

**Submission to the Senate Committee  
Employment, Workplace Relations and Education References**

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We welcome this opportunity to comment on a number of matters that are the subject of this inquiry. In particular we wish to alert the committee to recent research undertaken that may inform its work.

Today there is a great deal of evidence, which points to radical changes occurring to work and the organisation of work in Australia and other advanced economies. There is also evidence that new expectations are being placed on the contemporary workforce. At the same time the concept of workplace skill that has underpinned much of education and training policies and practices has come under considerable pressure and new ideas concerning learning have also emerged. Taken together these changes have important implications for a number of matters in the terms of reference of the Senate Committee.

We provide an outline of what recent national and international research is telling us about the changing nature of work, skill and learning in contemporary economies. (Attachment 1) and identify what implications this has for the following four matters being considered by the Committee.

- (a) areas of skills shortage and labour demand in different areas and locations, with particular emphasis on projecting future skills requirements.
- (b) the effectiveness of current Commonwealth, state and territory education, training and employment policies, and programs and mechanisms for meeting current and future skills needs, and any recommended improvements
- (c) the effectiveness of industry strategies to meet current and emerging skill needs.
- (e) strategies to anticipate the vocational education and training needs flowing from industry restructuring and redundancies, and any recommended improvements

## **Summary**

### **Changes to work and the organisation of work**

Research evidence suggests that standard employment (conceptualised as a permanent full-time job) is no longer the norm for many Australian workers. Today, the core-periphery model of an organisation's workforce together with the use of casual, part-time, contract and outsourcing is a common feature of the employment landscape. The rate of job change is increasing and new business relationships based around 'supply-chains' are becoming more common.

We contend that these factors weaken the traditional relationship between employers and employees particularly in terms of the commitment of employers to investing in

the training of their workforce. At the same time there is evidence that knowledge work is increasing and greater expectations are being placed on all workers within the contemporary economy. Moreover this evidence suggests workers are increasingly involved in the processes of innovation.

However this involvement requires training and development that moves beyond the acquisition of specific skills – a focus commonly held by employers-

All this suggests:

- increased demand by individuals for publicly funded VET courses that lead to qualifications at the same time as decreasing interest by employers in supporting formal training. (b)
- more diffuse industry categories that reflect the shifting patterns of industry and enterprise relationships in the contemporary economy. (a)
- the changing employment landscape will increase pressure on education and training institutions to become even more flexible in both the content and delivery of programs. (b) (e)
- The need for more broadly based VET curricula that enable workers to more fully contribute to new innovation products and services. (b)

## Skills

Many countries have responded to the challenges presented by the contemporary economy by striving to develop a high skills workforce. Labour market evidence suggests that there has been a rise in high skills work but an even greater rise in employment at the low skills end of the employment spectrum. Moreover there appears to be a hollowing out of demand for intermediate skilled work At the same time the notion of skill has changed with less focus being given to technical skills by employers and increased interest in generic or employability skills. However there is little clarity concerning the requirements of these skills at different levels of the employment spectrum.

This suggests that in the future:

- There will be increased polarization of high skill and low skilled work with implications for equity, access and job mobility. (b) (e)
- There will be a decrease in demand for training by industries with a large intermediate skilled workforce. (a)
- Technical skills development must not be neglected in VET programs (b)
- Greater clarity is required in terms of developing different kinds and levels of generic and employability skills. (b)

## Learning

Learning at and through work is seen as critical in the contemporary economy. Indeed in many ways it is regarded as the most authentic site for developing workplace skills. Today much effort is made to integrate formal learning within educational institutions with learning that takes place at work. However to make the most of learning at work

changes are not only needed in the practices of training providers but also in the human resources practices found in workplaces. In short work needs to be organised in ways that make it more learning conducive. At the same time providers need to organise learning so that it is more work conducive.

Moreover as industries re-structure more individuals will require re-skilling and are likely to require access to authentic work experiences as a crucial element in this process. This will require greater collaboration between enterprises and training providers.

All this suggests:

- That the continuing extension of learning into workplaces requires greater collaboration between enterprises and providers. Greater mutuality of interest needs to be developed in order to make the changes that can lead to more productive outcomes for the enterprise and the worker-learner. (b) (e)
- Enterprises need to be encouraged to provide opportunities for workplace learning for individuals seeking to change or upgrade their employment opportunities by undertaking training programs. (c) (e)
- The expertise of teachers and trainers in this environment is critical yet both the expansion of VET providers and the decentralisation of TAFE institutes has led to a lowering of qualifications of VET practitioners (b)

### **Industry and regional differences**

There is clear evidence that the broad patterns and trends noted above are not equally applicable in all sub-sectors of industry. For example, some industries (such as Tourism and Hospitality) are primarily using casualisation and part-time work as the means for implementing new work methods and structures, others (such as Construction) are primarily using various approaches to self-employment, such as sub-contracting. Moreover, some industries (eg Finance) have shifted relatively little from traditional notions of employment although sections within them such as Banking have changed considerably.

There are indication, too, that the industries undergoing the greatest shifts towards non-standard forms of employment are also those who invest least in the education and training of their workforce.

Significant growth is now occurring in the 'gaps' between industries as traditionally understood. These new industries often develop rapidly and without any significant infrastructure or regulatory controls. In particular, their forward impetus rarely considers their long-term education and training needs.

A further factor that is vital to consider is that, once again, this changing picture of employment is not equally applicable to all regions of the country and nor are employers attempts to address their changing needs through training. The rate of apprenticeship commencement per existing job in rural Tasmania is, eg, 32.5 times greater than Central Perth and 23.2 times that of Inner Sydney (Dumbrell, 2001).

All this suggests:

- Policy and planning needs to consider the significant variations between and within industries, rather than continuing to maintain the present industry-based approach. (b) (e)
- Existing information about these more finely-grained changes remains poor and will need to be improved if we are to progress satisfactorily. (b) (c) (e)
- We need to develop rapid-response mechanisms to support and assist emerging industries and accept the risks inherent in doing so. (b) (e)

### **Education and Training policy**

Since the 1990s, Australia's vocational education and training policy frameworks have shifted from ones focused on occupations to one focused on industries. The changes in industry structures and employment arrangements noted earlier and the growth of 'portfolio' workers suggests that these policy frameworks now need to be more deliberately concerned with both the short- and long-term needs of workers and prospective workers as a whole.

As employers withdraw from longer-term training programs, there is a need for new forms of broadly-based vocational education to emerge that seek to produce a 'beginning employee', rather than a 'competent worker'. Such programs could also have great value in supporting the significant proportion of the workforce each year who shift industries or occupations and for whom, existing arrangements based on workplace experience, are not suitable.

All this suggests:

- Education and training policy needs to consider the significant variations between and within industries, and the diversifying needs of individuals rather than the present industry-based approach. (b) (e)

# ATTACHMENT 1

## Changing work, changing workers, changing skills

### Changing work

A common feature of discussions about contemporary work is that many emphasise the changes to work brought on by the emergence of the 'new economy' (Marginson 2000, Castells 1993, Reich 1993). Although there are a number of different takes on what is meant by the 'new economy', for the most part they all involve reference to:

- the impact of Information and Communication Technology (ICT)
- globalisation of the economy
- technological innovation
- organisational change
- changing employment patterns
- new forms and organisation of work.

Recent research both here and overseas provides compelling evidence that there has indeed been a significant change in organisational structures, changed employment patterns and new forms and organisation of work. Some of the critical changes include:

### ***Growth in non-standard work***

- Marginson (2000) points to the rise of non-standard work, much of which is found at the low skilled end of the employment spectrum. This point is also highlighted in the recent International Labour Office report (ILO 2002)
- The work of Maglen and Shah (1999) indicates that in Australia the biggest growth in employment over the last decade has been at the lowest skill end of the employment spectrum in the personal services sector, mostly in casualised form.
- Moreover, some of our own work (Hawke 2002 and Dumbrell 2002) has shown that non-standard forms of employment are concentrated in particular industries. Further there are two distinct patterns of development – one focused on the growing use of “contractors” and/or self-employment; the other on casualisation and part-time employment.
- Associated with the former of these two trends, there is also evidence of an increase in the numbers of ‘portfolio’ or ‘free agent’ workers who contract to work for organisations on specific projects for specific amounts of time. (Imel 2001)
- As one consequence of these sorts of change, Kerka (2000) points to the increasing incidence of mobility and career movement for contemporary workers. She suggests that current employees can expect more career shifts

in their working lives. Moreover these career shifts are both vertical and horizontal.

### ***New organisational structures***

- Marginson (2000) also notes a trend in contemporary work organisation referred to as the core/periphery model where a core group of permanent staff in an organisation manages a shifting network of temporary employees, outsourcing and consultants. Often this is associated with the break-up of an organisation into a number of autonomous or semi-autonomous entities.
- A related phenomenon is the development of organisational structures established around the notion of the “supply chain” (Tam 2000). In these arrangements a group of often unrelated corporate entities cooperate in a range of staffing and training matters to what is perceived to be their mutual advantage.

A recently published study on the future of work (Buchanan *et al* 2001) confirms many of these findings. The report provides evidence that over the last 15 years, Australia has gone through a period of dramatic occupational upheaval. The study reviewed the extensive literature concerning work and the organisation of work, investigating 6 Australian industries: metals and engineering, construction, finance, information technology, cleaning and family support services. Some of the more significant findings from this study indicate that:

- There has been an overall reduction in ‘middle’ level skilled jobs in the Australian economy. At the same time there has been an increase in both the ‘high’ and ‘low’ level end of the job skills spectrum.
- Today ‘standard’ employment (i.e. permanent, full-time) accounts for only half of the employed workforce. There has been a significant increase in casual and contract work. Permanent part-time workers now constitute 10% of the employed workforce.
- Workplace flexibility has largely been achieved through casualisation, outsourcing and labour hire.
- Moreover the case studies reveal that, within standard work, the problems of understaffing and work intensification are evident in all of the six industries.
- In the six industries studied, nearly all net employment growth has been in part-time, casual, labour-hire and contract employment patterns. Although there is a different mix between industries.
- Traditional career pathways are breaking down in industries where they were once common (eg banking and finance)

As a result the study concludes that:

- New models of work characterise the contemporary Australian labour market. Standard employment based on a full-time permanent employment is no

longer the norm. Part-time, casual, contract and labour-hire employment patterns are now central elements in Australia's employment scene.

- These models of work are the product of changing forms of competition across all sectors of the economy, brought on by the policies of 'globalisation'.
- The 'enterprise' as a 'key' category in understanding changes to work is no longer useful. Today new forms of business organisation that include networks of production, supply chains and outsourcing arrangements are in many ways the 'dynamos' of changes to work.
- While there are general trends in changes to work, there are significant deviations from such trends in particular industries.

There is, however, a cautionary view expressed that suggests these changes might be being overstated. Noonan (2001), for example, suggests that the requirements of the 'new economy' are uneven in terms of their impact on work. He argues that a large number of jobs are likely to continue to be performed in traditional ways well into the foreseeable future, and many workplaces will continue to operate pretty much as they have in the past.

## Knowledge work

Recent talk of the 'new economy' highlights the importance of knowledge and knowledge production in the contemporary economic environment. Indeed, for many, a distinguishing feature of the 'new economy' is its reliance on the creation, application and manipulation of new knowledge in workplaces. (Castells 1993, Johnston 2000. OECD, 2000).

Increasingly 'knowledge work' within industries and organisations is seen as the critical ingredient to economic success. It drives innovation, increases productivity and is the 'raw material' that produces new products, processes and services. The 'knowledge worker' is therefore in some senses regarded as the star of the 'new economy' (Cairney 2000).

There is also some evidence that there has been a shift to more knowledge work not only in the more obvious new industries (IT, biotechnology, nanotechnology) but also more traditional industries including manufacturing.

For example changes in the occupational structure of the Australian manufacturing industry between 1989-2001 reveals the following

Occupation	1989	2001
Managers, professionals & para-professionals	15.5%	25%
Trades	28.5%	25.5%
Lower skilled white collar	15%	15%
Plant & machinery operators	18%	19%
Labourers	23%	15%
TOTAL	100%	100%

(Source AEGIS analysis of Productivity commission & ABS data)

The connection between knowledge work and innovation is of particular significance in an economic environment characterised by intensification of competition and

rapidly changing markets. And there is some evidence to suggest that innovation is indeed largely reliant on the knowledge employees have of the enterprise. For example in Australian Manufacturing, firms attribute the initial idea for innovations to:

production employees 23.4%	technical employees 17.8%	R&D project staff 12.1%
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The same firms also indicate that during the life of an innovation project 44% of the technical aspects of the innovation can be attributed to production employees (source AEGIS citing Innovation in Manufacturing 1996-1997, ABS Cat No81160.0 Table 6).

Researchers in Europe have taken up the role of production employees in the innovation process. Using the term '**work process knowledge**' these researchers suggest that in the contemporary world of manufacturing employees must have knowledge of the full production process, including work flow, planning and control together with wider societal concerns (eg sustainability, environmental damage) that impact on the work of the business. This '**work process knowledge**' is essential if workers are to contribute to innovation. ( Boreham 2002)

The emphasis on 'knowledge production' and the 'knowledge worker' in the new economy has also resulted in a number of commentators criticising education and training providers. They question the adequacy and utility of the content, organisation, production and transmission of knowledge that traditionally takes place in education and training institutions including VET. (Senge 1994)

This position proposes that the knowledge required by the new economy is different from that which has occupied traditional education and training programs. Today, thinking about knowledge emphasises knowledge constructed as practical, interdisciplinary, informal, applied and contextual over knowledge constructed as theoretical, disciplinary, formal, foundational and generalisable.

In many ways, this take on knowledge could be seen as supporting the traditional VET position on knowledge. That is vocational education and training is about providing people with relevant knowledge that can be applied in vocational contexts. However this is not quite so straightforward. As Tennant (2001) suggests, today:

[r]elevance no longer equates with the 'application' of knowledge to the workplace, rather the workplace itself is seen as a site of learning, knowledge and knowledge production.

Workers in the new economy are now expected to contribute to new knowledge production within the workplace rather than merely applying existing knowledge to workplace activities.

Moreover this 'new knowledge' is significantly different from more traditional conceptions.

- The **production** of new knowledge within organisations and enterprises is different from the knowledge outlined in traditional subjects or disciplines, which are common in education and training programs.
- This new knowledge is **high in use value** for the enterprise or organisation. Its deployment has immediate value for the enterprise. Moreover, this

knowledge is **context specific** and its value may well be **short-lived** within the enterprise or organisation.

- This new knowledge is not **foundational** and **cannot be 'codified'** into written texts such as competency standard descriptions, procedural manuals or textbooks but is constructed within the context and environment of the immediate workplace.
- This knowledge is therefore rarely the product of individuals but is constructed through **collaborations and networks** that exist within specific sites and particular contexts.

The implications of these new ideas concerning knowledge remain unclear. As Cairney (2000) points out, the emergence of the 'knowledge economy' is highly contested, with some commentators arguing that its proponents are more in the business of mapping the future than describing the present.

While there is general agreement that new industries including Information and Communication Technologies are highly knowledge intensive, the extent to which other industries can be described similarly remains a matter of conjecture.

However, as firms move to flatter structures there is an inevitable increase in work expectations placed on all employees Cairney (2000). Knowledge production and its deployment has become the vehicle through which innovation takes place. New processes, products and services are the outcomes of new knowledge production, which in turn produce productivity gains can be achieved within organisations. Moreover, this 'productive knowledge' is generated within specific contexts.

This perspective leads to the idea that all workers irrespective of the industry in which they work, now require higher levels of cognitive and intellectual abilities than those once expected.

In summary there are three competing claims regarding knowledge work.

- A general move to a high skills/high performance model in the new economic environment.
- The specific development of knowledge work in knowledge-based industries such as ICT and biotechnology.
- A general increase in the use of knowledge in all industries brought on by increased competitive pressures and new economic conditions.

Which of these scenarios is most persuasive in many ways is important in terms of the nature and future direction of VET provision. For example, research has shown that, in general, new high-skilled, knowledge-intensive industries have low levels of investment in formal training (Cairney 2000). Rather, informal learning in these new industries is regarded as being more useful in developing knowledge needed to perform in a rapidly changing environment.

On the other hand, the general high skills/high performance scenario suggests what is needed is an even greater investment in education and training in order to raise the skill levels of the whole of the workforce.

While the scenario that all industries are now more knowledge intensive suggests that the VET system has a major role to play, albeit a different one than that which it has traditionally undertaken.

Finally new knowledge literatures appear to focus more on the importance of general cognitive abilities and behavioural dispositions rather than technical expertise. They emphasise the workplace as the most authentic and useful site for new knowledge production and suggest that workplace teams and networks rather than individuals are the source and generators of new knowledge within the 'new economy'.

## Changing workers

While there is considerable evidence showing the extent of contemporary changes to work some 'new economy' commentators also point to the need for a 'new' workforce capable of responding to 'new economic times'. They suggest that in order to compete in the 'new economy', countries require a highly skilled workforce capable of contributing more than their labour to economic activity. Moreover these new workers must be more than highly skilled in the traditional vocational sense. New economy workplaces require new kinds of people with new knowledge, skills and dispositions. As Champy (1995) puts it:

[New workers in post-industrial organisations] - must be in the know, able to display the imagination, the resourcefulness, the steady willingness, and the sensitivity to the marketplace needed in today's changing environment.

This kind of thinking suggests that there are significantly changed demands being placed on contemporary workers. They are being asked to bring more of themselves to work and invest more of themselves in work. They are being asked to internalise sets of general behaviours or dispositions seen as essential in the new work order (Gee 2000). New vocational outcomes appear to be focussed as much upon the characteristics, identity and orientations of the person as on skills and knowledge as more traditionally understood.

The recognition of this shift can be found in the changed focus among a number of theorists. Among sociologists for example (eg Giddens, 1991 Rose, 1990 Young, 1998; du Gay 1996; Bernstein 1996) there is new interest in worker identity as a key issue in understanding social (and economic matters). In psychology too, the rise of 'critical psychology' (Henriques et al 1984, Walkerdine 1996) is a related recognition of the socially shaped demands being placed on how individuals experience themselves and their interests. Moreover theories of identity formation and theories of the self widely found in contemporary research often focus on the formation of identity at work.

Perhaps more importantly this position is also reflected in reports that outline what employers now expect of workers. The study *Employability skills for Australian Industry* for example (ACCI/BCA 2002), reviews what Australian and international employers are looking for in the contemporary worker. Although variously described they include such categories as aptitudes, capabilities, capacities and dispositions, which are subsumed under the broad category of generic, employability, essential and key skills.

These include such things as: personal discipline, responsibility, willingness to take risks, loyalty, team spirit, curiosity, learning continuously and the management of motivation, emotion and desire. These kinds of human attributes move far beyond

vocational knowledge and attributes as traditionally understood. Indeed this position suggests that VET pedagogy should be as much in the business of constructing new worker identities as providing workers with vocational skills and knowledge.

Another feature of the focus on the worker-learner of the new economy is that skill development is increasingly being seen as the responsibility of individuals in the workforce rather than a responsibility of the industry or employer for which they work (Buchanan *et al* 2001, SKOPE 2002). At the same time there has also been a major shift of discourse, policy and practice both in organisations and in educational institutions from the focus on teachers, training and courses to learners, learning and learning outcomes.

There is also evidence that the contribution of employers to skill development of the workforce is decreasing. Moreover, the training that is occurring in workplaces is more often than not driven by government legislative changes such as changes to tax law or occupational, health and safety requirements rather than by industry driven skill requirements. (Buchanan *et al* 200, Keep 1999)

## **Changing skill requirements**

The contemporary policy position of many governments is based on the idea that the new economy requires a 'new' workforce capable of responding to 'new economic times'. In order to compete in the global economy, countries and companies must invest in raising the skills of the workforce. (OECD,2000, Papadopolous 1996, ACCI/BCA 2002). This position draws heavily on Human Capital Theory, which suggests that a country's economic performance is intimately connected to the level of skill of its workforce. Consequently, by raising the skills level of the entire workforce, improved economic performance follows. This view is the cornerstone of public policy in this area in most OECD countries.

As was outlined earlier the concept of 'Skill' has also been transformed from being defined in terms of the technical knowledge and skills required of a particular job or occupation, to a concept that includes an array of general and personal capacities and attitudes. Some commentators suggest that this re-conceptualisation of skill is now so loosely defined that it is possible to argue that these 'general' skills are required in both 'high' and 'low' skilled sectors of the economy (Buchanan *et al* 2001). Moreover the notion of high level technical knowledge and skill has, in some senses, been lost in the discussion concerning the new skills required in contemporary workplaces.

In the following sections we outline some of the issues that now dominate discussions around skill.

### **High skill-low skill work**

The OECD position on workplace change is that the emerging workplace is characterised by:-

- Further increases in job complexity, multi-tasking and multi-skilling
- Increased requirements for qualifications for employees as evidence of skills
- Ongoing use of enterprise training for skill formation
- Further reduction in organisational hierarchy

- Increased distribution of responsibility to individuals and teams
- Increased use of performance based pay
- More inter-firm collaborations - including sub-contracting and outsourcing

(Source: OECD, cited in Council of Ministers of Education, Canada (CMEC) (1998) *The Relevance of Education to the World of Work, With a Focus on Youth Employment*, Toronto: CMEC.)

Moreover that in order to meet these challenges countries must strive to develop a high skills workforce. However current evidence to support the high-skills high-performance economic model promoted by the OECD is at best equivocal.

A recently completed study that surveyed Work Skills in Britain 1986-2001 (SKOPE 2002) for example provides some supporting evidence for the emergence of this model.

It concludes that:

- Work skills have generally been increasing in recent years (1986-2000)
- Employers' requirements for qualifications have increased significantly
- Most generic skill requirements of jobs have risen.
- There has been a modest increase in the requirement to learn 'new things' 76% -81%
- A striking increase in the use of advanced technology (IT) — 70% of workers use some form of computerised equipment, 40% regard this as essential to their work.

Although these findings appear to support the idea of a general increase in the skill levels of British employees the study also notes that:

- the prevalence of workers who hold qualifications at a higher level than would be required for getting their jobs has risen. (eg 6.4 million people hold qualifications at level 3 but there are only 4 million jobs that require that level for employment.
- there are also only 2.9 million people in the workforce with no qualifications while there are 6.5 million jobs in the labour market, which require no qualification

Australian commentators also note (Buchanan *et al* 2001) that there are considerable skill variations among different occupational and industry groupings. Some suggest that the high skills –high performance model operates only in the more obvious new knowledge-based industries such as IT, biotechnology and financial services. Others suggest that all industries — be they predominantly high, middle or low skilled — have become more knowledge intensive because competitive pressures have forced firms to move to flatter structures. Therefore this has led to increased work expectations for all employees. (Cairney 2000) However it is important to note the Australian evidence that low skill jobs are the area in which the most rapid increases are occurring in the workforce.

Recently Brown, Green and Lauder (2001) completed a comparative study to see how the high-skills model of workforce development is playing itself out in Britain, Germany, Japan, Singapore, South Korea and the United States. They conclude that the model is understood in different ways in these countries and reflect the historical, cultural, social and political and economic conditions of each country. However they also note that there is no evidence that the emergence of high-skill jobs leads to a general increase in wage rates or higher standards of living. Indeed they suggest that often the opposite happens, producing greater wage disparity and in many cases increases in more low-skilled employment.

## Learning

Today Australian vocational programs that lead to nationally recognised qualifications are delivered both on and off-the-job, by public, private and non-government providers, in workplaces, industries and classrooms, in schools, colleges, universities and enterprises. Government policies have been designed to integrate all forms of work-related learning (public and private, formal and informal, structured and unstructured) into a coherent and unified system of recognition.

Competency based training, recognition of prior learning, the extension of public accreditation and other regulatory processes to industry, enterprises and non-government providers, the development of an Australian Qualifications Framework and the production of training packages have all been measures designed to facilitate this integration.

However, contemporary ideas concerning learning and work have moved beyond the provision of formal award courses by recognised and systemic providers of education and training. As Perelman suggests

Learning is what most adults will be doing for a living in the 21<sup>st</sup> century.  
(Perelman L J, President Kanbrain Institute Virginia, 1999)

If this position is correct, it seems unlikely that any formal education and training system can possibly be sufficiently resourced either publicly or privately to support the continuous learning of every adult for all of their working lives.

Indeed, if learning becomes an integral part of working, arguably formal education and training systems would need to consider what new role they might play in the development of the workforce. One specific implication is that formal education and training is no longer a stand-alone intervention in economic productivity but, to have full effect, must be more systematically linked to a wider strategic human resource management strategy encompassing new approaches to job design and work organisation.

This last point is illustrated by a recently completed research project (Skule and Reichborn 2002) a team of Norwegian researchers investigated the ways in which different Norwegian companies organised work.

The research indicated that more than 60% of workers nominated learning through work as the most important contribution to their learning. Only 10% nominated organised training at work, while 16% nominated vocational training.

However there was wide variation in terms of how conducive their work was to learning. The research team therefore went on to try to identify what characteristics or conditions of work were learning conducive. The research team identified seven conditions.

1. High degree of exposure to change	Degree to which employees are exposed to changes in the form of new technology and new work methods
2. High degree of exposure to demands	Degree to which employees are exposed to demands from customers, management, colleagues or group/network
3. Managerial responsibility	Degree of managerial responsibility in the job
4. A lot of external professional contact	Degree of opportunity to participate in professional forums outside the company, conferences, trade fairs etc. contacts with suppliers and customers
5. Direct feedback	Degree of opportunity to learn through seeing direct result of ones own work
6. Management support for learning	Degree to which the individual employee experiences support and encouragement for learning from management
7. Rewarding of proficiency	Degree of direct and indirect rewarding of increased productivity at work

They went on to suggest that it was insufficient to strengthen just one or two of these characteristics to try to transform existing work into more learning-conducive work. Rather it is the strengthening of all of these in combination that creates learning-conducive work. Moreover the organisation of such work inevitably interacts with the human resources policy of the company or business.

Talk of 'learning in the workplace' (Marsick & Watkins 1990) 'learning organisations' (Senge 1994), 'work-based learning' (Boud & Solomon 2001) 'informal learning' (Garrick 1997), and workplace learning (Billett 2001) all work to promote learning outside of educational institutions as crucial sites for learning in the new economy.

From these perspectives, learning becomes the means by which employees at all levels in organisations are able to contribute to knowledge production, and its swift application in workplace settings. Interest in developing workforce capability has turned to workplace learning rather than structured training as legitimate, indeed crucial to the development of a workforce capable of meeting the numerous and changing demands of contemporary work.

The contemporary workplace becomes the most 'authentic', relevant and 'situated' site for vocational learning particularly when work is organised to facilitate learning. (Elmholdt 2001, Billett 2001) Workplaces structure and routinely provide learning experiences as part of everyday work activities and through guidance from other workers (Billett 2001).

Unlike the learning involved in formal award courses, this form of learning

- does not rely on the intervention of institutionally based teachers or organisationally based workplace trainers.
- is not structured around pre-determined vocational outcomes.
- is not determined by qualifications frameworks and endorsed training packages.

- is not guided by pre-specified content.
- is not organised around the enabling disciplines.

Rather it

- is context bound, driven by specific and immediate work requirements
- emphasises learning over teaching or training as a defining characteristic
- depends on the responsibility for learning being spread between a number of people within the workplace
- is consistent with new learning concepts such as 'learning' networks, 'learning' organisations (Senge 1994) and 'communities of practice' (Wenger 2000).

These new learning theories, together with the idea that continuous learning is integral to work (continuous learning work) have raised questions concerning what new roles the formal VET system might have in this evolving environment.

Training goals vary from industry to industry, government to government, region to region, organisation to organisation, learner to learner and educational sector to sector (Chappell & Hawke 2003) They are also likely to vary depending on the rate of change that occurs in particular jobs, industries and employment sectors. The extent to which learning is integrated into other aspects of business processes and strategies also varies. There is evidence, now, that employers are reducing their commitment to training and satisfying their skill requirements by either expecting their existing workforce to upskill themselves or by "buying-in" the skills they need. The training they do provide is typically much more concerned with immediate, short-term needs than longer-term skill formation.

Furthermore, while there may well be merit in the idea that learning at work is the most authentic and successful form of vocational learning this cannot have universal application. For It relies on learners being in work and figures suggest the majority of learners in VET undertake learning not for the purpose of improving their current employment skills but rather to enter the employment market or to change employment (Booth 2001).

This suggests that while learning 'at' and 'through' work is now a significant focus of VET practice, it has not replaced the need for formal VET programs for individuals who wish to change or improve their prospects within the labour market. Moreover, the organisation of work characterised by non-standard employment including labour-hire, casual and contract work, complicates the workplace learning story in that it is predicated on a relatively stable and on-going relationship between the learner and the workplace.

## References

- Australian Chamber of Commerce and Industry (ACCI) and Business Council of Australia (BCA) (2002) *Employability skills for the future*, Commonwealth of Australia, Canberra.
- Bernstein B (1996) *Pedagogy, Symbolic control and Identity*

- Billett S (2001) *Learning in the Workplace: Strategies for Effective Practice*, Allen & Unwin, Sydney.
- Booth R (2001) The Future of work, *Training Agenda*, vol.9, no.4, pp. 7-8.
- Boreham 2002 *Work Process Knowledge*, Routledge, London
- Boud D & Solomon N (eds) (2001) *Work-based learning: a new higher education?* SRHE and Open University Press, Buckingham.
- Brown P Green A and Lauder H (2001) *High Skills*, Oxford University Press, Oxford
- Buchanan, J, et al. 2001, *Beyond flexibility: Skills and work in the future*, NSW Board of Vocational Education and Training, Sydney.
- Cairney T (2000). *The Knowledge Based Economy: A Review of the Literature*, NSW BVET, Sydney
- Castells M. (1993), 'The Informational Economy and the New International Division of Labour', in Carno M., Castells M., Cohen, S. and Cardoso F.M (Eds) *The New Global Economy in The Information Age; Reflections on our Changing World*, University Park PA , Pennsylvania State University Press.
- Champy J. (1995), *Reengineering Management: the mandate for new leadership*, New York, Harper Business.
- Chappell, C & Hawke, G (2003) *An industry-led VET system: Report 7 - Integrating report*, OVAL Working Paper WP03-07, Research Centre for Vocational Education and Training, University of Technology, Sydney. <http://www.rcvet.uts.edu.au/working2003.htm>
- Council of Ministers of Education, Canada (CMEC) (1998) *The Relevance of Education to the World of Work, With a Focus n Youth Employment*, CMEC, Toronto.
- du Gay P. (1996), *Consumption and Identity at Work*, London, Sage Publications. London
- Dumbrell, T et al (2001) *Locational issues in new apprenticeships*, Leabrook, SA, National Centre for Vocational Education Research.
- Dumbrell, T (2002) *Industry differences in non-standard work*, RCVET Working Paper 02-04, Research Centre for Vocational Education and Training, University of Technology, Sydney. <http://www.rcvet.uts.edu.au/working2002.htm>
- Elmholt C (2001) *What's Productive in a Situated Perspective on Learning?* Working Paper 01/16, University of Technology, Research Centre for Vocational Education and Training. <<http://www.uts.edu.au/>
- Garrick, J (1997), *The Dialectic of informal learning: a study of the discursive effects on the workplace learning of trainers situated within post-industrial corporate agendas*, unpublished PhD thesis, University of Technology, Sydney.
- Gee JP (2000) "The new capitalism: What's new?" in *Working Knowledge: Productive learning at work. Conference proceedings*, University of Technology, Sydney.
- Giddens, A (1991) *Modernity and Self-identity; self and society in the late modern age*, Polity Press Cambridge
- Hawke, G (2002) *Patterns of non-standard employment*, RCVET Working Paper 02-05, Research Centre for Vocational Education and Training, University of Technology, Sydney. <http://www.rcvet.uts.edu.au/working2002.htm>
- Henriques J, Hollway W, Urwin C, Venn C & Walkerdine V (1984) *Changing the subject: psychology, social regulation and subjectivity*, Methuin, London
- Imel S (2001) *Career Development of the Free Agent Worker*, Eric Digest no.228, Eric Clearinghouse, Ohio State University.
- International Labour Office (ILO) (2002) *Learning and Training for Work in the Knowledge Society*, ILO Geneva.

- Johnston D (2000) *The new economy*, OECD, Paris.
- Keep E (1999) Employer attitudes towards adult training, SKOPE, Warwick Business School, University of Warwick
- Kerka S (2000) *Future Work*, Myths and Realities No. 11, Eric Clearinghouse, Ohio State University.
- Maglen L & Shah C (1999) *Emerging occupational patterns in Australia in the era of globalization and rapid technological change: implications for education and training* Working paper No.21, Centre for Economics of Education and Training, Monash University, Melbourne.
- Marginson, S (2000), *The changing nature and organisation of work and the implications for vocational education and training in Australia*, NCVET, Adelaide.
- Marswick, VJ & Watkins, KE (1990), *Informal and incidental learning in the workplace*, Routledge, London.
- Noonan P (2001) *Critical Success Factors for TAFE*, Centre for Economics of Education and Training, Monash University, Melbourne.
- OECD, 2000, *Is there a new economy?* First report of the OECD Growth project, OECD, Paris.
- Papadopoulos G (1996), *Education 1960-1990: The OECD perspective*, OECD, Paris.
- Reich R. (1993), *The Work of Nations: A Blueprint for the Future*, Simon and Schuster, London.
- Rose N (1990) *Governing the Soul; The Shaping of the Private Self*, Routledge, London
- Senge, PM (ed) (1994), *The fifth discipline field book: strategies and tools for building a learning organisation*, Currency Doubleday, Toronto.
- SKOPE 2002 *Work and skills in Britain: 1986-2001*, SKOPE, Oxford University, Oxford.
- Skule, S and Reichborn, A N 2002, *Learning-conducive work: a survey of learning conditions in Norwegian workplaces. Cedefop Panorama Series, 30*, Office for Official Publications of the European Communities, Luxembourg.
- Tam, E Y L 2000, 'Benchmarking in supply chain management: a process to find a better way, rather than an attempt to reinvent the proverbial wheel', in *IVETA conference 2000: vocational education and training for life long learning in the information era, Hong Kong, 6-9 August 2000: conference proceedings: [theme: program standards]*, IVETA, Hong Kong.
- Tennant (2001) *Doctoring the knowledge worker*, RCVET working paper, O1-15, Research Centre for Vocational Education and Training, University of Technology, Sydney.  
<http://www.rcvet.uts.edu.au/workingpre.htm>.
- Walkerdine V (1996) subjectivity and social class; new directions for feminist psychology, *Feminism and psychology* v6(3) 355-360
- Wenger E (2000) "Communities of practice and social learning systems", *Organisation*, vol. 7, no.2, pp. 225-246.
- Young M F D (1998) *The Curriculum of the Future*, Falmer Press, London