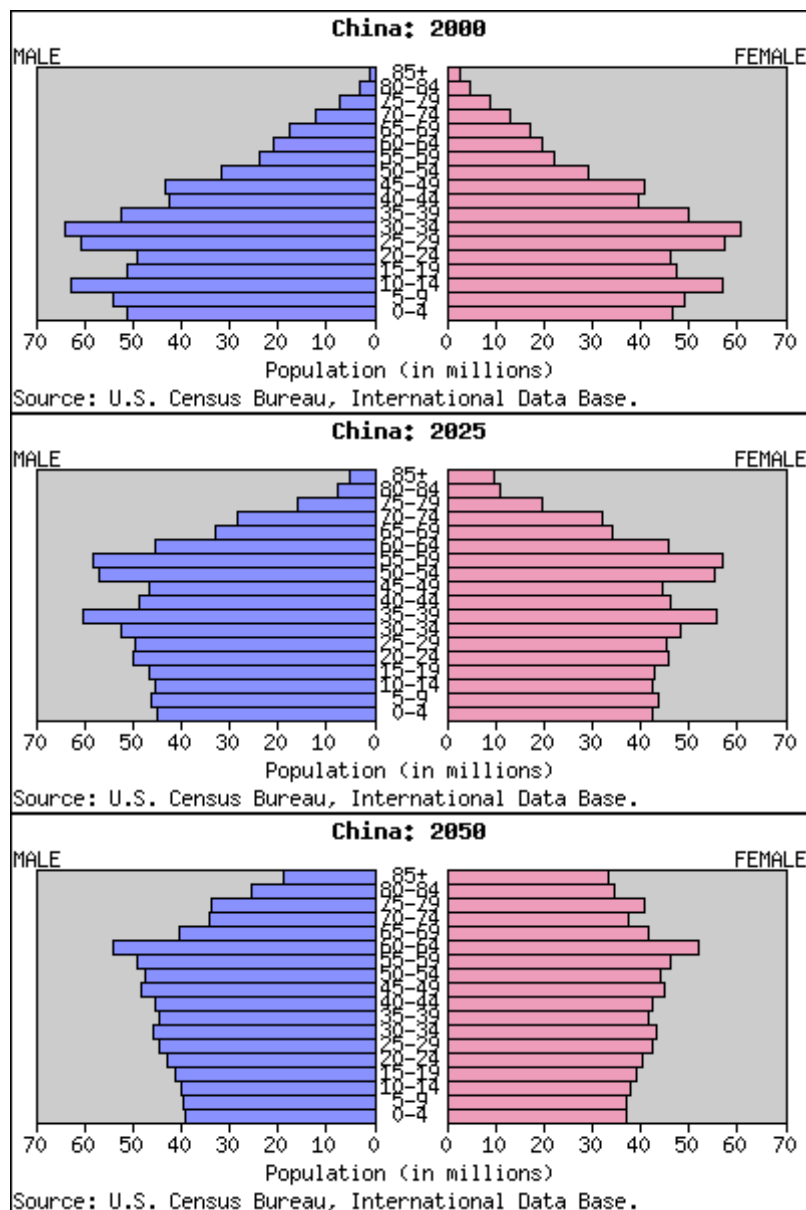
Source: United Nations Secretariat (1998)

China and India are the two most populous nations on earth and presently comprise a little more than one-third of the world’s population (Fathers for Life 2006).

Demographers, as well as the general public, believe that unchecked population growth is a serious problem for those countries. However, the problems faced by China and India in the next few decades will be quite different from what most expect. Both countries will be facing a population problem of unprecedented proportions. As a consequence, they will lose the steady renewal of their working and productive population sector. The productive, employable population sectors of these countries will shrink to less than two-thirds of their population, meaning that, even if all people of working age were to be gainfully employed, they would have to support at least a third of their population (and growing) that is not yet or no longer capable of working.

Another issue is that there won’t be the necessary wealth to maintain the standard of living that people have become accustomed to. What that means is that for many presently living at or barely above subsistence levels, the situation will get worse. Not the least of the reasons will be that elderly people will have no younger people to help support them, while the state will be unable to do so because of insufficient financial resources. Projections for population distributions for China and India for the years 2000, 2025 and 2050 are presented in figures 3 and 4.

Figure 3 Projection for the population distributions for China



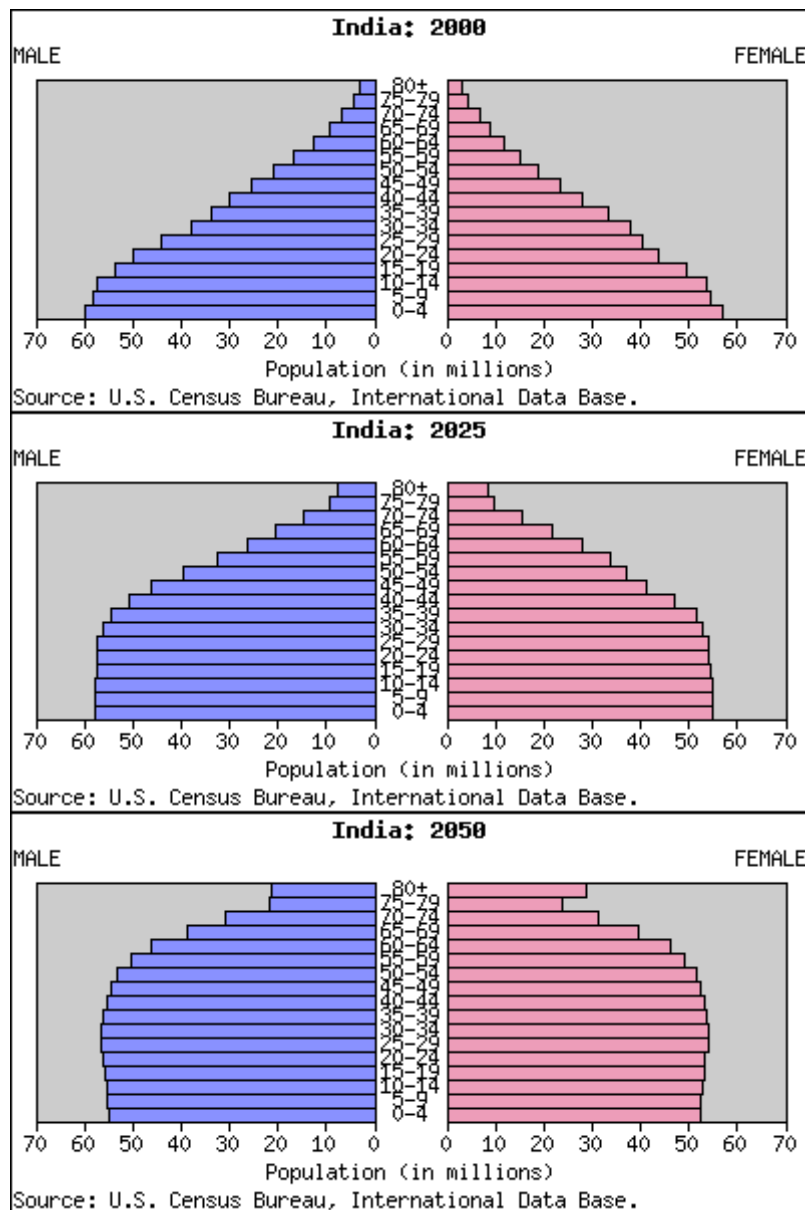
Thus, supply of labour, reduction of economic growth and social security may be the major problems for these countries in the future.

Thus, four major features of the current demographic revolution identified by the United Nations (2003) are relevant to the developing countries.

- Currently, striking differences exist between regions. One out of five Europeans, but one out of 20 Africans, is 60 years or older. Thus, at this particular moment ageing is not an issue for developing countries.
- The majority of older people (55%) are women. Among the oldest group, 65% are women.
- As the rate of ageing in developing countries is more rapid than in developed countries, developing countries will have less time than developed countries to adapt to the consequences of population ageing.

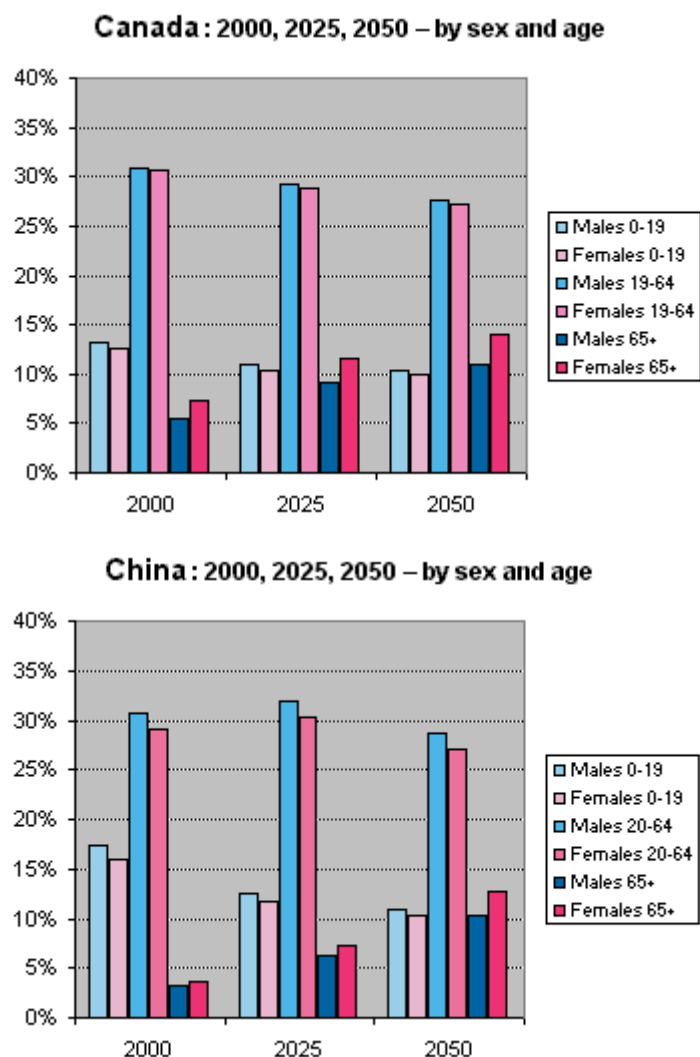
- The impact of population ageing is increasingly evident in the old-age dependency ratio; that is, the number of working-age persons (age 15–64 years) per older person (65 years or older). This is used as an indicator of the ‘dependency burden’ on potential workers. Between 2000 and 2050, the old-age dependency ratio will double in the more developed regions and will triple in less developed regions. The potential socioeconomic impact on society that may result from an increasing old-age dependency ratio is an area of growing research and public debate (United Nations 2003).

Figure 4 Projection for the population distributions for India



The last illustration that highlights the speed of changes for developing countries is presented in figure 5. Currently the percentage of the population over 65 years of age in China is much less than in Canada; however, by 2050 the percentage of the over-65 age group will be very similar across the two countries.

Figure 5 Comparison between Canada and China by sex and age for 2000, 2025 and 2050



Can we deal with the issue in developing countries by drawing on experience from developed countries?

To answer this question, a brief summary of the current trends in initial technical and vocational education and training (TVET) provision in developed and developing countries is presented to identify differences and similarities between them. Then the major concerns in relation to the process of the ageing population in developed countries and its relevance to developing countries are explored.

The current trends in initial TVET in developed countries

The recent report produced by UNESCO¹–UNEVOC on worldwide participation in formal TVET programs identified a number of quite common trends in initial TVET that are apparent in the more developed countries and at least emergent in some of the less developed countries (UNEVOC–UIS 2006). The report relates them mainly to accelerated globalisation² in terms of scientific and technological advance, rapidly changing markets and intensified global economic

¹ UNESCO = United Nations Educational, Scientific and Cultural Organisation

² The SKOPE project based at Oxford and Warwick universities provides evidence of how skills demands have increased across a range of European countries.

competition. Global demand for skills is mostly evident in the most economically globalised regions, including North America, Europe and East Asia. In other less developed regions of the world, where many countries are still only marginally engaged in the global economy, changes in skills demands have been less dramatic.

Among the trends identified in more developed countries are:

- the massification of upper secondary TVET
- the creation of broad vocational tracks
- the reform of apprenticeships.

The baseline level of TVET is changing. In many OECD countries between a third and half of young people go through some form of tertiary education. For the remainder, it has become typical to continue in education and training at least until the end of the upper secondary stage. Level 3 qualifications are increasingly seen as the minimum necessary to ensure reasonably good prospects in the labour market in most developed OECD countries. Level 2 TVET qualifications are gradually being phased out in many regions. The policy in many states is now for comprehensive general education to last at least until the end of compulsory schooling to ensure the acquisition of the new basic skills to an adequate level.

Some vocational programs at level 3 have been adapted so that they contain a larger element of general education and more generic forms of vocational preparation. These programs, such as the *baccalauréat professionnel* programs in France, prepare participants for a cluster of occupations in a given sector rather than for a single occupation.

Apprenticeship systems have experienced a decline in a number of developed countries. The recent reforms of the apprenticeship systems in a number of countries³ have sought to make the apprenticeship system more flexible, to increase its reach across sectors, and to raise its status in the eyes of young people. Greater flexibility has been sought by extending the upper age limits for apprentices, by modularising programs, and by broadening training by reducing specialisms and enhancing general education. Extending the range of apprenticeships has involved seeking to establish programs in new sectors and various measures to encourage more of the very large and the very small employers to become involved (UNEVOC–UIS 2006, p.37).

The current trends in initial TVET in developing countries

The situation in the less developed countries is quite different. As stated in the UNEVOC–UIS report (2006), many less developed countries face multiple problems in delivering effective TVET and in ensuring high-level participation, over and above those experienced in the most developed countries. These include, in many cases, problems of supply in terms of:

- lack of public finance for physical infrastructure and equipment
- lack of adequately trained instructors
- problems of communication and coordination, particularly in remoter areas
- inadequate ICT infrastructures
- inadequate system capacity in terms of central planning agencies, research and development capabilities, standard setting bodies etc.
- lack of finance and/or capability to undertake routine and preventive maintenance of the physical plant and equipment.

³ Denmark and Greece in 1989; Luxembourg in 1990; Portugal in 1991–92; France in 1992–93; Ireland and the Netherlands in 1993; Spain and the United Kingdom in 1994 (OECD 2006, p.137).

Barriers to access on the demand side may be equally problematic including, in many of the poorer countries:

- low levels of literacy which impede participation in TVET
- lack of resources to pay for TVET tuition and materials
- inadequate information and counselling with regard to what is available
- traditional attitudes which constrain female access to TVET (UNEVOC–UIS 2006, p.42).

From this analysis it is evident that developed and developing countries are currently facing different issues and trends in terms of TVET provision in general.

Ageing population—experience of developed countries

In terms of the ageing population, most OECD countries are undertaking ageing-related reforms through an accumulation of small changes aimed at later retirement, job opportunities, training, reduced labour cost and career management (Spiezia 2002). Integrated policies aimed at addressing the specific needs of older workers are rare. As stated in the recent OECD report (2006), ‘action is required on many fronts if work is to be made a rewarding and attractive proposition for older people: work incentives [such as pension reform that encourages later retirement] must be improved; employers must be encouraged to hire and retain older people; and the employability of older workers must be strengthened’ (p.137). Thus, ‘a co-ordinated and comprehensive package of age-friendly employment measures and policies is required’ (OECD 2007, p.137) and TVET can play its important, but limited role in achieving this goal. Its role can be mainly related to improving the employability of older workers and, in particular, to promoting training. As highlighted in the OECD report (2006):

An important requirement for improving the employment prospects of older workers is to upgrade their skills. Older people in the workforce tend both to have lower prior levels of education and to engage in less training than younger workers. Tackling this double disadvantage is not an easy task, and no country has yet found an ideal way of doing so.

(OECD 2006, p.118)

The request for up-to-date skills and effective approaches towards their development was met by the OECD in 1998 when seven principles to guide ageing-related reforms were formulated. Among them, a strong emphasis was placed on the need to ensure that more job opportunities are available for older workers and that they are equipped with the necessary skills and competence to take them up (OECD 1998 cited in Spiezia 2002).

Although in developed countries the TVET system is well positioned to respond to the above need, the progress achieved between 1998 and 2006 is limited. A number of studies (for example, Dawe & Elvins 2006) have identified some barriers to the skill development of mature-aged people that need to be addressed to facilitate a better attachment to the labour market. The Dawe and Elvins report is focused on individuals’ attitudes to learning and the ways the narrow skills base of older workers (as a barrier to learning) can be dealt with by TVET. ‘Age-enhanced’ activities (those in which work remains within older people’s capacities and performance improves as a result of experience, with the additional knowledge compensating for a decline in information processing or physical capabilities) can be seen as a framework for developing training approaches. Theoretical approaches adopted in this paper consider individuals within the context of where they perform their activities, using ‘tools’ they have learnt in their personal and social relations throughout their life.

An approach proposed by Warr (1994) is summarised in table 1.

Table 1 Task categories and expected relationship of performance with age

Task category	Basic capacities exceeded with increased age	Performance can be enhanced by experience	Expected relationship with age	Illustrative job content
Age-impaired	Yes	No	Negative	Continuous paced data-processing; rapid learning; heavy lifting
Age-counteracted	Yes	Yes	Zero	Skilled manual work
Age-neutral	No	No	Zero	Relatively undemanding activities
Age-enhanced	No	Yes	Positive	Knowledge-based judgements with no time pressure

Source: Warr (1994, p.314 cited in Spiezia 2002, p.101)

In a sense in traditional societies the communities appreciate the wisdom of the elderly and their knowledge-based judgements.

Application of this approach has two implications: within each institution careers have to be managed in order to move workers as they grow older progressively from age-impaired work to age-neutral or age-enhanced work; and the need for appropriate training for elderly workers. Training for the age-enhanced work would realise a higher return for the employers when formal training enhances the working knowledge accumulated on the job, and the know-how of older workers is updated when technological and organisational changes make it obsolete (Spiezia 2002, p.102). Thus, a major organisational challenge would be to create a particular learning culture among older workers and within organisations.

The approach presented above is supported by the findings of recent research published by the National Centre for Vocational Education Research (NCVER) (Dawe & Elvins 2006) that concluded that ‘labour market-related gains are greater for the mature-aged who complete higher-level qualifications’ (p.3). It was also reported that three major factors emerged as barriers to the skill development of mature-aged people. These are:

- negative attitudes and behaviours of employers and employees towards older people working and to learning new skills and knowledge
- individuals’ personal circumstances and attitudes to learning
- public policy beyond vocational education and training, such as some aspects of superannuation and retirement income policies (p.3).

Thus a learning culture (within the learner and within the organisation) that reflects the need and appreciation of learning for older workers has been highlighted in the literature as a major important factor supporting effective skill development for older people. As the OECD (2006) suggests, ‘training that is targeted and has a strong on-the-job element is most likely to be successful’ (p.122).

Ageing population—experience of developing countries

Developing countries, however, do not see the issue of an ageing population as an important item on their agenda. Why is this so? The major reasons for concern for developed countries as argued by Spiezia (2002) relates to ‘financial sustainability of pensions and health-care systems and a possible reduction in economic growth’ (p.1). These reasons are not particularly relevant to developing countries. Thus, there are a number of issues that should be taken into account when formulating policies for developing countries: currently, the ageing population is not an issue for developing countries; currently, the concerns stated above by Spiezia (2002) are not

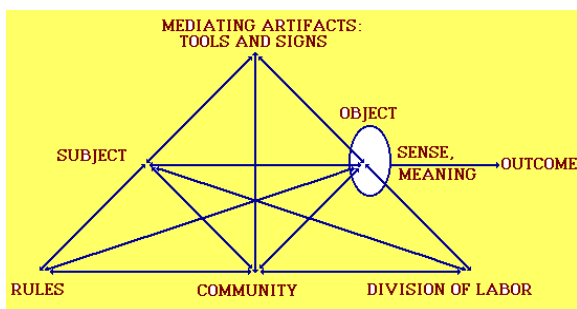
relevant to developing countries; and TVET trends in developing countries are very different from those in developed countries.

However, the results of population modelling demonstrate that forward planning should be undertaken to address potential problems in the future, such as supply of labour, reduction in economic growth and social security. In that context, to what extent can we draw on the limited experiences of developed countries in addressing the issue of the ageing population through education and training? Would the concept of a learning culture be a framework for addressing the issue in developing countries?

Activity theory

The theoretical perspective adopted in this paper is based on activity theory as a conceptual tool developed to help in understanding the process of learning situated within a particular cultural–historical context. Developed by Vygotsky (1978, 1987), then Leont’ev (1981), it looks at the complex interrelations between the individual subject and his/her community. The theory was further developed by Wertsch (1991), who introduced Bakhtin’s ideas (1981, 1986) on dialogicality, and by Engeström (1987, 1993, 1995, 1999a) through the development of ideas on multiple perspectives and networks of interacting activity systems. Figure 6 represents the model of human activity.

Figure 6 The structure of a human activity system



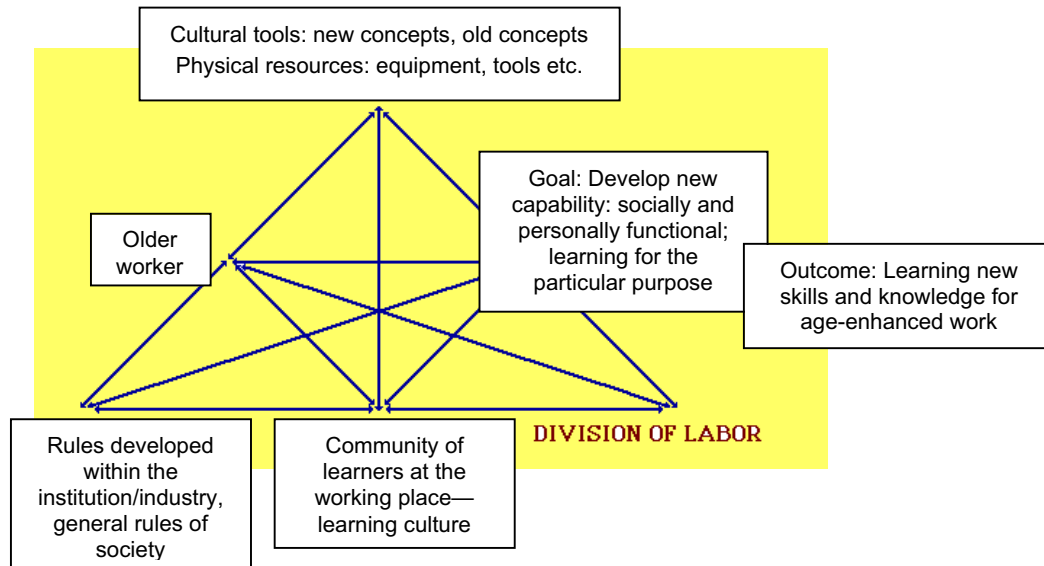
Source: Engeström (1987, p.78)

Within this model, older individuals are considered within the context where they perform their activities, using material and immaterial tools (mediating artefacts) they have learnt in their personal, social and working lives. An application of activity theory also suggests that all components of the system are different for different contexts (developed and developing countries). Rules, for example, include general rules imposed by society and working communities; these influence the activity of the older workers.

From this model it is evident that a person’s learning activity is the outcome of the interaction of multiple factors where individual aspects are difficult to separate from contextual ones. Individual performance is fully embedded in the context, and social relations are the main drivers in their individual lives. Older people, who have utilised the particular tools for a long time, are challenged by the complex relationships associated with their new learning activity. The adaptation of new tools has both social and individual implications.

In constructing a learning activity to achieve a particular set of outcomes, for example, ‘age-enhanced’ work, all components of the model should be adjusted to match these requirements. The majority of components will be different for the contexts of developed and developing countries.

Figure 7 The structure of the learning activity for older people



When analysing the difference, a number of limitations that influence such an analysis should be accounted for. Firstly, the object of activity is a ‘moving target’ (Engeström 1999b) that is closely related to the particular context at a particular time. Secondly, both developed and developing countries differ widely in both the extent to which they have identified issues concerned with learning by older workers and the extent to which they have addressed it. When activity theory is used to analyse the learning activity, a number of factors should be considered.

For example, differences in the object of activity are closely related to tensions in wellbeing—survival paradigms used in the world values surveys (Inglehart 1997). If we take the African continent as an example, Africa includes many of the world’s least developed countries and is the focus of intensive aid policy in which TVET might be expected to play a part. What are the specificities of the context that should be seen as influencing the structure of learning activity for older people?

A number of studies conducted in Africa and summarised in the UNEVOC–UIS report (2006) identified its specificity. For example, in the case study of TVET in four Francophone Africa countries (Côte d’Ivoire, Madagascar, Mali, and Senegal), David Atchoarena and André Delluc found that the inherent deficiency in TVET programs and their patterns of delivery is that they ignore the informal sector, especially the artisans’ micro-enterprises. Originally modelled on the French school system, TVET in these countries has often not fully taken into account the possibilities of the traditional apprenticeship for meeting the needs of the artisan sector, which both provides jobs and often stands in need of improvement (Atchoarena & Delluc 2002). This is mainly because their TVET programs have maintained a fairly large amount of general content not relevant to the specific skills required for the informal sector (UNEVOC–UIS 2006, p.46) Thus this request to emphasise the informal sector will affect almost all components of the model: division of labour, mediating tools, community, rules and goals.

Generally speaking, the low proportion of TVET in general secondary education is partly due to the public’s attitude towards this branch of learning, which is usually regarded as leading to low-status occupations and lack of progression to higher levels of education (Atchoarena & Delluc 2002). This definitely should be reflected in community and rules components. Moreover, the

pupils who enrol in this kind of education are considered to be those who have failed in general education. This results in a contradiction between the generally negative image of TVET and the strategic role it is supposed to play in the economy, especially in the informal sector, as regards the sectors more integrated into the global economy (Atchoarena & Delluc 2002).

Numerous concerns have been voiced over the past decade about African TVET. Atchoarena and Delluc (2002, p.38) summarise these concerns in terms of:

- poor quality
- very high cost
- training not suited to actual socioeconomic conditions
- disregard of the informal sector's needs
- disregard of the labour market and of the high unemployment rate among graduates.

In view of the changes in the labour market, the objectives of technical and vocational education have become more diverse: they are no longer simply economic but also social, including the fight against poverty and the integration of young people into the working world. All of these objectives are in line with the articulations of the Millennium Development Goals (Atchoarena & Delluc 2002, p.38). Given the prevailing economic trend, two other major objectives have been identified and must now be pursued: to train the workforce for self-employment; and to raise the productivity of the informal sector (Caillods 1994 cited in Atchoarena & Delluc 2002). Both will influence the objective of learning and activity for older people.

Another important issue is that many children in Africa are getting training through apprenticeships within family business or in formalised village polytechnics (rules and community components).

This analysis demonstrates that the model based on the activity can be appropriate for the African context, where informal training and training through apprenticeships are playing an important role, and for the contexts of other developing countries due to the nature of the activity theory that is focused on the individual.

How to develop strategies for retraining the ageing population in developing countries?

Although TVET development trends are different for developed and developing countries, activity theory can provide a useful concept of analysis of learning for older people within a particular context. For developing countries there is a particular need for a complex approach towards the issue. Development of public policies oriented towards the current and future awareness of the demographic trends should be supported by trialling and analysis of the different types of training interventions that could be employed to prevent labour market exclusion of older workers in developing countries. However, as O'Connell (2005 cited in Dawe & Elvins 2006) found in his analysis of developed countries, there is a lack of information available about which types of training interventions should be employed or how these interventions should be funded. Thus, for both types of countries the role of research on this issue should be highlighted; the starting point for this research could be based on an activity theory model.

The learning taking place through formal or informal training will be different in different situations, and the activity theory models could be used to analyse and reflect upon each situation. Differences in the objective of the activity in the different contexts constitute an important basis for the development of strategies for the ageing population. Is it a survival strategy or a wellbeing strategy? Both educational knowledge and educational policies need to re-examine assumptions behind the belief in the universal validity of approaches designed within the context of developed countries.

Conclusion

This paper has analysed demographic trends within developing countries and demonstrates that, although an ageing population is not a current issue, in 50 years time it will constitute an emergency situation. A key concern is that there are current problems related to the provision of TVET, but there are also other emergency issues that prevent governments of developing countries from orienting their policies towards the future issue of an ageing population (although the rate of increase in the proportion of older people in developing countries is higher than in developed countries).

The paper focused on the role of the TVET within a comprehensive approach for broad ageing policy development undertaken by some countries. Improving employability is seen as a major area where TVET can make a contribution. Vast differences identified between developed and developing countries led to the conclusion that a critical approach is required when considering the application of experiences from other countries. However, it is proposed that research should play the leading role in formulating any policies for developing countries. The analysis undertaken on the basis of activity theory can be useful for understanding learning activities of older people in developing countries. Such an approach firmly positions it within a particular context—including the need, policies, and meaningfulness for learners and employers. This analysis can help to develop training interventions for policy formulations and contribute to an increase in public awareness of the ageing issue and its potential socioeconomic impact on society.

Thus, the starting point for formulating the TVET role and the informal training role in improving employability of older people should be an analysis specific to the context of each country and states/regions within the country. Such an analysis would help to promote understanding of the relationships and tensions between older workers' particular environment, their goals and their outcomes.

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Discussant's comments

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Synopsis of the paper

This paper argues that, because the speed of ageing in developing countries is faster than developed countries, developing countries will have less time to adapt than developed countries to the consequences of population ageing. Accordingly, the authors argue there is an urgent need to explore the issue of population ageing in developing countries and identify some approaches and strategies for dealing with the emerging issues; otherwise, in 50 years time their ageing populations will result in an 'emergency situation'. This is because other issues, such as poverty alleviation, prevent developing countries from orienting their policies towards addressing the issue of relatively fast population ageing.

The authors then ask whether there are any lessons from developed countries for developing countries to address the issue of population ageing. To answer this question, they focus their analysis on one possible solution. This solution centres on increasing the employment rate of older workers by enhancing their job opportunities and their skills and competencies. Within the context of technical and vocational education and training (TVET), they conclude that the main lesson from their review of the literature is that a learning culture (both within the learner and within the workplace) that reflects the need and appreciation of learning for older workers is a major factor supporting effective skill development for older people.

The authors then go on to ask whether the concept of a learning culture would be an appropriate framework for addressing the issue of an ageing population in developing countries. They do this by using 'activity theory' (a cultural–historical theory of activity, based on Marxist philosophy, developed in the 1920s and 1930s by a group of Russian psychologists⁴), as a framework for developing and analysing strategies for retraining ageing populations in developing countries.

The main lesson that I drew from the authors' analysis is that the design of retraining for older workers in the developing country context needs to be cognisant that people do not learn in isolation from their own history; their social environment and communities; their interactions with other people and their knowledge, skills and judgements; the way they have learned previously

* Discussant comments were written while the author was employed at the Australian Government Department of Families, Community Services and Indigenous Affairs. The views in these comments represent those of the author and should not be attributed to the Australian Treasury or the Australian Government Department of Families, Community Services and Indigenous Affairs.

⁴ Source: <<http://www.edu.helsinki.fi/activity/pages/chatanddwr/chat/>>

(formally or informally); and their technological know-how. Accordingly, the bottom-line message of this paper is that the success of TVET for older workers in developing countries as one means of solving the problem of an ageing population depends on its being individually tailored, rather than having a 'one size fits all' model.

Comments

Overall I found the paper to be very thoughtful and thought-provoking; it was well written and easy to read, had a logical flow and was well argued. The questions raised by the paper (that is, Is the faster tempo of ageing in developing countries a problem? Does it matter for some countries more than others? And what might be the lessons from developed countries for developing countries?) are certainly worthy of examination. However, I do have a number of comments about the paper.

- While there are negative aspects associated with ageing, the fact that developing countries are ageing faster than developed countries can be seen in a positive light. Advances in medical technology have led to reductions in infant mortality (and hence the need for high birth rates in these countries), as well as longer lives.
- The research method, which largely comprised a literature review, was appropriate. However, I would also point the authors to an OECD (2006) publication called *Live longer, work longer*. This publication focuses on policies to improve the employment prospects of older workers, drawing on the lessons learned from 21 country reviews. It sees ageing as both a challenge and an opportunity and contextualises the role of increasing the employment of older people within other broad strategies to address ageing (which I will return to later). It also underlines the importance of strong macroeconomic conditions, well-functioning labour markets and policies to encourage greater labour force attachment over the life course as being especially important for underpinning higher participation rates among older people (OECD 2006, p.13). The next version of this paper would benefit from the inclusion of a review of this publication.
- While I would have still gone from the big picture and drilled down to focus on the lessons from developed countries for developing countries, I felt the paper jumped too quickly to focus on one possible solution—retraining older workers. I felt the middle section of the paper would have benefited from further discussion of the broad spectrum of ageing policies in developed countries currently being implemented to tackle ageing. This would have served to better contextualise the focus of this paper. This discussion might include a consideration of the following issues:
 - the focus in developed countries on enhancing economic growth (or at least growth per capita), while at the same time generating an economic environment that will sustain the resource needs of an ageing population and provide a high quality of life for all its citizens
 - an outline of the Australian Government's policy response to ageing as an illustrative example of a developed country's approach to ageing. The Australian Government's policy response includes three interlinked policy components.

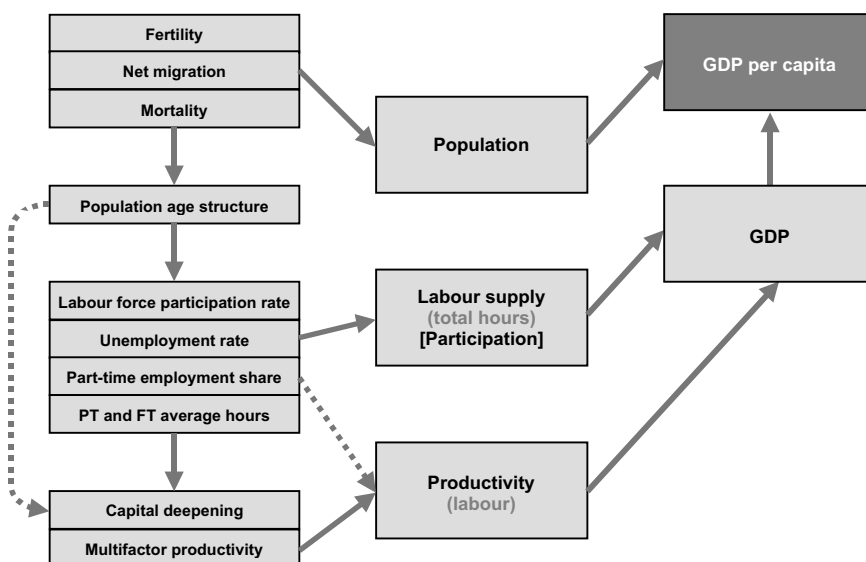
The first is what is called the 'three P's'—population, participation and productivity. Figure 1 (sourced from the Productivity Commission's [2005] report on ageing) outlines the links between the three P's and economic growth (as measured by gross domestic product [GDP]). There we see that a focus on increasing the participation rate (and employment) of older workers is but one of a number of policy avenues available to the government. Moreover, TVET impacts on at least two of the P's—through increasing participation rates (and therefore the supply of labour) and through enhancing labour productivity.

The second key policy area involves more specific policies aimed at health and retirement incomes, which seek to address possible pressure points and which buttress the three P's framework.

The third is a focus on what the Australian Prime Minister, John Howard, recently described as 'well governed flexibility' (rather than fixed plans) (Howard 2006). By this we mean an

economy that has flexible labour, product and capital markets, including a flexible and responsive TVET system where users drive the system. This approach builds upon the approach to Australia's economic development. That is, in a small, very open economy such as Australia's, the dismantling of trade barriers and protection levels in product markets has necessitated a concomitant move towards flexible labour and capital markets in related areas.

Figure 1 Tackling ageing—the 3 P's of economic growth



Source: Productivity Commission (2005, p.xviii)

- But what else might developing countries learn from the Australian experience in the context of TVET and ageing? To answer this, I looked back at the history underpinning how Australia got to where it is today.

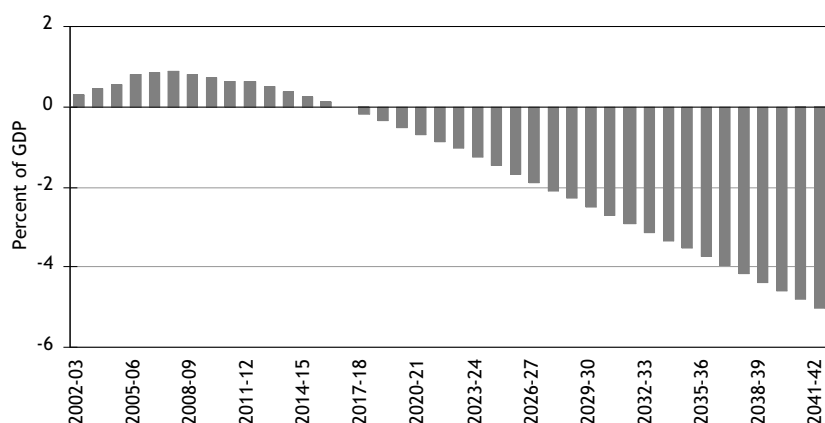
It was not until the mid-1980s that the issues of an ageing population structure were recognised, including the development, in 1985, of Australia's current superannuation policies (that is, a focus on people contributing to their own retirement savings rather than relying on the government to provide for them in old age). Further analyses during the late 1980s and early 1990s (for example, Economic Planning Advisory Council 1992) led to the raising of the qualification age for women to access the old-age pension from 60 to 65 over a 20-year period. Since the late 1990s a much sharper, whole-of-government approach has emerged. A key element of this is the Australian Government Treasury's (2002) *Intergenerational report**.

Under the *Charter of Budget Honesty Act 1998*, the Australian Treasurer is required to publicly release and table an intergenerational report at least every five years. This report is required to 'assess the long term sustainability of current Government policies over the 40 years following the release of the report, including by taking account of the financial implications of demographic change' (Australian Government Treasury 2002, p.iii).

The *Intergenerational report* published projections of the demographic change—along with other factors, such as the effect on health spending of the increase in demand for new technology and treatments—to the Australian Government's fiscal balance over the period 2001–02 to 2041–42 (figure 2). These projections were based upon the maintenance of existing budgetary and other policy settings. The discipline of this approach results in the sustainability of current policies being subject to scrutiny.

* Subsequent to the provision of these discussant comments, a more recent intergenerational report has been released and is available at <<http://www.treasury.gov.au/igr>>.

Figure 2 Projection of fiscal pressure on Australian government fiscal balance 2001–02 to 2041–42



Source: Australian Government Treasury (2002, p.7)

Further breakdowns of the component of the increased spending (Australian Government Treasury 2002, appendix A, p.69) have led to changes to health and retirement policies in Australia. It is important to note here that Australia has a social security system and a partially publicly funded health system. Developing countries will have different forecasts for spending, depending on their systems. The point is that such modelling lays out the consequences of *not* changing and helps point to priority areas for change.

Following the *Intergenerational report* process, the Productivity Commission (2005) was also commissioned to gather further detailed evidence on the economic implications of an ageing population in Australia. Its analysis revealed that the cost of ageing would be about 6.5% of GDP in 40 years (base case) and, while there were some warnings about some pressing concerns in some areas (for example, health and aged care), their message is that early action would prevent population ageing from becoming a crisis.

- Having touched on the background of the Australian Government’s ageing policy development and its implementation, I have identified the following three questions as being relevant to investigating the lessons of one developed country (Australia) for developing countries in the context of TVET and ageing.
 - To what extent should there be a focus on getting markets working and well functioning as a key platform to facilitating a strong economy?
 - Is the most critical area for TVET in developing countries maximising basic education (literacy and numeracy) and fixing the TVET system so that it works effectively (for example, the African situation described in the paper) rather than spending limited resources on retraining older workers?
 - Would it be prudent to gather evidence on the economic consequences of ageing and understand the consequences of *not* changing policies to respond to ageing?
 - Would it be possible to use the three P’s as a framework to prioritise investment in policies to facilitate strong and sustained economic growth so that the economy can minimise the impact of the consequences of ageing?
 - This framework highlights a relevant issue likely to face many developing economies in the future; that is, what will be the impact of the demand for TVET-trained labour from developed economies be in the future?

It would seem to me that understanding the role that TVET systems play within each of the above three considerations is the key to exploring the potential role of TVET in responding to population ageing (as well as the faster tempo of ageing) in developing countries.

By way of conclusion, I would like to say that I enjoyed this paper very much. It stimulated me to ask a number of questions and to start the process of exploring the answers to them. I have also focused on the areas where I felt I could add some value and my comments are intended to provide further ideas for possible further developments of this valuable and thought-provoking paper.

General discussion

The general discussion focused on the possible lessons (or otherwise) from developed countries for developing countries, the role of the informal sector and the effects of international migration.

Possible lessons from developed countries

Most participants felt that there were some possible lessons from the experience of developed countries for developing countries in responding to the issue of relatively fast ageing population growth. For example, one participant thought that there was a real opportunity for many developing countries over the next 20 or so years to set themselves up well for the following 20 years to 2050. In particular, if the major milestones of strong productivity growth and developing efficient infrastructures are achieved, then many of these countries (for example, China and India) would potentially be in a very good position to meet the challenges associated with a rapidly ageing population. Nonetheless, given the speed of ageing, nimble action by developing countries would be required.

By contrast, a number of participants were less optimistic about the potential lessons from developed for developing countries. One participant, citing the significant differences in social security and health care arrangements between developed and developing countries, wondered whether there was much to be learned from developed countries and concluded that the 'Australian policy cupboard was bare' (in the context of assisting the TVET sectors of developing countries respond to ageing).

Another participant felt that the inherent focus in many developing countries on current priorities meant that analyses on the costs and consequences of ageing would not be undertaken.

Another participant also noted that the relatively fast pace of ageing would also impact on preparation within a country for the many social changes which accompany ageing.

These comments generated further discussion about the way that developing countries might use a similar approach to that used in Australia. That is, modelling, analysing, and then responding to the consequences of ageing within the context of their particular circumstances rather than borrowing the actual policy responses developed by Australia.

Another participant noted that the main lesson from Australia was the idea that *sustainability* in terms of policy direction matters, irrespective of which path a country is going down. Cross-country differences also matter in this context (for example, the size of the population in many Pacific Islands contrasts significantly with China and India, for example) and hence the policy directions within many developing countries are likely to be different.

Role of the informal sector

One participant felt that more attention needed to be paid to the role of the informal sector in skills development because of the magnitude of skills development (in both developed and developing countries) that occurs in that sector.

The size of the informal sector in the economies of many developing countries also meant that applying the Australian Superannuation Guarantee legislation would probably not be sensible.

Effects of international migration

One of the participants raised a number of issues relating to the effect of international migration on TVET and ageing in the context of a global market for TVET skills. It was noted that foreign remittances (from workers trained in developing countries but employed in developed countries) were often very important in the economies of these developing countries. Many of these workers had TVET skills (for example, domestic service, construction and paramedical); however, the lack of qualification frameworks in many countries inhibited such international migration movements.

While acknowledging the importance of these foreign remittances to a developing country's economy, one participant pointed out the experience of Tonga. It was argued that foreign remittances to Tonga from the second generation of expatriate workers were not as high as from those in the first generation.

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The changing context of TVET for the workforce in India

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Introduction

India is a nation on the march. Hence, India is under global observation. India is emerging as a major economic power, and the entire world is keenly watching the way it will transform itself in near future. The Indian economy grew by 8.9% in the first quarter of the year 2006–07 (*Hindustan Times* 2006), although the government of India had aimed at 8% only. A comparison with the same quarter of the previous year indicates a maximum increase in the areas of trade, hotel, transport and communication. There was considerable decline in electricity, gas and power supply, and stagnation in agriculture, forestry and fisheries. The day these details appeared in the national media there was another significant development that attracted attention. Based on a survey conducted by the National Sample Survey Organisation, it was reported that ‘58% Employable Population Was Jobless in 04–05’ (*Times of India* 2006). According to this survey, 44% of people living in rural areas were employed. For urban areas the figure was a mere 37%. In rural India the proportion of the male workers engaged in agriculture activities declined from 81% in 1977–78 to 67% in 2004–05, indicating the level of rural-to-urban migration. The two aspects of economic growth and the employment position very clearly set the agenda for understanding the challenges and opportunities before India. This understanding is essential to appreciate the Indian initiatives, achievements and failures in the process of development, poverty alleviation, creation of job opportunities, provision of education and technical and vocational education and training (TVET), and social security to the aged.

Currently, about 60% of aged persons live in developing countries. This percentage will rise to 75 by the year 2025. In the year 2000, for the first time in human history, numbers of those above 60 exceeded those below 14 years of age in a number of developed countries like Germany, Japan and Spain. This silent revolution has begun to create an impact on all aspects of human endeavour and activity. The Indian aged population is currently second largest in the world. In the 100-year span of 1916 to 2016, while the total population increased by five times, the numbers of older persons increased thirteen times. The only social security available to around 85 to 90% of them is that of the traditional joint family system. The concept of pious obligations ensures protection of rights by creating human obligations. These emanate from one of the basic values of life evolved as a part of *Dharma*—the righteous conduct—and are best expressed as ‘gratitude’. Every individual is supposed to discharge four pious obligations. These are debt: towards gods; towards parents; towards teachers and the creators of knowledge and wisdom; and towards humanity. These can be discharged by worship, by maintaining continuity of family, by acquisition and dissemination of knowledge and by every type of social service (Rama Jois 1997). This traditional system too is changing visibly under the influence of contemporary global changes. India has already crossed the

United Nations defined percentage of 7 of those above 60, which means that India is now labelled as an ageing country; the present 7.7% will rise to 12.6% by 2025 (National Council of Educational Research and Training 2003).

India accounts for a meagre 2.4% of the world's surface area of 135.79 million square kilometres, supporting 16.7% of the world's population. In 1951, India's population was 361 million and was 1028 million in the 2001 census. The population increase between 2000 and 2020 is estimated at 320 million. Eighty-seven per cent of the total growth will be in the age span 16 to 64 years. In this growth the share of 0–14 years would be just 3% and those above 65 years will be only around 10%. The life expectancy is also likely to rise to 71 years for males and 74 years for females by 2020 (Indian Government Ministry of Information and Broadcasting 2006).

The increase in the literacy rate between 1951 and 2001 was from 18.33% to 64.84%. The sex ratio, females per 1000 males, changed from 946 in 1951 to 933 in 2001. The rate of urbanisation is projected by the rural and urban population ratios, which were 82.7% and 17.3% respectively in 1951 and were estimated at 72.2% and 27.8% in 2001. By 2020, 35% of India's population is likely to be urban. These projections have been made based on several factors, including population growth, growth of the working-age population, labour force participation rates, educational enrolment at higher levels and school dropout rates. India's labour force reached approximately 375 million in 2002. These figures indicate a rise of between seven and eight-and-a-half million per year in the labour force, projecting a total of between 160 to 170 million by 2020, that is, 2.0% per annum (Indian Government Planning Commission 2004). Total unemployment in India has been estimated to be around 35 million persons in 2002. Around 39.3 million job seekers were registered in employment exchanges throughout the country in December 2005 (*The Pioneer* 2006). Against this, only 173 000 found jobs in the government sector. Over 5.2 million persons with graduate or higher qualifications are still waiting for jobs. Every year 5.0 to 5.5 million job seekers are registered. The placement in jobs, which was of the order of 138 000 in 2004, rose to 173 000 in 2005. Over three-quarters of the unemployed are in rural areas and three-fifths of them are educated. In the current scenario of economic development—the tendency to shed excess labour and improved competitiveness—it is important to create job opportunities for all citizens. Access to employment is an essential component of economic choice and in moving ahead towards a better quality of life. This requires continuous monitoring, review and reorientation of national priorities, technology policies, educational infrastructure and the levels of commitment at implementation levels. Most crucial will be the role of formal technical and vocational education for young people in schools and colleges. This alone would not suffice. The infrastructure will need to be extended to other groups, that is, adults, aged, skilled or unskilled willing to learn, those in need of reorientation and upgrading of skills or those who need to acquire new skills. In developing countries like India, the attitudinal rigidity of preference for a government job or a white-collar job has just recently begun to melt. It has to be consolidated. These countries really need intensive programs of adult education, not only in literacy but also in technical and vocational education and training (TVET).

India's long and distinguished tradition in science and technology, scientific thought and innovative ideas is part of its civilisation of over 5000 years. There is enough evidence of the presence of the profound Indian tradition of science and technology: the Indian contribution to the sciences, mathematics, yoga and the medicinal system, *Ayurveda*, is now receiving renewed global attention, far more than ever before. These do indicate the presence of a strong tradition of training in technical and vocational areas and, consequently, of a scientific predisposition. Even in the nineteenth century, India had a reasonably good and functional system of vocational and technical education (Crane 1965). But, foreign rulers and their domination for over 200 years made the Indians believe that they were not scientifically or technologically advanced. Sixty years after independence, India has re-established its place in the scientific and technological world. Developing countries have realised rather late that the skills and competence of the workforce augmented with knowledge and technology determines the extent and magnitude of economic growth and provides opportunities for individuals to become part of the process.

The context

In the mid-1960s Indian educational planners realised the critical importance of vocational training in schools and colleges and also outside the formal sector of education, in non-formal education and adult education initiatives. It is another matter that even now, only around 5–6% of the young people in the age group 20–24 years have undergone formal vocational training in the early stages of schooling. Taking a wider definition and considering the entire technical and vocational segment, it may extend to around 15%. The corresponding figures in Mexico and Korea are 28 and 96%, respectively. Usually this percentage is around 60 to 80 in developing countries. The Indian education system has expanded substantially during the post-independence period. The population, too, has grown three-fold. In a recent survey it was reported that, out of nearly one million schools, 42 000 do not have a building, and 100 000, that is, 10%, are housed in single rooms. Over 140 000 schools have only one teacher. These figures should give a fairly good indication of why we do not have more vocational schools. The literacy rates at present are around 68% and the target to achieve universalisation of elementary education still remains elusive. To achieve the same by 2020, another 75 million or 44% more children will have to be enrolled. That means a proportionate rise in infrastructure support as well as the recruitment of trained teachers. Provision for training and retraining of teachers means more teacher educators and more teacher training institutions. Reducing the teacher–pupil ratio from the present 1:42 to 1:20 would mean an increase of 65% in the number of classrooms in the next 20 years. Quality improvement can certainly not be achieved if the teacher–pupil ratio is brought to an academically acceptable range. The task ahead in education is indeed daunting. Larger enrolments and fewer children per classroom mean increasing demand on secondary and university education. The following is a necessary requirement of TVET in the formal sector and also in the out-of-school non-formal sector. Policies now need to incorporate prominently the significance of work experience, schooling in vocational streams, technical education for middle-level functionaries and TVET in the higher education segment.

Policies in general education have paid attention to sustainability in several areas, particularly ecology, environment, conservation of natural resources and to citizenship education, to enable learners to contribute and create a sustainable future. Policies must be reoriented to reshape TVET to address the emerging concerns of sustainability. Linking TVET to the economic, environmental, and social aspects of sustainability has to become the critical concern of policy-makers and curriculum developers and should be extended to the entirety of general education. It is also now acknowledged that teacher education systems have to be geared to ‘a trans-disciplinary, holistic approach, which emphasises the importance of interrelatedness of the environment as a whole and the interdependence of parts’ (Maclean 2005).

The 1968 National Policy on Education (Naik 1997) made major recommendations in regard to environment, conservation of natural resources, citizenship education and working with hands and gaining experience. For the first time, it recommended bifurcation of the secondary stage of school education into vocational and academic streams. Emphasising what is currently being included under TVET, the essential concepts of work experience, vocational and technical education were put into the policy.

- The school and the community should be brought closer through suitable programs of mutual service and support. Work experience and national service, including participation in meaningful and challenging programs of community service and national reconstruction, should accordingly become an integral part of education. Emphasis in these programs should be on self-help, character formation and on developing a sense of social commitment.
- Special emphasis should be placed on development of education for agriculture and industry.
- In technical education, practical training in industry should form an integral part of such education. Technical education and research should be related closely to industry, encouraging the flow of personnel both ways and providing for continuous cooperation in the provision,

design and periodical review of training programs and facilities (Indian Government Ministry of Human Resources Development 1968).

At present the major institutional infrastructure in the formal sector of technical education at the initial stage is that of industrial training institutions. Of the total 5068 industrial training institutions, 1883 are in the government sector, with 3185 in the private sector. The total student capacity of 738 000 has 75 000 places reserved for women. Taking into account all the sectors and provisions there for TVET, the number estimated does not reach 1.7 million. The nature of vocational skills, the variety of new skills needed, the paucity of resources, including qualified trainers, have all caused severe stress in the development of these and other similar institutions. As well as industrial training institutions, TVET is provided by the polytechnics established for those who complete full school education. Courses at these institutions last for three years, at the end of which students get a diploma. At higher levels, India has a well-established network of Indian Institutes of Technology, National Institutes of Technology, National Technical Teachers Training and Research Institutions, Agriculture Universities and a couple of Universities of Science and Technology.

The inadequacy of the formal sector has been well realised and several attempts in the non-formal, private sector and through the open and distance learning systems have been made and are contributing effectively. 'The changes in technology and work processes are too rapid for training courses and their instructors to stay up to date. The cost of training is also relatively high, as it often demands full-time enrolment for a prolonged period. Some vocational fields do not lend themselves to classroom or laboratory study at all' (Indian Government Planning Commission 2004). The policy and program formulations have taken note of the experiences gained so far. The private sector has grown significantly in the areas of providing computer training, even in rural, remote and far-flung places. However, training has also to extend beyond computer-related skills. With a majority of Indians engaged in agriculture, attention has been paid to imparting TVET at various levels to those working in this sector. India has achieved self-sufficiency in food provision, rising from a very dismal situation, thanks to its agricultural universities, national research and training institutions and the strategy of extension services. In absolute terms, India's manpower base of scientists and engineers is its 'greatest core competence'. However, India's contribution to global scientific knowledge has now slipped from 10% to 2.5%. Just the reverse has happened in China. The number of scientists per million people in India, China and Japan is 157, 545, and 5095, respectively. This clearly indicates the need to expand the base of TVET much more widely. India has institutions of the highest international standards in science and technology. It is also an acknowledged fact that there is a need for greater and stronger links between these institutions and the 'other' institutions performing teaching and research functions at the same level and the practitioners in agriculture, industry, and other relevant sectors.

There is one more aspect which needs to be examined in order to appreciate India's needs and requirements in relation to TVET. Vocational training for farmers has not received the level of attention it deserved. Whatever has been done is significant but not sufficient.

The sectors with high employment potential include:

- commercial agriculture
- agro industry and agro business
- afforestation for pulp, fuel and power
- retail and wholesale trade
- tourism
- housing
- construction
- garment industry

- other small-scale and medium industries
- information technology and information technology enabled services
- education
- health
- financial services
- transport
- communications
- community services (Indian Government Planning Commission 2004).

The TVET system has to remain ever prepared for unexpected additions to the above list; obviously, those areas which become obsolete in the ever-changing scenario of the job market need to be regularly deleted.

TVET beyond the formal system

A tiny system of vocational stream schools that prepare less than 5% of the senior secondary level vocational courses completions and the products of industrial training institutions and polytechnics does not suffice to meet the needs of the system or the society. Further, these training provisions are grossly inadequate for dealing with the increasing numbers of educated adults with qualifications in liberal education, but without skills in technical or vocational areas. Those coming from rural areas return to these areas with such an education; this neither gives them a job in the much-sought-after urban environment nor leaves them fit to contribute to the traditional professional tasks of the family. These educated people form one of the most significant groups of the adults that need to be brought into the fold of TVET. Care has also to be taken of those who dropped out of schools at various stages and who have spent several years in a frustrating and demoralising environment at an age when they should be contributing happily to the process of enhancing productivity. This group could be prepared for rural, and also urban, locations using recently emerging production processes that do not require highly specialised manpower.

There are also groups of people already in jobs or engaged in business but who are being affected by the new advances in equipment, gadgets, tools and technological variations. They desire to change their area of operation and for that need new skills or renewal of skills. A large number of people who retire from the armed forces at a relatively young age are generally well equipped with technical and vocational skills, which could be gainfully utilised with reorientation and renewal. Their rehabilitation is a major issue. A good percentage of them come from rural areas and their services could be utilised as trainers and resource persons for the TVET system. Adopting practices such as these requires an attitudinal change at policy levels. The changing cultural context and the encouraging performance of women in all sectors of education have opened an entirely new dimension in employment and entrepreneurship in India. Education for women is now supported and appreciated by the community. However, the dropout rates remain considerably higher for girls. As they grow up, they would certainly prefer to acquire skills to add to family income and to give them a sense of equality as contributors to the process of economic growth and development. Various factors continue to contribute to the utility of the traditional vocational skills, which are transferred within the family to the next generation. Such available expertise could also be augmented by the non-formal TVET initiatives, enhancing the relevance of such skills. The percentage of differently abled children who get into schools is still relatively low. TVET for this group also needs to be adequately addressed at the implementation level.

The groups mentioned above would certainly benefit if the formal system in schools were to expand and adequate provisions put in place for the children who are classified as disabled. Further, provision needs to be made for career counselling and guidance for different age groups interested

in a variety of pursuits. Vocational guidance units must be available in all institutions for people of all ages and inclinations. A modular approach, decentralised planning and establishing close coordination between formal and non-formal TVET should be seriously attempted. Linkages to services, crafts and industries must determine the nature of TVET to be imparted.

Experiences gained

Generally, vocational training outside schools and institutions has targeted unemployed and unskilled workers to prepare them for productive engagement. It also targets school leavers to prepare them for the labour market. This is a major concern not only of educational planners but also of communities and society. The critical importance of this issue becomes clear with the realisation that 55% children drop out by the time they reach class VIII, the number increasing to 63% by the class X. Under such conditions, promises of equality of opportunity and social justice remain elusive, despite all good intentions.

The response to this issue comes in the shape of various schemes launched by different ministries of the federal government and the initiatives of non-government voluntary organisations. Many of these have largely achieved their targeted objectives and, consequently, have attracted attention. Upskilling of skilled or unskilled workers already in jobs has also been an important focus. Some of these initiatives are briefly referred to below. Many have reached the 'aged', although not necessarily only those above 60 years of age. They belong to the category that otherwise was not contributing to production activities. These initiatives also enhance understanding and appreciation of the tasks ahead in the context of a defined ageing population. Understanding these experiences would help planning and extending their outreach to those also who are keen to play a 'second innings'. Some of the formal institutional arrangements and also the non-formal and voluntary initiatives could form the basis for extending the outreach of TVET for all age groups, particularly including the aged. Some of these are discussed below.

Community polytechnics

The establishment of community polytechnics was an outcome of recommendations made in 1978 that selected polytechnics should act as focal points to promote community/rural development in scientific areas through technology transfer. The major target is to provide skills training for self- or wage employment and to achieve technology transfer. There are nearly 500 community polytechnics with an annual intake capacity of 65 000. These are mostly serving the needs of the organised sector, which includes middle-level supervisory technical personnel. Selected polytechnics initially prepare their own staff in micro-planning in rural areas, rapport-building with villagers, identification of need-based areas of action and other such inputs that may help in planning and implementing, with community involvement, TVET for rural development and increased productivity. Socioeconomic surveys are conducted to identify target groups, the resource base, job potential, potential for science and technology applications, training needs and other requirements. This leads to the preparation of an operational plan spelling out timelines and targets. The combination of an area-specific strategy and the relationship with other developmental agencies has been found extremely relevant. The scheme launched by the federal government targets areas and communities which are in greater need of support. The scheme has produced encouraging community participation and has proved highly beneficial to socially and economically disadvantaged groups, including women, groups which had, otherwise, no chance of acquiring employable skills. Over 150 courses have been listed, which are being offered, depending upon the factors mentioned earlier. Training is given through short-term courses. An assessment is conducted by assigning a specific job to the trainee and a certificate is also issued. No equivalence is sought through the formal systems. Eighty per cent of the program is practical in nature.

Community colleges

There are over 150 community colleges spread across 17 states. These have so far helped 35 000 students from socially, economically and educationally backward groups by providing them with vocational and technical skills that could lead to gainful employment. These institutions offer open access, flexibility in curriculum and teaching methodology, cost-effectiveness and equality of opportunity in real terms (National Council of Educational Research and Training 2001). Areas of TVET these colleges cover include medical lab technology, automobile mechanics, printing technology, information technology, refrigeration, desktop publishing operations, and several others, depending on the needs and requirements of the area covered by the institution and the interest expressed by the trainees. Initiated as a movement in 1955, these focus on life skills, work skills, hands-on experience and internship. Community colleges provide an assessment and evaluation of the skills acquired and attitudes developed. The system does not impose many restrictions or constraints on applicants in terms of pre-entry qualifications. Acceptance into community colleges essentially follows the philosophy of 'merit being just the availability of opportunity'. These colleges are also known as urban community colleges, rural community colleges, community colleges for women and tribal community colleges. These institutions provide courses both for the school leavers and those who may have completed education decades earlier. Extension activities cover other community members as well. The curricula include life skills, work skills, hands-on experience and preparation for employment. A study conducted on community colleges (National Council of Educational Research 2001) indicated a greater focus on discipline, punctuality, regularity and such other personality characteristics, which was marginally higher than that in institutions in the formal sector at a similar level. The courses offered by the community colleges present a vast array of responses to diverse community needs. These include integrated farming, rural marketing, post-harvest technology, building technology, animal husbandry and fish farming, and others.

The work skills component has generally been found to be satisfactory, although several inadequacies in terms of lack of infrastructure facilities like libraries and workshops were also noted. The community colleges have so far remained only a private initiative and the beneficiaries are also mostly from weaker sections of society with limited resources. Despite the constraints, the managements of these colleges are unwilling to opt for government assistance, as presumably it is invariably coupled with several stipulations which may lead to compromises on flexibility, freedom and accessibility to the desired group. Lack of a coordinating agency often leads to certain deficiencies in the totality of the education and training imparted through these colleges. While uniformity in content and training may not be necessary, comparability is certainly a desirable ingredient of this innovation. Well-designed programs are needed for preparing trainers and educators in the community colleges. Changes in community colleges themselves would also be needed for the higher age groups, which currently do not undertake training or retraining in these institutions.

Community colleges offer insights for the establishment of similar institutions, particularly in remote, far-flung, hilly and tribal areas which seriously deserve opportunities for gaining work skills, and also life skills for practically every age group. The system is being referred to here with the sole objective of indicating that various alternative approaches in TVET are being tried out in India. Some of these may be only elements of other programs and TVET may appear only peripheral. Even then, it could be serving a far bigger purpose helping those at the lowest rungs of society to move a couple of steps higher in the socioeconomic hierarchy.

A voluntary initiative: Banwasi Sewa Ashram

In India a considerable number of voluntary initiatives can be identified that attempt to transfer technology, new knowledge and other relevant inputs in response to local community needs and to

provide vocational and technical competencies at initial levels. This is necessary since a considerable percentage of the rural population in India still lacks access to education, health, and an adequate supply of food. One such initiative which has earned respect and reputation over the years was established in 1954 in Sonbhadra district of the most populous state of India—Uttar Pradesh. Known as Banwasi Sewa Ashram, it caters to the tribal population in a forest area that witnessed the advent of heavy industries. It also witnessed how the original inhabitants were ignored. They lost their traditional dependence on forest resources and were left uncared for by the industry. A dedicated couple moved in, motivated by the Gandhian spirit, with the objective and understanding that none should be ignored or neglected; development must be for the benefit of all, including the last man who was defined by Gandhi:

I will give you a talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test:

Recall the face of the poorest and the weakest man whom you may have seen and ask yourself if the step you are contemplating is going to be of any use to him? Will it restore him to a control over his own life and destiny? In other words, will it lead to Swaraj (self-rule) for the hungry and the starving millions?

Then you will find your doubts and your 'self' melting away.

The Banwasi Sewa Ashram envisages a strong, dignified and progress-oriented village community life that incorporates positive values of traditional life and assimilates the benefits of modern knowledge in such a way that people are not denied the benefits of the fruits of development. The organisation has mobilised people for community development, launched programs for the empowerment of women, developed community assets, trained personnel in technical and vocational skills, and achieved qualitative improvement in education, health, sanitation and agricultural activities.

It is a comprehensive program designed to keep the local needs in view and prepared in consultation with the local people. The initiatives include generating community awareness, creating community assets, education, health, developmental activities and training. Skill training is a necessary component and is imparted in a totally non-formal manner. Due to the prevailing conditions and concerns, the focus remains on cottage industries. These include agriculture, animal husbandry, tailoring, electrical fitting and gadget repairs, repair of diesel pumps and hand pumps, basic skills in dealing with the health concerns of humans and animals etc. Improved skills are provided to the traditional carpenters, fitters, turners, blacksmiths and others. Several other voluntary agencies working in and around the area are also taking advantage of the training facilities created by the organisation.

The work is mostly confined to an area of 6819.28 square kilometres, in an area comprising 60% forestland and with a literacy rate of only 50%. The achievements listed by this organisation are seemingly very modest. In their workshop for vehicle maintenance and repairs and also used for 'production' and repair of agricultural tools, they have, up to 2003, trained 2242 people. All of them have contributed locally and have 'made the difference'. This organisation has achieved great community credibility and acceptance, establishing it as an example to emulate by those working in the voluntary sector.

Open learning systems

The National Open School, established in 1989, and in 2002 renamed as the National Institute of Open Schooling, offers vocational courses in broad areas of agriculture, engineering, technology, health, paramedical, business and commerce and others. It operates through a well-knit network of regional centers and accredited institutions/schools. Planned essentially for school dropouts, it also offers vocational courses in combination with academic subjects.

The Indira Gandhi National Open University, established in 1985, has carved out a unique place for itself in open and distance education. It has launched nearly 80 programs of TVET in distance modes in various trades and skills at different levels for persons above 14 years of age. It does not insist on possession of any pre-qualification from the formal system. Most of the provinces in India have an open university, all of which are closely linked to the Indira Gandhi National Open University. A large number of people in the higher age groups and those who are already in jobs take advantage of the vocational and technical courses offered by Indira Gandhi National Open University and other open universities.

India has been struggling with huge programs of adult education. Initially, these were confined to providing literacy, numeracy and a general awareness of the environment around the adult learners. Gradually the need to provide skills and technical know-how has been recognised. Towards this end, nearly 160 people's education centers, known as *Jana Shikshan Sansthan*, have been established. Here a number of skill development programs that provide vocational and technical education and training of varying duration are run. So far around 1.5 million people have benefited. The scheme has visibly contributed to improving the vocational skills and quality of life of the beneficiaries. It is essentially an attempt to achieve the educational, vocational and occupational development of disadvantaged groups, including socially, economically and educationally backward groups of urban and rural populations, particularly neo-literates, semi-literates, women and girls, slum dwellers, migrant workers and others.

Krisbi Vigyan Kendras

The agriculture and allied sectors contribute nearly 22% of the gross domestic product of India, while about 65–70% of the population is dependent on agriculture for its livelihood (Indian Government Planning Commission 2004). Sixty per cent of the area cultivated is dependent on monsoon rainfall. India faced the threat of food shortages reaching dangerous proportions in the mid-1960s. These shortages have been successfully overcome and food production now exceeds the needs of population growth. There are however several issues of concern in the agriculture sector. The sector provides enormous scope for accelerating growth through improved soil nutrition, pest management and more efficient use of irrigation and potential rainwater harvesting. Furthermore, there is still a vast scope for developing programs and infrastructure for the agro-processing industries. Scope also exists for further diversification of cropping patterns, from low-value to high-value crops, such as fruits, flowers, spices, vegetables and other horticulture crops for domestic consumption, processing and export. This sector can play a major role in providing more satisfactory levels of employment and entrepreneurship to educated, literate and semi-literate people with different levels of technical and vocational skills.

India has developed vast infrastructure support systems at national, regional, district and at block levels, which have extended their outreach up to the villages. Research and innovation and their dissemination have contributed significantly through the training of personnel at various levels through a variety of programs in different institutions set up with specific objectives. The services of rural educated unemployed men and women could certainly be utilised more effectively by providing them with technical and vocational skills. They could then take advantage of the huge opportunity that the sector offers them.

Of the variety of initiatives launched to extend the outreach of technical and vocational competence of the large number of adults spread over far-flung and remote areas, the *Krisbi Vigyan Kendras* or Agriculture Science Centres offer a good example. These represent a typical example of technical and vocational education as continuing education. These centres are a major project of the Indian Council of Agriculture Research for technology assessment, refinement and transfer. At present there are around 500 of these organisations in state agriculture universities, institutions of the Indian Council of Agriculture Research, non-government organisations, state governments and other institutions. Their activities include training programs for farmers and farmwomen. In

addition, these bodies organise training for rural youth. Between April 2005 and March 2006, 680 000 farmers and farmwomen were trained through 25 696 programs conducted by the Krishi Vigyan Kendras. Of those trained, 468 000 were men and 212 000 women. These were conducted in 14 areas of training, which included horticulture, home science, soil fertility management, plant protection, fisheries, agro-forestry, agricultural engineering etc. During the same period, 8243 courses were conducted for rural youth numbering 162 939; of these 98 545 were males and 64 394 females (Indian Council of Agricultural Research 2006). The participation of women was encouraging, considering the social and cultural context still prevalent in rural India. Several innovations were also introduced. One of the Krishi Vigyan Kendras, in the state of Karnataka, identified representatives of self-help groups and progressive farmers who were closely associated with the different programs of the Krishi Vigyan Kendras. They received training in becoming leaders in technology-related organisations as well as in their technical area of expertise. After training, they act as resource persons. The result of the effort was visible in the establishment of 474 units in 72 villages, with an annual production of 3700 tones of vermicompost (Indian Council of Agricultural Research 2006, p.161). A number of the Krishi Vigyan Kendras have attempted to implement the concept of disseminating appropriate need-based technologies through self-help groups.

Craftsman training scheme

This is one of the several schemes launched by the Indian Ministry of Labour with the objective of preparing semi-skilled/skilled workers for industry. It particularly targets school leavers and youth. The industrial training institutes referred to earlier were established to impart skills both in engineering and non-engineering trades to young men and women in the age group 14–40 years. However, these are certainly not sufficient enough in numbers and output. Therefore the need to help those in the informal sector was recognised by launching a scheme of certification of skills attained informally (Indian Government Ministry of Information and Broadcasting 2006). A total of 43 ‘competency based standards’ have been developed and, by May 2005, 5750 workers had been tested and certified. This is obviously too small and inadequate a number in this category. In the 1960s, advanced training institutes were established to train and prepare instructor trainees in the techniques of imparting industrial skills. In 1977, a special scheme of advanced vocational training was launched for the training of highly skilled workers and technicians in a variety of advanced and sophisticated skills not available from other vocational training programs. They were also geared to meet the requirements of the local industry.

TVET and women

The empowerment of women is crucially dependent on economic empowerment. ‘Self-help groups’ form an effective strategy and work in areas like health, nutrition, agriculture, forestry etc. Organised groups are now interacting with experts through the Direct Receiving System of Indira Gandhi National Open University. There is emphasis on schemes and programs that lead to income-generation activities for women and arrangements for providing the necessary training for the same. A large number of ‘training-cum-employment-cum-production’ centers have been set up and these provide training in areas like electronics, watch assembly, garment making, weaving and spinning, hotel management and fashion designing. The scheme of condensed courses of education and vocational training for adult women was started as early as 1958. Mostly utilised by school dropouts, nearly a million young girls and adult women have undergone vocational training. A large number of voluntary initiatives have earned great credibility in creating equality of opportunity for women in certain places and situations where previously most of them faced a bleak future.

There has been a more realistic understanding of the implications of TVET for women. The technical training institutions at various levels could not provide a level playing field for the female

entrants whose numbers were too small and the training was not always in response to the employer's requirements. Gradually dedicated organisations have been established, some of which are focused specifically on women. The Self Employed Women's Association has organised women workers for full employment through training in technical and management skills, along with raising awareness of their rights, and also through activism. It has empowered even those women who were illiterate, unable even to sign their names. This is a great success story that motivates and generates confidence in the role of the voluntary sector in providing vocational and technical preparedness amongst women, particularly the most deprived and deficient in the society.

Science and mathematics were made compulsory components of school curriculum in India only after the 1968 National Policy on Education was accepted and implemented. It proved to be a decision of rare foresight in the context of bringing women to science and technology. Within the constraints imposed by socioeconomic and cultural factors, girls have performed better than boys in the technical, scientific and other related areas. The group of aged women is only now emerging. The attention of educational policies, however, still focuses on bringing in all the girls to elementary education and attempting to ensure their further participation in education. India's achievements in the education of women deserve appreciation and attention.

Women constitute a significant part of the workforce in India but continue to lag behind men in terms of the level and quality of employment. The 2001 census registered 25.6% of the female population as workers, representing approximately 127 million in the female population of around 500 million. The majority of these are employed in rural areas and, amongst the rural female workers, 87% work as agriculture laborers and cultivators (Indian Government Ministry of Information and Broadcasting 2006). This group requires maximum attention in the form of short-duration courses in vocational training and in imparting technical know-how suitable to their level and area of work. The Krishi Vigyan Kendras discussed above took note of this requirement and organised programs on crop production, horticulture, home science, livestock production/management etc. over a period of one year, in which nearly 212 000 farm women, and 64 394 rural girls were trained. The employment of women in the organised sector (both public and private sector) as at 31 March 2002 stood at about 4.935 million. This constitutes 17.8% of the total organised sector employment in the country. The distribution of women employees in the major industries reveals that the community, social and personal services sectors continued to absorb the majority of women employees. The lowest employment of women was noticed in the electricity, gas and water sectors. In the factory and plantation sectors women constituted 10% and 5%, respectively.

Vocational training facilities for women are organised through a network of 218 women's industrial training institutes and 582 women's wings in general industrial training institutes and private women's industrial training institutes, with around 47 000 places being under government control. The national Vocational Training Institute for Women has been set up with ten regional centers. All these establishments provide short-term courses for the aged and on-the-job workers.

International context

In an analysis of TVET in the context of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and International Labor Organization recommendations, deliberations were conducted for the Asia region in the year 2002 by the National Institute of Educational Policy Research, Japan. While various aspects of the formal sector of TVET were prominently discussed in the 11 country reports presented, the deliberations did focus on non-formal education in this sector in relation to the informal economy (National Institute of Educational Policy Research 2002). There is no uniform voice for this sector. The following skill needs of the informal economy were identified:

- management/entrepreneurship training for owners-workers
- enterprise development training for owners

- multi-technical skills for owners and workers
- training in appropriate technology
- skills to access and analyse information on products/product design, raw materials and product market, sources of credit/technology support.

Institutional infrastructures were not found adequate enough to respond to these needs, which obviously should not be confined only to the training of young persons; adults needed to be included. Several suggestions emerged in these deliberations, which continue to be relevant even today.

The developing countries in the Asia region have inherited systems of education that generally emphasised general education in a more or less a similar pattern. The vocational and technical education pattern, focus and approaches have been rather diverse as, in most cases, this sector has attracted attention only in recent decades. For young people, work education or vocational education emphasising working with hands is generally a common feature. There are specific provisions for those with eight or ten years of school education as there are for those with ten or twelve years. There are provisions for apprenticeship training and pre-employment training after formal schooling. Polytechnics are common in several countries. Several of the provisions target groups 'after school but before tertiary education'. In some countries employers take responsibility for providing TVET. Practically every country is reviewing its options in TVET in the emerging climate of globalisation and information communication technologies. Most countries now do not wish to leave even those groups outside the formal education network unattended. TVET is considered a strong potential tool that can accelerate development and augment efforts of equity and equality of opportunity. The limitations of the public sector provide a rare opportunity for the entry of the private sector, with the potential for solving some of the chronic problems of the system, such as dropout rates, and for enhancing enrolments. The private sector could also develop a skill culture and a fresh approach and attitude towards manual work (Grubb 1985). The sector could also help achieve true education that draws out the best in body, mind and spirit or in other words, achieves a symphony of head, hand and heart.

In an analysis conducted for the Asia region over the period 1970 to 1990, based on enrolments in vocational education as a percentage of total enrolments in secondary education, those with less than 3% were classified as 'ignored vocational education throughput' (Tilak 2002). This group included Bangladesh, India, Myanmar, Pakistan, Saudi Arabia, Malaysia and Kuwait. Those which maintained reasonably high enrolments throughout, that is, above 10%, were Indonesia, Israel, Japan, South Korea, Papua New Guinea, Thailand and Turkey. Those that had progressed significantly included China, Iraq, Jordan and Syria. This indicates the preparedness or otherwise of these countries to meet the needs of those in the upper age groups and the demands they make on the non-formal sector.

An analysis of social rates of returns is not an easy task. However, attempts made to estimate these have not established much superiority of vocational education over general education. However, earnings alone are not the criterion, since 'workers with vocational education and training may be more productive than those with general education' (Tilak 2002). The fact that investments in TVET are high and it is considered only as a second option makes it imperative on the system to present visible and tangible evidence of the totality of the gains from TVET. Once the aged and elderly are brought into the fold of TVET, this aspect can be handled better at family and community levels.

The most important aspect for consideration is that countries like India, Pakistan, and Bangladesh are hardly in a position to think of TVET for the aged in the way certain European countries have begun to focus on this emerging aspect in their plans and programs of education. In the former, the priorities are likely to remain focused around universalisation of elementary education and its impact on secondary education and higher education. Beyond any doubt, TVET is coming into

greater focus in these countries, particularly in the context of emerging job requirements and conditions of unemployment. Historically, after paying attention to the formal system, the attention shifted to non-formal and open and distance systems, which focused on those outside the schools or beyond formal systems and thus were relevant to the aged—who were to be made eligible to be part of the workforce. If this was the second phase, the third is yet to emerge—one that caters to those above 60 years of age. Some changes are visible. Old age homes are increasing in numbers. In the Indian social context this is a recent phenomenon. In such places, attention is paid to keeping the inmates busy. Not much beyond that has been conducted and actually implemented. The rural and far-flung areas are still practically untouched in the context of providing training to the aged for productive outputs. Provisions like a nominal old-age pension to the weakest in the socioeconomic ladder serve only a limited purpose and may not remain of much use after a couple of years.

Conclusions

The ministry of education continues to treat vocational education as an addendum to the mainstream education in schools and also in universities. This, in combination with the traditional societal preference for white-collar jobs, retards the expansion of vocational education. Resource constraint is of course a major hurdle, common to most of the developing countries. There is also a lack of coordination and comprehensive planning due to separate ministries dealing with vocational education and technical education. In India, this is the case not only at the federal level; it becomes more acute in several states due to the multiplicity of ministries in the education sector.

Industries have not discharged their responsibility in assisting governments by establishing training institutions and creating facilities in the existing institutions. Considerable groundwork has yet to be undertaken to convince people that TVET is one alternative with the potential to lead to upward mobility. Further, people would like to know about and see for themselves the outcomes of TVET in their own area. A leap ahead in TVET, although essential and necessary, would not be possible unless the credibility of the system is well established. A major factor that retards the transition to TVET is an almost total neglect of the experience of working with the hands in the process of teaching and learning in schools. Several attempts, like work experience, socially useful productive work and work education made in this direction at various periods, were largely converted into an unavoidable ritual by the system. A much needed attitudinal transformation was thus lost. The stagnant system of examinations generally persuades parents to focus all their attention on their child getting 'the highest percentage of marks' at the year-end examination, which eventually makes all the difference in marching 'ahead'!

TVET in India is a distributed responsibility. The major players are the central government, state governments and the private entrepreneurs. In the government, both at the state and central levels, it is again distributed between the ministry of education and the ministry of labour. Then again, the ministry of education may itself be divided, under separate ministers, into several ministries. Coordination occurs more on paper than in practice and there is no spirit of healthy competition to be target-oriented and to excel in quality. Industries show considerable indifference in supporting structural arrangements for TVET at different levels. From the private sector, the top-class avenues being created for TVET are generally confined to the lucrative sector of computer-related job opportunities. These are often highly commercialised and thus deprive entry to the weaker sections of the society. This also creates imbalances in the availability of adequate trained manpower in certain sectors like, for example, agriculture-related vocations. While generally these are open to all age groups, the target group remains the 'young of the affluent'.

It is indeed very interesting to observe that the elderly in India continue to treat skill orientation and technical competency acquisition as the 'other education' for 'them', not for themselves! The traditional dominance of white-collar work continues, particularly amongst aged and retiring employees who may be an appropriate group for acquiring new skills and technical competence. It will take years before the second-class education tag will be removed from the TVET sector. Poor

career prospects and salary are also responsible for the continuation of this social segregation. The other factor appears to be the general condition of deficiency and deprivation of the institutions that are responsible for imparting TVET. The scheme of bifurcating secondary education into vocational and academic streams had the potential for converting parents and the society positively towards vocational education. It did not happen as, probably, even those responsible for its proper implementation themselves had the same, 'second grade', approach to the entire issue.

- Policy formulations now need to incorporate comprehensive programs for the aged. Considerable measures of initial preparation would be necessary in terms of preparing people and also in ensuring a comprehensive and coordinated approach.
- A review of national needs, international experiences and an overview of the impact of urbanisation and also of the extension of information communications technology to non-urban groups and areas would be necessary before a comprehensive understanding of managing various aspects of the aged, and particularly in relation to TVET, can be achieved.
- The provision of mobile training teams, part of a large-scale network, which can move in the villages to give practical demonstrations on the usefulness of TVET and generate awareness of its value in school education, is necessary. A demand has to be generated and an attitudinal transformation achieved in people's perception of TVET.
- The management of TVET systems, as also of science, technology and information communications technology, requires new management skills and competencies and not much can be achieved under traditional bureaucratic control, which still persists as a legacy of the past.
- The system of certification for those who acquire TVET in informal or in the private enterprise sector has to be popularised, extended and expanded. Informal and other private training establishments also deserve encouragement and recognition.
- Career counselling and vocational/technical guidance units in schools and other institutions need to expand their canvas to respond to individuals of every age group. They need to be trained in dealing with the elderly.
- Gerontology, the scientific study of ageing, needs to become an area of study in universities and colleges. Further, competency-based vocational programs need to be started by various institutions dealing with TVET. The open learning systems need to come forward and take the lead.
- Success stories like Banwasi Sewa Ashram, the Self Employed Women's Association and others deserve greater policy support and encouragement in policies and at implementation levels. Training of government personnel in dealing with the voluntary sector is essential for an attitudinal change towards the preparation of the aged for creativity, productivity and self-sustainability.

A well-balanced, diversified and dynamic system of technical and vocational education can certainly emerge from the existing infrastructure that most of the developing countries have created. Policy changes have not only to be more responsive, these have to be swift and needs-based in real terms. The fast-changing global scenario projects several challenges and, simultaneously, offers alternatives to convert these into opportunities. This requires the participation of every adult, irrespective of being 'aged' or otherwise, to be prepared to contribute in the endeavours towards progress and peace.

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Discussant's comments

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I found Professor Rajput's paper enormously interesting, useful and suggestive. For me, knowing little about Indian technical and vocational education and training (TVET), it reminded me of the size and complexity of Indian society and the challenges that necessarily go with any attempt to develop national strategies in India. To dwell on the issue of size and complexity: for an Australian, it is salutary to be reminded that India's population would have encompassed over 50 Australias in 2001, and that it will grow by about 16 times the total Australian population in the 20 years between 2000 and 2020. At the same time, Prof. Rajput points out, India has embarked on a growth path reminiscent of the East Asian 'tiger economies' from the 1960s to the 1990s. Yet India still has a huge problem of unemployment and underemployment, with over half of the potentially employed population being without jobs. Although India certainly has an ageing population, its demographic profile is young compared with developed societies. Low employment rates amongst the prime-aged population and a relatively young population mean that providing TVET to improve the labour force participation of older people is unlikely to be a major policy focus in the short term.

Instead, India faces a range of challenges in simply developing an effective TVET system that will ensure an adequate supply of skilled labour and serve the equity goal of improving job opportunities for the unemployed. The key issues described by Prof. Rajput sound rather familiar for analysts of the Australian TVET system (and other similar western ones), albeit with a very different cultural flavour. First, Indian TVET clearly suffers from prestige problems. With a special sharpness arising from the effects of the imposition of British traditions during the colonial period, there is clearly a view that more abstract, often less practical, education is more valuable. As Prof. Rajput notes, overcoming this view and emphasising the social and individual value associated with TVET will be essential if the system is to be as effective as it can be. It will require imagination and diligence to overcome the deeply entrenched cultures, both Indian and colonial, that place TVET at the lower end of the prestige hierarchy. Perhaps, however, the new pattern of rapid growth and the associated demand for technically skilled workers will support the necessary shifts.

India also appears to face related problems of integrating TVET into other forms of education. On the one hand, integrating TVET with school education, either through incorporation of vocational learning in schools or creating appropriate pathways from school to TVET, is problematic. On the other, there is a 'missing link' between vocationally useful skills in the technological areas and the highly scientific and abstract forms of training provided by the prestigious, international standard universities. To realise TVET's potential to supply this link requires overcoming another problem—the indifference or resistance of employers to TVET training and qualifications. Again, it is to be hoped that the simple pressure of demand for skilled workers will help to overcome some of these problems.

Prof. Rajput's paper provides a very concrete sense of the complexity and variety of TVET providers in India and the different dynamics that have generated these different institutions. Besides describing the industrial training institutions, the major existing formal TVET providers, he outlines a range of other providers outside the formal system. Some of these are highly successful, although tiny in the context of India's population. They tend to be aimed at distinct groups of clients: community polytechnics focus on technology transfer into rural settings; community colleges are focused on providing vocational skills to disadvantaged groups; and so on. A particularly striking example is the Banwasi Sewa Ashram, which seems to integrate TVET into a complete community development process. Developed in a rural area that was the site of sharp modernisation confronting a tribal community, it apparently seeks to provide a bridge between a traditional culture and values and modern developments. Prof. Rajput's account of the large variety of TVET institutions emphasises the variety of needs and demands to which TVET in India might respond. Perhaps one implication of his paper is that Indian policy needs to be designed to bring out the best in each of these institutional forms by focusing on which need each serves best.

In such a view, finding a place for older workers in TVET is likely to continue to take a back seat for some time, given the Indian problems of unemployment and the country's demographic structure. However, India is likely to face some of the problems of an ageing workforce now so starkly apparent in some European countries. If it is able to develop its TVET system in the directions Prof. Rajput's paper implies, with the aim of satisfying the diverse range of contemporary needs and goals his analysis outlines, then India may have the luxury of having both time and the lessons of the developed countries to develop its response.

The reform of the Korean TVET system for an ageing society

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Introduction

Nowadays, most advanced countries face issues concerned with ageing societies. Advances in science and technology have led to improved health and longevity and these, combined with low fertility rates among the young population (also associated with increased female participation in economic activities and the desire for smaller families), are accelerating population ageing. In most developed countries this ageing of the overall population and the workforce is also occurring at a very rapid pace and will eventually slow their economies. As a consequence, there will be a rise in problems associated with the adequate supply of human resources and intergenerational conflicts regarding support for the elderly.

Korea's population is ageing at an unprecedented rate and Korea has recently recorded the world's lowest birth rate. Many are concerned that Korea is likely to experience a social and economic crisis if it fails to respond wisely to the situation. The Korean Government has established the Presidential Committee on the Aging Society and Population Policy and is also in the process of developing measures that can be applied across all government ministries.

Population ageing has a significant impact on the Korean policy for national human resources development (which aims to achieve efficient workforce development, distribution, and utilisation). In a rapidly ageing society where the productive labour force is expected to decrease, it becomes more and more important to establish a strong foundation for sustainable economic growth. A key solution is to reform traditional ways of thinking about the development of vocational competency (especially that of women and middle-aged and older populations) by encouraging individuals to resume or continue to participate in work. This will help to maintain the sustainability and growth of the labour market and the social safety nets. A new system of vocational competency development can help early retirees and the middle-old or older unemployed to restart their economic activities by making it easier for them to change their occupation or re-gain employment. In so doing, the cost of social security will be reduced.

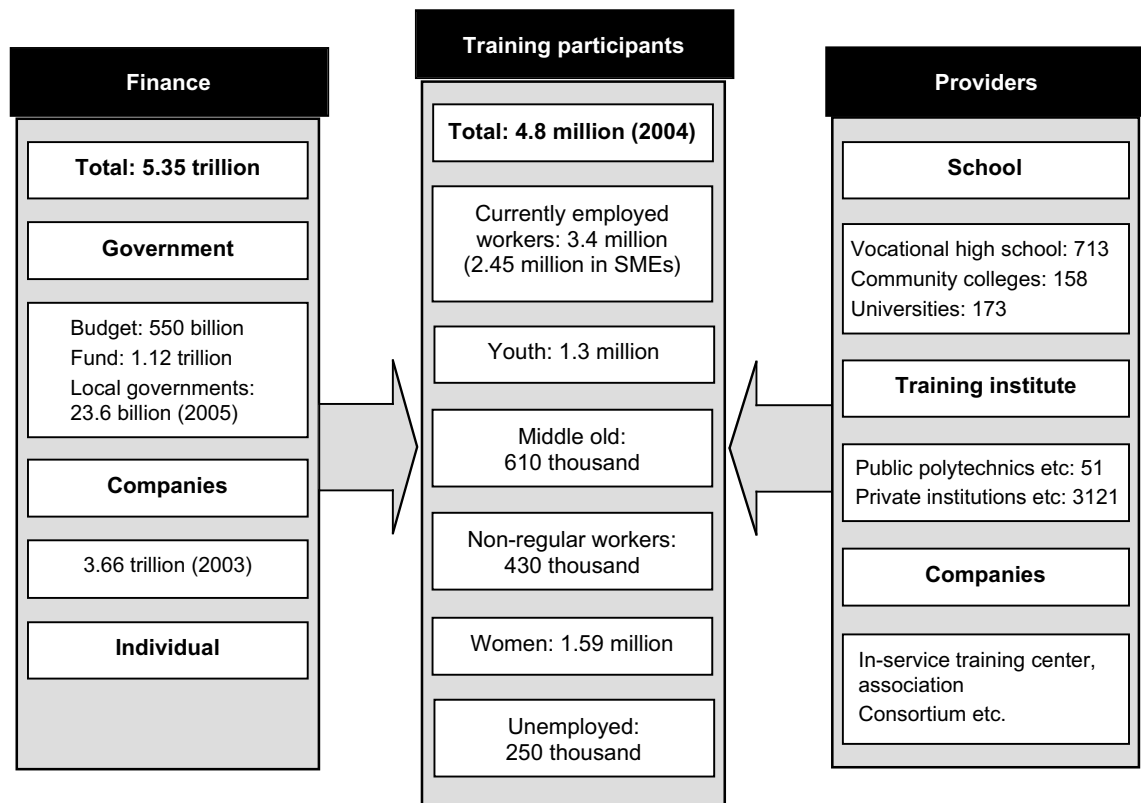
The purpose of this paper is to discuss how Korea is attempting to revitalise its competency development system in an environment characterised by globalisation, rapid advances in telecommunications and information technology, declining birth rates and accelerated population ageing. The paper will first describe problems with Korea's current system for vocational competency development and discuss the types of policies that are required to revitalise it. It will then suggest a new structure for vocational competency development in Korea and discuss associated issues.

The Korean system of vocational competency development

Structure

Figure 1 indicates that, as of 2004, the total amount of investment in vocational competency development by government, business and workers is about 5.3 trillion won (about US \$6 billion). The number of training participants is about 4.8 million, and training for currently employed workers accounts for 71% of the total. In addition to the public and private training institutes, schools like vocational high schools and community colleges are also responsible for providing vocational competency development and vocational training services. There are also some large enterprises which operate their own vocational training institutes and small- and medium-sized firms that carry out their education and training programs in conjunction with larger companies or public training institutes.

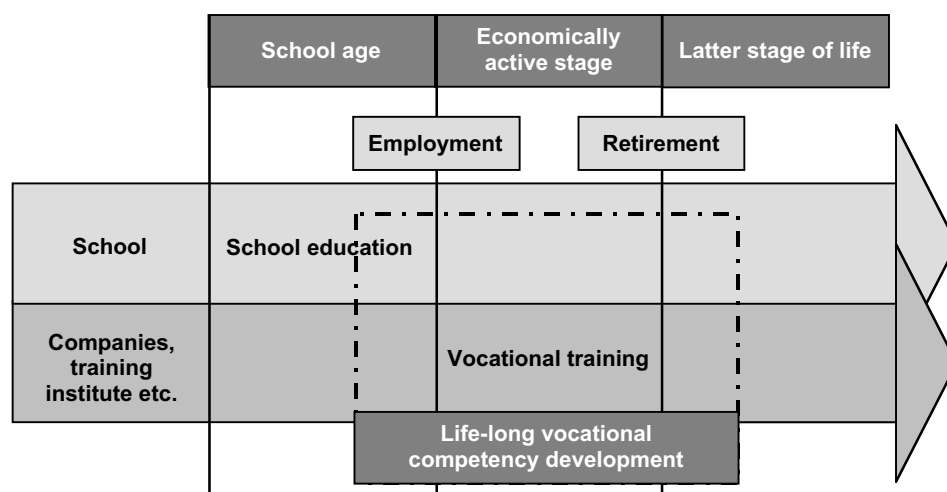
Figure 1 Basic structure of the vocational competency development system (unit: Korean won, persons, establishments)



A recognition that vocational competency development can be realised throughout all stages of a person's life instead of being required only in particular stages is a concept that has driven the Korean Government's endeavours to build an effective lifelong vocational competency development system. This concept is very much broader than previous understandings of vocational training which referred to vocational training as 'activities related to education and training given to economically active workers or people who wished to become workers to improve their abilities required for employment and work performance'. In this paper we conceive of lifelong vocational competency development as 'all kinds of education, training and related activities, provided by all types of learning institutions, from schools and enterprises to TVET [technical and vocational education and training] institutions, that aim to develop and improve competency for people preparing to enter the labour market, including workers in their prime working age, and middle- and old-aged workers preparing for their second occupational life'. Figure 2 is the result, if we apply this

definition to the relationships between school education, vocational training and lifelong vocational competency development at different life stages.

Figure 2 Scheme of lifelong vocational competency development



Vocational education in school plays a key role in equipping students with the various basic capabilities necessary for economic activity. Primary and secondary schools focus on helping students to form views on work and vocation and to understand the nature of different occupations. Secondary education occurs in general high schools, which prepare students for higher education, and vocational high schools, which prepare students for employment.

Tertiary education is provided by occupational education colleges (with programs lasting for two to three years) and universities (with programs lasting for four to six years). The Korean Government is promoting the New University for Regional Innovation (NURI) project aimed at enhancing vocational competency development in tertiary educational institutes. This project promotes stronger cooperation between higher education and business, on-site training for the unemployed and re-education for workers in industry. It also encourages universities to provide employment support services for students.

Employed workers and retirees can develop their competency through vocational education. Training for employed workers is usually provided by large enterprises (training is normally available for regular workers), and training for the unemployed is funded by the government.

In contrast, the underprivileged groups in the labour market (such as workers employed in small and medium-sized firms, middle- and old-aged workers, women, non-regular workers and the disabled) have relatively little opportunity to access vocational competency development services. Although the Korean Government has attempted to implement different policies to expand opportunities for these groups, these have as yet to be successful.

In addition, vocational development programs available for the middle- and old-aged working population facing retirement and for middle- and old-aged retirees who wish to be re-employed are still poorly designed. In the context of accelerated population ageing, there is a crucial need for a policy that enables these groups to maintain and develop their vocational competency so that they can stay in the labour market for longer periods.

Funding and participation

Financial investment

By comparison with other Organisation for Economic Co-operation and Development (OECD) countries, Korea has a high rate of education investment for school children. By contrast, it has one of the lowest rates among OECD countries when it comes to investment in vocational competency development for workers who have already entered the labour market. In 2004 investment in public and private education accounted for 8.2% of gross domestic product (GDP). This exceeds the 2001 United States rate of 7.3%, and is way above the average of 6.2% for OECD members. Korean expenditure for vocational training is only 0.06% of GDP, which falls short of the OECD average of 0.21% of GDP.

Table 1 Public expenditure for vocational training to GDP

Country	Korea (2004)	Holland (2004)	Denmark (2003)	Germany (2003)	France (2003)	UK (2004)	US (2004)	Japan (2004)
%	0.06	0.60	0.52	0.40	0.31	0.14	0.05	0.04

Source: OECD (2005)

The rate of investment in education and training in relation to the labour cost of companies has been declining since the economic crisis. The investment rate, which recorded 2.09% in 1996, dropped to 1.47% in 2003, and has not recovered to pre-economic crisis levels (Korean Ministry of Labor 2004). Along with this, labour productivity has also remained at a low level, especially when compared with other advanced countries. Labour productivity per worker reaches only 40% of the average of G7 nations (Korea Development Institute 2005).

The volume of investment also varies greatly with the size of the company. In 2003, investment made in employee education and training by companies with fewer than 300 employees was 0.81%. This was far lower than the 1.71% made by large companies with more than 1000 employees.

Table 2 Education and training expense rate to total labor cost by company size (unit: thousand won)

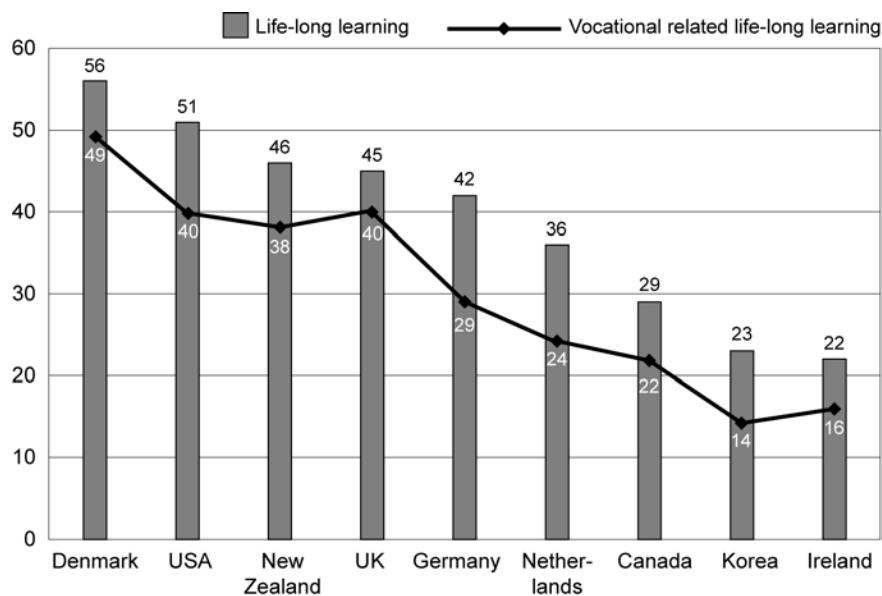
Category	30–99 people	100–299 people	300–499 people	500–999 people	Over 1000 people
Total labor cost (A)	1925	2199	2613	2710	3573
Monthly expense on education and training (B)	6	11	24	22	61
Proportion (B:A, %)	.31	.50	.92	.81	1.71

Source: Ministry of Labor (2004)

Participation in vocational competency development programs

Currently, the biggest problem being experienced by the Korean vocational competency development system is low participation. As of 2004, only 14.3% of adult workers aged between 25 and 64 years were involved in occupation-related training. This number is far lower than the OECD average of 37.1%. The Korean participation rate in lifelong learning services at 23.4% is also the lowest (except for Ireland) among OECD countries (which have an average of 44.0%) (refer to figure 3).

Figure 3 International comparison of participation in vocational competency development programs among adults (25–64)



Source: OECD (2003)

Moreover, low investment by companies in vocational competency development also restrains workers' opportunities to develop their capabilities. The number of companies implementing vocational competency development programs has barely changed—from 65.7% in 1999 to 66.1% in 2003 (Ministry of Labor 2004). In addition, workforce participation in vocational competency development activities funded by companies only amounted to 26.4%. This is a much lower rate than that in other developed countries. The average for OECD companies was 35% in 2005.

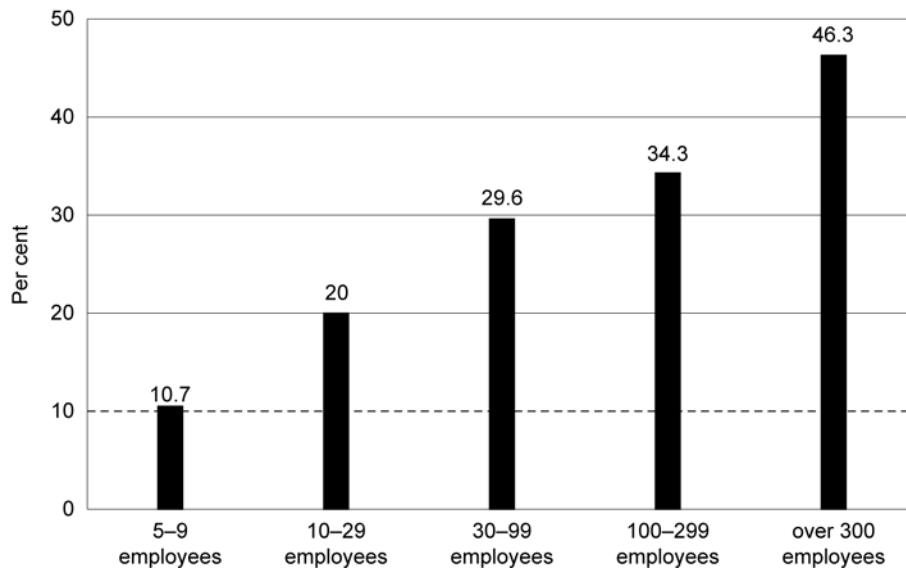
Gap in opportunities for vocational competency development

Under the current system, workers of small and medium-sized firms, non-regular workers, people with low education, women, and people running small businesses are less exposed to vocational competency development programs. First, a great gap exists in opportunities for vocational training according to company size, with smaller companies displaying much lower rates than large companies (refer to figure 4). The lower participation rates of smaller companies are due firstly to employer difficulty in recruiting manpower, which in turn eventually leads to problems in productivity, and second, to a shorter period of employment. This also explains why small business employers are reluctant to invest in the competency development of their employees.

Second, a gap exists between the training participation rates of different types of employment categories (Korea Labor Institute 2004). Temporary and daily workers have much lower training participation rates than regular workers (10.7%, 2.6% and 36.2%, respectively). Companies do not invest in training for these less 'regular' workers, which means that they have little access to competency development. It triggers the vicious cycle of 'low skill—low income—low opportunity for training—low skill', from which it is difficult to escape.

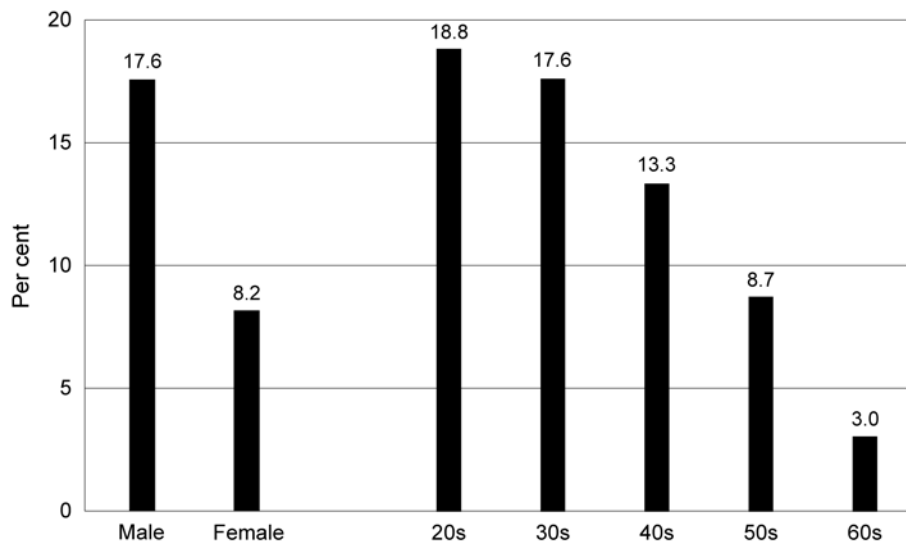
Training rates also vary according to gender and age. Women's training participation rate of 8.2% is half that of men's (17.6%). The training participation rate of workers in their 20s and 30s is high, whereas that of people over 50 is considerably lower.

Figure 4 Vocational competency development participation by company size



Source: Korea Labor Institute (2004), based on Social Statistic Investigation data and Economically Active Population Census data.

Figure 5 Vocational training participation rate by gender and age



Source: Korea Labor Institute (2006)

Delivery system and infrastructure

Another problem for the vocational competency development system is its supplier-oriented delivery system and weak infrastructure. Until now, this system has been organised and driven by the government and has failed to adequately meet the demand for human resources.

Moreover, because the vocational competency development system has not taken future workforce supply and demand issues into account, it has been unable to respond promptly to new demands for manpower resulting from structural changes in industry, namely, the growth of knowledge-based and social service industries. The system did not also fully consider how to meet the demands of different regional labour markets and different industries. There are also issues with the adequacy of the infrastructure, in term of its ability to support the demand for training. Information on training institutes, trainers and available courses is not easily accessible and there is insufficient

attention paid to quality assessment of training provided. There is also a lack of diversity between consulting and training management services and training institutes (Chang 2005).

Innovation of the vocational competency development system

The policy relating to the revitalisation of the vocational competency development system has three major directions. First, it fosters the need for knowledge workers with a competitive edge; second, it establishes the right for individuals to develop vocational competency as a common right; and third, it provides for innovation in the delivery system and its infrastructure. Following are details on these three major directions.

Figure 6 Directions of vocational competency system reform

Policy direction	Present	2010
Knowledge workers with competitive edge for: <ul style="list-style-type: none"> ➤ youth ➤ employed workers ➤ middle–old population ➤ unemployed 	<ul style="list-style-type: none"> ➤ discrepancy between school education and labour market ➤ training focused on core workers ➤ early retirement/retirement ➤ low employment rate 	<ul style="list-style-type: none"> ➤ improved competency development in school ➤ equal access to all workers ➤ active ageing ➤ raised employment rate
Competent development as common right for: <ul style="list-style-type: none"> ➤ non-regular workers ➤ self-employed running small business ➤ women ➤ the disabled 	<ul style="list-style-type: none"> ➤ concern for non-regular workers' underprivileged condition ➤ scarce opportunities for vocational training ➤ career discontinuation due to child raising ➤ lack of target-specific programs 	<ul style="list-style-type: none"> ➤ expanded opportunities for vocational competency development ➤ wage earner/highly value-additive self-employed ➤ easy re-entry to the market ➤ customised programs
Delivery system and infrastructure for: <ul style="list-style-type: none"> ➤ training institute ➤ universities ➤ training information ➤ qualification 	<ul style="list-style-type: none"> ➤ supplier-centred service ➤ degree course focus ➤ provision of simple information ➤ employment-centered qualifications 	<ul style="list-style-type: none"> ➤ demand-oriented service with close attention on users ➤ lifelong vocational competency development ➤ comprehensive information ➤ qualifications focusing on site vocational competency

Youth: Improving vocational competency development function in and out of the school

The vocational competency of students and unemployed youth who are preparing to enter the labour market has usually been developed through school curriculum or training. At present, the key aim is to address the discrepancy between school education and labour market demands, and to make the school services required for the development of vocational competency more substantial. Efforts must also be made to promote cooperation between colleges and business, to expand learning programs to allow students and unemployed youth to experience workplaces, and to encourage schools and businesses to promote active vocational education.

Employed workers: Attaining better capability for performance and equal opportunity to all workers

The current system is biased towards providing greater access to vocational competency development for employees in large-sized companies. This must be changed to a system that gives all workers easy access to opportunities for competency development, as well as the training and assistance they require to achieve the capability to perform their duties more efficiently. To this

end, the innovative capacity of all employees of small and medium-sized companies must be strengthened; it should also be developed in those with the potential to provide leadership and promote change. More support needs also to be given to employees to engage in voluntary competency development services. More specifically, there is a need to expand and strengthen support networks for employees in small and medium enterprises who have been targeted for vocational training. These enterprises must also be able to obtain assistance for training provision. Reforms will also include: implementation of a 'structured on-the-job training (OJT) model' suitable for small and medium-sized firms; expansion of special education and training courses in advanced technology; and development and implementation of specialised programs for education and training in knowledge-based service areas. The new system will also increase financial assistance for workers undertaking training programs and introduce the 'Best HRD' certification system for organisations (including companies) with excellent human resources development (HRD) services.

Middle-aged and older population: Encouraging competency development to stay economically active

In an ageing society, competency development in the middle-aged and older population is becoming ever more important. Currently, a variety of efforts are being made to develop and support competency development programs for this group of workers. These include: supporting programs for productivity maintenance linked to the wage system; designing career counselling and development programs for middle- and old-aged workers; and supporting outplacement services for such workers who wish to change their jobs. Ways to provide subsidies to support and encourage career changes for middle- and old-aged workers are currently under review.

The unemployed: Making training more effective and improving results

In order to provide effective vocational competency development for unemployed people, training courses need to be provided in occupations and regions where there is a demand for workers. Instead of longer training courses designed for mass consumption, programs need to be shorter and more diverse and use a blended learning approach. Training institutes must also be diversified and operate in welfare centres and non-government organisations. Public funding can be used to select or establish training institutes, with project-based funding and support also being established. In addition, there is a need to improve the quality of training consultancy services to raise the efficiency of training provision. Job-seeking allowances available to individuals undertaking training must also be raised.

Vocational competency development as the common right

Non-regular workers: Expanding competency development opportunities through individual training account

A system of 'workers' training accounts' will be implemented as a trial from October 2006. This will ensure increased training opportunities for non-regular workers who traditionally have had almost no access to training. The training delivery system and training courses themselves will also be revamped to suit and appeal to non-regular workers. Universities, social welfare centres, local governments, non-government organisations and regional and industrial labour and management associations must reinforce and support training designed for non-regular workers in different regions.

Self-employed workers in small businesses: Turning them into wage-earning workers or creating more value-adding businesses for them

Self-employed workers of small businesses must also possess the basic right to take advantage of opportunities for developing their competency. Vocational training, employment services, on-the-job training and customised services must be available to self-employed workers of small business

who wish to move into other forms of employment. In consideration of their current work obligations, such training programs must be conducted during weekends and weeknights. Competency development programs which aim to help these workers to add value to their businesses must also be expanded. Providing them with a loan to assist them to support themselves during their training period could also be considered.

Women: Facilitating re-entry of women into the labour market

Competency development for women must be focused on easier re-entry into the labour market. Developing programs such as ‘home-to-work transition’ programs and making these more available to women will help those with discontinued careers to develop their competency and get back into the workforce. There should be more attempts to invigorate internships and short-term customised training programs. Support for specialised competency development courses in social services should also be increased. In addition, lifelong learning institutes in universities must develop and provide courses to assist highly educated females to acquire specialised skills and the required licensing to enable them to re-enter the workforce.

The disabled: Providing customised programs for the learners

The target-specific program is a core element in the development of vocational competency for the disabled. Training must be targeted to the needs of each disabled person and adapted both to the type of handicap and the desired occupation. The provision of e-learning services must be maximised. It is also important to provide funding and support for disabled learners who would like to start up a business. Enterprises must also expand training courses (including customised training programs) which lead to employment for a specified number of disabled workers.

Delivery of vocational competency development service and innovation of infrastructure

Building partnerships for vocational competency development

The importance of partnerships in vocational competency development is growing, along with the trend in decentralisation, localisation and privatisation of government services. There is a need for the central government to focus on the integration and coordination of relevant policies, the provision of assistance for building required infrastructure, and collaboration between agencies responsible for assessment. This requires the *employment policy advisory committee* to develop and coordinate effective and efficient linkages between vocational competency development policies and projects (with specified budgets) across different ministries.

Local governments need also to increase their capacity and strengthen their networks for workers’ competency development in regional areas. A system that links employment-support centres, the Korean Employment Information Service, HRD Korea, colleges and Korean polytechnic colleges and training institutes is essential. Local employment advisory committees (chaired by mayors or governors) must be able to determine and coordinate policies for regional human resource development. It is essential that local governments seek measures which promote local industry participation.

Industry must also participate in the vocational competency development system. The establishment of ‘sector councils’ is also planned to assist in this area. Sector councils will have a number of roles. They will be required to manage the system of national technical qualifications, analyse industry trends, make forecasts about workforce demand, and investigate client satisfaction with university education. The assessment of training institutes and training specialists, the development of industry partnerships through the creation of industrial innovation clusters must also be vigorously promoted.

Innovation of a supporting system in competency development services with a focus on users

Colleges, companies and public and private training institutions must become learner-oriented. Universities need to increase specialist education and short-term courses for competency development and provide a suitable environment in which students can work and study. The major task for industry is to promote training for workers in small and medium enterprises. Industry associations may also need to provide support and resources for the development of on-site learning programs. The introduction of an e-learning context will also improve the quality and outcomes of training courses.

Expanding information infrastructure for vocational competency development

The HRD-Net website should be reorganised to provide a source of comprehensive information on employment, training and qualifications. Information on courses in training institutes and evaluation and assessment of trainee satisfaction should be available for consumer reference. Special broadcasting for vocational training must be resumed, and the use of free subway tabloids to publicise human resources development information should also be reviewed.

Conclusion

In dealing with issues brought about by increased globalisation, advances in information technology, population ageing and decreasing birth rates, Korea requires a new paradigm of innovative economic and social development. The traditional system of vocational competency development has been focused on the development of skills required for an industrial workforce. Today this is no longer appropriate and must be reformed. In its place we should implement a new system of vocational competency development to be focused on the development of a more flexible and innovative workforce.

Efforts must be applied to fostering the development of competitive knowledge workers able to take their place in today's knowledge-based economy. We must also ensure that equal opportunities for competency development are available to all and that opportunity for competency development is established as a common right. If we are to get the most out of our investment in vocational competency development, then we must also reform and revitalise the system of delivery and build appropriate infrastructure.

If all these tasks are completed as planned, Korea's vocational competency development will hover around the average of the OECD countries, both in terms of quality and quantity. An effective vocational competency development system that covers a great variety of groups will be the driver of an innovative economy and will provide a new stepping stone for Korea's economy.

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Discussant's comments

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In this paper Chang has given us a snapshot of what it means to develop and sustain required vocational skills and knowledge in a country whose population is more rapidly ageing than many of the countries represented here. The author has also highlighted the issues created by cultural norms which support high levels of investment in academic education and very low levels of investment in vocational education and training.

The author has introduced us to what he calls 'vocational competency development' and to the period in which such development should best occur, that is, starting from the latter stages of schooling, continuing through the 'economically active' stage, and beginning to ease off in the latter stages of life. Although the author has not specifically informed us of the actual ages at which the 'economically active stage' begins or ends, he has highlighted the need to extend the formal working and learning lives of Koreans so that they are not reaching their use-by dates on their 60th birthday.

Stretching the paid work lives of individuals in a rapidly ageing society also makes a lot of sense, because it ensures that society, in the absence of sufficient numbers of young workers, can continue to count on the skills and knowledge of older workers. In addition, it provides recognition to the fact that there are individuals in their late 50s and 60s who are still willing and able to remain fully attached to the labour force. In a country where the social safety net system is weak, this makes financial sense for the state and for the individual.

Like many other Organisation for Economic Co-operation and Development (OECD) countries, Korea is finding that larger companies are much more likely to invest in and provide training for their existing workers than are smaller companies, and that workers in regular employment are far more likely to receive training than those in casual and non-regular work. Because companies do not invest in the training of these groups and other underprivileged groups (including women, people with a disability, and people over the age of 50 years with low skills), Chang believes that it triggers 'the vicious cycle of low skill, low income, low opportunity for training, low skill'. He is right.

We are also informed that a government-led vocational training system has not adequately addressed the development of skills and knowledge required in a changed economic environment where the focus is on increased needs for knowledge and service workers. There are also issues with regional development.

Also highlighted is the importance for the system to be reformed so that there is an increased focus on:

- workforce and industry demands
- quality assurance of training and assessment

- a diversified training market
- career development processes
- access to user-friendly information on courses and providers.

What is interesting about Chang's solution to low participation in vocational training in general and by underprivileged groups in particular, is the envisioning of 'vocational competency development' as a common right, and the introduction of 'workers' training accounts'. This is ostensibly to enable Korean workers who are not in regular work to have access to training.

Also of particular interest is the approach to 'vocational competency development' for women. The last decade has seen a focus on effective school-to-work transition pathways for young people. Chang has applied the transition pathway concept to the movement of housewives back into the paid workforce. He does not, however, refer to any plans for addressing the special needs of women with economic incentives (for example, special subsidies to help women pay for childcare or for looking after ageing parents) to attract them to and maintain them in training.

Chang also concludes that an invigorated 'vocational competency development system' built on partnerships among key government agencies, educational institutions and employee organisations (unions) at local and regional level is required if Korea is to address the issues raised by rapid population ageing.

The author has made a good start in conceptualising how to further the Korean approach to education and training so that it meets the requirements of a rapidly ageing workforce in a society where cultural norms support high investment of economic resources and time in academic education.

However, the author would do well to extend this piece of work by investigating the plans for:

- making sure that eligible workers get to know about their rights to training, and are encouraged to go back into training
- assisting workers who may not have the basic literacy and numeracy skills and attributes to participate effectively in re-training
- attracting women through incentives to make the transition from home to training and then work
- extending the formal retirement age of Korean workers.

Will we run out of young men? Implications of the ageing of the population for the trades in Australia

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Introduction

Current skill shortages and the knowledge that our population is ageing have given rise to concerns that we will face severe skill shortages in coming decades (see, for example, the Australian Council of Trade Unions 2004). This paper looks at one area of particular interest, that of the trades.¹ The reason we single out the trades is that they draw their new entrants from a narrow demographic group, young men and therefore, *prima facie*, this labour market will be particularly vulnerable to the ageing of the population.² This dependence on young men can be seen from figure 1, which shows the age and gender distribution of those commencing an apprenticeship in the trades.³

The approach we take is quite straightforward. We build a workforce model that assumes a supply-driven approach and compare the projections with those obtained from a demand-driven approach. Any shortfall will be taken as evidence that we have a particular problem.

The structure of the paper is as follows. In the first section we build the supply workforce model. Following this, we use the model to provide a set of projections. We then construct a set of projections with a more demand flavour. The next section brings the two approaches together in order to gain an understanding of the extent to which we will have shortages in the trades. We end with some final comments.

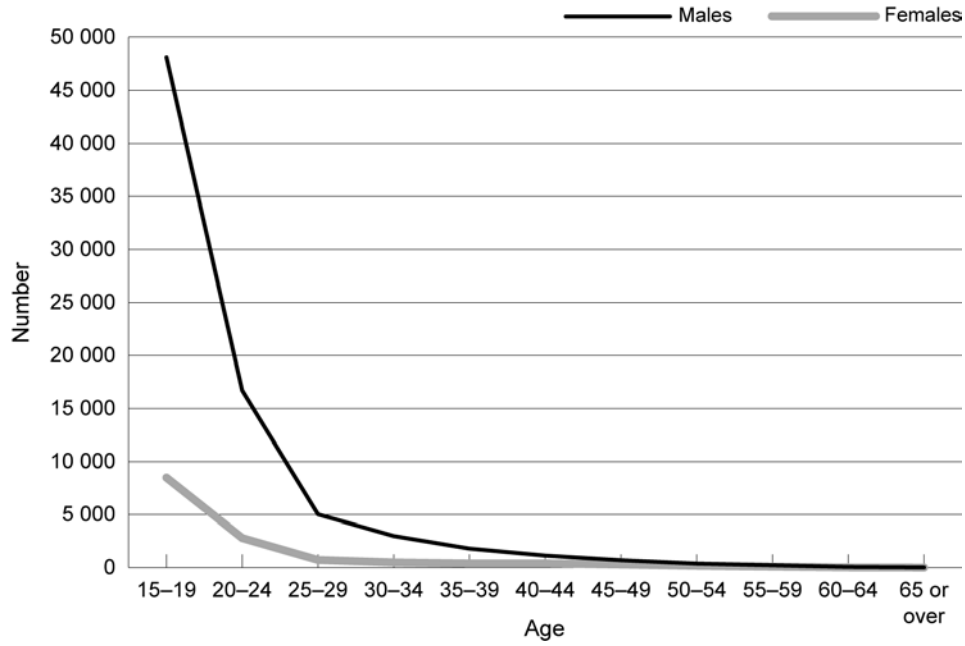
¹ By trades we mean the following occupations:

- Tradespersons and related workers—not further defined (ASCO 40)
- Mechanical and fabrication engineering tradespersons (ASCO 41)
- Automotive tradespersons (ASCO 42)
- Electrical and electronics tradespersons (ASCO 43)
- Construction tradespersons (ASCO 44)
- Food tradespersons (ASCO 45)
- Skilled agriculture and horticulture workers (ASCO 46)
- Other tradespersons and related workers (ASCO 49)

² Men dominate the trades except for hairdressing and, to a lesser extent, the food trades. We concentrate on young men because of their dominance and also to aid exposition.

³ By apprenticeship we actually mean a contract of training. In the Australian context this covers both apprenticeships and traineeships.

Figure 1 Commencements by age and sex, 2005



The supply model

The basis of the model is that the number of people in a trade at a point in time is determined by the number at the previous point in time, plus commencing apprentices, less withdrawals from apprenticeships and those who leave the trade. While we have data on commencements and withdrawals of apprentices, we do not have data on those persons in the trade who leave. So in practice we model net attrition rather than actual attrition. More formally,

$$X_t = X_{t-1} + C_t - W_t - D_t \quad (1)$$

Where X_t is the number of persons in the trades at the end of year t ; C_t is the number of apprentice commencements during the year; W_t is the number of apprentices who have their contract cancelled during the year; and D_t is the net attrition during the year. We reparameterise the model by expressing C , W , and D as rates.

Define w as the withdrawal rate, that is $w = W/C$

d as the net attrition rate, that is, $d = D/X$

c as the commencing rate (proportion of the population), that is, $c = C/N$ where N is the population size.

Then we have

$$X_t = X_{t-1}(1 - d_t) + c_t(1 - w_t)N_{t-1} \quad (2)$$

We use historical data to estimate the parameters of the model d , c and w and then project-forward using demographic projections of N .

Now the model as in (1) and (2) is highly stylised and has no demographic dimension to it, apart from the total population. In order to make the model more interesting, we introduce a demographic dimension through the index i , as follows:

$$X_t = \sum_i X_{i,t}$$

and

$$X_{i,t} = X_{i-1,t-1}(1 - d_{i,t}) + c_{i,t}(1 - w_{i,t})N_{i-1,t-1} \quad (3)$$

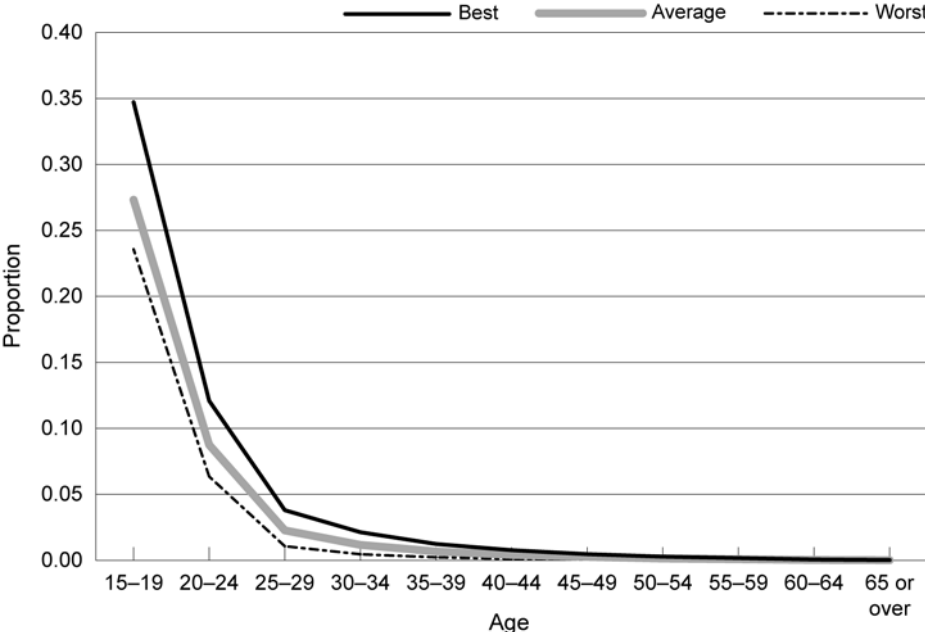
So now the commencement, withdrawal and net attrition rates all depend on the demographic age group. It is this dimension that is at the heart of the paper.

The supply projections

Before getting into the actual projections we present the ingredients: the commencement rates, the cancellation rates and the net attrition rates.⁴ We concentrate on males because of their dominance in the trade occupations (although the model has an analogous set for females). One of the points apparent from the construction of our model is that the parameters that drive employment in the trades have changed during the last ten years. So rather than produce one set of projections we produce three, corresponding to *average*, *best* and *worst* scenarios. The differences between these scenarios are of some importance, as we will see later. In the Australian context, the labour market for the trades has been very buoyant in recent years and we have seen increasing numbers of apprenticeship commencements in the trades.

Figure 2 shows the commencement rates we use for the model. They have been derived from historical data.⁵ These represent the proportion of the age cohort who commenced an apprenticeship or traineeship in the trades. There are a couple of points worth making about this figure. First, as we already have seen from figure 1, the only age groups with sizable numbers entering an apprenticeship or traineeship in the trades are young men, up to the age of 24. While older men do undertake them, the numbers are small. The other point to note is how large these commencement rates are: over 25% for men aged 15–19 and around 9% for men aged 20–24 years, on average. If we add the rates over all age groups, we get an implied commencement rate of around 40% (although this includes those who commence more than once). Thus trade apprenticeships and traineeships are really important for men.

Figure 2 Apprenticeship and traineeship commencement rates for the trades (proportion of age cohort)



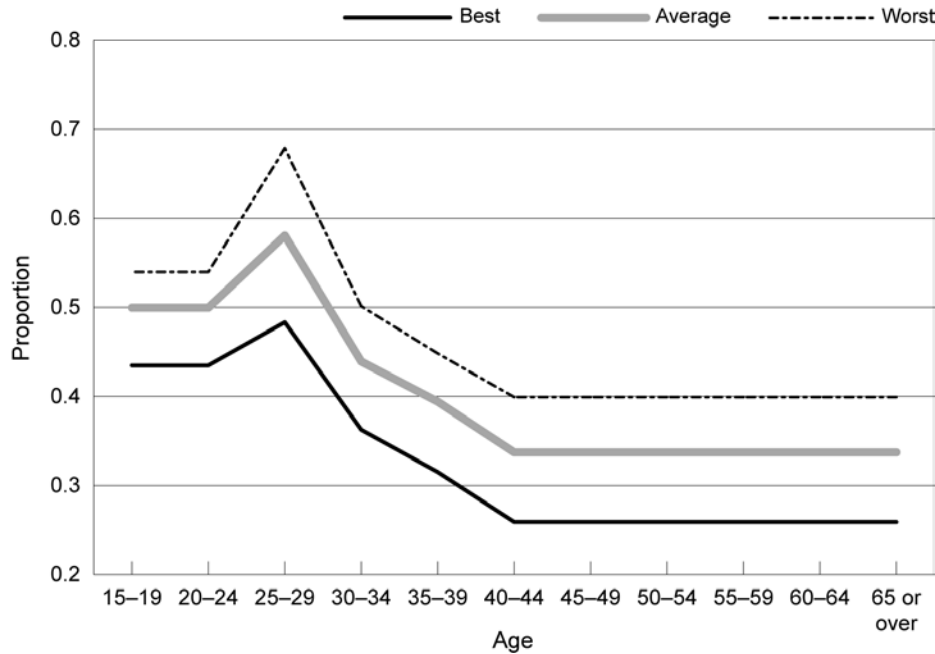
However, the cancellation rates in our model (figure 3) are rather sobering. Again these are based on historical data. They indicate that, for young men, around 50% of apprenticeships are not

⁴ More information on the technicalities of the calculations can be found in Karmel and Ong (forthcoming).

⁵ We have smoothed the historical rates in order to ensure that the model is well behaved.

completed—a rather high level of wastage.⁶ The cancellation rates for older males (over the age of 30 years) are lower. However, this is not very helpful because very few older males enter an apprenticeship or traineeship in the trades.

Figure 3 Apprenticeship and traineeship cancellation rates for the trades (proportion of commencements)



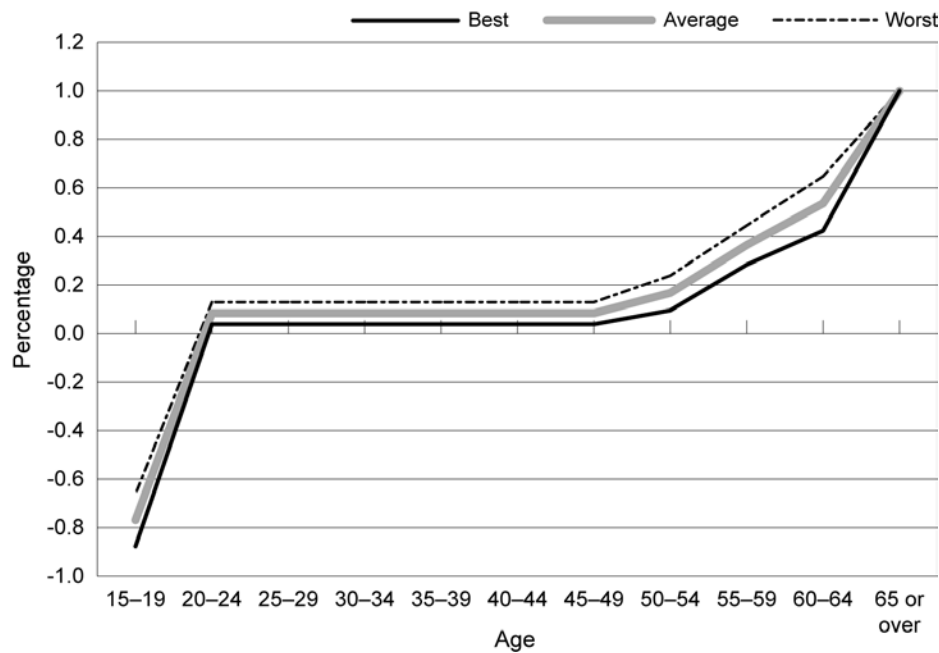
Finally, we present the net attrition rates (figure 4). While they are very important for our projections, they are really the least satisfactory part of our model for reasons we will try to explain. The net attrition rates are obtained by solving equation (3) shown earlier under the heading ‘The supply model’, using historical data. The intuition is that they represent the attrition within cohorts over a five-year period (the number of 30 to 34-year-olds in 2006 in the trades compares with the number of 25 to 29-year-olds in 2001, for example), but taking account of actual commencements and withdrawals in apprenticeships. The reasons that they are not overly satisfactory are two-fold. First, the trades are not totally regulated; there are people who are employed in the trades who have not formally completed an apprenticeship or traineeship.⁷ Putting it another way, there are substantial numbers of people working as tradespersons who do not have actual qualifications. Second, our model has not explicitly taken account of immigration, which has been of some importance for the trades. So our net attrition rates capture a number of flows, for which, ideally, individual modelling would be preferable.

Before getting to the projections, we should comment on the negative attrition rate for males aged 20 to 24. The interpretation of this is that there are considerable numbers of young men who enter a trade without undertaking an apprenticeship or traineeship.

⁶ The commencement and cancellation rates refer to contracts of training. If we were to look at individuals and make allowances for those who change trades, we would have lower commencement and cancellation rates. This would make little difference to our projections because they offset one another.

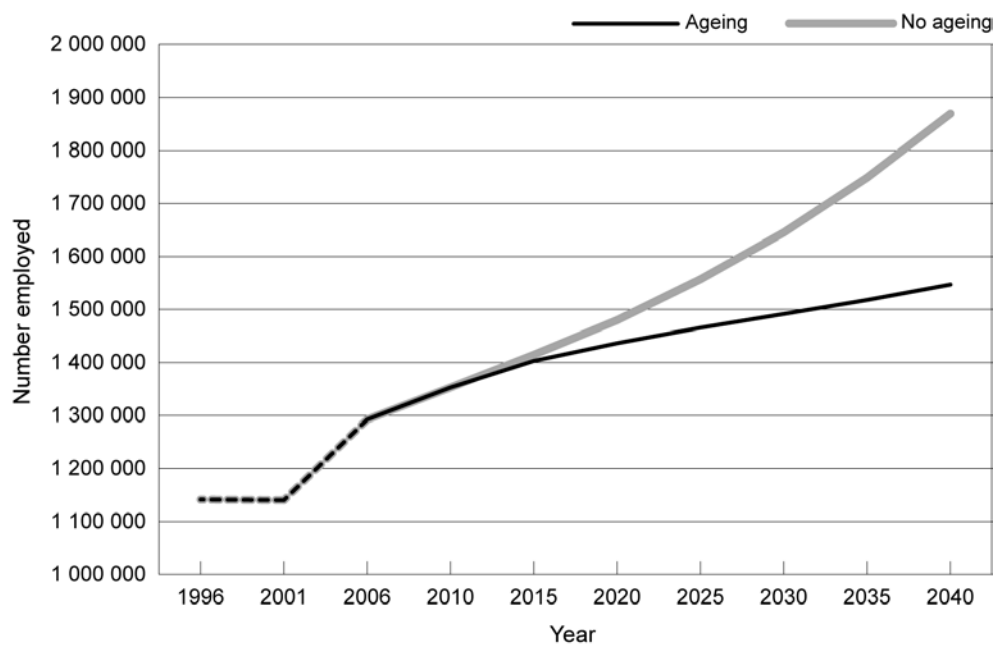
⁷ It should be noted that our employment data come from the Australian Bureau of Statistics Labour Force Survey, which relies on information from any responsible adult in the household. No doubt there is some noise in the response to questions about occupation.

Figure 4 Five-year net attrition rates for the trades (per cent of employment)



Now the major point of the paper is to examine the effect of demographics on labour supply. Thus for each of the scenarios we calculate a further variation in which the population is assumed to grow at a constant rate within each demographic group according to the population rate from the Australian Bureau of Statistics (ABS) projections over the period.⁸ We think of this counterfactual as a world in which population growth occurs as in the ABS demographic series, but where there is no ageing. The difference between the projection based on the ABS demographic series and the projection based on the ‘no ageing’ counterfactual shows the impact of the ageing of the population on the supply over the next 40 years.

Figure 5 Impact of demographics on the supply of tradesmen

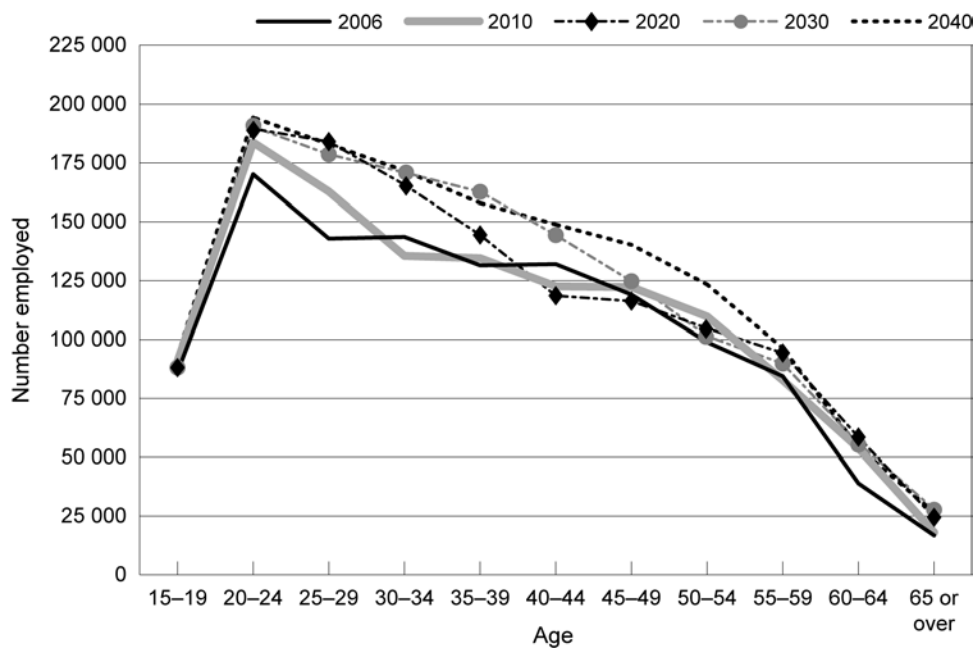


⁸ We have used the ABS Series B population projections (ABS 2006).

Figure 5 shows that the difference between the ageing and no-ageing scenarios grows from 12 000 in 2015 to 43 000 in 2020 and 320 000 in 2040. So the ageing of the population has a real kick in terms of the impact on total labour supply for the trades. It appears that we should answer the question posed in the title in the affirmative—perhaps we will run out of young men!

Up to this point we have concentrated on the impact of ageing on the overall numbers of tradespersons. The ageing may have another impact; one could posit that it will alter the distribution of demographic groups within the trades, and this would have an impact on workplace dynamics and work organisation. Figure 6 plots the evolution of the age distribution of people in the trades.

Figure 6 Age distribution of people in the trades, various years



The projections put paid to our supposition; there is, in fact, little change to the age distribution. The reason for this is that entry to the trades consists almost entirely of young people and thus the age distribution depends on the rate of attrition rather than the demographics of the population. This finding contrasts with what is expected in many other occupations. For example, Karmel and Li (2002) project that the nursing workforce will age substantially.

Demand projections

The projections we have constructed to date have a supply focus because of the focus on new entrants and attrition rates, and we need to compare those with demand projections. The essential difference is that the supply projections concentrate on demographics and historical flow rates, while the demand projections are based on a view of the economy in which employment is constrained and product markets and labour markets adjust to a set of economic forces. This is a world in which economic activity adjusts, not a world in which fixed proportions are assumed to continue. The demand for labour in a particular occupation will depend on how fast the economy grows (and this will be constrained by the size of labour supply), how labour productivity changes in that occupation and others, and how product markets adjust.

It is beyond our competence to build a model of the economy in which all these forces interact.⁹ The approach we take is to simply project changes in employment shares and then apply them to an assumed overall level of employment. The intuition is that the changes in employment shares we have observed over the last ten years reflect some fundamental changes in the economy (technology changes, overseas trade, capital flows, changes in consumers tastes and so on), and that these trends will continue. This is pretty naive but has more face validity than a fixed coefficients view of the world, in which occupational shares remain constant (although we include this as a benchmark).

More formally, let $E_{t,i}$ be employment in occupation i and time t .

Then we can write $E_{t,i} = \frac{E_{t,i}}{E_t} E_t = s_{t,i} E_t$ where s denotes the share.

Then our unadjusted projection is $\hat{E}_{t,i} = \hat{s}_{t,i} E_t$ and our adjusted projection is

$$\hat{E}'_{t,i} = \frac{\hat{E}_{t,i}}{\sum_i \hat{E}_{t,i}} E_t$$

We obtain the projected shares by annualising observed changes and then projecting forward. That is $\hat{s}_{t,i} = s_{0,i} (1 + r_i)^t$, where t is the number of years after the base period.

This is a fancy way of saying that the share of total employment in the trades has dropped over the past and we expect it to drop in the future. For our projection we also need total employment. Here, the key assumption is that the total employment will be constrained by the projected population, with the age-specific employment-to-population ratios a little higher than they are now for the 15 to 64-year-old population. The reason for this is that age-specific employment-to-population rates will increase because of higher educational levels (better qualified people tend to have high employment rates), as argued by Karmel and Woods (2004).

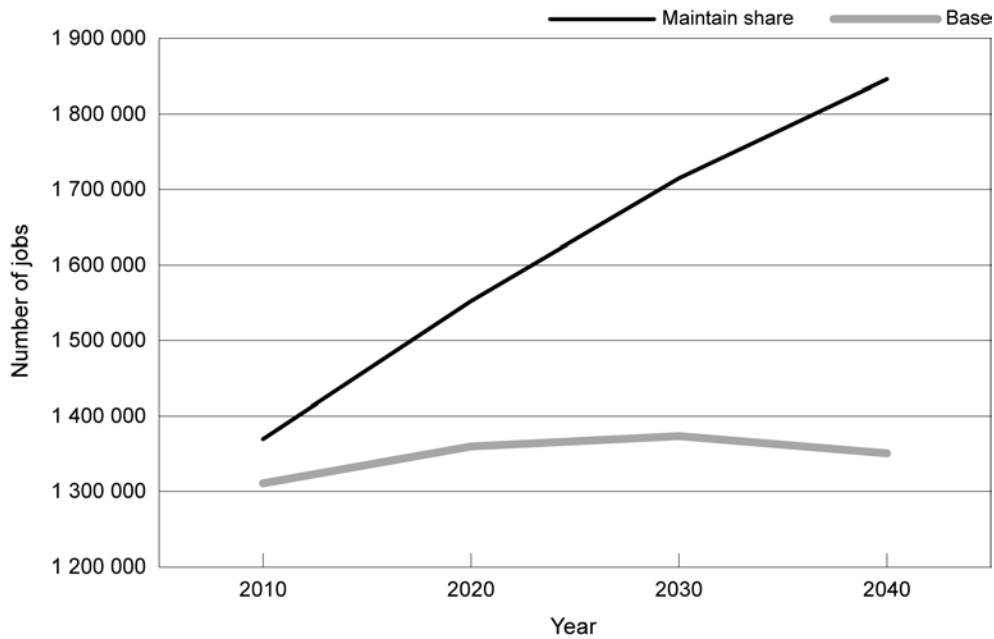
The trades employment projection (which we label as the *base* scenario) and the benchmark projection (assuming no decline in the share of employment held by the trades, and labelled as *maintain share* scenario) are shown in figure 7. The *base* scenario assumes that the trades share of employment declines from 12.7% of total employment in 2005–06 to 9.3% in 2040 (a projection of the trend between 1996–97 and 2005–06).

As can be seen, the projections are quite sensitive to employment shares. If the share of employment in the trades were maintained, then in 2040 we would be looking at around half a million additional jobs compared with the base scenario. However, our base scenario is pretty much in line with scenarios developed by other modellers. For example, Access Economics (2006) projects very modest growth in the trades up to 2020.¹⁰

⁹ A potential model is the MONASH model, a general equilibrium model of the Australian economy (Dixon & Rimmer 2002).

¹⁰ The Access Economics model does not align exactly with ours in terms of coverage. However, if we aggregate their categories, *mechanical engineering & automotive, fabrication engineering, electrical, plumbing & construction, food, printing, wood, hairdressers*; and *textile & miscellaneous*, then the aggregate can be directly compared with our projections for total trades (acknowledging that the Access Economics model does not cover horticultural workers). If we do this, the Access Economics projected average growth of 1.9% per annum is slightly higher than our rather simplistic demand projection for all of trades (0.5%). However, there is some variation within the Access Economics projections: from -0.1% for mechanical and automotive to 1.2% for food tradespersons.

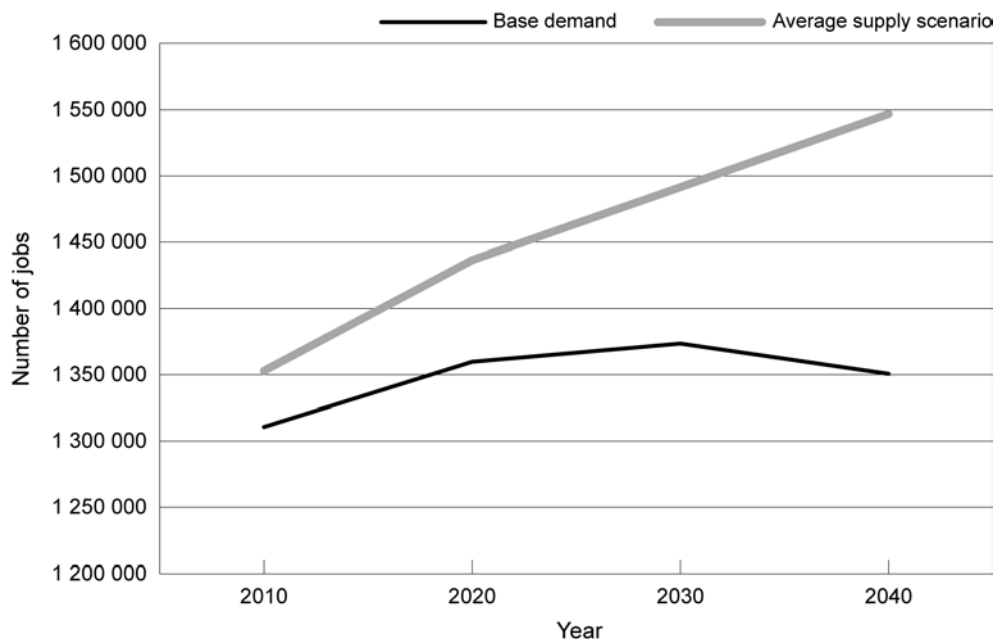
Figure 7 Projections of employment in the trades



Comparison of demand and supply

We now compare the supply and demand projections. We have a bewildering array of projections. We therefore start with what we consider to be the most middle of the road projections: the *average* scenario for the supply model and the *base* scenario for the demand projections (figure 8).

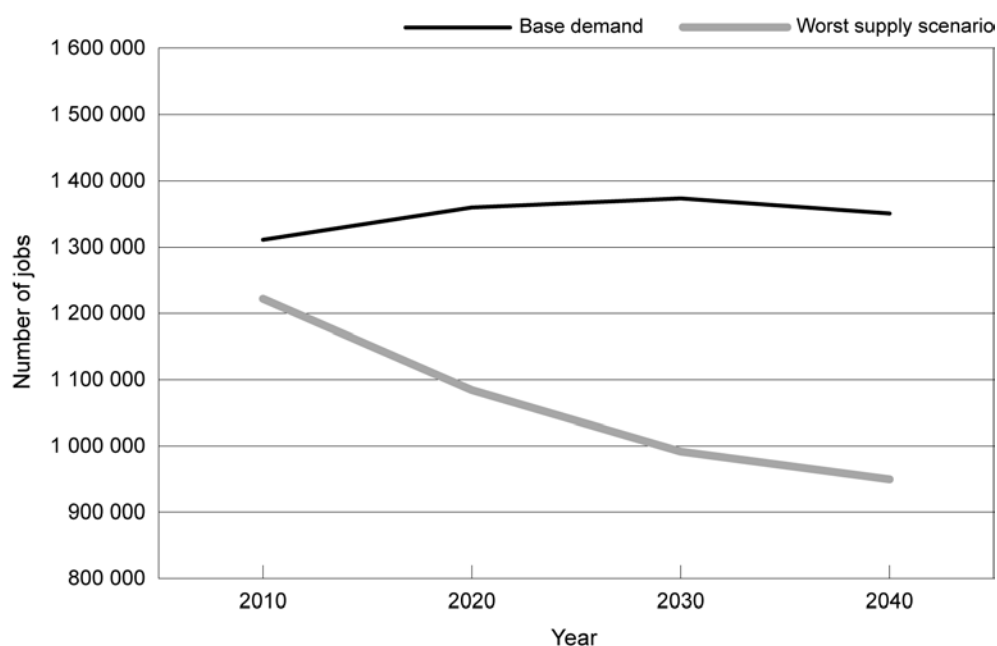
Figure 8 Comparison of the average supply scenario and the base demand scenario



The point that jumps out from this figure is that, according to these projections, there is a potential oversupply of tradespersons. We would therefore answer the hypothetical question embedded in the title with a resounding ‘no’. However, perhaps this is a little hasty. Recall that commencement rates have been high in recent years and attrition rates have been lower than in earlier times,

reflecting a very strong labour market. If we look at a second scenario (the worst scenario), then the picture is very different, as can be seen in figure 9.

Figure 9 Comparison of the worst supply scenario and the base demand scenario



In this case, we would be looking at a decline in the trades workforce and very serious labour shortfalls. That is, if commencement, cancellation and attrition rates were at the poorer end of historical experience, there could well be very serious shortages in the trades.

To round off the presentation of the results, we also compare the supply and demand projections under the other combinations of scenarios. These results are shown in table 1.

Table 1 Difference between demand and supply projections for the trades, 2040 (+ indicates potential surplus, - potential shortage), '000 persons

	Base demand scenario	Maintain share demand scenario
Worst supply projection	-400	-900
Average supply projection	+200	-300
Best supply projection	+1400	+900

Table 1 shows that the extent to which we project skill shortages or surpluses is quite sensitive to the assumptions. The conclusion, on the assumption that our demand projections are not grossly understated, is that there is no reason to be overly concerned about the supply of tradespersons *if the trades can maintain their attractiveness relative to other occupations*. That is, commencement rates must be kept at reasonably high levels and attrition rates at reasonably low levels. Otherwise, skill shortages are likely to emerge.¹¹

¹¹ Implicitly the line of argument presupposes that, at the starting point, the labour market for the trades is more or less in balance. The fact that the Department of Workplace Relations' list, *Migration occupations in demand*, includes a number of trades suggests that there are currently shortages. However, any current imbalance is relatively immaterial when undertaking projections over a 35-year period.

Another way of expressing these results is that the potential supply is more than sufficient to underpin any reasonable projection of employment demand in the trades. There may well be shortages in the future—but don't blame the demographics.

Final comments

It is worth noting again that this conclusion is contingent on the demand projection and that our assumption is that employment demand in the trades is primarily related to total employment. Essentially, we are arguing that demand in the trades will be related to the overall level of economic activity, which will be constrained by the labour force and not driven by the population size. This approach is quite different from that employed in some manpower models, especially in service industries. For example, planning in health and community services commonly assumes that demand is related to population numbers, not employment numbers. However, the demand for the trades primarily depends on the level of economic activity in industries such as construction and manufacturing, and these industries are clearly driven by levels of economic activity.

To sum up:

- The trades workforce is going to be directly affected by the ageing of the population because of its reliance on young men as entrants.
- The ageing of the population will make a very significant difference to the size of the trades workforce—some 320 000 people by 2040.
- Despite this impact on the size of the workforce, moderate scenarios suggest that there will be no overall imbalance between supply and demand over coming decades, because the slowing in employment growth caused by the ageing of the population will dampen the demand for tradespersons.
- This conclusion presupposes that the trades retain their attractiveness and we do not see significant declines in commencement rates among young men or significant increases in attrition. That is, the ageing of the population does not play a big role, rather any shortages are more likely to be a result of the attractiveness of the trades relative to other occupations.
- Unless patterns of commencements and attrition change, the age distribution with the trades will be largely unchanged; demographics do not play a big role here.

A last word of caution. This analysis has looked at trades as a whole. What applies at this aggregate level may not apply within particular occupations, because the projections are sensitive to rates of commencement, rates of cancellations and attrition rates, all of which we know vary significantly across trades. However, the extension of our approach to the individual trades (Karmel & Ong forthcoming) does not alter our conclusions, although there is considerable variation in the model parameters and projections at the individual trade level.

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Discussant's comments

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In responding to Karmel and Ong's paper, the easiest route to take is to agree with their propositions and to extol the virtues of the paper because it is a reasonably accessible paper that appears to make a great deal of sense. However, after summarising their arguments, I will provide a brief critical and provocative approach and then ask whether the right question(s) has been asked.

Karmel and Ong's paper commences by reporting that there have been numerous alarmist commentaries predicting skills and labour shortages in the forthcoming decades. The purpose of their paper is to question whether this will be the case in the trades occupied by men and whether we will 'run out of young men'. They conclude that 'moderate scenarios suggest that there will be no overall imbalance between supply and demand over coming decades'.

The authors begin by stating the obvious that most people do their training when they are young and most apprentices are male (figure 1). Apart from indicating the dependence on young men, they provide essentially no explanation or analysis of this situation. For example, there is no analysis of why there is such a small number of female apprentices or how apprenticeships might be made more acceptable to females. Figure 1 shows that commencements in apprenticeships (the 'official' path to the trades) rarely occur after 44 years of age; the majority commence before the age of 24 years. Maybe the reason for this is obvious to the reader? Perhaps it is due to the low wage afforded to apprentices, making such programs unattractive to those who have family or other financial responsibilities? Or, perhaps it is related to the pervasive degree of age discrimination in our society (Bennington 2004), which might provide signals to older potential recruits to disregard the trades as an employment option because they may have difficulty in securing an employer to sponsor their apprenticeship or in obtaining employment once qualified? There may well be other reasons.

Notwithstanding the lack of explanation, the paper quickly moves to a supply-side model. Based on historical data, the authors develop 'best, average and worst' scenarios and arrive at an implied 40% commencement rate. This rate seems quite high, but they do include those who commence more than once. Figure 3 shows the high dropout rates for younger men. The attrition for older men tends to be much lower but, as the authors point out, there are few of them, so this is not a significant variable in the overall analysis. It is possible that many of those who drop out of apprenticeships continue to work in their 'trade', but there is no discussion about whether this might be the case. The only suggestion is that there are considerable numbers who enter the trades without undertaking an apprenticeship or traineeship.

According to the authors, the numbers entering apprenticeships in the trades have been 'very buoyant' in recent years, but the underlying reasons are not explained. Given that data from the resources and infrastructure field show that almost all of its growth in apprentices came from existing workers in that industry (ANTA 2005), if this holds across industries, and if we are simply

upskilling or providing credentials to those already working in the trades, then this will not address the full extent of the issue.

Population growth and the impact of ageing are then considered by Karmel and Ong, and, if they had not extended their analysis, they may have predicted a shortage of young men in the trades. What would be enlightening in this section, although not essential given the conclusion of the paper, is some explanation of why the attrition rate is so high and what might be done to address the retention of young men in these programs.

Karmel and Ong acknowledge that the demand for skilled labour will depend upon the growth in the economy and concede that the market has the ability to adjust to changing circumstances. In conclusion, even with the ageing of the population, they do not foresee a shortage of young men as creating a problem in the labour market.

Interestingly, a similar examination by McMullin, Cooke and Downie (2004) in Canada came to a conclusion similar to that of Karmel and Ong. These authors addressed some of the ways in which the labour market is likely to adjust through wage adjustments, and more attention to human capital by employers and the like, but they also pointed out that there will always be specific areas in which there will be acute skills shortages in specific industries, locations or occupations. These authors also pointed out the role of ageism and barriers to older workers remaining in the workplace as contributors to skills shortages (as suggested above).

In summary, then, the analysis of Karmel and Ong has some support from the Canadian market; it is sound but perhaps a little simplistic. Given that their analysis differs from many others, it is incumbent upon us to question their conclusions. For those who have endeavoured to secure the services of tradespeople over the last five years or so, the more important question might be whether there is an existing shortage, at least in the domestic or household market for trades services, and if so, will this continue? And, what policy measures might be implemented to alter this course of history? Sheldon and Thornthwaite in their analysis of the Australian situation clearly assert that there are critical skill shortages already and suggest that, despite the controversy amongst researchers, there has been 'a general stagnation in traditional apprenticeship numbers and substantial declines in some areas' (2005, p.408) and there is concern that many of those who are skilled will retire in the near future.

Moreover, for a number of years now skills shortages have been the subject of much concern (Australian Industry Group 2006). In 2003, the Senate inquiry *Bridging the skills divide* (Employment, Workplace Relations and Education References Committee 2003) found that skilled tradespersons had been in short supply for a number of years. Pastry cooks, chefs and motor vehicle mechanics, according to industry, had been a problem continuously from 1994; toolmakers and upholsterers since 1995; boilermakers, fitter and turners, metal machinists, pressure welders and sheet-metal workers in all but one or two years since 1995; refrigeration and air-conditioning mechanics continuously from 1998; and panel beaters, vehicle painters, and automotive electricians continuously from the end of 1998 (Employment, Workplace Relations and Education References Committee 2003). The Chief Executive Officer of the Australian Industry Group has also asserted that there will be a further shortfall of 100 000 tradespeople over the period 2004–09 (Riddout 2004).

Almost all skills are currently in demand (Department of Employment and Workplace Relations 2006). When examining the *Migration occupations in demand list*, the same shortages appear (Department of Employment and Workplace Relations 2007). It would almost seem that Karmel and Ong are considering a different labour market.

Although they came to a conclusion that suggested no further investigation was required, the inquiring mind begins to ask other questions. For example, it would be interesting to consider the effects of migration, which is a point acknowledged by the authors. To have done this, quality data about the availability of skilled workers in other parts of the world and some indication of the current (and future) attractiveness of Australia as a destination for these people would need to be

known. Secondly, it would be useful to attempt to include the number of workers who work in the trades without 'a ticket'. Thirdly, some attempt to consider demand factors that might change over the next 40 years would be useful. For example, it might be expected that, in this 'disposable society', unless concepts of sustainability and reverse logistics are embraced with great vigour and effect, there will be less need for many tradespeople, as replacement rather than remediation becomes the name of the game. It is likely that there will be less need for some sophisticated trades skills, for example, rather than replacing a rotten sash on a timber window frame, it is more likely that the home owner will need to buy a full new frame, and in all probability it will be aluminium and not timber anyway, so the need for tradespersons may be reduced.

The signals about the problems of trade shortages need to be carefully analysed, as workforce planning and policy responses from government require considerable planning due to the sheer complexity of the issue. More variables need to be considered, but the authors state that this is beyond the scope of their paper. The key to answering the question posed by the title of the paper very much relates to the assumptions made, but the authors conclude that, as long as commencement rates are kept high and attrition rates low, there will be no skills shortages.

Even if one accepts their conclusion, what might change to alter the scenario developed by Karmel and Ong? Will there be a reduction in the age that young people can commence apprenticeships? If so, will this impact upon the availability of qualified tradespeople? Would this make apprenticeships more attractive and also reduce the attrition rate? Will there be more concerted efforts to ensure that those working in the trades are properly 'qualified'? Will the licensing requirements change? Will apprentices become more attractive to employers? How might trade apprenticeships be made more attractive to young women so the question is broadened out to be more inclusive? Would a greater effort in the area of recognition of prior learning mean that older unemployed or 'early retirees' would find apprenticeship training attractive? etc.

Each of these questions would constitute a separate paper, so will not be explored at this time. Changes are already mooted with the Australian Government's Skills for the Future Package launched by the Prime Minister in 2006. This package is designed to stimulate demand for skills training and provides, amongst other things, *work skills vouchers* of \$3000 for individuals who are 25 years and over without Year 12 or other formal qualifications, and subsidies of up to \$13 000 over two years for employers or apprentices to support those aged 30 years and over to undertake apprenticeships.

In conclusion, a thorough examination of this topic would require a systems approach and be of a dimension much grander than the authors planned. However, what they have provided is an alternative method of approaching this issue and the suggestion that there is perhaps less need to be concerned than the popular press would have us believe. However, we might still ask whether they have asked the right question—if there are currently shortages, why will these not continue?

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Ageing labour force and retraining of workers in Korea

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Introduction

The ageing of the population of a country has many implications. Ageing raises the dependency ratio, meaning there are fewer people available to undertake productive work and contribute actively to the economy. In addition, population ageing raises the issue of labour productivity and labour quality. Productivity may be reduced by lower rates of labour market participation among older people, and the quality of labour may be reduced in jobs requiring hard physical labour.

Population ageing in Korea has been plagued by additional factors. First, Korea has been experiencing ageing at an unprecedented high speed, thereby making social and individual adjustment more difficult. Second, the social safety net for older people is not yet fully developed and access to welfare benefits is limited. Third, Korean workers begin to experience age-related job displacement as early as 45 years of age. Once displaced from their jobs, older people experience particular difficulties in obtaining new jobs, due to labour market discrimination and also due to the structure of the labour market, where job mobility in general is relatively low.

This study reviews key characteristics of ageing in Korea, identifies major issues associated with ageing, and suggests how retraining for older workers in Korea needs to be restructured to meet the challenges posed by a rapidly ageing society.

Characteristics of ageing in Korea

A rapidly ageing society

Pace of ageing in Korea

What is most characteristic of ageing in Korea is probably the rapid rate at which population ageing proceeds. Table 1 shows the years that different countries reach critical stages in ageing—where the proportion of those aged 65 years and over reaches 7%, 14%, and 20% in each country. The table also shows, for each country, the number of years taken to move from 7% to 14%, and again from 14% to 20%. Among the countries listed in the table, France was the first country, in 1864, to reach the first critical point where the proportion of the people aged 65 represented 7%. The United States reached the same stage in 1942 and Japan in 1970. Among all the countries, Korea was the last to reach this stage, in 2000. Korea was again the last country to reach the second critical point where the proportion of those 65 years and over rises to 14%. However, when it comes to the third critical point, where the proportion of the elderly people is 20%, Korea is projected to reach this

stage in 2026, ahead of the United States, which is projected to reach the stage in 2028, and only six years later than France, which is projected to reach the stage in 2020.

This can be explained by comparing the number of years it takes in the transition from one critical point to another in these countries. It took France 115 years, over a century, to shift from the 7% stage to the 14% stage, while the same transition took 71 years for the United States, 24 years for Japan, and *only 19 years for Korea*. The progress of ageing in Korea is projected to be further accelerated in the years coming. The number of years it will take for Korea to move from the 14% point to the 20% point is expected to be only seven.

Table 1 Year reaching critical shares of the population aged over 65, selected countries

	Year reaching at			Number of years taken	
	7%	14%	20%	7%–14%	14%–20%
Korea	2000	2019	2026	19	7
Japan	1970	1994	2006	24	12
France	1864	1979	2020	115	41
Germany	1932	1972	2012	40	40
UK	1929	1976	2021	47	45
Italy	1927	1988	2007	61	19
USA	1942	2013	2028	71	15

Source: Korea National Statistical Office (2001)

Shifts in age structure in Korea, 1960–2050

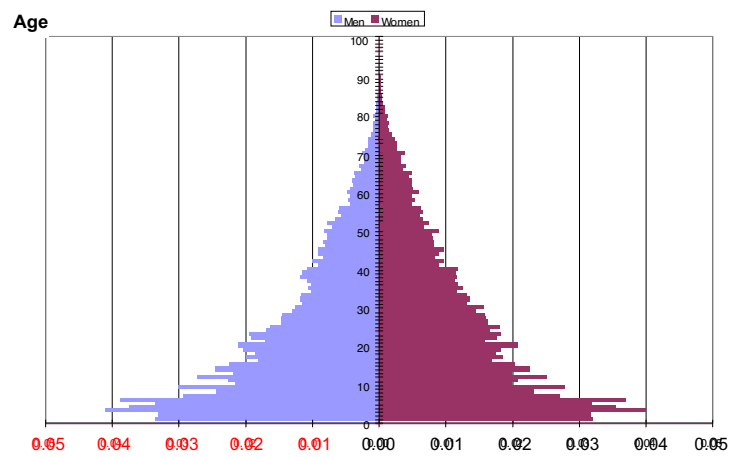
The rapid pace at which ageing proceeds in Korea is well demonstrated by the shifts in the age structure of the Korean population from the past to the future, as shown in figure 1. The figure shows and projects the changes occurring in the age structure of the population during the period, 1960–2050. The shape of the structure has changed from a pyramid to a bell shape between 1960 and 2000, in only 40 years, as ‘the baby boom generation’ after the Korean civil war approaches the retirement age. This shape is further projected to turn into almost an inverse pyramid by 2050.

Rising dependency ratio

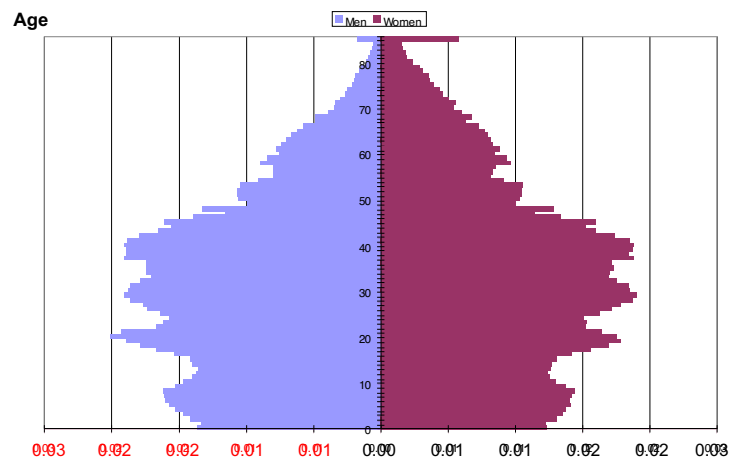
Population ageing is anticipated to raise the dependency ratio of the population. The total dependency ratio of the population was very high in 1970, recording 83.8%. This ratio continues to decrease until the year 2000, being projected to hit the lowest point in the year 2010. After this point, the ratio is projected to continue to rise to reach 86.1% in 2050, a higher ratio than back in 1970. To understand the drops and increases in the total dependency ratios during the projected period, 1970–2050, changes in the total ratios need to be further broken down to the changes in the youth dependency ratios and the changes in the elderly dependency ratios. The drops in the total dependency ratio up to the year 2010 are explained by the fact that the drop in the youth dependency ratio exceeds the increase in the elderly dependency ratio until 2010. However, in 2010, the increase in the elderly dependency ratio begins to exceed the decrease in the youth dependency ratio, thereby resulting in a constant rapid increase in the total dependency ratio after 2010. A high total dependency ratio caused by a high proportion of the young population offers some hope in that, as the young generation matures, it will lower the dependency ratio by increasing the base of the ratio. However, a high dependency ratio caused by a high proportion of elderly people does not provide much room for improvement unless some external active intervention takes place, such as measures to increase the national fertility. Korea has been suffering from a low fertility rate as the rapid drops in the youth dependency ratio in table 2 show.

Figure 1 Changes in age structure of the Korean population, 1960–2050

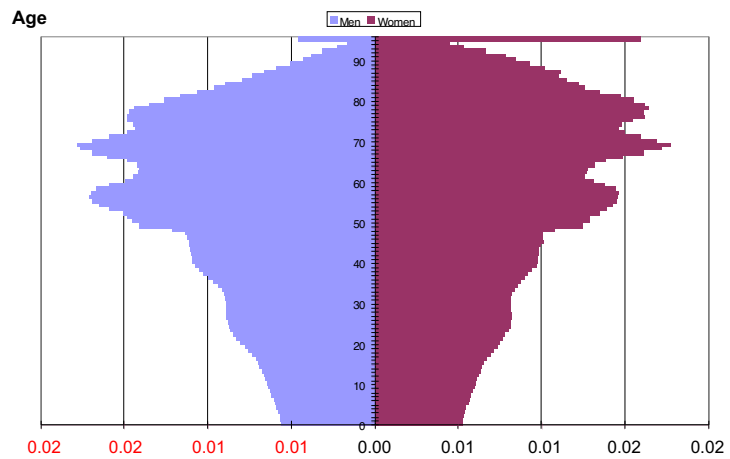
Year 1960



Year 2000



Year 2050



Source: Korea National Statistical Office (2001)

Table 2 Changes in the dependency ratios and median ages, 1970–2050

Year	1970	1980	1990	2000	2010	2020	2030	2040	2050
Total dependency ratio (%)	83.8	60.7	44.3	39.5	37.3	39.4	54.7	72.6	86.1
Youth dependency ratio (%)	78.2	54.6	36.9	29.4	22.3	17.6	17.4	17.4	16.7
Elderly dependency ratio (%)	5.7	6.1	7.4	10.1	14.9	21.8	37.3	55.2	69.4
Median age of the aged population	18.5	21.8	27.2	31.8	37.5	42.8	47.7	50.9	53.8

Notes: 1 Total dependency ratio: (aged 0–14)+(aged over 65)/(aged 15–64)*100.

2 Youth dependency ratio: (aged 0–14)/(aged 15–64)*100.

3 Elderly dependency ratio: (aged over 65)/(aged 15–64)*100.

Source: Korea National Statistical Office (2001)

Labour shortage issue

Ageing also raises the issue of productivity, because labour force participation is generally lower among older people. Table 3 shows that labour force participation drops with age for those aged 50 years and over in Korea. In the year 2005, the rate of labour force participation among men drops from 89.1% for the age group of 50–54 years, to 66.5% for the age group of 60–64 years, and to as low as 41.2% for the age group of 65 years and over. The rate of drop is a little slower for women than for men. In the same year, the rate of labour force participation among women drops from 58.3% for those aged 50–54 years, to 49.0% for those aged 60–64 years, then to 22.4% for those aged 65 years and over. The gaps between men and women in the labour force participation rate decrease with age among those aged 50 years and over.

As shown in this table, the rapid decrease in the labour force participation rate occurs as age increases. If the current trends in the age structure of the population in Korea continue and the rate of labour force participation by age group remains the same, this could soon lead to a labour shortage problem in Korea.

Table 3 Trends in the labour force participation rates by age groups 55 years and older, by gender, (%)

	Aged 50–54		Aged 55–59		Aged 60–64		Aged 65 and over		Total
	Male	Female	Male	Female	Male	Female	Male	Female	
1980	90.5	53.9	80.0	46.2					59.0
1985	88.1	52.4	77.3	47.2					56.6
1990	90.6	60.0	83.6	54.4	67.2	43.6	39.3	18.4	60.0
1995	91.3	58.8	83.9	54.1	73.7	46.0	40.8	20.2	61.9
2000	89.1	55.2	77.7	51.1	63.4	45.9	40.6	22.8	61.0
2001	88.0	56.5	77.8	50.6	65.0	45.6	41.2	22.9	61.3
2002	88.3	58.0	80.1	49.6	66.5	46.4	42.7	23.0	61.9
2003	89.7	55.5	80.3	49	63.7	42.7	39.8	21.5	61.4
2004	89.4	56.1	80.7	49.4	64.8	43.4	41.3	22.2	62.0
2005	89.1	58.3	80.6	49.0	66.5	43.3	41.2	22.4	61.9

Source: Korea National Statistical Office (1980–2005)

A couple of important suggestions have been made to boost labour force participation and at the same time solve the future labour shortage problem in Korea. The first solution is to utilise the female labour force in Korea. The labour force participation of females in Korea is one of the lowest in Organisation for Economic Co-operation and Development (OECD) countries. During the prime working ages of 35–55 years, the differences in the participation rate between men and women can be as high as 30%.

Also, there is an argument that the retirement ages in Korea need to be readjusted if the population ageing continues at the current speed. If this measure is taken, it will raise the labour force participation rates of the age groups affected. However, this is not yet considered to be a realistic measure, considering that in Korea a great proportion of workers aged 45 years and over retire

from work before they reach their official full retirement—between 55 and 60, and many of these do not obtain re-employment.

Decline of skills among older people

Along with the labour shortage issue, ageing population also raises concerns about the decreasing quality of labour, as physical ability declines with age. There is a debate about how much ageing affects a worker's ability to perform the task required at work. While it is widely understood that the overall skills of an individual decrease with age, the decline in the worker's ability is known to be affected by several factors such as the skill level of the worker.

Table 4 shows how the basic skill levels decline with age. When the skill levels of those in their 60s are compared with those in their 20s, prose literacy declines by 40 points, document literacy by 40 points, and the problem-solving ability by over 30 points. Numerical literacy shows the largest decline for those in their 60s, with a 57-point decline compared with those in their 20s. These declines for older people in the crucial basic skills are likely to affect not only their work but also their everyday life. Also, declines in these basic skills for older people imply that older people have low trainability.

Table 4 also shows that basic skill levels increase with educational attainment. This implies that, given the lower educational attainment among the older generations in Korea, low basic skill levels of older people could be attributed to the lower level of schooling of the older generation, and not only to the age factor. It is not clear yet how much schooling slows down a decrease in skills associated with ageing. However, while the younger generation in Korea continues to obtain more schooling compared with the older generation, the gap between the young and old will continue to exist.

Table 4 Differences in the level of basic skills by age, gender, educational attainment

		Prose literacy			Document literacy			Numerical literacy			Problem-solving ability		
		N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Sex	Male	2120	499	48	2125	500	49	981	502	48	958	500	49
	Female	2109	500	51	2107	499	50	967	496	51	938	499	50
	Total	4229	500	50	4232	500	50	1948	499	49	1896	500	50
Age	10–19	408	501	40	410	502	40	214	503	43	188	502	44
	20–29	1044	511	44	1045	511	46	474	514	41	468	510	48
	30–29	1167	506	47	1168	506	47	512	508	42	497	505	47
	40–49	927	498	49	926	496	46	419	499	50	403	496	49
	50–59	505	475	55	503	480	58	238	480	56	247	483	52
	60–69	178	460	60	180	460	62	91	446	56	93	469	56
	Total	4229	500	50	4232	500	50	1948	499	49	1896	500	50
Educ. attain.	Elem. educ or low	203	440	70	203	449	66	96	437	63	109	464	55
	Middle school	528	476	47	530	477	50	247	471	53	239	482	49
	Some high school	273	500	38	273	502	37	152	499	40	121	503	48
	High school compl.	1793	501	45	1793	499	46	797	500	43	788	497	47
	Associate degree	368	512	46	368	510	40	184	509	36	165	511	48
	Some coll. educ.	270	515	44	271	510	39	123	521	42	143	513	40
	Bachelor or higher	793	517	44	793	520	50	349	514	45	330	517	47
	Total	4228	500	50	4231	500	50	1948	499	49	1895	500	49

Note: The means and standard deviances listed are standardised numbers with bases on the mean score 500 and the standard deviance 50.

Source: Korea Research Institute for Vocational Education and Training (2005)

Issues for older workers in Korea

Critical issues facing older workers in Korea

Population ageing poses critical issues for society as well as for the individual. These issues need to be examined before discussing the training needs of older workers.

First, ageing itself could be a problem in any country. But, in Korea, it's not ageing itself, but the speed at which ageing of the population is occurring. The rapid ageing allows little time for both society and the individual to prepare for the future. Responding to ageing by making adjustments in social policies is not easy because it takes time to adopt policy reforms in such fields as employment policies and social welfare.

As ageing reaches a more mature stage, the issue will be more focused on those aged over 65 years. As people live longer, society should be able to find a way to enable them to work longer. However, at the current stage of ageing in Korea, the issue is more urgent. While the full retirement ages in Korea range between 55 and 60, depending on the sector of employment, most workers in Korea are forced from their workplaces far earlier. High unemployment of people aged between 45 and 65 is a serious social problem, along with the high youth unemployment.

Discriminatory labour market practices play a negative role in displaced older workers obtaining new jobs at a comparable level. Also, the traditional paternalistic values and work attitudes of older people work against older people obtaining a low-level job. Currently the most urgent issue for older people in Korea is for them to be able to continue to work until they reach the official retirement age.

Table 5 illustrates the distribution of labour market status of the older workers aged 55 years and over in Korea. As they get older, the proportion of the self-employed, including employers, increases. For men aged 55–64 years, the share of the self-employed reaches 53.2%. For men aged 65 and over, the share increases to 72.2%, and to 77%, when unpaid family workers are included.

Table 5 Labour market status of the older people in Korea, 2000 (%)

	Male Ages 55–64	Female Ages 55–64	Male Ages 65 and over	Female Ages 65 and over
Salary workers: permanent	21.6	3.9	6.6	1.0
Salary workers: temporary	13.6	19.4	10.7	8.4
Salary workers: daily basis	10.7	16.7	5.8	14.8
Employers	8.7	2.9	4.8	0.6
Self-employed	44.5	26.2	67.4	42.2
Unpaid family workers	1.2	30.8	4.8	33.0

Source: Korea National Statistical Office (various dates [2001])

The high proportion of self-employed workers among those aged 55 years and over in Korea explains the gap between the effective retirement age and the official retirement age, as shown in a recent OECD report (OECD 2006). The effective retirement age is reported to be far higher than the official retirement age in Korea. Those who are forced from their workplace against their will continue to work as self-employed people. The high proportion of self-employed among the older workers in Korea explains the high actual age of retirement of about 70, since in general the retirement age is much higher for the self-employed than for salaried workers.

Finally, the lack of a social safety net for the elderly is a significant problem in Korea. While many may have to leave the labour market before they reach the official age of retirement, they have accumulated sufficient wealth for life after retirement. There is no social welfare available for these people.

Policy reform needs in an ageing society

Korea faces the need for an urgent social policy reform in key sectors to solve issues associated with ageing.

First, reform of the social welfare system is needed to better support older people in Korea. Currently, social welfare for the elderly is not fully developed in Korea since supporting the elderly has been the responsibility of the direct family until not so long ago. Due to changes in the values of young people and also due to rapidly rising longevity, this situation is changing. These days, parents live until their children grow old. So, public intervention is needed to support old people. Although the social welfare system in Korea has recently begun to respond to this need of older people for social welfare, the process is very slow.

Second, population ageing has financial implications for the society. An increasing proportion of older people places a burden on national finance systems, such as the social security and health budgets. Supporting old people incurs high social costs. This could lead to running national deficits unless some measures to increase tax income are introduced. Also, increases in the aged population create the need to adjust the national pension system to better meet the needs of older people. In Korea, the national pension system is facing major reform since it can not maintain the current level of payment due to the rapidly increasing older population.

Third, a labour market adjustment is needed which allows older workers to stay and work longer in the labour force. This can be done in two ways. First, measures need to be taken to allow workers to stay until they reach official retirement age. Second, the current retirement age, which is set to between 55 and 60, needs to be pushed forward to allow workers to work longer. To make this adjustment, a social agreement between the workers and the firms needs to be established. Recent debates in Korea have focused on adopting wage adjustment practices such as a wage peak system in labour markets.

On the whole, social safety nets for older people need to be strengthened to meet the requirements of an ageing society.

Retraining older workers in Korea

Low participation of older people in training

Participation by Korean people in continuous education and training is very low by comparison with other OECD countries. Furthermore, most of the continuous education and training takes place among the employed and while they are employed.

In the workplace, the chances of the worker obtaining vocational education and training are determined by the size of the firm and the age and the educational attainment of the worker. Employees in large firms have a greater likelihood of receiving training compared with workers in small- and medium-sized enterprises (SMEs). Those with more years of schooling have a greater likelihood of receiving training than those with fewer years of schooling. When other factors are held constant, younger workers have a greater likelihood of receiving training than older workers, while those at middle-level jobs are more likely to than those at high-level jobs.

Table 6 shows the pattern of participation in continuous education and training by age, gender and educational attainment. Focusing on the age groups, it can be observed that participation in continuous education and training sharply drops with age. For the age group of 10–19 years, the total participation rate is 61.5%. But, it sharply drops with age after that. When the total participation rates are compared between those in their 40s and those in their 50s, the decrease is very large. Also, the participation of older people aged 50 and over is very low. The rate is only 4% for the age group of 50–59 and 2.5% for the age group of 60–69. The total participation rate in

continuous education and training includes participation in formal training as well as participation in informal training. In table 6, rates of participation in both are shown. In both formal and informal participation, the rates drop sharply with age.

This shows that there needs to be strong policy support to increase the opportunities for older people to obtain education and training.

Table 6 Participation in continuous education and training, by age, gender, educational attainment

		Total CET		Formal CET		Informal CET	
		N	Rate of part. (%)	N	Rate of part. (%)	N	Rate of part. (%)
Sex	Male	250	10.7	155	6.7	103	4.4
	Female	281	11.5	157	6.4	131	5.3
Age	10–19	48	61.5	11	14.1	45	57.7
	20–29	203	19.4	87	8.3	128	12.3
	30–39	142	9.9	109	7.6	31	2.2
	40–49	101	8.5	75	6.3	21	1.8
	50–59	29	4	23	3.2	9	1.3
	60–69	8	2.5	7	2.2		0
Educational attainment	Elementary school	7	2	5	1.4	3	0.9
	Middle school dip.	32	4.4	19	2.6	16	2.2
	High school dip.	250	11.1	132	5.9	138	6.1
	Associate degree	69	14.8	40	8.6	25	5.4
	Bachelor or higher	173	32.6	116	37.2	52	22.2
Total		531	11.1	312	6.5	234	4.9

Note: CET = continuous education and training.

Source: Korea Research Institute for Vocational education and Training (2005)

Major considerations in structuring retraining of older workers

In structuring retraining of older workers in Korea, the following factors need to be considered.

First, a high proportion of old workers are self-employed. The rate of self-employment is relatively high in Korea compared with other countries. A high proportion of older salaried workers displaced from their jobs turns to self-employment. Supporting self-employed older workers with the kind of training they need is important.

Second, participation in continuous training to further develop skills is very low compared with other countries. In addition to this, older workers are a low priority group for receiving training in companies. The number of older people is increasing in Korea. Thus, older people are no more a minority group in terms of numbers, but they are still treated so socially and in relation to the establishment of public policies. Retraining of socially disadvantaged groups in Korea is still a low-priority issue. Insufficient investment is being made in retraining older workers to enable them to find re-employment after retirement. Policy reforms with respect to the retraining of older workers should be based on an understanding of this situation.

Third, the training needs of different groups among older people vary, given background factors such as their diversity in gender, age, employment status and socioeconomic status. Older people in Korea are a very heterogeneous group. Their training needs differ and depend on their characteristics.

Schemes to retrain older workers in Korea

Considering the situation of older workers, their retraining should be structured to focus on preparing them for the future world of work. Retraining of workers should also be structured to help them plan for a career after retirement. Depending on the type of work in which the older

worker is currently engaged, preparation for a future career could be diversified into a different career path. However, what is more important in structuring training for older workers is that the training programs should be able to help older workers to clearly plan and prepare for the world of work they face in the future, while providing them with critical information on the kinds of jobs they can take when they retire.

Ra (2004) divides workers aged between 45 and 65 into four distinct groups. The first group consists of salaried workers who did not change their employer during their lifetime; this constitutes 30% of the workers. The second group consists of salaried workers who changed their employer more than once, which accounts for 25% of the workers. The third group consists of self-employed workers who never changed their job; this is 25.8% of the workers. The fourth consists of self-employed workers who have changed their job more than once, which explains 19.3% of the population.

What these groups have in common is that they all need career development programs to be able to work longer. Some of older workers need to change their careers completely, while others need to seek a new career in a field relatively close to their current job. Retraining needs for different groups are different.

First, the group of older workers whose careers have been stable tends to maintain job security until they reach 55, which is the mandatory retirement age in most companies. However, at 55, they retire from work and become re-employed at entry level or they work as a temporary worker. For this group of people, training programs are needed to prepare them for a stepped retirement from work, such as obtaining re-employment at the same firm after official retirement.

The group of stable self-employed workers is typically working in a traditional sector such as farming. Thus, for this group, training programs are needed to help them to update their skills and to teach them how to run their businesses more successfully.

While older workers still have difficulty in finding jobs in Korea, they have a high degree of motivation towards working and employment. This implies that, when associated with higher chances of employment, retraining needs of older workers are very high in Korea.

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Discussant's comments

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Dr Choi's paper quite graphically illustrates the extent to which Korean society has aged, and will continue to age. This trend is expected to occur at a rate far greater than for many other Organisation for Economic Co-operation and Development (OECD) comparator countries. These shifts in the age structure in Korean society will impact considerably on the available pool of skilled labour in the future and affect the dependency ratio in terms of those reliant on other family or society members for a living. This is all occurring at a time where labour force participation by older people is generally quite low and declines rapidly after 50 years of age.

On top of this, the paper outlines concerns around the decline in the skills base of older workers in Korea, many of whom, relative to the younger population, have low basic skill levels and low labour market mobility. Of particular concern, according to Dr Choi, is the trend in Korea towards early retirement, often mandatory (as early as 45 years of age), and in many cases these people experience either permanent displacement from the labour market or significant difficulty in making the transition to life after work. I think we would all agree that this is a pretty universal trend amongst many countries where, despite the rhetoric, older workers face significant challenges in maintaining successful careers beyond a certain age.

Dr Choi suggests that policy reforms in Korea need to include a mix of social policy and employment reforms, especially in the welfare system, and particular reforms to the education and training system, including greater participation of older people in training, the re-training of existing workers and assisting older people to plan more effectively for career change or life after retirement.

In terms of retraining older workers, Dr Choi believes the training system has a role to play in ensuring that older workers receive the skills needed for the present and future world of work. We need to remember that many of these people started their working lives before many of the present-day technological advances and modern ways of working and would need skills upgrading to continue participating successfully in work.

Dr Choi believes retraining needs to be focused for the various types of worker in Korean society, including people who have only worked in a single industry and a single employer, the self-employed and those who have made several career or job moves in their lifetime.

As Dr Choi states, the changing demographics of the workplace create opportunities to review ageing employment policies in Korea, as it does of course in many other countries.

The changes create an opportunity to examine the issue, from a wider social perspective, and to ensure an integrated approach, which is strategic and long-term.

An active ageing approach as set out by the OECD necessitates a range of approaches including:

- an emphasis on prevention and early intervention, in terms of job loss and encouraging job retention
- an opportunity to ensure that interventions are coherent, not fragmented, and that attention is given to transition points in life stages in working lives
- better balance and a more inclusive cost–benefit analysis of a social security system—a longer-term perspective.
- an emphasis on building a whole-of-life approach to the workforce development needs of the Korean worker and also influencing the vocational education sector and other significant partners to ensure the ongoing participation of the older worker as part of the skill pool solution.

Such an approach would create an opportunity to build strategic partnerships which work to break down the barriers for the older worker and embrace the opportunities that older workers bring to the labour force, the community and to the economy.

Technical entrepreneurship development for the aged

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Allow me to be good to you.
If not me, who else?
If not now, when?
And if I won't be good to you,
what will happen to us?

(Elisabeth Lukas)

Introduction

We are living in an ageing world. While this has been recognised for some time in developed countries, it is only recently that the ramifications of this changing social structure are being fully acknowledged. The developing countries have yet to even fully recognise this phenomenon. We can say that, while global communication is 'shrinking' the world, global ageing is 'maturing' it. The increasing percentage of aged in the world is making people of all ages more aware that we live in a diverse and multigenerational society. This ageing of the population impacts on all social, economic and cultural spheres. However, there is a need to view ageing as a lifelong and society-wide phenomenon. Older people should not be perceived as people merely to be protected, but as valuable human resources who can contribute effectively to society.

Another irony of today's societies is that, although people are living longer, they tend to retire earlier. The number of years that workers can expect to spend in retirement has risen considerably—for men, from fewer than 11 years on average across the Organisation for Economic Co-operation and Development (OECD) countries in 1970 to just under 18 years in 2004; and, for women, from fewer than 14 years to just under 23 years. This has repercussions from both economic and social points of view. Therefore, expanding employment options, as well as self-employment and entrepreneurial opportunities for these aged people, has become increasingly important.

In OECD countries in 2004, on average, less than 60% of the population aged 50–64 years had a job. There are numerous work disincentives and employment barriers facing older workers which often result in early exit from the labour market. This is primarily due to negative perceptions about the capacities of aged workers to adapt to technological and organisational change and a perceived reduction in their productivity. The bottom line is that population ageing is both a challenge and an

opportunity. While it puts upward pressure on public expenditures and presumably drags down economic growth, it also offers a tremendous opportunity by way of taking the benefit of experience and maturity of these aged people by utilising them productively. It also helps these people as they can spend more rewarding years at work even after retirement. However, this calls for the provision of alternative employment opportunities for this category of people. Age is not an accurate representation of an individual's energy or ability to succeed. A recent study conducted by the National Council on the Aging found one-third of Americans in their 70s considers themselves only middle-aged.

In the United States 'baby boomers' are beginning businesses after so-called 'retiring' age. A 2004 Rand Corporation study found that self-employment rates rise at older ages. The report noted that, in 2002, the rate of self-employment for the workforce was 10.2%, but the rate for those aged 50 was 16.4%. While the 50-plus people made up 25% of the workforce, they composed 40% of self-employed.

Howard Stone, a life coach and co-author with his wife of *Too young to retire*, claimed that more people of retirement age are deciding to redefine the third and fourth quarters of life away from the concept of just taking it easy. In this book they comment that the prospect of living longer is also motivating more seniors to start businesses after retirement. 'When you have a job, even if it's a few hours a week, your mind and body want to stay in the game longer.'

Yahoo's second annual survey of entrepreneurial aspirations finds that two-thirds of American adults (66%) claim that they've considered starting their own businesses. (The survey was commissioned by Yahoo Small Business and conducted by Harris Interactive.) Baby boomer-aged survey respondents indicated a significant increase in entrepreneurial aspirations. For example, when asked, 'At what age do you think it would be too late to start your own business?', 70% of respondents who were aged 45 to 54 years and 72% of those 55 years and older answered, 'I will never be too old to start my own business'. Fifty-five per cent of respondents chose 'own my own business' as the kind of work they would prefer to undertake late in life.

In the United Kingdom 18% of the working population aged 16 to 65 years are self-employed. Indeed, 23% of entrepreneurs are aged between 45 and 54 years. According to research by Barclays Bank, new businesses run by the over-50s are growing in number; this situation seems set to continue in line with the United Kingdom's ageing population.

There is a need to utilise the capabilities of aged people in the developing countries productively, and especially those in the Asia and the Pacific Region. In view of the decreasing wage employment opportunities because of employers' preferences for hiring young people, the entrepreneurial option seems to be the best alternative career. There is, thus, a need to provide them with the necessary technical training to turn them into 'techno-preneurs', which will go a long way in utilising their time, talent and experience productively. It will result in employment for others also, thereby further contributing towards the socioeconomic betterment of a country.

Magnitude of the aged population

Over the past few years, the world's population has continued on its remarkable transition path from a state of high birth and high death rates to one characterised by low birth and low death rates. The result of that transition has been the growth in the number and proportion of older people. Such a rapid, large and ubiquitous growth has never before been seen in the history of civilisation. The current demographic revolution is predicted to continue well into the coming century. Its major features include the following.

- The number of people aged 60 years or older was estimated to be 629 million in 2002 and is projected to grow to almost two billion by 2050, at which time the population of older people will be larger than the population of children (0–14 years) for the first time in human history.

The majority of the world's older people resides in Asia (54%), while Europe has the next largest share (24%).

- One of every ten people is now aged 60 years or older. By 2050, the United Nations projects that one person of every five and, by 2150, one of every three will be aged 60 years or older. The percentage is currently much higher in the more developed than in the less developed regions, but the pace of ageing in developing countries is more rapid, and their transition from a young to an old age structure will be more compressed in time.
- The world has experienced dramatic improvements in longevity. Life expectancy at birth has climbed about 20 years since 1950 to its current level of 66 years. Of those surviving to age 60, men can expect to live another 17 years and women an additional 20 years.
- The majority of older people are women (55%). Because female life expectancy is greater than male life expectancy, in 2002, among older people, there were 81 men per 100 women.
- Countries with high per capita incomes tend to have lower participation rates of older workers. In more developed regions, 21% of men aged 60 years or older are economically active, compared with 50% of men in less developed regions. In more developed regions, 10% of older women are economically active, compared with 19% in less developed regions. Older people participate to a greater extent in labour markets in less developed regions, largely owing to the limited coverage of retirement schemes and the relatively small incomes, when provided.

The report, *World population ageing: 1950–2050* by the United Nations (2002) prepared as a contribution to the 2002 World Assembly on Ageing and its follow-up notes that:

... population ageing is pervasive, a global phenomenon affecting every man, woman and child—but countries are at very different stages of the process, and the pace of change differs greatly. Countries that started the process later will have less time to adjust and population ageing is enduring. It also says that population ageing has profound implications for many facets of human life.

The following are the major features of the socioeconomic characteristics of the aged population.

Labour force participation of the older population has declined worldwide over the last decades

Older people today are significantly less likely to participate in the labour force than they were in the past. Over the past 50 years, labour force participation of people aged 65 or over declined by more than 40% at the global level. In 1950, about one in every three people aged 65 or over was in the labour force. In 2000, this ratio decreased to just less than one in five. Among men, the reduction in labour force participation was from 55% in the labour force in 1950 to 30% in 2000. By 2010, the total participation rate is projected to decrease slightly to 18%, owing to the drop in the male rate to 28%.

The female share of the older work force is increasing

Traditionally, the proportion of older men who are economically active has been notably higher than the proportion of older women. However, as participation in the labour force at older ages has dropped faster among men than among women, the female share of the older labour force has steadily increased over the last decades, especially in the more developed regions. In 1950, 26% of the workers aged 65 or over were women in both the more and less developed regions. By 2000, this proportion had increased to 29% in the less developed regions and to 41% in the more developed regions. At the global level, the percentage of older workers who were women increased from 26 in 1980 to 31 in 2000.

Participation rates of older persons are higher in the less developed regions

Old-age support systems in the form of pension and retirement programs are much less prevalent in the less developed regions than in the more developed regions. It is not surprising, therefore, to find higher proportions of older people in the labour force in the less developed regions. In 1950, the labour force participation rate among people 65 or older was about 40% in the less developed regions and 23% in the more developed regions. Over the following 50 years, the participation rate decreased considerably faster in the more developed regions.

The employment rate is lowest in Europe and highest in Africa

Among the world's major areas, Africa has by far the highest proportion of economically active people among those 65 years or older, while Europe has the lowest. Between these two extremes, labour force participation rates among the older population are lower in Oceania and Northern America and higher in Asia, Latin America and the Caribbean.

Literacy among the older population is nearly universal in the more developed regions

The widespread attainment of at least primary education has been long established in the more developed regions. As a result, literacy in these regions is assumed to be nearly universal, even among the older population.

Illiteracy remains high among older people, especially women, in the less developed regions

Although illiteracy among older people has consistently declined in most of the less developed regions over the last two decades, it still remains generally high. In one of the surveys the United Nations conducted in 105 less developed countries, 56% of people aged 60 or over were illiterate in 2000. Over the decade 2000–10, the illiteracy rate among older people is projected to continue decreasing in virtually all countries. By 2010, the aggregate rate for the 105 less developed countries is expected to decrease to 43%. The reduction in illiteracy rates among older people in the less developed regions was greater among males than females. As a result, the gender gap in literacy has increased over the few years. Since education levels have improved for each generation over the last century, it is common to find important differences in the educational attainment of younger and older segments of the older population. Therefore, illiteracy among older people in the less developed regions is particularly high among those in the most advanced age groups.

Table 1 shows the population 60 years and above (in percentages), dependency ratio and labour force participation rate for Asia and the Pacific countries in the year 2005.

We can see from this table that, in terms of the percentage of their total population, the population of the people aged 60 years or above is highest in South Korea (13.7%) followed by Singapore, China, Sri Lanka and Thailand in that order. It clearly shows that these countries have ageing societies who need to be cared for. The countries with a low ageing population are Brunei (4.7%) and Afghanistan (4.4%). Considering that we are taking age 50 as defining the aged entrepreneurs, this percentage would be much higher in all of the countries if we used a higher age as the defining criterion. In terms of the dependency ratio, Afghanistan (97%) leads the table followed by Laos (80%) and Maldives (79%). But in general the dependency ratio is quite high and well above the 40% mark except for the Republic of Korea and Singapore (39% each). The old-age dependency ratio indicates a situation in which an increasing number of potential beneficiaries of health and pension funds are supported by a relatively smaller number of potential contributors (those in the economically active age.) In relation to the male labour force participation rate between the age of 15 and 64, Nepal leads the table closely followed by Bhutan and Laos, while for the female labour force participation rate, Nepal is followed by China and Vietnam.

Table 1 Aged population in Asia and the Pacific countries, 2005

Country	Population 60 years and above (%)	Dependency ratio (%)	Labour force participation rate, age 15–64 (%)	
			Male	Female
Afghanistan	4.4	97	87.7	48.9
Bangladesh	5.7	64	89.8	57.2
Bhutan	7.0	75	91.2	59.6
Brunei	4.7	49	84.2	49.4
Cambodia	5.6	68	82.3	76.2
China	10.9	41	90.1	80.3
Fiji	6.4	55	84.5	32.8
India	7.9	60	87.6	43.5
Indonesia	8.4	51	86.3	53.2
Iran	6.4	50	76.4	11.2
Republic of Korea	13.7	39	77.9	52.8
Laos	5.3	80	91.1	74.4
Malaysia	7.0	59	35.7	39.4
Maldives	5.1	79	75.7	28.6
Mongolia	5.7	52	61.2	56.1
Myanmar	7.5	52	89.7	68.3
Nepal	5.8	74	92.1	85
Pakistan	5.8	73	84.6	15.4
Papua New Guinea	3.9	74	88.7	68.7
Philippines	6.1	64	84.3	54.8
Singapore	12.2	39	82.7	56.3
Sri Lanka	10.7	46	76.8	35.6
Thailand	10.5	45	81.1	65
Vietnam	7.5	54	86.0	79.4

Problems of aged people

The problems of aged people can be broadly divided into three categories.

Physical

- disabilities and diseases
- movement disorders
- incontinence
- malignancies

Emotional

- loneliness
- generation gap
- rejection from family
- depression or hyper-excitement
- sleeplessness, dementia
- confusion

Social

- loss of social status
- inactive life because of retirement
- addictions

While the remedy for the physical problems lies in medical treatment, the remedies for emotional and social problems could be:

- counselling
- support from society, neighbors, and family
- integration into useful and constructive work which will give self-satisfaction.

In most of the Asian and Pacific countries there are no social security systems. In addition, in earlier times most of these countries had joint family systems and aged people were taken care of. But with the breaking-up of the joint family system and the onset of the nuclear family system, the need for income generation amongst these older people is much greater.

It is truly said that a busy and productive mind and body can halt the progress of disease. Therefore, there is a need to utilise the productive capacities of these aged people; this will not only give them a sense of fulfillment but will also prevent the diseases of old age. There is no better way of utilising the potential of these people than initiating them into an entrepreneurial career.

Case studies of countries

Republic of Korea

The Republic of Korea is an ageing society. In the year 2005, the people above 60 years of age accounted for 13.7% of the national population. The population above 50 years that we are taking as our benchmark for the aged entrepreneurs will be much higher. The speed of population ageing in Korea will be much faster than in the developed countries. The government has been developing and implementing a number of policies for older people, designed to enhance the quality of life for people in general, while at the same time promoting sustainable socioeconomic development. The basic direction has been to provide for healthy and economically stable lives for older people through the strengthening of the necessary social infrastructure to support the care-giving role of the family.

In 1981, the *Older Persons Welfare Act* was enacted. In 1991, to mark the International Year of Older Persons, a long-term plan was established in preparation for the twenty-first century ageing society. The government office in charge of elderly welfare and health was established and expanded, and the budget allocated to older persons has steadily increased. Medical assistance to older people is incorporated into the nationwide health insurance system. From 1991, for older people who were excluded from the pension system, the government has made monetary allowances. The government has steadily expanded public facilities to enable older people to enjoy their leisure time, such as community centers for senior citizens.

Furthermore, at this critical juncture where the curtain unfolds an age of modern technology and a new Cultural Revolution, the Korean Government has duly expanded the existing cultural program for older people to include access to the internet, traditional sources of information, and to various other facilities. Such programs are preparing older people to meet the challenges of the twenty-first century but they also encourage active social participation. It is hoped that these advances will also result in enhanced entrepreneurship amongst this aged population.

Australia

Older Australians must be encouraged to work longer, according to a new OECD report. The OECD's report acknowledges that, compared with many other OECD countries, Australia has been far from complacent in addressing the barriers to employment faced by older workers. Opportunities for training for older people have been improved through the expansion of the technical and further (TAFE) system, as well as through several training initiatives for older job seekers.

Despite these measures and the sustained strong performance of the Australian economy, there is still considerable scope to improve employment opportunities for older people. The proportion of people aged between 50 and 64 years participating in the labour market is much lower in Australia than in a number of other OECD countries, such as Japan, New Zealand, Sweden and the United States. The OECD points out that many older Australians withdraw from the labour market well before reaching the official retirement age.

To remove the barriers that many older workers face to carrying on working, there is a need to adopt a coordinated and comprehensive package of measures, including improving their employability. Training opportunities for aged low-skilled and non-regular workers need to be improved. However, for this to be effective, it is important to address the lack of motivation among these groups for participation in training. It is distressing to note that, while all of these OECD and other reports talk of providing employment to older people, they are woefully silent on the promotion of entrepreneurship, through the provision of self-employment opportunities, amongst this category of people.

It should be noted that there is a growing realisation about the potential contribution of small and medium enterprises (SMEs) both in developed and developing countries. A healthy small and medium business sector is rightly considered to be the backbone of any developed economy. Entrepreneurship training in most countries of the world is being increasingly used to promote local entrepreneurship and to accelerate the pace of enterprise development. Research studies conducted in the United States suggest a positive link between economic development and entrepreneurship. Similar systematically conducted research studies are rarely available in developing and underdeveloped countries. But the absence of such studies does not suggest that such a positive relationship does not exist. Developing economies like India, China, Pakistan, Sri Lanka, Malaysia and many other South Asian countries have always considered the small business sector as an important sector of the economy. Some of the developed countries can follow the examples of a number of the developing countries in relation to entrepreneurship promotion.

Defining the aged entrepreneur

This population has been variously referred to as 'senior entrepreneurs', 'third age entrepreneurs', 'elder entrepreneurs', 'second-career entrepreneurs', 'older entrepreneurs' and 'silver entrepreneurs'. Although there is no standard of what age constitutes an aged entrepreneur, using 50 or older to define this group is a plausible approach. According to de Bruin and Firkin (2001), 'many of the issues that confront the older worker ... apply to people in their fifties', and, 'increasingly the age of fifty is being used [by] ... insurance and retirement service providers as a benchmark age for categorising those in the older group'.

People who start their business after 50 years of age have presumably never faced the trials of entrepreneurship before and are therefore in a more challenging and unique position. There is a greater need to pay more attention to those businesses which are started by entrepreneurs.

The reasons given by aged entrepreneurs for starting businesses are often unique. Some say they were restless in retirement, others have the desire to pass something on to their descendants, and still others want to pursue their dreams or ideas after long careers as employees. Compared with entrepreneurs under 50 years of age, older entrepreneurs are less likely to cite increased freedom as

a reason for starting up (Barclays Bank 2001). Others may want to supplement social security or retirement benefits. Bruce, Holtz-Eakin and Quinn (2000) state that, in response to the possibility of 'reduction or delay in future social security benefits ... and ... the increasing health and longevity of older Americans', people in this group may stay employed longer, possibly seeking out self-employment at a higher rate.

Yahoo's second annual survey of entrepreneurial aspirations found that nearly one-third (31%) of those polled said that doing work they really love was the main reason for launching a business. The second most popular reason, selected by 22% of respondents, was 'to be my own boss'. Less than one-fifth (17%) said they decided to start a business 'to make more money'.

Aged entrepreneurs are set apart by many other unique characteristics—they tend to work fewer hours, tend to take more vacations and tend not to have any employees (Barclays Bank 2001)—all of which indicate that self-employment can offer older people a great deal of flexibility and freedom (all the while supplementing savings or other income, of course) that may help enhance their later years.

Technical and vocational education and training and the aged

Absence of an organised effort in the provision of entrepreneurship education and training to aged people is resulting in a restricted supply of these matured and experienced people in the business and economic arena. A low level of entrepreneurship in any country is characteristically linked to slow economic growth. The technical and vocational education and training (TVET) sector is specifically responsible for providing technical and skilled manpower to large, medium and small-scale enterprises and industries, both in terms of wage employment and entrepreneurial careers. In this context, imparting technical training, along with entrepreneurship education, to aged people is of paramount importance for sustainable development through the establishment of small and medium enterprises.

Small and medium enterprises offer a blend of employment and income-generation potential, which, coupled with the labour-intensive nature of the technologies used and the low cost, presents a very desirable direction in industrial growth. Entrepreneurship is a significant factor in the development of this sector, as is the infrastructural set-up needed to facilitate entrepreneurial ventures. Because of their unique economic and organisational characteristics, small and medium enterprises play important economic, social and political roles in employment creation, resource utilisation and income generation, and in helping to promote change in a gradual and peaceful manner.

'How small is small' is the question which generally baffles people. Indeed, small-scale enterprises comprise a wide variety of undertakings. They can be categorised in diverse ways, depending on a country's pattern and stage of development, policy aims and administrative set-up. One study found at least 50 different definitions used in 75 countries. Definitions may relate to the capital invested (with maxima ranging from about \$25 000 to \$2 million) or employment (maxima from 15 to 500) or both, or to other criteria.

By offering various facilities and incentives, many countries with a view to promoting the establishment of such enterprises have set up organisations which are working at national, state/provincial and state levels. There are many schemes under which the potential entrepreneurs can get loans and can set up their own enterprises. In some countries there are special schemes for technical people in which they are given assistance through more attractive lending terms. For example, in Australia there is the New Enterprise Incentive Scheme which aims to help eligible unemployed start their own businesses. It is extremely successful, helping to generate around 7000 new (Australian) businesses each year (New Enterprise Incentive Scheme 2006). Similar schemes are offered by entrepreneurial support organisations in many countries.

Older entrepreneurs, like other entrepreneurs, face many challenges in their entrepreneurial careers. However, some of these challenges are unique. These can be enumerated as below.

- It has been conclusively proved that in any business the initial 1000 days (roughly three years) are very crucial. If the entrepreneur can survive this period, then the chances of success in the business increase substantially. Of course, this also applies to older entrepreneurs. But since these people initiate their businesses later in their life, waiting for almost three years to ensure the sustainability of their enterprises is a little hard. In addition, the rigours of the starting years may also be a deterrent for many older people entering the entrepreneurial world.
- Raising money is often identified as the number one problem for those starting up in business, and some suggest that this problem might be exacerbated for older entrepreneurs. The health of the borrower is one of the factors banks consider, and a bank might not make a large loan to an older person if it had a repayment term of ten years or more (Wadley 2001). Other commentators claim that seniors are in a better financial position than younger entrepreneurs to start up, and that their greater financial cushion—often due to retirement packages and owning their own home—may actually encourage them to try working for themselves. The Business Banking division of the United Kingdom firm Barclays found that older entrepreneurs ‘use more of their own resources to fund their start up[s]’ (Barclays Bank 2001) and, conversely, have more savings to fall back on, should their ventures not take off. But sometimes it has been seen that these people hesitate to put their hard-earned money, which they consider as their insurance for a carefree life, at risk.
- On the positive side research indicates that this group is widely respected. Barclays found that both 50+ individuals and those under age 50 consider older entrepreneurs to be ‘wiser and more practical’ (Barclays Bank 2001). This view bodes well for success as an older entrepreneur, as experience and wisdom are highly valued assets in the business world. Moreover, older entrepreneurs are more likely to call upon an invaluable network of contacts, credibility, and investment acumen (Goldberg 2000) in dealings with clients and partners, as well as in the early start-up stages.

However, despite these challenges, the trend towards rising numbers of older entrepreneurs is unlikely to reverse, as people are increasingly living longer and needing to support themselves. The research on 50+ entrepreneurs indicates that entrepreneurship has many innate factors that make it more attractive, more beneficial and more suited to older people than conventional employment or complete retirement. The TVET sector has to play a more important role by equipping these people with the right kind of technical training and entrepreneurial awareness for becoming successful.

Models for promoting technical entrepreneurship amongst the aged

Given below are different models which can be implemented by TVET institutions for promoting entrepreneurship amongst older people.

Technology-based entrepreneurship development programs

A ‘technology-based entrepreneurship development program’ will focus on training and developing potential entrepreneurs in a specific technology area (for example, electronics and communication, instrumentation, computer hardware, leather, plastic, food processing, biomedical equipment, glass and ceramics, jute products, biotechnology, sustainable building materials etc.). The participants are provided with hands-on training in technologies. These technologies could also be those developed by the country’s research and development institutions and are available for commercial exploitation.

In each technology-based entrepreneurship development program 20–25 people, preferably having a degree/diploma in science and technology will be trained through a structured training program of about eight weeks full-time duration. However, this time span is flexible and can be adjusted,

depending upon participants' time availability. In the case of a part-time technology-based entrepreneurship development program the duration is likely to be increased to 14–16 weeks. Similarly, participants should be provided with additional training in technical areas until such time as they are proficient in the technology they are going to adopt in their enterprises. TVET institutes are in the best position to provide this technology training. The technology-based entrepreneurship development program will provide classroom training on all aspects of enterprise set-up and its management, including industrial legislation, taxation procedures and other formalities, as well as motivational aspects, including interpersonal, communication, leadership and other such skills required by an entrepreneur. A strong component of the training will be the actual hands-on training conducted by technology providers in the specific technology areas.

The following are features of a technology-based entrepreneurship development program.

- The entrepreneurs are exposed to technical knowledge about the products and technologies and are assisted to develop their skills in the laboratory and workshops of TVET institutes. If necessary, participants can also be sent for higher-level technical training in relevant institutes or industries, or both.
- Research and development labs with commercially viable technologies can attract potential entrepreneurs as 'takers'. There could be a tie-up between TVET institutes and the research and development labs for this purpose.
- TVET institutes devote concerted effort in specific disciplines of product technology and thus can have better control over the course of the program and its success.
- During training the participants will also get to know the intricacies of how to start and manage an enterprise. At the end they are assisted in preparing a report that can be used to seek venture capital or establishment funds.

As a result of this training the potential entrepreneurs are expected to establish larger projects which could be in manufacturing or servicing areas. The entrepreneurs can also set up trading ventures in their chosen area.

Skill development training through science and technology

Changes taking place in the economies of Asia and the Pacific by virtue of an accelerated rate of industrial growth imply a larger demand for vocational skills. In addition, the rapid migration of rural populations to urban areas has also created a demand for trained people to meet the needs of urban services. Further, a variety of new services have emerged, such as in the areas of financial, health, media, advertisement, urban utilities, entertainment, and telecommunications. There has been a sharp growth in the introduction of new products/services in many industries, for both internal use and for exports, requiring special skills. 'Skill development training through science and technology' aims to develop skills through training for which special curricula and models for offbeat and innovative skill areas have been developed.

This can be done by utilising the expertise developed in TVET institutions for upgrading the skills of older people. With the development of new and better technologies, it becomes essential to upgrade the skills of those sections of the workforce using enhanced versions of equipment and tools.

More specifically, the objectives of skill development training through science and technology programs would be:

- developing/upgrading skills of older people through the application of science and technology
- harnessing the resources of TVET institutes of the country for skill development training
- enhancing the quality of services/products, thereby enhancing income-generation among aged people.

Each skill development training through science and technology program will vary, depending upon the type of trade. However, an attempt should be made to keep the duration less than six months and preferably between two and three months.

Trades would be selected by TVET institutes, depending upon the entrepreneurial opportunities available at the location of training. However, trades with distinct science and technology inputs should be given preference. The idea is to take up trades that are location-specific, needs-based and have high potential for self-employment.

To accomplish these objectives, the various tasks to be undertaken by implementing TVET institutions should include the following:

- survey of opportunities in specific trades for skill development training
- identification of trainers, experts and master craftsmen, in addition to the human resources available in TVET institutions, and providing them with suitable orientation training
- preparation of lecture and training material
- selection of trainees through appropriate aptitude tests for specific trades
- actual conduct of training
- required tool-kits/materials to be provided to trainees
- post-training follow-up.

It has generally been observed that lack of information, whether in relation to technology, raw materials or the market, is a stumbling block to the success of budding entrepreneurs. This is especially true in the case of Asian and Pacific countries. While the bigger players in the field employ market research agencies, the small entrepreneurs don't have resources enough to take advantage of these services. There is also a need to equip these small entrepreneurs with information that will assist them to remain competitive.

Knowledge-based technical entrepreneurship through a science and technology entrepreneurs' park

TVET institutions can assist the generation of older entrepreneurs with the help of local industries by establishing a 'science and technology entrepreneurs' park'. A science park is defined as an industrial complex close to a place of higher learning that provides a high-quality environment and accommodation to the tenant companies on a rental basis. A technology park is usually a development to accommodate companies engaged in commercial applications of high technology with very little or no institute linkage. Worldwide, and including some of the Asian countries, initiatives such as science parks and related structures have proved to be quite successful. Science and technology entrepreneurs' parks will be useful to the older entrepreneurs, in that the rigours of the initial start-up of a business are likely to be less since, in the initial years of their business, they are able to use the space available in the science and technology park for starting their business. After becoming successful, they can move out to bigger and better locations. In a nutshell, these parks signify a systems approach to creativity, innovation and entrepreneurship.

Science and technology entrepreneurs' parks can therefore be established in and around TVET institutions. Successful examples of science parks and related mechanisms have shown that there is no single model to be replicated; they have to be modified to suit local conditions. Science and technology entrepreneurs' parks need to work in close liaison with the TVET institution to ensure maximum advantage of the facilities and expertise available there. Only those facilities which are not available in the institute are created in the science and technology entrepreneurs' park. It would be a good idea to encourage participation of older potential entrepreneurs in these facilities and to actively reserve places for them.

Services and facilities offered and functions to be performed are depicted in figures 1 and 2, respectively.

Figure 1 Science and technology entrepreneurs' parks: Mechanism for industry and TVET institute linkage

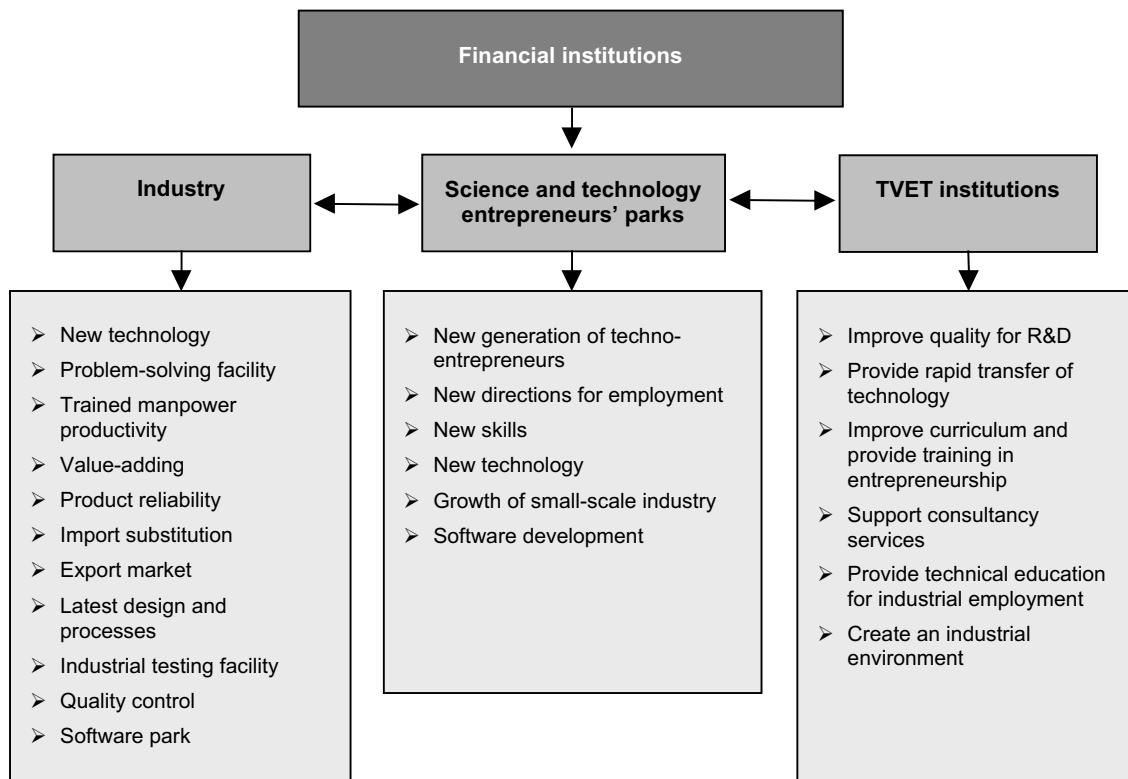
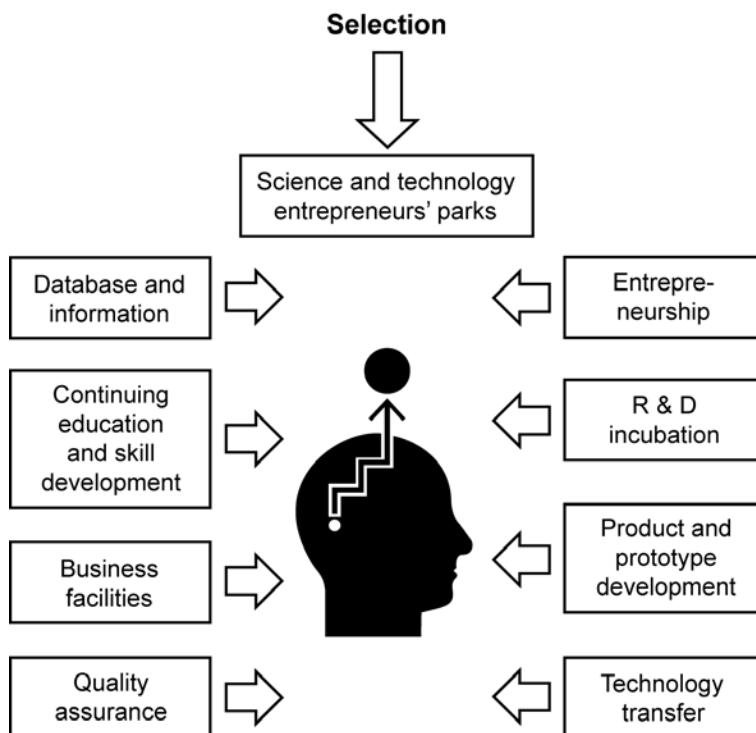


Figure 2 Science and technology entrepreneurs' parks: Functions and activities



Technology information service

With the wide uptake of the internet the information delivery scenario has undergone a dramatic change. Information on any topic in any form (text/audio/video) is available freely on the net. Whether it is the source of a raw material or a query from a prospective client abroad wanting to know about the product and services, the internet offers a perfect delivery medium for an entrepreneur. In fact, with the introduction of e-commerce and e-cash, the methodology of conducting business is undergoing change globally.

Therefore, one such service which will provide a knowledge base for budding older technopreneurs and will help them to retrieve information and offer guidance and assistance in setting up their units from a single source can be established on the internet by the centralised agencies controlling the TVET institutions of a country. Since the internet-based database and website services are time- and distance-independent, potential entrepreneurs would find such a service extremely convenient to use.

In India such a service is being provided by the National Science and Technology Entrepreneurship Development Board under the name, Technology Innovation Management Entrepreneurship and Information Services, but this service is intended for entrepreneurs of all ages. There is a need to provide such a service exclusively for the aged, as they often have particular requirements and problems.

Such a service will ensure information on financial, managerial and technology inputs is within easy reach of these older entrepreneurs and will keep them updated about the ever-changing business scenario. Not only will the entrepreneurs be given the capacity to survive, but they will also remain competitive in the face of stiff competition from bigger corporate multinational companies.

Some of the key activities of this service could be:

- to assist aged entrepreneurs in locating available technologies from various laboratories and companies
- to keep these entrepreneurs informed about salient technology in different sectors
- to assist research and development institutions in both public and private sectors to publicise adequate information about the technologies available, with status and cost details
- to make information about the policy and legal framework applicable to small and medium enterprises available
- to provide information on appraisal methodologies adopted by various financial institutions.

Social entrepreneurship

We can even consider diverting the older entrepreneurs towards 'social entrepreneurship'. Some of these people have a tendency to move away from a focus on themselves and instead concentrate on giving back to the community. They want to feel as if they are making a difference. They may feel guilty, having spent a lifetime focusing on their own goals, and now want to focus on others. Social entrepreneurship can range from starting a non-profit business to simply supporting social causes in the context of a for-profit business. Either way, we have to help support their desire to give back. A technology-based enterprise can help them employ a number of people, which will give them the satisfaction of doing something for society apart from contributing to its socioeconomic development.

Cyberpreneurship (entrepreneurship on the internet)

One recent form of technical entrepreneurship uses the improvements in computer technology, especially the internet, to conduct business, promote business or perform the process called entrepreneurship. This whole field has become known as cyberpreneurship and varies from an

organisation which merely promotes itself by using an electronic brochure called a home page on the internet, to companies and organisations which sell their products and services through the use of electronic mail on the internet. The ongoing globalisation movement is helping to diminish trade barriers and to bring world economies closer to one another. Advances in information technology, communications, and multimedia are slowly converting the world into a global village.

Seventy-five per cent of adults in the United States who go online said that the internet had made it easier to start a small business. Ninety-two per cent said it was important for a new small business to have an internet presence. ‘The vast majority of people, regardless of age, have entrepreneurial aspirations, and they recognise the power of the Internet in making it easier for them to act on those aspirations and launch small businesses,’ said Rich Riley, vice president of small business services at Yahoo, in a statement.

Cyberpreneurship is also easy to conduct and will therefore suit older people who will not have to face the difficulties of running around and can safely operate from the confines of their homes or workplaces. They can set up new businesses or even go for franchising. Sara Wilson in August 2004 issue of *Entrepreneur* magazine says that ‘Americans are hitting 50 and finding they’re anything but over the hill. These entrepreneurs prove it’s never too late to buy a franchise.’

Many British people over 50 have already set up successful businesses. Research has shown that rates for business start-ups with owner-managers over 55 are far higher than the national average—70% and 19%, respectively. Embracing technology, above all as a medium of communication with the widest possible customer base, goes hand in hand with this success.

Policy formulations for promoting technical entrepreneurship amongst the aged

Previous policies were designed with a youthful society in mind. However, from now on policies for older people, for younger people and for those in between must be designed with an ageing society in mind, a society where soon every third individual will be over the age of 60. International, national and local communities must begin now to adjust and design their infrastructures, policies, plans and resources.

Policy interventions that include social and human as well as economic investments can prevent these older people from becoming unnecessarily dependent. If judicious investments are made in advance, ageing can be changed from a drain on resources to a build-up of social, economic and environmental capital. Today’s older people are those who have dedicated their lives to the development of their societies and countries. Theirs was a generation of great sacrifice to causes far beyond their own personal welfare. We owe them effective policies that will assist them to lead independent lives, to find fulfillment and to continue active participation in society, and to maintain their human dignity. For those who need help, for economic, health and other reasons, adequate protection should be provided.

There is a need, in promoting technical entrepreneurship, to encourage TVET institutes to provide the necessary entrepreneurship education and training to enable the ‘silver’ people of our societies to be productive. Creating financial schemes to provide credit at lesser rate of interest and without any procedural delays, as well as helping them in the marketing of their products, is important. Guidance and counselling services should also be provided to them when they choose entrepreneurship as their second career after retirement from their previous jobs.

Group training followed by group entrepreneurship for older people who wish to become entrepreneurs should also be promoted. This is particularly beneficial for those who are reluctant to venture alone. There are many success stories of group (or cooperative) entrepreneurship, such as the Self Employed Women’s Association (SEWA) in Gujarat state of India. The entrepreneurial

training organisations should begin offering group training programs for aged people. They will be all the more beneficial if such programs are supplemented by credit delivery mechanisms from the commercial banks and other financial corporations.

Special policies need to be framed to ensure that the ageing population of women is offered the opportunity to be productive, as they are more likely to live longer than their male counterparts.

Speaking at the meeting on the 'Issues of Aging' organised by the Geriatric Care Foundation, Chief of the United Nations Aging Program Dr Nizamuddin said that the United Nations had given a slogan—let us build a society for all ages—to protect old people from discrimination, and now was the right time to make policies to solve the issues being faced by the elderly.

Conclusion

Global population ageing is a by-product of the demographic transition in which both mortality and fertility decline from higher to lower levels. An increase in the old-age dependency ratio indicates a situation in which an increasing number of potential beneficiaries of health and pension funds are supported by a relatively smaller number of potential contributors (those in the economically active age). This trend tends to impose heavier demands on the working-age population (in the form of higher taxes and other contributions) in order to maintain a stable flow of benefits to the older groups.

The world is changing as it ages, and just as aged people have been agents of that change, they must also be its beneficiaries. Ageing is not an issue separate from social integration, gender advancement, economic stability or issues of poverty. It has developed a connection with many global agendas and will increasingly play a prominent role in the way society interacts with economic and social welfare institutions, family and community life. We are all constituents of an ageing society, rural and city dwellers, public and private sector identities, families and individuals, old and young alike. It is crucial that societies adjust to this human paradigm.

Recognition of the uniqueness that unfolds throughout life is core to igniting society's embrace of the contributions of its older citizens. The 'package' of knowledge, wisdom and experience that so often comes with age is part of an inner awareness that cannot be traded, sold or stolen. It should, however, be activated, amplified and utilised in all the crossroads, fields and storefronts of society, and in the windows of our creative imaginations. There is a need to divert these knowledgeable, wise and experienced people towards entrepreneurship.

Old age is a period of life that has its own specifics, but it doesn't have any less importance and meaning as any other period of life. For experiencing old age it is important that the person accepts his/her own age, maintains or forms a good interpersonal relationship and that she is personally connected with people from young and middle generations.

If all three generations are closely related, the youth is safely—beautiful, the middle age years are silently—fruitful, and serene old age—rich.

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Discussant's comments

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Introduction

Ageing is a significant issue in developed, developing countries and those considered to be in transition. Ageing is an area of interest in two roles at the university I work for in Melbourne, which is both a technical college and university. I am extensively involved in managing apprenticeship and traineeship training, which covers traditional areas of technical training in electro-technology, plumbing, printing and graphic design, furniture making, and air conditioning and refrigeration, to name a few of the areas. Traineeships resemble an apprenticeship in Australia but reside in other work areas, such as health and aged care, retail, office environments, information technology and many other areas. I am also involved in developing programs that suit older workers and have been engaged in a program specifically assisting older workers in transition or trying to link to the labour market. Added to this, I am a part-time lecturer in postgraduate programs that include social policy and the contexts of adult learning.

I have met and spoken with large numbers of older workers about vocational and education options and concluded that, in Australian society, knowledge of vocational education options are not well signposted nor well understood by older people (nor younger, even though this is not the focus of this brief synopsis).

As my academic interest intersects with skill shortages, particularly in technical fields, and the added problems associated with an ageing Australian society, not to mention the world at large, it is a privilege to review an interesting paper of this calibre.

Synopsis of the paper

This paper is well structured, clear and succinct. The introduction concisely demonstrates the increasing complexities many countries face due to ageing. It would indeed be unfair to refer to ageing as a problem. Problems associated with ageing can often be a result of those who indeed are ageist in outlook, whereas this study takes a realistic and positive view of the possibilities with regard to 'technical entrepreneurship development for the aged'.

Overall, the statistics cited in the paper provide a compelling view of the ramifications that developing countries face, and the paper successfully draws on the experiences confronted by developed countries to place the issues it raises in broadened contexts.

Cultural issues always need to be considered when evaluating possibilities within developing countries. The Reserve Bank of Australia (2006) states that in Australia there are over one million small businesses (those employing fewer than 20 staff [ABS 2006]), which account for 95% of all businesses and a healthy 30% of productivity achieved within the private industry sector. Fifty per cent consist of a single owner or owners, where a partnership is operative, with no employees (Reserve Bank of Australia 2006). Across all Australian small businesses the average number of employees is a mere three people.

The paper promotes the concept of ageing entrepreneurs and, using the Australian situation as a basis of comparison, is intended to illustrate how dependent a developed country is on small businesses, but particularly the huge numbers of owners who, it could be argued, are entrepreneurial in outlook. The statistics in Australia may surprise many readers. However, the point here is that the fourteenth largest economy in the world depends largely on entrepreneurs. Within small business in developing countries, the notion that there are wide benefits for older people in developing their own businesses supported by education has merit. However, it must always be stated that, while developing countries can learn from developed countries, the reverse situation applies. Many lessons need to be learnt by developed countries as well.

Entrepreneurship programs in areas such as science and technology developmental programs and knowledge-based technical entrepreneurship programs incubated by a close association with a science and technology entrepreneurs' park have considerable merit. Social entrepreneurship and 'cyberpreneurship' (the internet) are added areas of possible growth covered in the study, targeting ageing members of the communities living in developing countries.

Two areas that may be useful contributions include the Australian New Enterprise Incentive Scheme (NEIS), which aims to help eligible unemployed start their own businesses. The following quote is taken from the New Enterprise Incentive Scheme website: 'It [NEIS] is extremely successful, helping to generate around 7,000 new (Australian) businesses each year (2006)'.

The second area includes group training which is 'an employment and training arrangement whereby an organisation employs apprentices and trainees under an Apprenticeship/Traineeship Training Contract and places them with host employers. The organisation undertakes the employer responsibilities for the quality and continuity of the apprentices' and trainees' employment and training. The organisation also manages the additional care and support necessary to achieve the successful completion of the 'Training Contract' (Department of Education, Science and Training 2006).

In both developed and developing countries there seems to be both a lack of technically qualified people and a reluctance by many young people to undertake such occupations, as though it is a retrograde step and university education is paramount. The bulk of skill shortages resides in technical areas worldwide (OECD 2006) and the concept of group training to employ and hire out people of all ages for training in technical areas may be useful to entrepreneurs starting and building a small business, which may then exceed 20 employees, thus becoming a medium business. Group training has the potential to assist older people to undergo additional training, or to assist them as entrepreneurs in the development of their organisation.

The authors carefully and appropriately connect and align entrepreneurial activities alongside education, particularly technical and vocational education and training (TVET) organisations. However, my reading of this paper sees education more as a partner as needed and not a dominating institution, rather the coach where needed—as education should be, as a linking mechanism to vocational lives at one key level. Illiteracy is briefly touched on in the article and needs some added consideration, given the greater problem in this area in developing countries.

Concluding comments

It is very easy to follow the arguments of this interesting paper. This is partly due to the way the arguments are structured and the engaging introduction and overall formation of the paper.

The ideas in the brief paper are well articulated and have the potential to be a polemic that adds to the literature in this complex area.

The data are carefully arranged to support the case for developing older entrepreneurs and provide a basis for this research to be expanded and policies to be developed, following added research to identify the dimension of the problems societies face with ageing populations—unless well-planned policies are developed by governments. The Australian statistics were used to establish how a strong economy depends on small businesses and the ingenuity of the owners underpinning the financial infrastructure. A strengthening economy in developing countries must expand entrepreneurship for older people, particularly to enhance the scaffolding needed in economic and social terms.

My intention as a discussant has been to commend and in a minor way both compliment and complement the authors, given that I view this paper as extremely important for developing countries.

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The ageing TVET workforce in Australia: Issues and challenges

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Introduction

The ageing population of many countries and its impact on global economic performance has been the subject of significant debate across the world. Many developed nations in particular have ageing populations brought about by declining fertility rates and an increasing life span. An implication of this has been a forecast reduction in the future supply of labour and possible diminished economic performance. The extent of ‘the problem’ varies widely between industries and countries; however, it appears to be particularly apparent in the education and training sector which, in turn, is a key resource in helping to supply appropriately trained and skilled labour.

This paper will explore some of the issues and challenges relating to an ageing technical and vocational education and training (TVET) professional workforce and will detail some of the ways whereby Australia is responding (or not responding) in terms of changing conceptions of the nature of their work, workforce development and professional development strategies and solutions.

The ‘demographic challenge’: Ageing TVET workforces

Hugo (2005) cited the ‘academic sector’ as having one of the oldest workforces in contemporary society. In both higher education (universities) and TVET institutions, there are a great many academics and teachers who commenced their professional careers back in the 1970s and 1980s during the dramatic growth phases of these sectors, and who are now approaching retirement. A similar trend is apparent in New Zealand (Guerin 2006) and in Europe (de Rooij 2005).

McGrath (2004) also identifies the ageing profile of many technical education systems worldwide as one of the largest challenges for skills development in the future. Technical education systems in Europe, the Americas, parts of East Asia and Australasia are, due to retirement, increasingly characterised by ageing workforces and high natural attrition of senior and experienced practitioners and managers. This is true across the range of their activities, including for professional practitioners—teachers. However, it may be particularly serious in the area of skills development. There may also be a gender bias in the ageing phenomenon, given the male domination of many areas of traditional TVET activity.

According to McGrath, agencies faced with such an age profile need to try to ‘capture’ as much of the knowledge of these departing staff as possible. Those that intend to retain a focus on skills development need to engage in far more active recruitment policies. Better retention of those in mid-career is also an issue.

As with other countries, little is understood about the dynamics of the Australian TVET workforce and the factors that contribute to the movement into, out of, and within, the sector by members of the TVET workforce.

Dickie et al. (2004) reported that TVET is experiencing the same workforce trends as other industries and faces many of the same challenges. For example, TVET is experiencing problems with matching employees to required skills and in recruiting suitable new talent in light of greater levels of retirement. In an era when the demand for professional and technical skills is at an historical high, and where there are critical skill shortages in some key industrial sectors, TVET employers need to compete now to attract a skilled workforce. Unfortunately, the wage levels they are able to offer in some areas are well below those available externally. Similarly, in an era when new entrants to the labour market don't expect to stay in the same job or career for life, retaining good staff becomes critical.

The ageing TVET workforce in Australia

The characteristics of the TVET workforce in Australia are generally poorly understood. This is due to weaknesses in the available data, there being no single 'accepted' measure of employment levels and no consistent definition of key workforce concepts, such as that of teacher, practitioner and so on. Furthermore, there is no national TVET workforce data collection in Australia. Although most states and territories do collect some data on the workforce characteristics of those employed in the public TVET systems, this isn't aggregated to build a national picture. There is no plan to do this in the medium future. In addition, there is very little information about the characteristics of staff employed in Australia's private and enterprise-based providers, although recent research by Harris, Simons and McCarthy (2006) investigated the nature of private TVET providers using an extensive survey. This research showed that private providers are generally small; however, it did not shed any light on the age profile and other staff characteristics in this key workforce component of the Australian TVET sector.

In 2004, the National Centre for Vocational Education Research (NCVER) (Cully et al. 2004) undertook an analysis, profiling the national TVET workforce to collect nationally consistent baseline data for the first time. Using a variety of data sources, including Australian Bureau of Statistics (ABS) labour force statistics, and accessing a limited spread of state and territory demographic and workforce data, a profile of the public VET system was developed. This study showed that there were large differences between the data sources in the estimates of staff numbers.

In Australia, the TVET workforce and, in particular, the public technical and further education (TAFE) system is clearly ageing. While national data suggest that TVET professionals in general are no older than the workforce at large, with 34% aged 45 years or older, TVET practitioners in the TAFE sector are—on average—much older. In 2002, 61% of TAFE practitioners were over 45 years of age and a further 16% were aged over 55 years. A similar picture emerges for management and executive staff too, with one Victorian study finding that over 60% of all executive staff in TAFE were likely to retire over the next decade (Office of Public Employment 2002).

Figure 1 shows the age profiles of TAFE teachers by state and territory as a percentage. It shows that there are very few teachers under the age of 40 in all states and territories (Victoria not included in the analysis) and that, although there are some regional variations (for example, Tasmania and Western Australia have a comparatively older workforce), the picture of an older workforce profile is more or less consistent across the country.

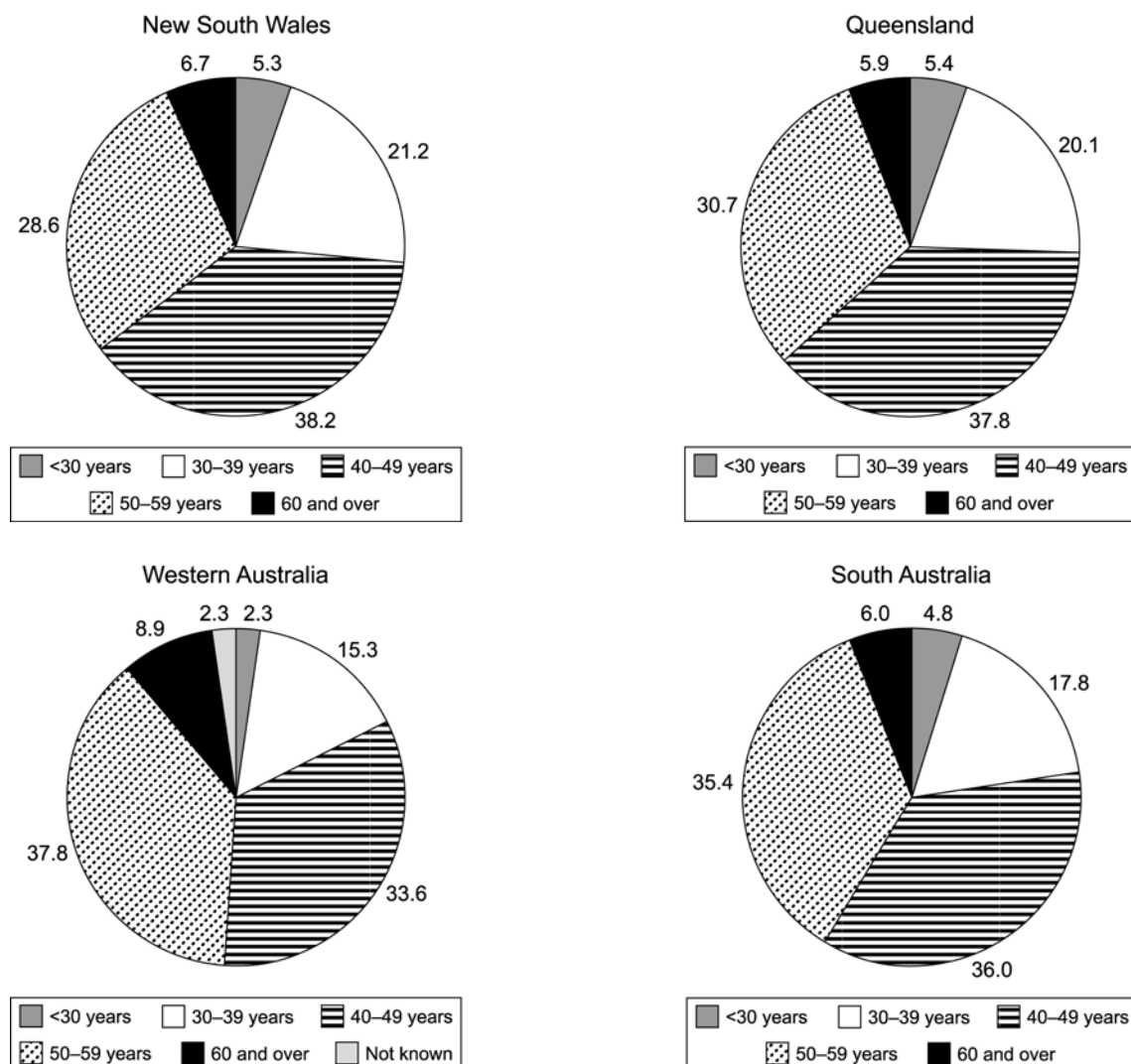
This finding is consistent with other studies conducted in Australia, including a Victorian study of the TAFE teacher workforce which found 63% of practitioners were aged between 41 and 60 years and 4% over the age of 61 years (Office of Public Employment 2002). The NCVER study also found, not surprisingly, that the permanent workforce is, on average, older than the sessional, casual or contract

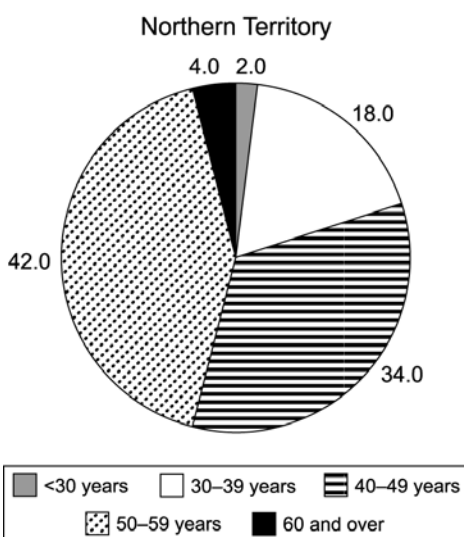
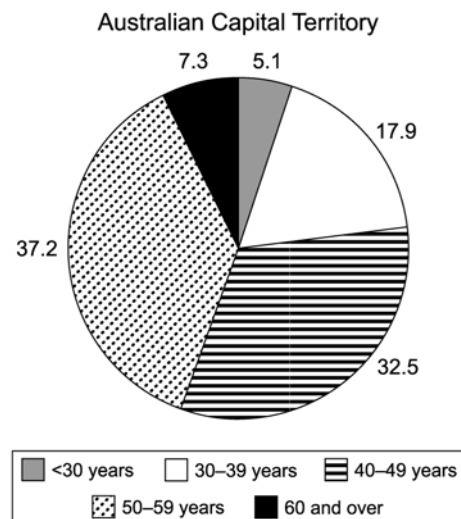
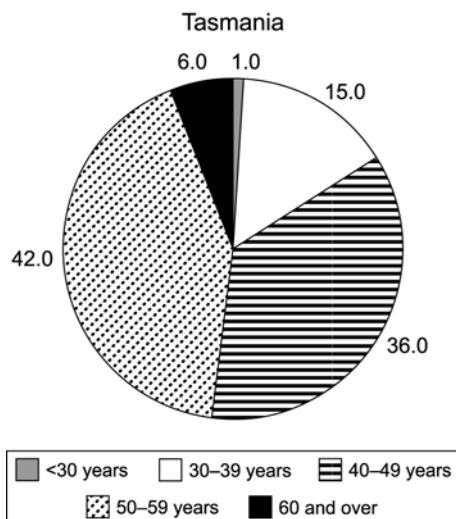
and temporary workforce. The age data in this report also found that the non-teaching workforce is younger than the teaching workforce, but still older than the Australian labour market as a whole (Cully et al. 2004).

The age data have not been broken down by gender. Nevertheless, in those states where length of service data in the TAFE sector were available, males in the permanent teaching workforce have served longer than females, with significant numbers—between 24.1 and 43.7%—having served 20 years or more. In contrast, female permanent staff with 20 or more years service made up between 8.4 and 19.9% of the female workforce. Intuitively therefore (and because the numbers of male and female staff are about equal), ageing may be more of an issue for male TVET staff than for females, although the validity of this conclusion will be affected by work patterns of female staff; for example, time out of the workforce for childbirth and rearing. More analytical work is needed.

On top of the issues relating to ageing, the TVET workforce in Australia has generally been downsized and management structures have been flattened, with the core of full-time permanent staff reduced. New models of employment have emerged in response to budget constraints and business needs, including the greater use of contractors and casual staff. Contractors and casual workers are potential sources of staff for the permanent positions that become available, but this also points to a need to develop strategies for the development of career paths and for professional development for casual staff (Rumsey and Associates 2002). This need has been reinforced in more recent work, with casual staff identified as a professional development priority (Guthrie, Perkins & Nguyen 2006).

Figure 1 Age profiles of TAFE teachers in 2002





Note: Victoria is excluded.

Challenges for TVET institutions of ageing workplaces

There are a range of important challenges for technical education institutions arising from the trends and issues reported in this paper. A variety of studies (for example, Rumsey and Associates 2002; Chappell et al. 2003; Dickie et al. 2004; Harris, Simons & Clayton 2005; Mitchell et al. 2005) have examined and summarised the key influences from outside and within the TVET sector in Australia. They include:

- the ageing of the population and an increased emphasis on people staying longer within the workforce
- changes in the way people work
- a more diverse society, reflecting a greater mix of cultural values, beliefs and expectations
- the growth of the knowledge economy and rapidly changing technologies
- an increasing customer sophistication
- an increasing focus on industry needs and a range of skills shortages in areas of critical industry and general community need
- the raising of the school leaving age in a range of Australian states and territories

- a national focus on increasing the participation of Indigenous Australians in work and work-related training
- moves to get those at present in receipt of welfare benefits, but capable of work, into work or training for work
- an increased proportion of people with disabilities participating in mainstream community life
- a national recognition of the need to build economic and social capital through education and training.

Forces within the sector itself also continue to influence the TVET landscape. Critical to the future of TVET providers and their staff alike are:

- addressing the increasing complexity of the provider role
- meeting quality assurance requirements and other formal accountability measures
- adopting more flexible approaches to delivery, including a greater focus on learning in the workplace and more team-based approaches to delivery
- increasing the focus on the use of partnerships and networks
- having the skills to meet the needs of an increasingly diverse TVET client base
- maintaining the currency of their vocational skill base
- shifting the role of the TVET practitioner from industry expert to learning facilitator.

Several commentators report that there need to be greater opportunities for managers of TVET institutions to access training that advises on how to manage diverse workforces and workforce planning. In particular, institutions are increasingly concerned about their ability to adapt their staff and professional development practices to an increasingly ageing training environment and to meet emerging business needs.

McGrath (2004) believes that staff development is essential to addressing the problems relating to the composition of the TVET workforce, especially with ageing profiles. He recommends that institutions need to address the needs of new practitioners—especially for basic orientation—and balance this with the needs of existing staff. It is sometimes forgotten that staff development needs arise equally for experienced practitioners, as a result of the changing nature of work and new technologies, as they do for novices. Guthrie, Perkins and Nguyen's work for the Western Australian Department of Education and Training highlighted the need to continue to develop the skills of its existing workforce, particularly those in mid- or later career, in order to renew and upgrade their skills in teaching, learning and assessment approaches. Maintaining the currency of their industry knowledge was also considered crucial.

Providing adequate opportunities for staff development for more experienced staff has been proved to be an important factor in retaining good staff in technical education institutions, especially when they have been recruited from industry (Strebler, Neathy & Tackey 2005). Nevertheless, the sector is also under pressure to recruit and retain key staff in areas of skill shortage where there is a high demand for their skills—accompanied by high wages—in industry (Guthrie, Perkins & Nguyen 2006).

Managers of technical education institutions need to be aware of the medium-term career pathways of their staff to ensure that appropriate opportunities for staff development are provided. These also need to be balanced with the medium- and longer-term strategies and visions for the operation of the institution. A consortium of researchers is currently investigating a range of issues related to supporting TVET providers to build their capability for the future. One of the key initiatives is investigating, for the first time, the career paths of Australian TVET staff to examine how they move into, out of, and within, the sector. The activities of this consortium can be monitored on its website at <www.consortiumresearchprogram.net.au>.

In an era of cost-cutting and scarce resources, insufficient attention is sometimes paid to ‘capturing’ the knowledge of those practitioners leaving the system. Those consulted in recent national research by Clayton et al. (2005) saw the imminent departure of a large cohort of experienced practitioners as both a loss and an opportunity for organisational renewal.

Clayton, Fisher and Hughes (2005) examined the issue of sustaining the skills base of TVET providers in the face of its ageing workforce, particularly that in TAFE. They found that TAFE managers recognised knowledge loss in many forms and acknowledged that this ultimately affects organisational efficiency and achievement, whether the loss is of teaching experience, qualifications, course development knowledge, TVET know-how, organisational knowledge, or industry connections and good will. Several approaches to addressing this problem were identified, including: recruitment; retention of key staff, coupled with a knowledge transfer process; staff re-training; knowledge sharing; and mentoring.

Providing opportunities for experienced practitioners to continue to play a role in the life of the institution is essential. Providing incentives and options for practitioners to ease out of the workforce, for example, as ‘phased retirement’, are popular strategies for maintaining the workforce, according to Leslie and Janson (2005). Unfortunately, however, some of the pension and retirement schemes in use in the public TVET sector do not allow progressive disengagement from full-time work such that the experience and skills of staff can be retained and passed on.

Australian strategies and responses

Many of the strategies employed to overcome the demographic challenges in the Australian TVET workforce relate to workforce planning and offering greater (different) professional development opportunities. Other aspects, such as recruitment and retention strategies, rewards and understanding what motivates teachers and non-teachers to either enter or remain in TVET, are less well developed.

McNickle and Cameron (2003) surveyed TAFE managers, asking them what changes in human resource practices they have initiated in order to meet the learning needs of their clients more effectively. Managers reported that much of the focus has been on professional development in line with national initiatives in the area. When asked where change is currently most needed, managers nominated job design, workload management and workforce planning as key issues. This indicates that these issues, even if they are not getting active attention at provider level, are at least on the collective radar of managers.

Dickie et al. (2004) list a number of strategies that are being or could be used to address the skills shortage caused by an ageing TVET workforce in Australia. These include:

- matching workforce capability to employment trends and skills needs (at national, organisational and work team level)
- shaping recruitment, retention and retraining strategies and initiatives to meet strategic and organisational objectives
- understanding the motivation of current and prospective staff for entering, staying and leaving the TVET workforce
- matching initial training and professional development strategies and implementation to broad strategic objectives (at national, state and provider level)
- matching job design and employment agreements to the current and future work performed by TVET practitioners and professionals, while balancing the needs of employees and employer organisations
- providing a balance of tangible and intangible rewards to attract and retain staff, drawing on the identified motivations and aspirations of the current and prospective workforce

- employing recruitment and development strategies to address succession planning and retention issues, to ensure the presence of a new generation of leaders and managers in TVET providers
- incorporating strategies for managing and disseminating knowledge and information, including 'soft knowledge', within providers and across training, client and partner organisations
- building in evaluation measures that clearly demonstrate the return on investment from workforce development and management activity, including impact on client and staff satisfaction.

There is evidence that some TVET institutes are beginning to develop proper workforce plans rather than simply relying on short-term measures, such as use of sessional staff to meet current or immediate rather than future needs. The supporting documents for Clayton, Fisher and Hughes (2005), which are published on NCVET's website at <<http://www.ncver.edu.au/publications/1591.html>>, provide examples of approaches that are in use overseas and in other workforce sectors with similar issues of workforce ageing.

At the macro-level, some states and territories at the training authority (departmental) level are now matching training and professional development strategies to broader strategic objectives. Queensland, for example, has a professional development strategy that clearly identifies priority needs and requires initiatives to respond to system-wide priorities. New South Wales has adopted a professional development framework that keeps pace with the careers of their practitioners as they progress from novice to expert teachers (Dickie et al. 2004, p.120). Such frameworks are in place, or in active development, in a range of other states and territories, including Western Australia and South Australia.

Deborah Wilson Consulting Services (2003) suggests that, with significant changes to the current and future TVET workforce in Australia, professional development is needed to address a larger range of practitioners, including:

- part-time workplace trainers, assessors and mentors
- sessional and casual staff in registered training organisations
- entry-level and inexperienced full-time trainers
- experienced TVET professionals
- coordinators of TVET
- managers of TVET.

Gaps in the way Australia is responding to the challenges of an ageing workforce include a lack of understanding of what motivates professionals to enter or stay in the sector. Most states and territories do not track retention and attrition in their publicly funded system (other than Victoria, currently), unlike various other professions such as nursing. More information is also needed about: the private TVET sector and how people move into, within, and out of, and between it; work in industry; and the public TVET system.

An implication of the ageing workforce and the need to replace retiring practitioners might be the need to consider adopting succession planning strategies. As noted earlier, these strategies could include recruiting casual staff to permanent positions. However, since casual staff often do not have the same educational knowledge as permanent staff, putting in place appropriate professional development strategies and career pathways is essential (Clayton, Fisher & Hughes 2005; Rumsey and Associates 2002; Malley et al. 2000).

In order to retain and cater for older teachers occupying permanent positions in areas of declining demand, improved workforce planning is needed to ensure they have the right balance of current skills and knowledge to move into new or higher-demand areas (Malley et al. 2000).

Conclusions

It is clear that it is timely to acknowledge the importance of the TVET 'industry' in Australia as a significant employer in its own right, as well as the contribution it makes both to supporting the training needs of other industries and Australia's export earnings through off- and on-shore education. Better information about its workforce dynamics is therefore critical.

A search of the international literature and contact by the authors with a range of agencies in New Zealand, Europe, the United States and Canada suggests that, while there is general acknowledgement of the importance of good TVET workforce data, there is, apparently, a lack of readily available, comprehensive and valid statistical information to help inform policy and practice. This is ironic, given the preoccupation the TVET sector can have with workforce data in helping to meet the needs of other 'industries'. This is particularly so, given that the public TVET workforce is, on the whole, substantially older than those it supports in industry more broadly.

Ageing of the TVET workforce is an issue in Australia—and anecdotally seems to be so internationally as well. Both in Australia and internationally there is a paucity of research information and data at the national, jurisdictional and provider levels. Because of this, it is hard for the sector as a whole to develop staffing, recruitment and retention policies. It is also hard for individual providers and the discipline areas within them to determine how they are 'travelling' in relation to a range of key workforce issues—including ageing—with other similar organisations and teaching units with whom they might benchmark. While workforce data are poor for public sector providers in Australia, such data are non-existent in any consolidated form for the private TVET sector. This issue needs to be addressed.

Better data would help us to understand more about the dynamics and local variation in workforce make-up in order to identify the teaching areas where ageing is a real issue requiring effective management and succession planning. In some providers older and more traditional vocational areas may have large numbers of older, permanent staff—perhaps male-dominated. The staffing profile, including their retirement, needs to be effectively managed in order to maintain quality and continuity of service to clients. At the other extreme some teaching areas have high proportions of casual staff supported by a small core of permanent staff. This makes them vulnerable when permanent staff move on or retire, unless effective steps are taken to ensure that knowledge is able to be developed and transferred to those remaining. As McNickle and Cameron (2003) have pointed out, more attention is needed to the issues of job design, workload management and workforce planning.

Apart from local knowledge that is not more widely captured and shared, we also know little about workforce dynamics and turnover. Little is captured beyond the local level in relation to why people leave. As we noted above, we need to understand more about what motivates people to enter the sector, what is important to them in career development terms and what causes them to leave their present TVET employer or the sector altogether. We need more information about the career dynamics of those in the TVET sector and what encourages or discourages people from entering it. Likewise, we have little or no information on the fill rates for vacant positions, nor the time and effort required to find suitable staff when others leave. We know relatively little, except perhaps anecdotally, about the discipline areas in which it is difficult to recruit new staff when required.

All of the change factors and issues for the TVET sector and its training organisations outlined in this paper—and many more—impact on the ways the sector and its staff have to work now and in the future. These also challenge the existing experience base and abilities of TVET staff and help to identify the skill sets the TVET workforce will need to sustain its future. For some TVET staff these changes and development opportunities are willingly embraced. Others find it hard to change as they are set in their ways and comfortable with the status quo. In the end, what is really important is for TVET staff to work in a culture which encourages critical examination of how things are done, or what could be done better. This culture is not necessarily age-dependent. It

depends on how new staff are welcomed and encouraged to contribute new ideas. It depends on how willing those who are already there (and may have been for some considerable time) are open to change.

The leaders and middle managers in training organisations have an important role in getting the cultures and structures right in providing an atmosphere which promotes a learning culture—a sharing of ideas, knowledge and experience—and a culture of excellence and continuous improvement. This needs to be supported by appropriate professional development—perhaps by older staff working with younger staff with more recent workplace experience—to assist the ‘old hands’ to gain new skills needed to meet emerging client and business needs. For their part, older staff can help to transfer knowledge, TVET sector ‘savvy’ and experience to younger staff through a range of processes, such as mentoring. The knowledge transfer system is therefore by no means a one-way street. More flexible arrangements are needed to keep key older staff available. This may include processes which allow progressive disengagement from full-time permanent work without loss of superannuation and other entitlements.

The TVET sector as a whole also needs to be seen as a better employment choice. It needs to be seen, or build its reputation, as a worthy and highly regarded vocation (see de Rooij 2005). In addition, individual training organisations need to work as hard as they can to become an ‘employer of choice’. They are competing against other potential TVET employers as well as industry-based employers who can often offer better salaries. The TVET sector therefore needs to be better aware of where its competitive advantages as an employer lie and should seek to enhance these with more flexible employment conditions, including salary packaging and job design, for example, and multiple employment options in industry and in a teaching role. Such approaches are used in the professions in universities, for example, with legal and medical academic teaching staff.

From anecdotal experience the authors are aware that new staff come to this sector for a range of reasons, including lifestyle, to give back, or because they admired a teacher when they were trained. Effective induction processes are needed to support these new entrants, and older staff need to play their part, as many do, to support and nurture new entrants. Guthrie, Perkins and Nguyen (2006) noted, however, the role that organisational or systemic cultures, including excessive bureaucracy and administrative, can play in job satisfaction and, therefore, potentially, in the loss of key and promising new staff.

Overall, the TVET sector’s strategic human resource practices need to focus more upon developing and supporting the achievement of business goals to improve organisational effectiveness (see Noe et al. 2000). Central to this is the development and promotion of an organisational culture that attracts and retains people with recognised capabilities and the knowledge and skills that will drive the future performance of an organisation (Callan 2005). If issues in this broader context are not adequately addressed alongside the issues of retaining or capturing the key skills of TVET’s ageing workforce and providing appropriate professional development, the chances are that the skills and knowledge that practitioners need will not be properly developed and sustained. This, in turn, will adversely affect the ability of the TVET sector to deliver adequate services at a time when the training it provides is critically needed.

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Discussant's comments

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In many countries throughout the world, the TVET workforce is displaying an increasingly aged profile by comparison with the workforce as a whole. This trend has important implications for the countries concerned, since it is likely to result in an increasing gap between demand and supply regarding TVET skills, and to exacerbate existing problems associated with workforce planning.

The paper by Guthrie and Loveder is a thoughtful and useful contribution to the field and examines this potential problem area as it particularly relates to one country—Australia. The authors point out that, in 2001, over 61% of practitioners in the TVET workforce in Australia were aged 45 years or over, compared with 37% for the Australian workforce as a whole. They also note that this profile is especially true of the TAFE system, compared with the TVET sector as a whole.

After reviewing some key literature on the demographic challenge concerning ageing TVET workforces, the authors provide detailed information on the age profiles of TAFE teachers in various parts of Australia.

As the authors point out, the matter of an ageing TVET workforce in Australia—and the implications of this for labour force supply and demand—is a matter which is currently under-researched, with more analytical work required. A matter of key interest is the comparison between male and female TVET staff, and the need to ascertain whether (as is speculated to be the case) ageing may be more of an issue for male than female TVET staff. It would also be interesting to explore the extent and ways in which an ageing TVET labour force may have some benefits (despite the disadvantages and problems identified in this paper), in view of the high levels of experience of such employees.

The matter of the economic and social implications of an ageing workforce is also an under-researched area within TVET. This is despite the fact that it is a key workforce variable which is likely to impact greatly on the economic development profiles of the countries concerned. The research available on ageing workforces mainly tends to examine the impact of an ageing workforce on pension schemes, with many countries currently extending the retirement age in the hope of making existing superannuation schemes financially viable.

The paper is particularly helpful and detailed when examining the challenges for TVET institutions regarding ageing workplaces. It provides a succinct yet comprehensive summary of key influences which impact on an ageing TVET workforce, both within and outside the TVET sector in Australia. Of special interest is their examination of the forces within the TVET sector itself which continue to change the TVET landscape.

It is clear from the case argued in this paper that TVET institutions are increasingly concerned about their ability to train staff and adapt professional development practices to meet the demands of an increasingly ageing training environment and to meet emerging business-sector needs and expectations.

In a section on Australian strategies and responses to address the challenges of an ageing TVET workforce, the authors pay special attention to the importance of workforce planning and the desirability of offering a wide range of professional development opportunities to employees and employers alike. The importance of TVET institutions adopting long-term planning—rather than simply relying on short-term, often stop-gap measures—is also stressed. NCVET's website provides a wide range of helpful examples which refer to the situation both in Australia and overseas.

This informative and useful paper could be further developed and strengthened by:

- providing a more detailed analysis concerning the specific implications, and potential/actual problems of an ageing TVET workforce in Australia
- exploring in greater detail the matter of gender, regarding the topic under examination
- making some comparisons between the situation in Australia and other similar countries, in order to identify similarities and differences, since this is likely to be of considerable interest to an international audience.