

Journal of Education and Work – Copy sent on 8/08/02

Older and Younger Workers' Conceptions of Work and Learning at Work: a challenge to emerging work practices¹

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Abstract

Thirty nine participants aged over 40 and 16 participants aged under 40, from a medical organization and a transport organization, were interviewed to obtain data regarding their conceptions of work and learning at work amidst changing workplace practices. A phenomenographic approach was adopted to analyse the data. Frequency distributions of conceptions and a comparative analysis between the two age groups were also carried out. In addition, an analysis of the implications of these conceptions was conducted to understand workers' behaviours in light of current changes in work practices and to assess the potential implications for knowledge creation and use. The results indicated that there were four and five hierarchical conceptions for work and learning at work respectively and that these were spread across Australian Qualifications Framework (AQF) levels and workplaces. There were also differences between the two age groups and their distribution across the conceptions.

Introduction

We live in an era driven by information and global competition. Many jobs are different from those of an earlier industrial era as are industries and associated skills in the workplace. Matthews and Candy (1999) depict the evolution in work practices as one that moved from the agricultural age to the industrial age and more recently from the industrial to the post-industrial age. New technologies along with accelerated economic growth and organizational restructuring are changing the way workers think and work. Such changes are depicted by Casey (1999) as constituting the post-industrial society. While the Industrial Revolution was built on machinery, skills and labour the information and knowledge-based revolution of the 21st Century is being built largely on investment in intellect and creativity. Consequently, the creation of knowledge and the application of knowledge in work practices has become a dominant theme in recent studies of education and training (Starkey, 1996).

Changes associated with the post-industrial age are regarded by some as constituting the “new capitalism” (Gee, Hull & Lankshear, 1996). Lankshear (1997) explains the new capitalism as comprising several factors including: productivity that is increasingly dependent upon applied science and technology and the quality of information and management, a shift from material production to information-processing activities, a shift from standardized mass production to flexible specialization and increased innovation and adaptability, a global market, and the current information technology revolution. The new capitalism or ‘new economy’ is defined by others as emerging during the 1990s and as including globalization, intensified international competition, and technological innovation (Fraumeni & Landefeld, 2000); structural changes in product and labour markets (Davies, 2000); and a knowledge and idea-based economy (Atkinson & Court, 1998). Jentsch (2001) depicts the new economy as synonymous with widespread use of the Internet and information access which began in 1990. While it is apparent that workplaces are changing, it is not clear how pervasive aspects of the new capitalism are in industry today.

¹ This study was funded through an Australian Research Council Large Grant, A10024103, to the first two investigators and Prof. Collin Lankshear from the University of Central Queensland.

It is evident that information, technology and knowledge are becoming valued commodities in workplaces. Drucker (1993) contends that knowledge has become the resource that has displaced financial capital and labour to become the sole factor of production. Associated with information and knowledge production is learning in the workplace if workers are to keep abreast of related changes to work practices. Essentially it is proposed that workers need continuous education and development (DfEE, 1998) and that training should move from development of skills to development of knowledge. However, despite learning being seen as part of work practices there has been little attempt to understand the relationship between learning and work as perceived by workers, and the implications of these perceptions for knowledge creation and application to emerging work practices.

We investigated conceptions of work and learning at work for a sample of older and younger workers. Older workers received their training during the industrial era where skills development was the main focus. This is in contrast to younger workers who grew up and received their education in the knowledge age and may be more comfortable with emergent work practices. With this in mind there is a need to identify and understand any constraining issues experienced by older workers, compare them with younger workers and make this information available to perhaps help them develop the competencies of what is becoming a knowledge-driven world.

Conceptions and New Workplace Cultures

Developing new knowledge leads to innovation and new strategic directions (Stacey, 1996). New knowledge is generated when knowledge is made explicit and is shared. This can occur when subjective insight (such as tacit knowledge) which reveals itself as 'know-how' and is manifested in mental models, beliefs and perspectives, and the way workers understand their world, is tapped and brought to the surface for use by organizations (Nonaka, 1991). Studies in conceptions are one way of bringing thoughts and beliefs to the surface. A conception is explained as being dependent on both human activity and the world that is external to an individual and as encompassing "the meanings and understanding of phenomena" (Svensson, 1997, p. 163). Morgan and Beaty (1997) describe a conception as a focus of awareness that constitutes part of a person's experience. Therefore a conception of work is based on a worker's experience and awareness of work and comprises what work means to him or her.

Recent studies in epistemology and conceptions of learning suggest that individuals' beliefs about knowledge and learning influence how they learn (Biggs, 1999; Marton, 1998; Schommer, 1994; Trigwell & Prosser, 1991). Extending the findings of these studies it is plausible to argue that, if workers do not consider learning as part of their conception of work then the approaches they adopt in their practice may not explicitly include learning. Thus, it may be difficult to convince workers to subscribe to the emerging new workplace cultures which should include learning. For example workers whose conception of work does not include learning, or who see work and learning as two distinctly different entities would fail to adopt an integrated approach to learning and work (Hammer, 1994; Pillay, Brownlee & McCrindle, 1998). Also, workers with such conceptions would be unlikely to see purpose in integrating knowledge from different sources in constructing personal meaning and consequently fail to recognise knowledge as a personal attribute that supports their own self-development (Pillay et al., 1998). We assert that the nature of conceptions held by workers will influence how they approach learning within their work and ultimately, impact on the processes of knowledge creation for themselves and in their organizations.

Whilst studies have examined conceptions of learning (Marton, 1998) and conceptions of teaching (Trigwell & Prosser, 1991), we could not find any studies that have considered both conceptions of work and conceptions of learning at work. There are others who have considered conceptions of aspects of work but mainly from a productivity perspective (Furnham 1997; Sandberg 2000). Conceptions of learning at work were investigated by Collin (2001) for development engineers and product designers in Finland. This study found six conceptions of learning at work that included learning from doing the work itself, learning as co-operation and

interaction with colleagues, and learning through formal education. The importance of social interactions and challenges in the workplace forming a basis for learning were also apparent.

The increasing expectation to integrate work and learning takes for granted that workers (who are also learners) understand and accept assumptions regarding work practices and learning inherent in emerging work practices. If the need for learning at work gains impetus, which some believe will be the case (Boud & Garrick, 1999; Gallacher & Reeve, 2000), then what is known from studies in organizational psychology (DuBrin, 1997) needs to be considered. For example the knowledge that successful and sustainable change to human behaviors is influenced by beliefs should be taken into account. Thus to foster the creation of new knowledge (integration of work and learning) as part of new work practices there is a need to understand the conceptions (beliefs) of workers and then to challenge and provoke people's belief systems (Stacey, 1996).

We believe it is possible that dissonance may exist between the Australian Qualifications Framework (AQF) levels of the workers in this study and their conceptions of work and learning at work. The AQF is a framework for qualifications that is based on a quality assured national system of educational recognition (Australian National Training Authority, 2001). Qualifications range from Certificates to Diplomas and Degrees. The Framework comprises educational recognition which promotes lifelong learning within a diverse education and training system (Australian Qualifications Framework, 2001). The AQF specifications are a "measure of our intellectual capital and increasingly important in a society where unskilled jobs have disappeared and continuous upskilling is required in all forms of work and day-to-day life" (Australian Qualifications Framework, 2001). Each level of qualification has associated competencies, which in turn reflect the types of jobs that are linked to the respective AQF levels. This is an ideal framework but in reality people are often appointed to positions that do not match their qualification and competencies as many organizations have their own internal systems for appointment.

Dissonance between the AQF levels of workers and their conceptions of work and learning at work may involve their belief systems about what constitutes knowledge and productivity in the new capitalism as it relates to their level of employment. The study reported here attempts to (a) develop an understanding of workers' conceptions of work and learning at work in the changing environment and (b) to compare and contrast the conceptions held by two different age groups. This will provide a framework for understanding how these conceptions could impact upon workers' abilities to adopt new competencies and create knowledge in emerging workplace cultures.

Methodology

Sample

The sample comprised two groups; *Older* and *Younger* workers. Older workers received their education and training during the industrial era and have been working since then (approximate age 40+ years). This group was further stratified into two cohorts with 19 from a medical service industry and 20 from a transport industry. The younger workers were from the same two organizations as the older workers. Seven were from the medical service industry and nine were from the transport industry. These workers were classified as younger workers (below 40 years of age) and they received their education and training during the era of the emerging 'new capitalism'.

The medical service workers mainly constituted administrative and security staff who worked at an established, large metropolitan private hospital that provides health and diagnostic services. An Education Centre, based at the hospital, offers workers an education calendar of schedules for impending courses that they can nominate to undertake. A mission of the Education Centre is to translate the relevant aspects of the hospital's Corporate and Operational Plans into reality by providing staff with the opportunities to reach their full potential. Training options undertaken by workers in this study included learning or upgrading skills in Microsoft Office applications, communication skills, and workplace health and safety practices. The engineering industry workers constituted train drivers, trainers and supervisors, train terminal operators, and maintenance workers. On-site training is provided for these workers which includes courses in computing,

shunting and train examining, and workplace health and safety practices. They are also encouraged to undertake formal study.

Procedure

Each participant was interviewed for approximately an hour to discuss his or her conception of work and learning at work and related issues. They were asked a number of probe questions to stimulate their thinking about work, their work processes and their perception of the culture of work. For example they were asked about their past work experiences including training, what their job entailed, the competencies they needed to carry out their job, and what changes they may have experienced in their job. There were similar probe questions soliciting understanding of learning and the nexus between learning and work. The interviews were transcribed and summarized for analysis.

Data Analysis

The transcribed data were analysed in a modified phenomenographic method, based on Marton's (1994) work on phenomenography, to derive conceptions. Initially the transcripts were read to identify categories that delineated the conceptions of work and the nature of learning at work. Based on Alexanderson's (cited in Sandberg, 2000) argument that after 20 participants any variations reach saturation and generally no new conceptions emerge, a group of 20 older workers' transcripts were selected randomly to identify conceptions. The research team jointly discussed the categories which involved the "reduction of unimportant dissimilarities, for example terminology or other superficial characteristics, and the integration and generalisation of important similarities, that is, a specialisation of the core elements which make up the content and structure of a given category" (Dahlgren, 1984, p. 24). This resulted in an interim set of conceptions of work and conceptions of learning at work. The same procedure was repeated for the sample of younger workers. While most participants held a range of conceptions, they were assigned to their highest conception of learning and work as evidenced in their transcripts. A subsequent analysis was undertaken to determine the distribution of the samples at each AQF level against their highest conceptions of work and learning at work.

Results

Previously we reported results of the first part of this study relating to the older workers' conceptions of work and learning at work (Pillay, Boulton-Lewis & Lankshear, 2002). A part of that analysis involved examining the data for differences between the two work organizations for the conceptions held by the workers. No apparent differences were evident in the range of conceptions. We also analysed the data from the current study for differences between the two organizations for conceptions held by the workers and again found that there were no apparent differences other than in distributions as explained below.

Conceptions of Work

Table 1 presents a summary of conceptions of work, workers at each AQF level who held the conception, and key terms from the transcripts. We identified four conceptions of work in a hierarchical structure as follows: *work as a job*, *work as a challenging experience*, *work as personally empowering*, and *work as an important part of life*. The hierarchical structure is consistent with other studies (Boulton-Lewis, Marton, Lewis & Wilss, 2000; Marton et al., 1993) in conceptions. It assumes that each conception logically subsumes and builds on the conception below it (Richardson, 1999) and indicates that the conceptions are relational. Workers who were classified at a higher-level conception often also expressed one or more conceptions at a lower level.

PLACE TABLE I ABOUT HERE

The first conception, *work as a job*, is the most basic conception of work and responses that evidenced this conception were concise. Essentially, the workers viewed work as a means to an end with a focus on money, security and survival needs. It was seen as duty which required following set procedures. Some younger workers also considered that work as a job included self organizational skills, in terms of preparing oneself for work, while others reported that it meant

providing a service. Aspects of work such as developing new technical, socio-cultural or personal skills were not apparent in this conception.

... it means getting paid once a month doesn't it?...you can't do without it...if you don't work you don't get any money. (Older worker)

... work means I've got to go and start work, so I've got to be well rested, clean and tidy, and be prepared for the day. What sort of job I'm doing that day to what clothes I wear for the day, and what bag I pack, and what food I pack, what time I'm going to be home to tell the wife and kids and that... (Younger worker)

The second conception, *work as a challenging experience*, extends the previous conception as work was described in terms that indicated it often presented challenges. Challenge was viewed as a positive experience even if it caused tension within the worker and required significant effort. This suggests that work was seen as more than a task to be performed as workers recognized the challenging aspects of their day-to-day tasks and met the challenges by pursuing solutions. There seemed to be an intrinsic satisfaction in the challenge as well as an ensuing sense of self-worth. For two of the younger workers the challenge was attributed to increased workloads and balancing one's private and work lives. The younger workers also seemed to be more proactive in taking up challenges and accepting the changing work practices. While workers acknowledged the inherently challenging aspects of work they did not describe this as an empowering experience.

I enjoy the challenge of coming to work, I enjoy the staff I work with... It's something new, a change, and change is a challenge, and people who won't...that is a problem. (Older worker)

Work is thinking outside the box, looking for new paradigms, thinking about new and innovative ways of doing things as opposed to the old techniques. (Older worker)

Work is being able to come to a market place.... and be able to provide a service for someone long term...that's basically what I think work is. (Younger worker)

The third conception, *work as personally empowering*, is described in terms of self-development. This included experiences that provided workers with opportunities to gain insight into job related knowledge and skills and resulted in them building confidence. This often also involved facing inherent challenges. Individuals who conceived of work as empowerment consequently took on the challenges and through accomplishing them felt empowered. The conception of empowerment could free workers from seeing themselves as 'slaves' to their job. While work as personally empowering was described as including aspects of the worker's life it was not described as an important part of life as is evident in the next conception. This was particularly true for older workers.

... we had to change it so that rather than every year being over the budget and being pointed at and saying improve...we could actually control our destiny....(Older worker)

... it is my job and the bottom line is that I want to make it secure and efficient...if efficient makes me redundant I would like to put my head up high and say I have done the job well... (Older worker)

The fourth conception was *work as an important part of life*. Statements such as, 'I define myself by my work' and 'work means everything to me' exemplify this conception. This conception emerges from the workers' belief that work and their life in general are interconnected. This is particularly evident in one younger worker's comment that "work is a lifestyle choice". We believe that this is the highest-level conception of work and only a few workers actually subscribed to it. It appears that the duality of work and life have been resolved to become one overall purpose. This conception subsumes and builds on all the previous conceptions.

Work is satisfaction... ..when I come to work and then I go home I have a good day. I got the train out on time...12/13 hundred meters long and all the wagons were fine...and I can guarantee that the train will get to Melbourne. (Older worker)

Work has become a big part of my life...it has to be complete even if I have to stay longer to meet the deadline ... and I don't meet them I'll feel incompetent. (Younger worker)

Conceptions of Learning at Work

Table 2 presents a summary of the conceptions of learning at work, workers at each AQF level who held the conception, and key terms from the transcripts. Again, in considering the structure of conceptions of learning at work we believe there is a hierarchy. *Acquiring skills to survive* is the lowest conception.

PLACE TABLE II ABOUT HERE

The first conception *acquiring skills to survive* seems to be commensurate with the continuous changes in contemporary workplaces. The workers perceived a need to constantly and simultaneously upgrade and diversify their skills to remain employable. Workers reported that in an attempt to stay employed they used means such as trial and error and reading manuals to learn the bare essentials. For the older workers learning was simply a means by which they could get through everyday tasks. However the younger workers seemed to be more open and acknowledge that some form of learning occurs all the time at work. In fact one stated “Learning happens without you knowing it”. Whilst almost all workers mentioned this conception no worker held it as their highest conception.

Once you leave the depot, there’s no one out there to help you, you’ve got to be able to do it yourself. (Older worker)

. . . Excel, there was so much more I saw the other guys doing and I thought how do you do that? So they’d show me and then I’d take on different roles from other people...” (Younger worker)

The second conception of learning at work, *onsite observing and experiencing*, involves seeing learning as an immersion process. It emphasizes the importance of a gradual accumulation of experiences and skills which separates this conception from the previous one. This conception is also distinct from the previous one as it depicts learning at work as building knowledge and developing competence over a prolonged period of time. *Onsite observing and experiencing* assumes that learning occurs when workers observe and apply knowledge and skills and consequently develop understanding. However, it does not make the distinction between accumulation and construction of knowledge, which is a significant shift in mindset and seems necessary for the integrated learning and work phenomenon advocated in the work practices of the emerging new capitalism. This conception also confines learning to the workplace which is different from the next three conceptions where workers recognise a need to move beyond work to further their skills and knowledge about work.

Learning is best achieved by working up from the factory floor...experiencing the various aspects of the organization. (Older worker)

. . . to learn I’m a hands on person, I learn as I’m doing it, or I learn as I’m watching someone else, you know as I’m helping someone else do it and that’s how I learn. (Older worker)

The third conception of learning at work as *taking formal courses* was predominantly evidenced by the older workers. It focuses on structured instruction delivered in the workplace or at educational institutions. Such learning can include on-site observing and experiencing but it requires more than an immersion as suggested in the previous conception; learning does not happen just by being in the workplace. In this conception attention and effort are directed and the outcome is intentional. Although workplace based education is valued it is not considered to be an integral part of work.

I’m looking for ways of being more efficient that’s why I did the computer courses. (Older worker)

I learnt a lot when we had the (Company X) Rail Assessors course. (Older worker)

The fourth conception of learning at work, *a continuous lifelong process*, was interesting as it reflected awareness from a narrow survival focus to an open ended commitment to learning. The

need to learn from all experiences whether they are informal, formal, vicarious, intentional, and all the time throughout one's life is described in this conception. Consequently learning is not confined to work or formal and informal courses, it is all encompassing and as such this conception supersedes all previous conceptions. However, it does not encapsulate the total transformation of a person from learning as is evidenced in the next conception.

I read a lot, and um I go to lectures and things on the subjects that interest me. (Older worker)

I am always reading magazines, newspaper articles, always keep up. I am on the web looking up what's new . . . (manufacturers) love showing off their products...so you are always learning what's new. (Older worker)

The fifth conception of learning at work, *changing as person*, is similar to the highest level in Marton et al.'s (1993) conceptions of learning. One of the older workers reported that through learning at work and personal education he came to appreciate situations, concepts and other issues differently. The rigid demarcation between work, learning at work and learning in everyday activities was blurred and there was recognition that changes in one aspect can influence one's attitudes and behaviour in the other two. Thus there was a sense of satisfaction gained through learning and work and this led to a realisation of personal change.

I think much, much more now. . . . I find now that I have changed. I have got to understand what technologies are, political correctness is . . . I came here, I've been taught computers. I even bought my own computer. I know from what's been given to me here and what I've done myself it's made me an entirely different human being. I quite like the person that I am. (Older worker)

Distribution of Conceptions of Work and Learning at Work by Workplace and AQF Levels

The distribution of younger and older workers by AQF levels and according to their highest conception of work is shown in Table 1. *Work as a job* was the highest conception for almost half (46%) of the older workers. Also the largest number of workers from the two groups combined held this conception. A large percentage of both groups held the conception of *work as personally empowering* as their highest conception, that is 44% of the Younger workers and 31% of the older workers. A larger percentage of younger workers than older workers held the conception *work as a challenging experience* and there was little difference between the percentage of workers from each group who held the conception, *work as an important part of my life*. Overall almost half the participants in the study held conceptions that were at the lower two levels.

The distribution of younger and older workers by AQF levels for conceptions of learning at work is shown in Table II. The distribution of workers from each group for the conceptions of learning at work revealed differences between the groups. Almost half of the older workers (48%) held as their highest conception of learning at work *taking formal courses* while the younger workers were almost evenly divided amongst conceptions 2, 3 and 4. The second most frequent conception for the older workers (28%) and most frequent conception for the younger workers (38%) was *onsite observing and experiencing*. The conception of learning as a *continuous lifelong process* was reported by more younger workers (31%) than older workers (21%). Only one older worker held the conception of learning at work, *changing as a person* and he was at AQF level 2/3.

Discussion

This study investigated older and younger workers' conceptions of work and learning at work. The aim was to determine and compare the conceptions held by both groups, and to provide a framework for understanding how these conceptions impact upon workers in adopting competencies and creating knowledge in the current climate of change associated with the emerging new capitalism. This is important, as there is ample advocacy for the new capitalism yet little empirical evidence to guide the transition or of its effect. While both groups held the same range of conceptions of work and learning at work, it was interesting to note the difference in the distribution of older and younger workers across the conceptions. There were also variations within some conceptions that indicated differences between the older and younger workers. The fact that most workers held low-level conceptions of work casts doubt on the effectiveness of large investments in training reform that is aligned with the emerging new capitalism and being undertaken by governments and many large organizations. Overall the findings of this study hold implications for

emerging work practices that expect workers to develop knowledge within a changing workplace culture.

The distribution of older and younger workers for the conceptions of work revealed that almost half of the older workers viewed *work as a job*. This may be a result of many years spent in the workforce where rather than being innovative and developing value added products, the focus was on repetitious tasks and mass production of goods at cheaper costs. Such detached processes may prevent individuals from seeing the reciprocal benefits between work and the contribution to their own growth and development as well as that of the organization. On the other hand the pressure for change may be seen as overwhelming or irrelevant and workers could become indifferent to the job and just perform the routine tasks. Overall, 40% of workers stated *work was a job* and only 12% of workers believed that *work was a challenging experience* or *an important part of life*. This is interesting since the latter two conceptions would fit better with the expectations of the new capitalism but, as our data indicates, they do not seem to be recognised by many workers. Believing in *work as [just] a job* is not conducive to an emerging workplace culture that values knowledge creation, learning and thinking critically (Gee et al., 1996). The older workers' responses indicated that they focussed on routine aspects of work stating that it provided an income and was a means of surviving however some younger workers regarded *work as a job* in terms of their own identity.

Almost half of the younger workers stated that *work was personally empowering*. This may be attributed to ambitions held by the younger workers as they have a relatively longer working life and perhaps see more prospects in the future. Alternatively they may see work as something that, in part, determines who they are and what they do and as an ongoing activity. Many of the younger workers are striving to find their place within their field of work whereas the older workers may have been given the assurance of lifelong work when they commenced working. It is possible that the older workers will be less likely to integrate new work practices within their existing knowledge; this may have repercussions regarding productivity at work and the assimilation of the emerging trend of learning at work that is associated with new work practices.

Only a small percentage of workers from each group explained *work as a challenging experience*. For those who did, the challenge was associated with the work task and not with the individual's growth or development of knowledge, something that is central to the development of lifelong learning in workers (Gallagher, 2001). The conception assumes a separation between tasks and individuals as it does not recognize the reciprocal benefit to the worker and the workplace in resolving challenging experiences. The younger workers seemed more readily to accept challenge to build self-esteem and learn responsibilities but at the same time they stated that challenges are not to interfere with one's personal time. As such they have negotiated the benefits of accepting work as a challenge for self-growth but life experiences and work practices are not integrated. This may compromise opportunities to be innovative in the workplace (Lankshear, 1997).

The other two conceptions, *work as personally empowering* and *work as an important part of life*, have potential to complement values of the new capitalism such as lifelong and continuous learning as advocated by Ilamel and Prahald (1994). These conceptions extend the specifics of job related activities to self-development and recognise the changes in society which in turn influence how individuals engage with their work. Whilst some in both groups expressed similar views of *work as personally empowering* the younger workers held a more pro-active approach and had a sense of control over the integration of work and life (Pillay et al., 1998). The shift to *work as an important part of my life*, illustrates workers' recognition of the reciprocal influence of work in enhancing or changing one's life as well as events outside of work changing work practices. While only a few older and younger workers held this conception it is probable that these workers will be able to adapt more readily to emerging changes in contemporary work practices.

The five hierarchical conceptions of learning at work are similar to Marton et al.'s (1993) conceptions of learning and some of Collin's (2001) conceptions of learning at work. The first two conceptions of learning at work are described as a means to an end. They focus on acquiring technical skills by following set procedures, which reflects a surface approach to learning that may

conflict with emerging new work practices (see Illamel & Prahalad, 1994). In addition the second conception, *on-site observing and experiencing*, focuses on learning specific details of a large number of performance requirements and recalling when necessary rather than developing a new mindset. This is similar to a conception of learning at work found by Collin for product designers and developmental engineers. These workers stated that they *learnt from doing the work itself*, which involved observing and modelling oneself on colleagues at work. However workers did not recognise the connection between learning and self-development which is a fundamental shift advocated in the new work practices.

Taking formal courses is based on the workers' perception of a formal course being structured and one that has certification. More older than younger workers held this conception. Collin (2001) also found this conception of learning at work for the product designers and developmental engineers in Finland. We did not expect the older workers to be open to taking formal courses however it is positive in that many of these workers may be cognisant of and ready to accept learning in this way as a part of their work. At the same time it is understandable given that the emerging work-practices are, perhaps, impacting on them most and making them feel vulnerable that they subscribe to this conception of taking formal courses as a means of maintaining employment. Very few younger workers reported learning at work by taking formal courses. It is important that these workers be encouraged to participate in formal courses so they maintain and upgrade their skills continuously. This difference could be a result of recognition by the older workers that their earlier training may not be sufficient for them to remain employed whereas the younger workers had recently completed their initial training which may have included formal study.

The most highly advocated attribute of the new capitalism is arguably the notion of lifelong learning. The conception of learning as *a continuous lifelong process* is not evident in any of the lower level conceptions of learning. In this conception workers described the need to constantly search for new information as the processes and technology they use, and services they provide, keep changing. It is assumed that through this search for knowledge they may recognize a need to change their fundamental perspective of life and thinking from that of an industrial era to that of a knowledge driven workplace. Only one older worker held the highest conception of learning at work, *changing as a person*. He could see the mutual interaction of learning, work and his individual life. This worker held a low AQF level of 2/3 and it is surprising he held this conception of work.

The distribution of workers according to AQF levels is of interest as there is dissonance between the AQF levels of some workers and their conception of work and learning at work. Some AQF 6/7 older workers held low level conceptions of work and many held low level conceptions of learning at work. According to expectations of the new capitalism this may be cause for concern in terms of their leadership. Many of these AQF 6/7 older workers were promoted to leadership positions because they had spent considerable time within the organization rather than on the basis of their qualifications. However this does not mean that they integrated the thinking and practices associated with new work environments. In fact many of them could have earned their promotion because of their skills in working with the traditional practices. This presents a contradiction between the advocacy of the new work practices and the reality. It could be argued that as a consequence they may unintentionally promote work practices of an earlier industrial society and hinder the progress of the transition to new work practices. On the other hand the AQF 6/7s amongst the younger workers held high level conceptions of work indicating some degree of correlation. This concurs with the general perception that older workers may experience more difficulty is dealing with the advocacies of new capitalism.

The design of this study allowed us to compare the conception of workers from two different organizations. This was undertaken in order to understand the effect of organizational cultures on shaping workers conceptions. Despite the assertion made in the literature about the role of organizational cultures on worker performance there was almost negligible difference between the two organizations in the way the conceptions were distributed.

Conclusion

This study reports on data concerning workers' experiences of the changes occurring in their work environments. In particular the integrated nature of work and learning were examined. The findings indicate that many workers held lower level conceptions of work and learning at work and there were differences between the distribution of older and younger workers and their conceptions of work and learning at work. The lower level conceptions of work are not conducive to changing work practices where innovation and creative and autonomous thinking are valued. The two highest conceptions of work, *work as personally empowering* and *work as an important part of my life*, and learning at work, *a continuous lifelong process* and *changing as a person*, complement each other in that they all relate to working and learning for personal gain or satisfaction that will lead to empowerment in work situations. Workers who hold these conceptions are more likely to think critically, reflectively and creatively and to invest themselves in their work. Consequently, it appears that many workers in this study would need to develop higher conceptions of work if they are to be innovative and effective workers in the changing workplace.

The findings in this study also point to the notion that the new workplace culture is not a well established part of the workplaces where this study took place. We suggest that if there is a global trend towards new workplace practices involving knowledge creation and creativity at work then, given time, they will become more pervasive in all forms of industry. If we accept that, then there is a need to educate workers and organizations about these practices and to create opportunities for workers to develop competencies associated with knowledge creation and the integration of work and other areas of life. While the public and private sectors in Australian Government, and many other countries have invested a lot in training and reforming work practices (including the two organizations involved in this study) there is little evidence of any substantial effect. Perhaps the investments are not addressing the types of training needs to transform the workers, particularly the older workers, into knowledge workers. Without carefully targeting such investments based on good empirical studies the 'take-up' of these new advocacies and work practices may not easily be realised.

The distribution of workers by conceptions of learning at work revealed that nearly half of the older workers believed that learning at work constituted *taking formal courses* whereas about a third of the younger workers believed it constituted *on-site observing and experiencing*. This suggests that adopting "one size fits all" approach to training may not be useful if workers have such different conceptions. We believe these findings call for a more grounded approach to training that can impact on fundamental values and beliefs of the workers rather than the prevalent focus on skills development. This may also encourage workers to be creative, insightful and responsible for changed practices.

Finally, the dissonance between the AQF levels and the conceptions of work and learning at work held by some workers has implications for leadership roles. The AQF 6/7 workers holding low level conceptions could be a hindrance to promoting the values and beliefs that underpin the new work practices and consequently to assisting older workers in the transition. This calls for a reassessment of the ways in which AQF 6/7 workers are made aware of emerging trends in the workplace and possibly the content of training courses.

We acknowledge that our study is limited in context as only two workplaces were investigated. Nevertheless, it is the first study that we know of that has considered workers' experience and awareness of the changing work practices by investigating both their conceptions of work and learning at work. It provides data for other studies to examine the changing culture of the workplace associated with the new capitalism from the workers' perspective. Further, large-scale studies involving organizations with different work cultures should be undertaken.

References

ATKINSON, R., & COURT, R. (1998). *The new economy index*. Report, Nov. 1998. Available: <http://www.neweconomyindex.org>

- AUSTRALIAN NATIONAL TRAINING AUTHORITY. (2001). *Australian qualifications framework*.
Available at: <http://www.anta.gov.au/tpkQualifications.asp>
- AUSTRALIAN QUALIFICATIONS FRAMEWORK. (2001). *About AQF*.
Available at: <http://www.aqf.edu.au/aboutaqf.htm#when>
- BIGGS, J. (1999). *Teaching for quality learning at university*. Open University Press/SHRE, Buckingham: UK.
- BOUD, D., & GARRICK, J. (1999). Understandings of workplace learning. In D. Boud & J. Garrick (Eds.), *Understanding learning at work* (p. 1-11). London: Routledge.
- BOULTON-LEWIS, G.M., MARTON, F., LEWIS, D., & WILSS, L.A. (2000). Learning in formal and informal contexts: Conceptions and strategies of Aboriginal and Torres Strait Islander university students. *Learning and Instruction*, 10, 393-414.
- CASEY, C. (1999). The changing contexts of work. In D. Boud & J. Garrick (Eds.), *Understanding learning at work* (p. 1-11). London: Routledge.
- COLLIN, K. (2001). Development engineers' conceptions of learning at work. Paper presented at *Second Conference on Research Work and Learning*, 26-28 July, 2001, Calgary, Canada.
- DAHLGREN, L.O. (1984). Outcomes of learning', in: F. MARTON, D. HOUNSELL & N. ENTWISTLE (Eds.), *The experience of learning* (pp.19-35). Scottish Academic Press: Edinburgh.
- DAVIES, G., BROOKES, M., & WILLIAMS, N. (2000). *Technology, the Internet and the new global economy*. Goldman Sachs Global Economic Paper, March.
- DfEE. (1998). The learning age: a renaissance for a new Britain.
Available: <http://www.leeds.ac.uk/educol/documents/000000654.htm> [Accessed 8th May, 2002].
- DRUCKER, P. (1993). *Post-capitalist society*. New York: Harper Business.
- DUBRIN, A. J. (1997). *Fundamentals of organizational behaviour: An applied approach*, South-Western College Press, Cincinnati, OH.
- FRAUMENI, B., & LANDEFELD, S. (2000). Measuring the new economy.
Available: <http://www.bea.doc.gov/bea/papers/newec.pdf> [Accessed 8th May, 2002]
- FURNHAM, A. (1997). *The psychology of behaviour at work*, Psychology Press, Sussex.
- GALLAGHER, M. (2001). Lifelong learning: demand and supply issues – some questions for research. Paper presented at *The Business/Higher Education Roundtable Conference on The Critical Importance of Lifelong Learning*, July, Sydney.
- GALLAGHER, M., & REEVE, F. (2000). *Work-based learning: the implications for Higher Education and for supporting informal learning in the workplace*, Glasgow Caledonian University.
- GEE, J.P., HULL, G., & LANKSHEAR, C. (1996). *The new work order: Behind the language of the new capitalism*, St. Leonards, NSW: Allen & Unwin.
- HAMMER, D. (1994). Epistemological beliefs in introductory physics', *Cognition and Instruction*, 12, 151-183.
- ILAMEL, G. & PRAHALAD, C. (1994). *Competing for the future*. Cambridge: Harvard University Press.
- JENTZSCH, N. (2001). The new economy debate in the U.S: A review of literature. Working Paper, No. 125/2001, ISSN 0948-9436, April. Freie Universitat Berlin: John F. Kennedy Institute.
- LANKSHEAR, C. (1997). Language and the new capitalism, *The International Journal of Inclusive Education*, 1(4), 309-321.
- MARTON, F. (1994). Phenomenography, in: T. HUSON & T. N. POSTLETHWAITE (Eds), *The International Encyclopedia of Education*, 2nd Edition, Vol. 8, (pp. 4424-4429). Oxford: Pergamon Press.
- MARTON, F. (1998). Towards a theory of quality in higher education, in: B. DART & G.M. BOULTON-LEWIS (Eds.), *Teaching and learning in higher education*, (pp. 177-200). Australian Council for Educational Research, Camberwell: Victoria.

- MARTON, F., DALL'ALBA, G., & BEATY, E. (1993). Conceptions of learning, *International Journal of Educational Research*, 19, 277-300.
- MATTHEWS, J.H., & CANDY, P.C. (1999). New dimensions in the dynamics of learning and knowledge. In D. Boud & J. Garrick (Eds.), *Understanding learning at work* (pp. 47-64). London: Routledge.
- MORGAN, A., & BEATY, L. (1997). The world of the learner, in: F. MARTON, D. HOUNSELL, & N. ENTWISTLE (Eds.) *The Experience of Learning: Implications For Teaching and Studying in Higher Education* (pp. 217-237) (Edinburgh, Scottish Academic Press.).
- NONAKA, I. (1991). The Knowledge Creating Company, *Harvard Business Review*, Nov-Dec., pp. 96-104.
- PILLAY, H., BOULTON-LEWIS, G.M., & LANKSHEAR, C. (2002). Understanding changing conceptions of work: Implications for development of training initiatives. *Australian and New Zealand Journal of Vocational Education Research*, In press.
- PILLAY, H., BROWNLEE, J., & MCCRINDLE, A. (1998). The individuals' beliefs about learning and nature of knowledge on educating an intelligent workforce, *Journal of Education and Work*, 11(3), 239-254.
- RICHARDSON, J.T. (1999). The concepts and methods of phenomenographic research. *Review of Educational Research*, 69, 53-82.
- SANDBERG, J. (2000). Understanding human competence at work: An interpretative approach, *Academy of Management Journal*, 43(1), 9.
- SCHOMMER, M.A. (1994). Synthesising epistemological belief research: Tentative understandings and provocative confusions, *Educational Psychology Review*, 6(4), 293-317.
- STACEY, R. C. (1996). *Strategic Management and Organizational Dynamics*, Financial Times Management: London.
- STARKEY, K. (Ed.). (1996). *How organizations learn*. London: International Thompson Press.
- SVENSSON, (1997). Theoretical foundations of phenomenography. *Higher Education Research and Development*, 16(2), pp. 159-171.
- TRIGWELL, K., & PROSSER, M. (1991). Improving the quality of student learning: The influence of learning context and student approaches to learning on learning outcomes, *Higher Education*, 22, 251-266.

Table I. Conceptions of work, and variations by Older and Younger workers according to the AQF levels.

Conception	Within Conception Variations		Older Workers	Younger Workers
	All Workers	Younger Workers Only		
1) Work as a job	<ul style="list-style-type: none"> • Focus on money • Sees it as survival • Provides a sense of security • Just something one has to do 	<ul style="list-style-type: none"> • The thing around which I organise my life 	AQF 2/3 – 12 AQF 4/5 – 4 AQF 6/7 – 2 (n=18, 46%)	AQF 2/3 – 2 AQF 4/5 – 2 (n=4, 25%)
2) Work as a challenging experience	<ul style="list-style-type: none"> • Experiencing new things • Finding better processes 	<ul style="list-style-type: none"> • Willing to accept the challenges of work but not let it impact on personal life • Work is a place to offer our service • Responsibilities • Self worth • Self esteem 	AQF 2/3 – 1 AQF 6/7 – 3 (n=4, 10%)	AQF 2/3 – 1 AQF 4/5 – 2 (n=3, 19%)
3) Work as personally empowering	<ul style="list-style-type: none"> • Opportunity for self development • I can make a difference 		AQF 2/3 – 3 AQF 4/5 – 4 AQF 6/7 – 5 (n=12, 31%)	AQF 2/3 – 3 AQF 4/5 – 2 AQF 6/7 – 2 (n=7, 44%)
4) Work as an important part of my life	<ul style="list-style-type: none"> • Part of life experience • Work means everything to me • I define myself by my work 	<ul style="list-style-type: none"> • My work is a lifestyle choice • I have a responsibility to achieve my work objectives 	AQF 2/3 – 1 AQF 4/5 – 2 AQF 6/7 – 2 (n=5, 13%)	AQF 4/5 – 1 AQF 6/7 – 1 (n=2, 12%)
Totals			39	16

Table II. Conceptions of learning at work, and variations by Older and Younger workers according to the AQF levels.

Conception	Within Conception Variations		Older Workers	Younger Workers
	All Workers	Younger Workers Only		
1) Acquiring skills to survive	<ul style="list-style-type: none"> • Learn on a need to know basis • Follow manual to get the job done • Trial and error • Following set guidelines 	<ul style="list-style-type: none"> • Learning just happens without you knowing • Makes my job easier 	-	-
2) On-site observing and experiencing	<ul style="list-style-type: none"> • Nothing beats experience...I started as a cleaner • Get someone to show me one to one how to do it. • See others and learn 	<ul style="list-style-type: none"> • I learn because it's like a hobby 	AQF 2/3 – 8 AQF 4/5 – 2 AQF 6/7 – 1 (n=11, 28%)	AQF 2/3 – 4 AQF 4/5 – 2 (n=6, 38%)
3) Taking formal courses	<ul style="list-style-type: none"> • Values formal training such as the Cert IV trainer course. • The nexus between theoretical and practical education. • Casual introduction to computers made me enrol in formal courses 		AQF 2/3 – 6 AQF 4/5 – 3 AQF 6/7 – 10 (n=19, 48%)	AQF 2/3 – 1 AQF 4/5 – 3 AQF 6/7 – 1 (n=5, 31%)
4) A continuous lifelong process	<ul style="list-style-type: none"> • Continuously searching for new information-on and off the job • Take opportunity of slow periods to learn about new equipment • Learning never stops 	<ul style="list-style-type: none"> • Self taught • Take in as much information as I can • Used to take books home to read 	AQF 2/3 – 2 AQF 4/5 – 5 AQF 6/7 – 1 (n=8, 21%)	AQF 2/3 – 1 AQF 4/5 – 2 AQF 6/7 – 2 (n=5, 31%)
5) Changing as a person	<ul style="list-style-type: none"> • Made me an entirely different person • Feeling satisfied and content with the work. 		AQF 2/3 – 1 (n=1, 3%)	-
Totals			39	16

Table I. Conceptions of work, and variations by Older and Younger workers according to the AQF levels.

Table II. Conceptions of learning at work, and variations by Older and Younger workers according to the AQF levels.

This is the author-manuscript version of this paper. Cite as:

Pillay, Hitendra and Boulton-Lewis, Gillian and Wilss, Lynn and Rhodes, Sean (2003) Older and Younger Workers' Conceptions of Work and Learning at Work: A Challenge to Emerging Work Practices. *Journal of Education and Work* 16(4):pp. 427-444.