Enriching Learning Cultures

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Centre for Learning Research, Griffith University
Enriching Learning Cultures
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Introduction

Enriching Learning Cultures

In certain contemporary discourses learning is viewed as central to the motives of education and training, in others, as merely one among a number of competing elements (such as, for instance, teaching and instruction, credentials, competency, outcomes) each claiming higher priority or equal status. One way to assess these alternative views is to examine the different implications of each for relationships among learning and the social contexts — cultures — in which it arises and is made significant. Some see learning as added to culture; others see learning as an integral component of what a culture is like. Some see learning as an activity that reproduces culture; others see learning as an activity that transforms culture. These alternative views have important implications for the way professionals within the education and training community go about their work and how they conceptualise their practice.

This theme for the conference has been chosen to facilitate the growth in research and critical understanding around the concept of learning in post-compulsory education and training.

Topic areas which serve as focus points for papers include:

• Access and equity
• Citizenship and concepts of community
• Critiquing concepts of learning
• Flexible learning
• Group and organisational behaviour
• Identity formation
• Use of technology to solve educational problems.

As in previous years, this year’s conference has attracted a large number of high quality research papers from researchers, practitioners and policy makers from Australia and overseas; papers draw together a wide range of disciplines, content material, and theoretical perspectives, and many have been refereed anonymously by peer reviewers.

Members of the Centre for Learning and Work Research would like to thank sponsors and supporters.

Clive Kanes
Conference Convener,
Griffith University
November, 2003
Identity, Practice and Culture: A Narrative Construction

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Through the telling and retelling of personal stories individuals interpret and analyse experience. This paper compares the learning for practice of two diverse groups, through narrative construction. It explores the complex relationships between social contexts, cultures and identity. Specifically it seeks to illuminate how the concepts of participation, identity and culture have shaped the participants’ lives. In living out their stories (their personal and social histories), “the cultural and social contexts play constraining and enabling roles” (Clandinin & Connelly, 1998, p. 155). The paper explores how for some practitioners learning is restricted to an activity that reproduces culture while for others learning is an activity that transforms culture.

This paper examines the personal experiences of two diverse groups of practitioners through analysis of their life histories. In two independently conducted case study research projects, of five female school principals (Doherty, 2002) and six male farmers (Allan, 2002), common aspects of learning, identity and practice were identified. Storytelling was identified as intrinsic to thick descriptive data that connected themes of learning, change, practice and culture. A mix of case histories, critical incidents and language identified knowledge landscapes and different abilities to lead knowledge or to more reluctantly follow. While the authors acknowledge the reality of gendered differences, this paper does not seek to explore gender specifically but rather to explore the commonalities of the subjects’ experiences.

Methodology

Both research projects consisted of case studies, with personal histories recorded through extended interviews, aimed at reconstructing the participants’ individual learning processes and their learning culture. While differences occurred in these independent studies, storytelling emerged as fertile ground that transcended the two very different cultures, that of urban schools and leadership with that of rural farming culture and leadership. Leadership and the transformation of the applicable culture, with its relationship to learning and practice, are explored.

The method of interview was chosen to seek in-depth and rich data from the subjects’ personal learning histories. Silverman (1993) in discussing the dominance and popularity of in-depth interviews in society, describes them as being central to making sense of our lives. The subjects of this present study produced a rich array of personal stories through interview, contributing to an attempt to make sense of their specific pathways to learning in and for practice. Both studies
were conducted from a social constructivist and interpretive approach.

**Theoretical Framework**

**Culture**

The two groups of subjects in this synthesis of data live in different worlds. They have different expectations, communicate differently and experience community differently along with the accompanying responsibilities and support. Different manifestations of social capital are embedded in and influenced by their specific cultures. While each group of subjects (school principals and farmers) belong to the same geographically based culture, they are from different subcultures manifested in urban/rural communities and public/private ownership (respectively) of their means of production. These differing cultures have different expectations, ways of being and ways of knowing, values, beliefs, ideas, social norms and artefacts.

While society generalises in describing subcultural groups as groups of people within the same culture, there is a diverse range of knowledge and experiences within groupings. Sapir (1949) cited in Duranti (1997, p. 32) saw every individual as "a representative of at least one sub-culture which may be abstracted from the generalized culture of the group of which he is a member". Culture is not homogenous or uniform but diverse and dynamic within the broader expectations. The participants in the studies discussed identity as belonging to different groups within their relevant industry/profession i.e., sheep farmers versus dairy farmers; primary versus secondary principals; winners versus losers; leaders versus followers. Interpretive narratives depicted these identities as being constructed socioculturally through personal histories, participation and engagement in social practices.

Goodenough (1957, p. 167) cited in Spradley's (1972, p. 7) seminal work, sees culture as "not a material phenomenon; it does not consist of things, people, behaviour or emotions. It is rather an organization of these things. It is the forms of things that people have in mind, their models for perceiving, relating, and otherwise interpreting them". These models take different forms. Since the economic and political upheaval resulting from the New Right reforms of the 1980's, New Zealand workplaces have required an openness to change, flexibility, and an ability to question traditional knowledge. The reforms deconstructed socially expected norms requiring reformation of culture. The ability to face this cultural change dynamically and proactively has been intrinsic to succeeding in the new environment.

**Identity and Storytelling**

Cain (n.d.) cited in Lave and Wenger (1991, p. 80) argues that identity is reconstructed through "the process of constructing personal life stories, and with them, the meaning of the teller’s past and future action in the world". Identity, or the way a person perceives their "self", is embedded in culture, knowing and social membership. This self-identity is exposed through self-narrative. Individuals' accounts of their life events coherently connect events within a process through story (Gergen, 1994), with the consequence of making sense of place (Botella, Figueras, Herrero, & Pacheco, 1997). Gergen (1994, p. 187) sees "our present identity (as) not a sudden and mysterious event but (as) a sensible result of a life story," which gives life a sense of meaning and direction.

**Ontogenies and Storytelling**

The personal stories or ontogenies of the subjects studied were analysed robustly with theoretical comparisons and reflective interpretations, from which theory emerged. These stories are rich due to the openness, honesty and generosity of the actors. Cain (p. 84) suggests, "(personal) stories do not just describe a life in a learned genre, but are tools for reinterpreting the past and understanding the self [or actor] in terms of [a specific] identity".
These current studies have attempted to interpret the history of the actors, in order to construct meaning from their journeys in terms of their identity as practitioners and their evolving identity towards mastery.

In the writing up of the reports it became evident that the leading practitioners in both studies were being quoted as examples of emergent concepts, categories and theory more than the "status quo" actors. On reflection and analysis it became apparent that this was due to the richness of their stories and their wealth of knowledge. They have what Schön (1987, p. 66) described as "a repertoire of examples, images, understandings and actions". It includes what the practitioner has seen, known, experienced and discovered, all of which "are accessible to him for understanding and action". They are able to tell of how they got to where they are now and how they are maintaining leadership and learning. While the "followers" can talk of the process of getting to their current point, it lacks the depth of experience and analysis of the leaders.

Jordan (1989) cited in Lave and Wenger (1991), observed that stories play a major role in decision-making as experiences are recalled and recounted from a store of knowledge. She defines such stories as "packages of situated knowledge" (p. 108). The stories of the leaders flow freely and unconsciously. They are able to move with fluidity from the past to the present and on to the future. The followers in contrast have neither the extensiveness nor depth of past to refer although they have a past with its own value of participation and membership. They are experts in their own right with the ability to lead novices but without the innovative, pioneering actions of the leading practitioners.

Lave and Wenger (1991, p. 109) view telling the personal story as a tool of diagnosis and reinterpretation, which is essential for construction of a functional identity. They distinguish between *talking about* (stories and community lore) and *talking within* (exchanging information) practice. According to this viewpoint, both forms of talk fulfill specific functions: engaging, focusing and shifting attention, while supporting memory, reflection and signalling membership. Through interview, the subjects reflected on their past and current practices through rich storytelling, recalling memories of their sociocultural construction of knowledge. Storytelling as discussed, is also an intrinsic part of participating in industry/professional groups, for talking about and within practice, and supporting membership.

**Storytelling and Change**

Rossiter (2002, p. 1) refers to Clark (2001) who noted "it is when one can identify with a character who has changed that one can envision and embrace the possibility of change for oneself". Participants of the current studies expressed how change was effected in life events. In these cases the leading practitioners were not only able to identify with the knowledge of new science/technology or practice of others but they could see innovative ways of transforming the knowledge. They could be described as pioneers, innovators or initiators — they are leaders in their fields, able to transform cultural expectation. Others though seek the safety of cultural norms. They cautiously wait and observe until the practice is "the norm" before they adopt the practice. They implement only proven practices, being lead by changed culture.

Telling and retelling stories is seen to be transformative as the teller interprets his/her own story leading to learning and fostering life changes. Rossiter (2002, p. 2) states that the connection between "the construction of life narrative and transformational learning is increasingly clear ... The transformative dynamic of the self story lies in the profoundly empowering recognition that one is not only the main character but also the author of that story". Rossiter cites Hopkins (1994) who describes narratives as "the means through
which we imagine ourselves into the person we become” (p. 2). Through the telling, interpreting and retelling of stories, the leaders absorb such experiences as “a means of deep reflection and learning” (Ah Nee-Benham & Cooper, 1998, p. ix) while painting a vibrant knowledge landscape and cultural identity. This is apparent for the women principals in Doherty’s (2002) study and also the leading farmers (Allan, 2002). Through both insight and action the leading practitioners transform culture through extending norms and expectations within their sociocultural contexts.

**Multiple Realities in Narrative Research**

Narrative requires critical analysis to identify whose reality is portrayed in the interpretive process. In a descriptive story, a farmer told of how two doctors who were landowners/investors attended a farm discussion group field-day on their property, the manager of which was a member. While it appeared that they were absorbing the experience of the day, (they took copious notes), latter events showed that they had little real understanding of the critical analysis that had occurred. This story told by the farmer is a narrative view of knowledge expressed in context (Craig, 2003). It is a personal experience relived in the telling by the farmer. In retelling and reliving the story, he reaffirms the experience, interpreting and analysing his personal experience. It encompasses his knowledge and his observations, embedded in context and culture.

The owners in contrast interpreted and analysed their experience as visitors (outsiders) to the rural practitioners’ group and from outside the culture. Ownership of land in a particular area does not equate to knowledge of context and culture. They interpreted the analysis from their perspective, from their knowledge, and analysed from outside the context. As city professionals, academics and offshore owners their viewpoint, while valid for them, was in fact a misinterpretation contextually and culturally. They never asked questions to clarify their understanding instead relying on their own sense of truth. They were what Clandinin and Connelly (1998, p. 152) describe as “mere voyeurs of a life drama”.

In the above story there is a message for researchers in interpreting narrative data. In the current studies, both researchers were “insiders” with relevant industry/professional credibility. They were required though to move “outside” in interpreting data. Both the present studies generated a richness of data with interpretations identified as “dynamic interplay between and among ... multiple narratives forming a story constellation” (Craig, 2003, p. 126). Ah Nee-Benham and Cooper (1998, p. x) describe this interaction as incorporating each story through “the collaborative effort of both researcher and participant as they weave together the threads of professional and personal experience”, to interconnect different themes as they emerge. Researchers through analysis of multiple stories, make connections to one another conceptually. Shulman (1996, p. 209) sees this process as involving “enactment, narration, connection (or recounting) and abstraction”. It requires an ability to move between “insider” and “outsider” roles in a critical mode, to maintain acute powers of observation in order to collect and interpret data with validity, trustworthiness and credibility. In analysing stories as told by the subjects an attempt is made for “use of narrative or story as a means of deep reflection and meaning” (Ah Nee Benham & Cooper, 1998, p. ix). As Clandinin and Connelly (1998, p. 155) state “people by nature lead storied lives and tell stories of those lives whereas narrative researchers describe such lives, collect and tell stories of them and write narratives of experience”.

**Findings**

**Sociocultural Learning Through Narrative Experience**

All leading practitioners in both studies identified groups of critical friends or professional development groups, as crucial
to their learning. Learning from others through a range of experiences enabled them to consider and build upon knowledge-in-practice. Through listening to or reading a case, connections are made to the receiver’s experience as “... one person’s narrative connects with other narratives” with stories breeding other stories, leading to new learning and new knowledge (Shulman, 1996, p. 209). Stories which begin as “raw experience” are “transformed into cases through narration [becoming] part of a network of narratives through connections with other cases ... (they) both enrich and are enriched by theory when they are analysed, interpreted and/or classified ... through conversation”. Shulman refers to narratives as stories that have been personally lived, moving from “individual reflection to socially mediated reflection, from introspection to conversation” (p. 205). He refers to Dewey’s 1938 argument that “thought is a response to the blocking of habit. Only when our habitual or reflexive modes of behaviour fail to attain the desired goals do we then think about what to do”. Thus unexpectedly obstructed experience (surprise) triggers “the need to examine alternative courses of action” through reflection, leading to new learning. The first-order experience is rendered “narratively into a second-order experience ... The process of remembering, retelling, reliving and reflecting is the process of learning from experience” (p. 208).

Leadership and Identity in Diverse Cultures — Commonalities

Both groups of leaders are driven to change practice; to innovate, to adopt relevant new science or technology and to take risks to improve practice. Although the leaders admit to finding extreme risk-taking at times quite difficult to implement, they accept the challenge and accompanying risks. These risks though are tempered through extensive research-in-practice, contemplation and expert advice. While they do not see themselves as major figures or heroes in any way, there is evidence that they are seen as pioneers or leaders in their field. Although the stories of the participants in both studies are unique, it is possible to glean commonalities regarding their learning for practice and the manifestation of their leadership within their professional structures.

While the women principals have strong ideals about their purpose to enrich lives through practice, the farmers are achieving this through industry effects. This enrichment is a product of dedication, passion, love of learning and thirst for knowledge. They work both hard and smart, recognising the importance of good management to the end product. Leadership is reflected in the amalgam of their values, beliefs and attitudes, which have been influenced by their personal histories and career experiences, embedded in culture. Personal histories, reflected experiences, dispositional ability, engagement with critical others and research in the practice environment (Schön, 1987), enrich learning conceptually through increasing the depth of professional practice. Access points for research, such as professional development opportunities, are intrinsic to this process.

The Place of “Self” and “Others” in Learning

Both studies recognise dispositional ability as underpinning the ability to create possibilities when faced with challenging and complex decisions. Socially constructed personal characteristics (McMeniman, Cumming, Wilson, Stevenson, & Sim, 2000) or dispositions (Prawat, 1989; Perkins, Jay, & Tishman, 1993; Katz, 1993; Billett, 2001) were identified in both studies as crucial to construction of knowledge and knowledge use. Robust dispositions are identified as being developed through both success and adversity. The leaders are motivated by mastery (Prawat, 1989) with a need to break new ground while those identified as followers, focused on perform-
ing within the status quo, that which Prawat saw as an intent to gain positive judgement of one’s competence for self and others.

Personal characteristics or dispositional knowledge common to the leading principals and farmers included being open-minded social learners who were resourceful and resilient and had an enthusiasm and passion for their work. They exhibited a drive and motivation with risk-taking and decision-making ability. These leaders were all reflective practitioners who were critically analytic and active continual learners.

Parallel to the importance of self, these current studies (Doherty, 2002; Allan, 2002) highlighted the importance of people, social communities and constellations of practices. These included field-days/in-service courses; wives/partners/significant others; critical peer practice groups/critical others; consultants/advisory/support; best practice observation/peer review; workplace learning; professional/industry reading and social practice members. They influence others by encouraging those under their management and within their social practice communities to take risks, to step outside their comfort zones and to challenge mediocrity even when the risk ends in apparent “failure”, which they see as learning. Thus social learning occurs through a range of events/experiences culminating in research-in-practice, incorporating and constructing new ideas.

Both the leading women principals and the farmers were identified as resource-rich. They had richer extended practice communities or constellations of practices. They sought challenging advice and “outsider expert” knowledge from appropriate sources as an important strategy for making critical decisions although they were prepared to take a risk on unproven practices after investigation. They learn as much from adversity as from success. They read widely from industry or professional publications including secondary research reports, which provide ready access to up to date research.

While the leading farmers valued farm discussion groups which involve practical and on-farm critical analysis of each of their farms in turn, the women principals referred to groups of critical friends, role models and mentors. These professional social groupings allow for reflective and critical analysis of practice with subsequent theorising. Brown and Duguid (2000) describe such groups of practitioners with shared experiences as binding them collectively through shared knowledge and common identity. The rapport in an effective group limits boundaries and barriers between members. The collective interest, knowledge, identity and culture bind them together. In an effective grouping they share a rapport, particular humour, and social expectations, which has a cohesive effect. Brown (2001) says that inside an effective community ideas are validated by the shared practice or paradigm of that community. Through engagement such negotiations make knowledge more robust by seeing differently and constructing new knowledge through diversity of interaction.

The leading practitioners learn dynamically in practice supported by a wide base of knowledge sources, which are available through an ability to be open to new learning while challenging traditional knowledge. The deep and extensive repertoire of experience that they can relate to contextually, allows for reflective conversation with the confronted situation i.e., experimentation-in-practice (Schön, 1983). At times this experimentation is discovery through manipulating activities, while at other times it is a result of strenuous hypothesis testing.

**Conclusion**

The leading farmers, like the leading women principals, utilise a wide range of sources for professional knowledge or knowledge in and for practice. Their knowledge is continually evolving with identity. This identity is socio-culturally constructed through personal histories, experiences in the workplace, various forms of professional development, critical others, peers, groups and involvement in research-in-practice. All remain passionate about their work after many years, with this
“job satisfaction” made available by concentrating within their circle of influence. They make things happen rather than being distracted and negated by factors such as political restrictions — which they cannot directly influence. The leading practitioners are recognised through their industry/professions as change agents but while they change their culture, their culture also changes them as a form of reciprocal action.

References


Shopping Around for VET: 
Individuals, Choice and Lifelong Learning

Damon Anderson
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The concept of choice in vocational education and training (VET) has been given unprecedented rhetorical prominence in recent times, due to the convergence of two major policy trends: the marketisation of VET and promotion of lifelong learning. Increased choice is viewed as both a means and an end of market reform in VET. As "empowered consumers", individuals are purportedly more able to shop around and choose the training they want, according to their rational self-interests. Choice is also portrayed as an individual right and necessity in the context of globalisation. In the face of rapid change and uncertainty, individuals are expected to take greater responsibility for their lifelong learning and career development. Such policy narratives highlight the centrality of choice in negotiating the veritable maze of options available in education, training and labour markets. To what extent does the reality of choice in VET match the rhetoric? This paper presents the findings of a recent study which examined the nature, dynamics and complexity of choice in VET, the factors that shape choice, and the extent to which individuals are behaving as "rational consumers" of VET. Issues and implications for VET policy and provision and lifelong learning are discussed.

The concept of choice in vocational education and training (VET) has been given unprecedented rhetorical prominence in recent times, due to the convergence of two major policy trends: the development of markets in VET and promotion of lifelong learning. Increased choice is viewed as both a means to achieve the putative benefits of markets in VET, and as a desirable end in itself (Anderson, 2003). As empowered consumers in the VET marketplace, individuals are purportedly more able to shop around and choose the training that best meets their needs and preferences. Choice is also portrayed as both an individual right and necessity in the context of globalisation. In the face of rapid change and uncertainty, individuals are expected to take greater responsibility for their own lifelong learning and career development (ILO, 2002; OECD, 1996). Such policy narratives highlight the centrality of choice in negotiating the veritable maze of options available in VET and labour markets. Underlying these trends is an implicit assumption that choice-making in VET is an unproblematic process in which individuals engage freely, actively and rationally.

To what extent though does the reality of choice in VET match the rhetoric? Existing research provides few insights into choice in further education and training. Most studies of choice in post-compulsory education and training focus on school leavers and their choices and preferences with respect to academic or vocational education pathways. Neither these studies, nor the few other empirical studies that have examined individual choice in post-school contexts (Connelly & Halliday, 2001; Maxwell, Cooper, & Biggs, 2000; Miller, Kellie, & Acutt, 2001), pay sufficient attention to the effects of age and changing patterns of choice at different
stages of a person’s life trajectory, or the extent to which individuals are behaving like rational consumers.

Given the relative dearth of research on choice in VET, the study set out to examine: the contexts of choice in VET; the nature, dynamics and complexity of individual choice in VET; the factors that shape choice; and the resulting issues and implications for VET and lifelong learning. The study comprised a review of Australian and international policy and research literature on choice in VET, lifelong learning and related topics, and a national online survey of VET students enrolled at Registered Training Organisations (RTOs) in late 2002. A total of 504 survey returns were received. It should be noted that the sample population was relatively small and largely unrepresentative of the total VET student population, except with respect to age distribution. Moreover, it comprised VET students who used the Internet and had completed their module or course at the time of the survey. For these reasons, the findings of this study should be qualified accordingly and viewed as indicative rather than definitive in nature.

Learning and Career Trajectories of Individuals in VET

Prior research and the findings of this study show that individual choice in VET is a complex, contingent and dynamic process. Most individuals who pursue further study in VET are following zigzag, rather than linear, trajectories that are characterised by frequent interruptions and changes in direction. Almost seven in 10 (69%) respondents aged 25 to 29 years had undergone three to five job changes since leaving school, 27% of those aged 30 to 39 years had undergone six to nine job changes, and 19% of those aged 40 to 49 years had undergone 10 or more job changes. On average, respondents had changed career direction with every two to three job changes. Against this background of frequent job and career change, the research findings suggest that individuals are using VET courses and qualifications to both initiate and navigate new trajectories during the course of their working lives. On average, respondents had enrolled in two to three formal accredited courses after leaving school, although almost one quarter had enrolled in four or more. For many individuals engaged in VET therefore, lifelong learning is already a reality.

In many respects, the most significant findings of this study relate to the influence of age and life stage, and the evidence suggests that age becomes the most significant variable shaping individual choice after the initial post-school transition has been made. Gender, geographical location and other demographic factors undoubtedly continue to exert strong influences on individual choices. But the more significant changes in the nature and direction of an individual’s learning and career trajectory appear to be linked to age progression and the associated transformations of personal circumstances and horizons. The need to develop a deeper appreciation of age-related transformations is important not only for aligning VET provision more closely to the changing needs, interests and aspirations of different age cohorts, but also for ensuring that the form and content of VET facilitates learning and development over a lifelong framework.

Individual Motivations to Enrol in VET

Age, or more precisely the stage of an individual’s career and life trajectory, appears to exert a particularly strong influence on her/his motivations to engage in further study in VET. While young school leavers starting their careers are largely driven by instrumental and explicitly vocational motives, the motivations of those already in the workforce appear to shift quite markedly. Their decisions to undertake VET study are generally based less on necessity and far more on personal aspiration, including (but not only) for
reasons relating to career development and often career change objectives. Although the instrumental (exchange) value of VET qualifications remains important in terms of achieving their newfound career-related objectives, individuals aged 25 years and above are motivated to an increasing degree by the perceived intrinsic value of further study in VET and its role in meeting their personal growth and development objectives. Even those who are unemployed and seeking to re-enter the workforce are strongly motivated to enrol in VET “for interest and personal development”.

Such findings contain important messages for policy makers and providers about the need to better understand and respond more effectively to mature-aged individuals’ motives for engaging in lifelong learning through VET. As Maxwell, Cooper, and Biggs (2000) conclude in their larger scale study of choice in Australian VET, such findings suggest the need to shift the emphasis and balance of current VET policy priorities and program provision away from the immediate requirements of industry and current employers towards the longer term needs of individual learners. Only 16% of survey respondents had undertaken further study in VET for reasons relating to their current employment, including 3% because “it was requirement of my job”. The vast majority of respondents were motivated by personal aspiration and anticipated job/career outcomes.

Choice-making and Sources of Information

Overall, this study finds that individual choices and decisions to engage in further study in VET are multifactorial, highly contingent on other life circumstances, and although largely vocational and work-related in nature, tend to be based on diverse mixes of instrumental and non-instrumental goals. Despite the apparent significance of age and life stage, it should still be acknowledged that the reasons why individuals choose to undertake further study in VET in the first place, and choose to enrol in particular courses and providers, are inextricably tied up with social context, specifically socioeconomic class, gender, race and disability, among other structural factors (Maxwell, Cooper, & Biggs, 2000). With the partial exception of gender and some other demographic variables, this study did not investigate the influence of social context or structural factors on choice to any significant degree. Future research will need to explore the role and interaction of social context and individual choice in VET if a more comprehensive and sophisticated understanding of choice processes is to be developed.

Individuals who decide to engage in VET appear to be adopting consumer-like behaviour to a significant extent, as reflected in the finding that 43% of all survey respondents had shopped around for their course/provider. Respondents who shopped around more than others were: females (45%); individuals located in remote (50%) and metropolitan (45%) areas; those attending ACE centres (50%), private training colleges (48%) and “other” VET providers (46%); and those who had enrolled in four to five (57%) or six or more (49%) formal accredited courses since leaving school. With respect to labour market status while studying, the most active choice-makers were part-time employees (57%) and those who were unemployed and looking for work (48%).

The active nature of choice-making by individuals is reflected in their predominant reliance on formal, rather than informal, sources of information. The most important sources of information were provider marketing and promotions, specifically provider websites (21%) and media advertisements (newspaper, radio, TV) (15%). The next most important sources of information were: course/career advisors at schools, TAFE and universities (7%); employers (6%); self-initiated inquiries at providers’ front desks (6%); course/career
directories (e.g., Guide to Tertiary Courses) (5%); and work colleagues (5%). Informal sources of information, such as parents/guardians (2%), other family members (4%), and friends (4%), were significantly less influential. These findings also suggest that individuals are relying less on official, and technically impartial, sources of information, and more on provider-generated information.

Even stronger evidence of consumerism is the marked propensity for active choice-makers in VET to use the Internet as their main information source and choice-making tool. Almost one-third (32%) of those who shopped around for their courses/providers used the Internet, and relied on information contained in provider websites. Other information sources were far less important, including media advertisements which were used by only 12% of active choosers. Most significant is the finding that 67% of those who had used the Internet as their main source of information had also actively shopped around for their courses and providers. Assuming that Internet usage is growing among VET students, this finding suggests that new information and communications technologies (ICT) are facilitating a rise in consumerism in VET. However, given that survey responses were self-administered, and that respondents were Internet users, further research is required to confirm these findings, and also to determine the extent to which active choice-making is a planned and systematic process.

The findings also suggest that people begin to exercise choice in VET in a more individualistic and consumer-like manner when they enter the 20 to 24 years age group, and that active consumerism is a relatively widespread phenomenon among those aged 25 years and above. Some are still “composite consumers”, but in conjunction with their employers — whom 6% of respondents identified as their main source of information — rather than parents, whom continue to exert a strong influence on younger students.

**The Process of Choice: Preferences, Criteria and Complexity**

Like their decisions to undertake further study in VET, individuals’ choices of course/provider are multifactorial and tend to be based to a significant degree on formal, market-related criteria, such as perceived quality and price. The most common reasons for choosing a provider’s course were, in order of prevalence: provider reputation (16%); geographical proximity to home/work and ease of physical access (10%); course costs (10%); and course offerings (“It is the only provider that offers this course”) (9%); short course duration (6%); and course relevance (6%).

Overall, the findings suggest that around four in 10 respondents conform to some degree to the model of rational choice-making that underlies current market-oriented policy settings. Active consumers tend to base their choices on more criteria than other respondents, and to a greater extent on formal market-related criteria, particularly course costs. However the prevalence of geographical proximity/ease of physical access (10%) as a major criterion defies the official model of rational choice, as do several less common choice criteria. A significant proportion of individuals were also unable to exercise choice at all, because their preferred course was not offered elsewhere (9%), their employer made the choice on their behalf (3%), and “I had no other choice” (3%). In effect, at least one quarter of individuals chose their course for reasons that would be classified as “economically irrational” or out of necessity, not free choice.

Prior research suggests that choice-making in VET has become more complex, difficult and potentially confusing in the wake of marketisation, due to the resulting proliferation of provider and course alternatives (Anderson, 1999). Around the time of this study, there were around 4,300 RTOs and 7,900 national VET qualifications and accredited courses in Australia.
However the findings of this study suggest that choice in VET markets is not unduly complex. Only 10% of respondents experienced difficulties when choosing their course, and only 5% had difficulties choosing a provider. The main problem encountered by 20% of respondents who had difficulties when choosing a VET course was a surfeit, not an over-abundance, of alternatives. This was followed by insufficient information about the job/career outcomes of courses (15%), and a lack of comparative information about courses (13%). The main problem encountered by 30% of respondents who experienced difficulties when choosing a VET provider was a lack of sufficient alternatives. This was followed by a lack of comparative information about providers (19%), and an over-abundance of alternative providers (12%).

Yet there is some evidence that marketisation may have increased the complexity of choice in VET markets. Of the respondents in metropolitan markets who had difficulties choosing a course, 63% identified “too many courses to choose from” as the main problem. Conversely, 72% of the respondents in rural/regional markets who had difficulties identified “not enough courses to choose from” as the main problem. Of the metropolitan respondents who had difficulties choosing a provider, 80% identified “too many providers to choose from” as the main problem. Conversely, 88% of the rural/regional respondents who had difficulties identified “not enough providers to choose from” as the main problem. In effect, the complexity and difficulty of choice-making is relatively greater in metropolitan markets, where there has been a massive proliferation of providers and courses. Although fewer difficulties were reported by rural/regional respondents, where they exist is a result of undersupply or thin markets. However these findings should be tempered by the overall finding that 90% and 95% respectively of respondents had no difficulties when choosing a course and provider.

Overall, the above findings about choice provide two important insights into VET markets from a consumer perspective. Firstly, choice-making is more complex in metropolitan markets due largely to an oversupply of both courses and providers. Secondly, market reforms in VET have not produced a sufficiently diverse range of either courses or providers in some rural/regional areas to satisfy individual demand.

Choice Effectiveness and Information Provision

The question of whether information provision is sufficient to ensure well-informed and effective choices by individuals has been raised by both policy makers and researchers. The evidence provided by this study, although limited, suggests that available information about VET courses and providers is generally adequate to ensure effective choice from a client perspective, although there is clearly room for improvement. In all, 13% and 7% of all respondents indicated that they would “probably” or “definitely” have chosen a different course or provider respectively had they had access to better/more information. Much higher proportions of those who experienced difficulty when choosing their course or provider said they would have made different choices with access to better/more information. The overall level of dissatisfaction with the adequacy of information may also have been higher had the sample population included individuals who had withdrawn prior to completion of their courses and modules.

Around four in 10 respondents suggested ways in which the quantity, quality and accessibility of information about VET courses and providers could be improved. With respect to the quantity of information, the most frequent suggestions were that more information should be provided about: course structure, organisation and content (14%) and course completion rates and outcomes (primarily relating to jobs/careers) (6%). With respect to the quality
of information, the most frequent suggestions were to provide: simpler/clearer/less jargonistic information (7%); more consistent/comparable information about courses/providers and outcomes (4%); and more accurate and up-to-date information about courses/providers (4%). With respect to improving the accessibility of information, the most frequent suggestions were to provide: more/better course/provider information on websites (provider and/or systemic) (20%); more advertising and promotion (newspapers, television, brochures, posters) (14%); more interactive use of ICT, particularly emailing of information to clients (4%); and more/better information provision by teaching staff (3%). Almost one in 10 (9%) suggested that a single and integrated source of information (mainly online and/or print-based, physical information centre) about all available VET courses and providers should be established. The strong emphasis on strategies to improve online information provision reflects the growing trend, noted earlier, for individuals to use the Internet as their preferred medium for information-searching in choice-making processes.

Types of Choice and their Relative Importance
Except in the User Choice market, the scope for individuals to exercise choice is heavily constrained despite the rhetorical emphasis placed on choice in official VET policy. The decision to restrict individuals to choice of course and provider is justified on the grounds that: “Clients will often not be in a position to make adequately informed choices about every aspect of the training they require. This is likely to be the case for many individual students” (ANTA, 1996, p. 18). As indicated above, around nine in 10 participants in this study felt they had made effective choices of course and provider, and were generally satisfied with the information on which their choices were based.

Other evidence arising from this study shows that individuals not only attach great importance to all types of choice in VET, but also feel sufficiently well-informed and able to make such choices. Choice of the following items were identified as “very important” or “important”, in order of significance: choice of course/career (96%); choice of subjects/modules (83%); choice of mode of study (e.g., on-campus or by distance/online) (82%); choice of provider (82%); choice of attendance times (73%); choice of fee-payment mode (e.g., upfront fees or pay-as-you-earn) (61%); and choice of mode of assessment (when and how) (60%). Choices of study mode and subjects/modules are relatively more important to individuals than choice of provider. Although choice of modes of attendance, fee-payment and assessment are ranked lower than choice of provider, such choices are however important to at least six in 10 individuals who undertake further study in VET. Different cohorts value different types of choice in VET to varying degrees. For instance, greater importance was placed on choice of fee payment mode by recipients of the Youth Allowance (76%), Austudy (84%) and government/other scholarships (75%), than by other respondents (55%).

These findings — together with those that suggest that mature-aged individuals are active and independent choice-makers who are largely satisfied with their choices and the information on which they are based — call into question the official justification for restricting individuals to choice of course and provider in VET. They suggest that individuals wish to shape their learning experiences and vocational development to a greater extent than current policy settings and domains of choice in VET allow. In particular, the finding that individuals place greater importance on choices of study mode and subjects/modules than choice of provider suggests that the predominant emphasis on diversifying the supply of VET, in the interests of
promoting greater client choice, is missing the mark. The main exception would appear to be some rural/regional areas in which, as discussed above, choice is limited by thin markets.

Conclusions and Implications
In view of the preferences expressed by study participants, there is a strong case for expanding the scope for individuals to exercise choice in relation to more aspects of their VET courses. In general terms, the domains of choice that presently exist in the non-market and competitive tendering sectors of VET should be redesigned in accordance with the broad principles of flexible customisation that operate in the context of User Choice. The limited relevance and influence of current employer and job requirements on the choices of individual learners in VET also suggest that the content and assessment of non-apprenticeship programs should be reoriented to respond more to the needs, interests and aspirations of individual learners. Individuals who wish to gain promotion, change career direction, re-enter the workforce or higher education via VET, and develop their personal interests and skills accounted for a significant majority of survey respondents. These and related findings highlight the need for a more learner-driven VET system that embraces the multiple goals and motivations of individuals, both vocational and non-vocational, and enhances the scope for choice.

By implication, this suggests that consideration should be given to redesigning curriculum and credentialing frameworks for VET programs so as to give individuals more choice of content, assessment and mode of delivery. Adult learners in particular would benefit from greater flexibility than is presently allowed under the National Training Framework to select and combine diverse subjects and modules into individualised “learning packages” that best meet their particular needs, interests and aspirations. With appropriate information, advice and guidance, the coherence and currency of such packages in the labour market could be assured for those who seek existing industry-recognised qualifications for employment-related purposes. For other learners who wish to construct their own learning pathways and “portfolio careers”, greater provision should be made for direct negotiation of learning plans and outcomes.

Such an approach is consistent with the new national strategy for VET in 2004–2010, which places individuals alongside employers “at the centre of vocational education and training”, values diversity among learners, and aims to “give clients more choices” in order to increase and support participation in lifelong learning (ANTA, 2003). In designing strategies to achieve such outcomes, consideration should be given to the new policy directions taken in the recently released UK Skills Strategy (DES, 2003) and the proposal by the Victorian Qualifications Authority (VQA, 2003) to develop a credit matrix. Both initiatives aim to foster greater choice and flexibility within VET qualification frameworks so that individuals, especially adults, are enabled to construct learning and career paths that accord with their personal goals and ambitions, and which encourage and support them to engage in lifelong learning and skills development.

Steps in these directions would also necessitate improvements in the quantity, quality and accessibility of VET information, as previously identified. The growing reliance on self-initiated searches for VET information via the Internet points to the need to enhance the online information currently provided by official government sources. Enhancements to the design, content and navigability of official VET websites are essential if government is to remain in step with, if not ahead of, the choice-making preferences and processes of individual clients. Before rushing headlong into the information age however, various social access and ethical issues must be addressed. As “information alone may be
necessary to career decision-making, but not in itself sufficient" to ensure wise choices, young people and disadvantaged groups may require more concerted guidance, support and skills development in information processing (Norton Grubb, 2002, p. 4). Access to the Internet and the requisite ICT skills are not enjoyed by all individuals, and some may be disadvantaged if online information services overlook their special needs. Government has a responsibility to ensure, by exhortation or regulation, that individuals of all ages and circumstances have access to high quality and impartial sources of information, not only on the Internet (Watts, 2001).

Individuals appear to be taking an increasingly consumerist approach to choosing VET courses and providers. In doing so, many appear to be adopting the individualistic orientations, consumer attitudes and rational behaviours that international agencies and national governments advocate as a necessary response to globalisation and related challenges. Despite the increased riskiness and complexity of their journeys, individuals are generally confident of their navigational skills and prepared to accept responsibility for making a wider range of choices than they presently enjoy. Indeed, in many respects individuals have become increasingly active consumers of VET in spite of structural constraints on their scope of choice. This study suggests that individuals would readily embrace opportunities to take a more active role in steering their courses in and through VET. If however individuals’ growing expectations of choice and self-direction are not satisfied, their motivation to become, and remain, lifelong learners may wane.

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VET and Ecologism: Charting the Terrain

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The prevailing paradigm of productivism and the associated "training-for-growth" and "skills-for-work" assumptions no longer constitute a rational or meaningful basis for vocational education and training (VET). In an era of manufactured uncertainty and ecological risk, VET must be reoriented towards goals and values that support ecologically sustainable development (ESD) or "ecologism". As VET institutions are directly implicated in the reproduction of productivism and processes of lifelong learning, they have an obligation to engage in a critical examination of the consequences of economic growth and to take an active role in facilitating the transition to ecologism. After a brief overview of productivism and its main contradictions, this paper outlines the alternative paradigm of ESD and ecologism. The main part of the paper examines key issues that need to be addressed in the transition to an ESD-oriented VET system in Australia, including those relating to: policy and planning; curriculum, learning and assessment; teacher training and support; and research and development. Some strategies for promoting ESD in and through VET are proposed.

The natural environment is a silent stakeholder in vocational education and training (VET). Yet as a major supplier of skilled labour to industry, VET is directly implicated in the reproduction of "productivism", the dominant ethos which presupposes that economic growth is a permanent and necessary feature of human existence, regardless of its environmental impact and consequences. Productivism gives precedence to the needs of "industry" over all others, and reifies "work" (as paid employment) as the principal source and measure of social worth to the virtual exclusion of other human values and vocations (Giddens, 1994). Although omnipresent since the inception of VET systems, productivism has become more pervasive and deeply embedded in contemporary constructions of VET, due to the ascendancy of economic rationalism and human capital theory over the past 2 decades (Marginson, 1993; Stevenson, 1993). As markets become increasingly global and competitive, and faced with the problems of structural unemployment and underemployment, governments are intensifying pressure on VET systems to produce more productive and employable workers.

In Australia, VET has been harnessed more systematically to the logic of economic growth and industrial production since the mid-1980s through the national training reform agenda which, together with the introduction of competency-based training (CBT), has tightened the connections between skill formation and economic production (Stevenson, 1993). Discursive strategies have been mobilised to justify the subordination of the needs of individual learners to those of industry, and to prioritise work and "employability" over the non-economic outcomes of VET (Anderson, 1999). In consequence, VET policy and practice in Australia are now premised on two fundamental assumptions that have acquired the status of self-evident truths, and are reproduced systematically in VET institutions and programs; namely that the principal, if not sole, purposes of
VET are to: promote economic growth through the development of the human resources required by industry to enhance productivity and profit ("training-for-growth"); and produce skills and competencies for work, thereby enhancing the employability of individual learners ("skills-for-work"). Implicit in the structure, content and delivery of VET programs, these two assumptions shape and direct the formation of learner subjectivities. In effect, learners are reproduced as agents of productivism, lacking a reflexive understanding of their roles as ecological actors and the negative impact and consequences of their producing and consuming behaviours.

This paper starts from the proposition — elaborated elsewhere (Anderson, 2002) — that in an era of manufactured uncertainty and ecological risk, productivism and the "training-for-growth" and "skills-for-work" assumptions no longer constitute a rational or meaningful basis for VET. Firstly, mounting scientific evidence of deep-seated and potentially irreversible environmental problems shows that permanent economic growth is untenable. Secondly, the collapse of full and permanent employment invalidates both the ideology of work and the discourse of "employability". In consequence, a new post-productivist vision of VET is required, based on values and aspirations which aim to promote "a society which displays international and ecological responsibility: concern for persons throughout the planet; ecologically sustainable developments; protection of flora and fauna" (Stevenson, 1994, p. 117). In effect, the myth of perpetual economic growth must be superseded by sustainable development as the bedrock of VET.

Although an ambiguous and contested term, "sustainable development" has been defined as "development that meets the needs of the present without compromising the ability of future generations to meet their needs" (WCED, 1987, p. 43). Socially critical advocates of sustainable development reject the primacy of economic growth in favour of a more balanced and integrated approach to economic, social and ecological development (Palmer, 1998). Along these lines, the UNESCO Hamburg Declaration on Adult Learning affirmed that:

only human-centred development and a participatory society based on the full respect of human rights will lead to sustainable and equitable development ... Education for environmental sustainability should be a lifelong learning process which recognizes that ecological problems exist within a socio-economic, political and cultural context. A sustainable future cannot be achieved without addressing the relationship between environmental problems and current development paradigms. (1997, Articles 1 and 17)

Recognising that VET comprises a key element of current development paradigms, UNESCO/UNEP (1986, cited in Hardy & Salasoo, 1987) argued for the adoption of both proactive and reactive approaches to environmental education to enable graduates to respond to and anticipate environmental problems.

This paper adopts a socially critical definition of and approach to sustainable development, but focuses primarily on its ecological dimension. Ecologically sustainable development (ESD) or "ecologism" refers to an ethos which recognises the interrelationships and interdependence of humanity and the natural environment. It views economic production and consumption as integrated and socially constructed processes that occur within natural ecosystems, and which interact with and reshape each other. Economic growth per se is rejected as a legitimate basis for human development in favour of the equitable satisfaction of basic human needs under conditions of ecological equilibrium. Work would no longer constitute the primary source of social meaning and value, and would be replaced with a more diverse and inclusive notion of socially productive
activity, including but not limited to paid employment. Ecologism however is new terrain, the shape and contours of which will only emerge over time through experience, critical reflection and open dialogue.

Given their role in the reproduction of productivism and their contribution to global environmental problems, VET institutions have a dual responsibility to initiate a critical examination of the consequences of unfettered economic growth, and to actively facilitate the transition from productivism to ESD and ecologism. At present however, the resources on which they can draw are few (e.g., Berrill & Giffard, 2001; Ferrier, 2001; Hardy & Salasoo, 1987; Guthrie & Cesnich, 1995). As research in VET is as deeply embedded in the ethos of productivism as are policy and practice, this paper draws on available resources to explore some key issues and strategies for promoting ESD in VET.

Reorienting VET to Ecologism: Issues and Strategies
As institutions involved in the processes of economic production and lifelong learning, VET providers are strategically positioned to propagate ESD principles and practices. Given the extent to which the “training-for-growth” and “skills-for-work” assumptions currently constitute VET however, the transition to ecologism is likely to be slow and highly contested. In particular, opposition will emerge from external and internal stakeholders with vested interests in maintaining the status quo in VET. Industry associations, employer groups and some unions whose core constituencies derive economic benefits from prevailing industrial practices, in the form of private profit or employment, are likely to be among the most active opponents of change. A major challenge facing adult educators therefore is that of raising the awareness of decision-makers, stakeholder groups (including industry), and the general public about the contradictions and consequences of productivist policies and programs in VET. The meaning and implications of “sustainable development” for VET require debate. A new post-productivist discourse, or set of conceptual and linguistic tools, must be devised as a precursor to articulating a coherent agenda for change. This dual process of critiquing productivism and re-envisioning VET for a post-productivist future, though complex, is indispensable if cultural change on such a large scale is to be realised.

The Problem of Markets
The demand-driven market context in which VET is presently funded and delivered poses a major dilemma for promoting ESD. As noted earlier, VET providers have the capability, if not obligation, to adopt a proactive approach to environmental education. An ecologically-oriented VET system would entail providers taking responsibility for raising public awareness of the adverse effects of productivism, such as resource depletion and environmental degradation, and equipping students and trainees with the knowledge, skills and dispositions to address such problems. Current policy frames and resource models however require VET providers to be increasingly responsive to market demand, particularly from industry and enterprise clients. Rather than developing programs in anticipation of new and emerging needs, VET providers are forced to adopt a reactive approach to program design and delivery based on the existing demands of prospective clients. In a study of environmental education and training needs in the South Australian Technical and Further Education (TAFE) system, Guthrie and Cesnich (1995) found industry demand for environmental management skills to be “spasmodic” and reactive to legislative requirements or negative publicity, rather than a strategic response to the need for an environmentally aware workforce.

Although providers act as training brokers to some extent, providing advice and negotiating with clients about content
and delivery modes, they are not equal partners in the decision-making process. Due to their growing reliance on commercial income, VET providers must adopt a subservient “customer-knows-best” position, regardless of whether client demands are inappropriate or ill-informed. Under such conditions, VET providers have little scope or incentive to incorporate environmental education into their programs if no such demand is expressed. Yet it is only through proactive educational strategies implemented over the longer term that industry and the wider community are likely to recognise the need to promote ESD in VET. Providers therefore find themselves in a double bind as not only are they forced to respond to existing client demand, but they are also unable to generate new demands to which they could subsequently respond. In effect, they are locked into a set of unequal power relations that results in a more or less closed cycle of reproductive skills formation. Under User Choice and training packages, which give employers even greater control over VET outcomes, the provision of environmental education in VET remains hostage to short-term profit imperatives and, by extension, the logic of productivism.

Such issues highlight the need for open debate about whether the transition to ESD can be facilitated within a market-based VET system. Even if industry is forced to improve its environmental management skills by stronger government regulation, market-driven educational responses are likely to remain marginal, minimal and reactive. If however a more profound shift in industrial practices is sought, the transformative potential of adult education must be unleashed as a complementary driver of cultural and attitudinal change. This would require a rebalancing of power relations between VET providers and clients within a policy and resourcing framework that assists providers to become new knowledge and skills incubators for ESD, and active agents of cultural change and alternative futures. If VET providers are to adopt a more proactive role along these lines, they will have to be freed from the constraints of the market. What form a post-market VET system should take requires broad-based public discussion.

**Policy and Planning Strategy**

A healthy environment, like clean air and water, is a public good and cannot be readily commodified for market exchange. With some exceptions, such as emerging “green” industries and occupations, environmental knowledge and skills cannot be produced and consumed for private benefit, nor can their use-value be measured precisely in monetary terms (Marginson, 1993). Left solely to market forces, environmental education in VET is likely to suffer from under-investment by individuals and industries, and hence under-supply by VET providers. Market failure in turn highlights a role for government in terms of stimulating and managing demand for environmental education in VET. Yet the current reliance on market mechanisms in VET has diminished the willingness and capacity of government to develop longer term policy and planning strategies to promote public interest objectives, such as environmental protection and sustainable development. In this regard, Guthrie and Cesnich (1995) identified a plethora of environmental management training providers in South Australia, but found that provision was organised and delivered largely on an *ad hoc* basis due to the absence of any coherent policy or planning framework. Rather than leaving the provision of environmental education to the vagaries of the market, they concluded that “TAFE ... has to develop its response within a strategic framework” (p. 100).

The reorientation of VET towards ESD and a corresponding realignment of government policy and planning priorities will require more than passing references to the import of “environmental sustainability” (e.g., ANTA, 2003, p. 2). Development of
a strategic framework for ESD necessitates a new vision for VET based on goals and values that give precedence to ecological over economic outcomes, and which takes responsibility for the environmental consequences of the production and consumption processes in which VET graduates participate. As Guthrie and Cesnich (1995, p. 12) note, "The gap between ideal environmental practice and the dollar reality ... needs to be reconciled. At present, it is still a dominance of the economics of necessity over the environmental considerations". This suggests that alternative assumptions to those of "training-for-growth" and "skills-for-work" must be developed. The form they take should be the subject of debate both within and outside the VET sector. Such debate could begin by considering the types of goals and values that potentially align with and support notions of "training-for-sustainability" and "skills-for-socially productive activity".

Development of a strategic framework for ESD in VET will also require reform of industry planning structures and processes. As Ferrier (2001, p. 228) notes in her study of two "green" industries: "Sustainable development takes a long-term view (and) creates training/re-training needs because it can entail substantial shifts from existing practices". The short-term horizons of current industry training plans need to be recast within a long-range strategic framework, informed by an understanding of ecological processes and timescales. Furthermore, the creation of an industry-driven VET system "has had the effect of consolidating the links between VET and existing industries or traditional industries, such as Agriculture, Mining and Manufacturing" (Ferrier, 2001, p. 223). If ESD is to be fostered, the current industry training advisory structure requires greater flexibility to embrace the re/training needs of emerging "green" industries.

At a provider level, ESD principles should be incorporated into the mission statements, resource management plans and staff development activities of VET institutions themselves. In tandem with their promotion of ESD in workforce development programs, VET providers should aim to become innovators and beacons of best practice in sustainable development in themselves. ESD principles and practices must be applied not only to their domestic outlets and operations, but also to their offshore activities.

**Curriculum, Learning and Assessment**

The question of how best to promote ESD through VET programs is by no means clear and entails consideration of alternative approaches to curriculum and assessment and their ramifications for ESD in general. A crucial issue concerns the need for, and relative merits of, developing environmental "experts" or specialists as distinct from "generalists" across all industries and occupations. This issue has significant implications for determining the extent to which VET providers should concentrate on developing specialised curricula and the delivery of stand-alone programs on the one hand and/or an ESD-across-the-curriculum approach on the other. While industry needs are one consideration, the interests of individual learners and wider communities, local and global, are also at stake and must therefore be central to such determinations.

In turn, questions arise concerning curricular segregation and integration. Training in Occupational Health and Safety (OH&S) is a general requirement in training packages and is delivered typically in the form of segregated or stand-alone modules. This approach could also be adopted for ESD. Unlike OH&S however, ESD is not as readily amenable to compartmentalisation as the causes and consequences of environmental problems cannot always be isolated and addressed in the context of individual workplaces. Ideally ESD-oriented learning should be fully integrated with workforce development to promote a better understanding of the interrelationships between processes of
production and consumption, and between “upstream” and “downstream” effects. In this way, the principles and practices of ESD can inform and reshape the structure and acquisition of production-oriented competencies, and also foster a multi-directional and contextualised awareness among worker-learners and organisations of their place within, and impact on, natural ecosystems.

CBT and national training packages pose significant additional issues for the promotion of ESD in VET. Although some relevant competency standards are being identified and adopted in certain industry sectors such as business services and tourism, there is a dearth of competency standards relating to ESD in the vast majority of training packages. In large part this problem stems from the fact that competency standards are determined by industry parties with little or no understanding of ESD and limited interest in encouraging enterprises to adopt appropriate practices. Even where environmental competencies have been incorporated into training packages, they are typically defined as elective rather than core components. As a consequence, the norms and behaviours of productivism are systematically and uncritically recycled.

The problem of industry self-interest is compounded by the emphasis in training packages on enterprise-specific competencies. The effects and consequences of ecologically unsustainable development extend well beyond individual workplaces, and indeed industry sectors, and ecological competence cannot necessarily be developed, assessed and certified in isolation at an enterprise level. Hence there is a need for a more holistic and inclusive approach to the identification of competency standards, the development of training packages, and the assessment and certification of workplace capability. Input from a broader range of stakeholders — including new “green” industries, environmental organisations, adult educators, and the wider community — is required to ensure that training packages and accredited courses incorporate the requisite knowledge and skills and acknowledge all legitimate stakeholder interests.

The emphasis on delivering national training packages and competencies for Australian industry should be reviewed against the need for global approaches to ESD. As economic markets become increasingly globalised, many Australian corporations are utilising international networks of production, marketing and distribution, and are sourcing raw materials from other countries. As a result, the environmental impact of their operations extends beyond our national borders, as do the adverse effects of their waste and pollution. The consequential limitations of training packages need to be recognised. Australian VET providers also have a regional role and responsibility to assist neighbouring countries to develop in ecologically sustainable ways, for example by participating in joint ESD initiatives with international aid agencies and designing and delivering adult environmental education in collaboration with local providers, government agencies, non-government organisations (NGOs) and other bodies.

For the foreseeable future, the incorporation of ESD principles and practices into vocational learning will have to be negotiated within existing structures for program design and delivery. Even if the aforementioned issues are addressed effectively, there is still no guarantee that ESD can be accommodated and fostered successfully within current frameworks for vocational learning and assessment. The general tendency of CBT and training packages to construct vocational learning as decontextualised, fragmented and measurable standards may prove to be a major obstacle to promoting ESD-oriented learning. As CBT and training packages are products of, and technologies for reproducing, productivism in VET, it is debatable whether the inclusion of isolated ESD-oriented competency
standards in training packages would promote or undercut the formation of authentic ecological competence. ESD may ultimately necessitate the creation of new structures and processes for vocational learning and assessment.

Some providers are actively experimenting with ESD-oriented approaches to VET. The Renewable Energy Centre at Brisbane Institute of TAFE, for instance, operates according to guiding principles that promote an approach to ESD which is holistic, contextualised, integrated, inter/multi-disciplinary and collaborative (Berrill & Giffard, 2001). ESD principles are reflected not only in the Centre's programs, but also in its own energy-efficient design and operation, thus demonstrating that ESD philosophy and practices are a viable and coherent basis for redesigning VET institutions and programs.

Teacher Training, Retraining and Support
Adult educators are the major catalyst for the transition from productivism to ESD in VET. Unless teachers are willing and able to incorporate the principles and practices of ESD into their programs, learners are unlikely to develop the required knowledge, skills and dispositions. Universities and other providers of VET teacher training must therefore take steps to ensure that their programs equip trainee teachers with the appropriate skills and techniques in program design and delivery, and a critical understanding of their role as adult educators for ESD. If progress is to be achieved in the short to medium term, re-training and professional development will be required for existing teachers. Teachers will also need access to appropriate curriculum resources and support materials, the development of which will require considerable investment.

New Coalitions of Interest
As productivism is so deeply entrenched in the current decision-making structures, policies and practices of the VET sector, new coalitions of stakeholders are required to facilitate the shift to ESD. The prevailing climate of competition in VET markets militates against collaborative program design and delivery among providers as they have become less willing to pool their expertise and resources. Hence there is a need to develop strategic partnerships and collaborative networks among adult education and training providers, and with environmental protection and regional development agencies, local government, environmental organisations, community groups, NGOs, and "best practice" industries and enterprises. Such partnerships and networks will help to overcome the current lack of recognition, resources and support, and also generate new ideas and strategies for ESD in VET.

Research and Development
As noted earlier, information and knowledge resources for promoting ESD in VET are sparse. There are no published statistics on environmental education provision and participation in the Australian VET sector. In the absence of any baseline data, it will remain difficult to evaluate change. Nor is there a clear picture of needs and priorities for adult environmental education, or of the extent to which existing programs are effective. Consequently there is a strong warrant for: a national inventory of environmental education in the VET sector; a critical assessment of student, industry and community needs and priorities; and an evaluation of the impact and efficacy of existing programs. VET practitioners require access to research from which they can derive models and strategies for use with adult learners, and also opportunities to undertake action research projects on ESD-oriented teaching/learning strategies.

Conclusion
This paper has argued that VET providers must not only engage in a critical examination of productivism and its negative
environmental effects, but also initiate debates and strategies to facilitate the transition to ecologically sustainable development and a new ethos of ecologism. The transition to ecologism and an ESD-oriented approach to VET will be resisted by powerful vested interests. However VET policy makers, managers and practitioners share responsibility for raising public awareness about the challenges we confront, and articulating a vision and strategy for redressing the ecological blind-spot in our current constructions of VET. A number of issues have been identified in this paper and various strategies for overcoming existing barriers to ESD in VET have been proposed. In the end, it is only through the individual commitment and collective effort of adult educators along such lines that progress towards an ecologically sustainable future will be achieved.

References


The Ethics of Learning Cultures: A Tensional Interpretation of Alternative Social Philosophies

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Anything that may sensibly be identified as a "learning culture" will be directed to promoting some kinds of learning rather than others and some kinds of learning to a greater degree than others. It will be, in other words, irreducibly ethical in nature. Learning cultures may be understood as particular expressions of alternative social philosophies. It may be argued that the culturally important differences between such (learning) cultures and their informing social philosophies are their ethical differences and that everything else is derivative of those ethical qualities. A contemporarily responsive conception of applied ethics sees it as inherently tensional in nature. Using such a conception, the ethical differences between alternative social philosophies and their implied learning cultures may be teased out. This paper sketches an analysis that takes this approach and looks at its possible utility.

Learning Cultures

The notion of a learning culture I take here to mean a cultural tradition or discourse (in Gee's [1990] generic sense of "Discourse") that encourages or evidences learning in and through it.

The idea of a learning culture as separating out those cultural traditions or discourses that encourage or evidence learning from those that do not does not make sense, since it is inconceivable that any cultural tradition could fail to evidence learning or to encourage it in some way. Conscious human engagement in life — which necessarily occurs through cultural traditions or discourses — cannot but leave remembered traces of the experience of that engagement. Similarly, a cultural tradition cannot but encourage learning of some sort — to live to any extent in and through a cultural tradition entails the learning of meanings, constraints, values, capabilities, inclinations and beliefs necessary to so living.

It is reasonable, though, to suggest that some cultural traditions may encourage more learning than do others — however that learning may be quantified. The idea, then, of a learning culture as one that encourages learning at or above some minimal absolute level, or comparatively more than other ("non-learning") cultures makes sense. It does not, though, appear to be a very useful or interesting interpretation of a learning culture on its own. Indeed, it is hard to imagine on what grounds any cultural tradition might be regarded as being a non-learning culture, since the criterion for its recognition would surely have to be entirely arbitrary. I take it, then, that we might sensibly regard all cultural traditions as marking out learning cultures.

What seems to be missing in the foregoing interpretation of a learning culture is a conception of what sorts of learning are encouraged by particular cultural traditions and, within that qualitative differentiation,
the extent to which different sorts of learning are encouraged by different cultural traditions. Cultural traditions — and the learning cultures that they mark out — demonstrably differ in the sorts of learning that they encourage (and discourage) and in the extent to which different sorts of learning are encouraged (or discouraged).

Questions of what sorts of learning are encouraged by a cultural tradition — and the relative extent to which they are so — are irreducibly ethical in nature. They are, in other words, or they presuppose, cultural imperatives to act in the public good — to do the right thing or to be the right person (or organisation, association, family, community or other interpersonal entity); (Bagnall, in press, 1994). To understand this point, it should be noted, firstly, that a cultural tradition may be seen as an expression of certain values through imperatives to act in certain ways or towards certain ends, or to evidence particular aspects of humanity. Those imperatives, then, are directed to enhancing what may be termed the “public good” — actions, states of affairs or identities that are seen as being valued aspects of the culture. They are thus, in that sense (as imperatives to act in the public good), ethical in nature. Such imperatives may be seen also as important constraints to learning, since they constrain not only public policy but also private enterprise and individual identity. The extent to which such imperatives to act in the public good do constrain learning in a cultural tradition, and the ways in which they do so, may thus be seen as a measure of the extent to which learning in a cultural tradition is irreducibly ethical in nature. There may, of course, be other bases for regarding certain aspects of learning in a cultural tradition as ethical in nature, but this at least may be recognised.

One approach to the question of what are the important (ethical) qualitative differences between different learning cultures is to focus on selected dimensions of ethical difference. This may be done by taking a tensional perspective of ethics — a view that is grounded in the tensional nature of human experience.

The Contradictory Nature of the Human Condition

In outlining such a perspective, I take as my starting point the observation that the human condition is irretrievably contradictory. All good works of literature, all great works of art, all truly memorable human experiences, all great myths, all major religions are expressive of contradictions in the human condition. Only in the mundane, the everyday, the simple-mindedly superficial are we lulled into an acceptance of our lives as being naturally straightforward. Such a condition, though, we tend quickly to find dissatisfying in itself.

Contradictions give expression to human thought and action as a function of conflicting impulses, desires, interests, commitments, ends and means. Everything that we think and do is thus grounded in contradictions. In a sense, any given thought or action resolves the contradiction, but it is only in the sense that the thought or action brings some degree of closure to the contradiction at a point in time and space.

The unqualified failure of positivist science to deliver any insight whatsoever into the human condition is explicable in terms of its inability to accommodate the reality of the human condition as irretrievably contradictory. Positivist science presupposes a convergence of complex causal factors in a predictable effect. It assumes a constancy and directionality in effect that is not evident in fundamentally contradictory systems. It cannot but fail to add anything insightful to our understanding of humanity.

Relatedly, the presumption of systems theorists, that social systems, while being subject to conflicting demands, can and do find some point of equilibrium, is a grand delusion, a fiction. Human action is not like that; social relationships are not like that. We live not in shifting states of equilibrium,
but rather in irresolvable states of contradiction. We find stability and certainty in those contradictions, not through any finding of equilibrium in contradictory states, but rather through adopting positions within them — positions made non-arbitrary only by selective attention to particular cultural contexts.

**Ethics as Tensional**

Phenomenologically, these contradictions may usefully be conceptualised as **tensions** (Castells, 1998). The notion of tension here is that of an unresolvably contradictory pair of imperatives driving human thought and action (Bagnall, 2002). It is a pair of imperatives to think or act in opposing or contrary ways or towards opposing or contrary ends: to think or act in accordance with one imperative is to deny the imperative to think or act in accordance with the other(s). It is a tension from which there is no escape, a contradiction for which there is no resolution, although we can create a sense of stability in the tension and find a sense of certainty in the contradiction through situational realities. Any such sense of stability or certainty is, though, an illusion. Nevertheless, it is a functionally crucial illusion, since it permits us to adopt lines of thought and to take courses of action with some degree of confidence or certainty, without which we would in all likelihood be transfixed into a permanent state of catatonic uncertainty.

Within the traditional, systems theory approach to tensions, they are seen as arising when a state of equilibrium is broken by some change in circumstances (e.g., Lewin, 1951/1975). The individual, group or society then is faced with the task of finding and instituting the new conditions that are dictated by the circumstances as defining the state of equilibrium. That state, in other words, is seen as being a particular position defined by the prevailing circumstances. Those circumstances include the beliefs and values of participants, but the state of equilibrium is a singular, external, objectively knowable reality. In theory at least, once all pertinent considerations have been taken into account, the point of equilibrium can be objectively apprehended. If it is enacted or instituted, the state of equilibrium will be returned.

In contrast, the notion of tension that is articulated in the present analysis denies the veracity of such states of equilibrium. It denies that there is any such state or condition that is either a singular or an external and objectively knowable reality. A tension, rather, is seen as a pair of unresolvable, inseparable and mutually contradictory imperatives to act (Bagnall, 2002). There is no possible state of equilibrium to be discovered within it. No action will make it go away. It is inescapable and insoluble.

So perceived, a tension is generally conceptualised as having a bipolar structure (Cascardi, 1992), with two poles defining opposing or contradictory imperatives to act or think in a given sort of way or towards a given sort of end. The conceptualisation of tensions here as singular, fixed and simply bipolar may be seen as a gross simplification of what is, in reality, a shifting, complex, multidimensional tensional field. Nevertheless, within that field it is evidently a part of human nature to construct the tensions as essentially bipolar — that construction seemingly dominating epistemic realities in all known historical and contemporary cultures — in spite of the historically blind tendency of some theorists of postmodernity to envision the transcendence of bipolar realities — or “dualisms” — in the postmodern moment (e.g., Usher, Bryant, & Johnson, 1997). However, it should not be forgotten that these bipolarities or dualisms are interpretations of experience, not mirrors of reality (Rorty, 1979). Their veracity lies in their utility in informing our understanding and action, not in their objective material existence.

**Tensional Dimensions**

While the existential experience of ethics is strongly contextualised — and is therefore
infinitely variable — we may go some little way towards answering the question of what are the important (ethical) qualitative differences between different learning cultures by focusing attention on the idealised abstractions of situated ethical experience. Such idealised abstractions may be understood as social philosophies, in the sense of a coherent body of ideology and theory, incorporating views of cultural ideals, values, beliefs and commitments informing and realising those ideals. A focus on selected abstractions of this sort I argue legitimates attention to a limited number tensional dimensions. Perhaps the smallest number of such dimensions that might be expected to separate out important ethical differences between and among different social philosophies is that defined by the three fundamental dimensions of human experience in modern social philosophy: (1) the epistemological — that pertaining to the nature of knowledge, its grounding and what it is to know; (2) the ontological — the nature of individual identity; and (3) the cultural — the nature of the discourses in which we are embedded. The three tensions that are framed by these dimensions are: an epistemological tension, between the particular and the general; an ontological tension, between freedom and collectivism; and a cultural tension, between open and closed. Both the selection of dimensions and the meaning given to the tensions should be understood as an attempt to capture what is important in contemporary constructions of experience in general and of workplace experience in particular. The dimensions and tensions recognised at different historical moments may well be different from these. The present three tensions may be understood as follows.

The Epistemological
The substantive focus in the epistemological tension is on working knowledge: that knowledge which in some way informs human action. The tension is grounded in the reality that all experience is of particular events and all action is taken within particular events yet, if we are to learn from experience and if we are to act in an informed manner, we must generalise across events. The more that we generalise, the more that we can integrate experience into our learning and the more intelligently we can act in new situations. Conversely, the more that we generalise, the less sensitive we are to new experiences and the less responsive we are to the demands and possibilities of new situations.

These two imperatives, then, define the tensional poles: on the one hand, the imperative to the particular, to apprehending and responding to the immediately experienced situation; and, on the other hand, the imperative to the general, to learn from our experience of the particular and to use that learning in other events in the future. Neither pole of the tension makes any sense without the other, yet, to the extent that we think and act in one, we are diminishing our attention to the other. For example, if, as an academic at an international conference I am confronted by someone whom I do not immediately recognise, I seek to understand her actions in order that I may interact with her in an intelligent manner. To do so effectively, I need to understand her as a unique person at that unique moment (the imperative to particular knowledge), but I cannot do that without drawing on my generalised knowledge of persons whom I detect to be of a similar kind in what I believe to be similar situations (the imperative to general knowledge). I will also — at least after the event — be seeking to integrate knowledge of that encounter into my general understanding of persons and how I may interact with them in the future. In so doing, though, I must make generalisations from my specific, unique encounter with that individual.

The Ontological
The substantive focus of the ontological tension is on the realities that define individual identity. The tension is grounded in the
imperative, on the one hand, to define oneself as an individual — as one who is recognisable for what one is and does — and, on the other hand, to be recognised as a true member of the cultures, the groups and the discourses with which one is associated. Only through my individuality do I have a unique identity and the extent to which I have a unique identity I am recognised as someone of individual worth. However, as a member of group, I have a set of values and commitments through which I can be recognised as a person and in which I can identify standards defining what it is to be a person of worth. As a member of a group, I know what it is to be human.

These two imperatives, then, define the tensional poles: on the one hand, the imperative to individual freedom, to define oneself as an independent monad, as the agent of one's being and destiny; and, on the other hand, the imperative to collectivism, to see oneself and be understood by others as a part of a culture, to know what is good, true and beautiful through that culture, to understand oneself and be understood by others as a person of worth within and through that culture, and to succeed as a person through its norms. Each pole depends upon the other for its realisation, since neither freedom nor collectivism can exist without the other. For example, in seeking to make a significant contribution to the human condition through my scholarly activities, I must achieve outcomes that are, demonstrably, uniquely creative expressions of my individuality, my free will as an individual (the imperative to freedom). However, I cannot possibly make any such a contribution unless my work is tightly defined — circumscribed and constrained — by my immersion in the pertinent academic culture. Unless I am so immersed, I cannot understand the criteria or the standards by which a unique contribution to the field is measured; I cannot even know what it is to make such a contribution, or apprehend the value of doing so.

The ontological tension is thus grounded in the heart of our existence as human beings. On the one hand, our welfare, indeed our very survival, is dependent upon each of us acting in our own individual interests (Regis, 1980). We must engage in the day-to-day activities to feed, clothe and house ourselves, to avoid unnecessary risk or danger and to pursue our interests. To do otherwise would be to live in a state of helpless dependency and inactivity. On the other hand, our humanity, our very being as persons, is dependent on relationships with others (Buber, 1958). Only through identifying with others do I have any humanity at all. My identity as a person, through which I understand myself as a person in relation to others and the rest of the world, through which I give meaning to my existence and through which I develop and pursue goals and interests, all depend on my immersion in collective, social reality.

The Cultural

The substantive focus of the cultural tension is on the openness to cultural difference of the discourses in which one is embedded. It is importantly a focus on the discourses or cultures (including their informing and embedded ideologies) within which one lives and which contribute thereby to one's definition as a person. These discourses are variously overlapping and generally multiple for any one individual. They include, variably, the discourse(s) of one's national culture, one's ethnicity, one's religious, class or other affiliations, as well as the discourse(s) of any workplace culture(s) with which one is associated. The tensional import of these discourses is expressed in their effects on individual and collective belief and value systems and thereby on individual and collective actions. The tension is grounded in the imperative, on the one hand, to value difference and, on the other, to value continuity. In being open or receptive to other realities — other ways of seeing
world, other approaches to living within it, other values — a discourse provides opportunity to extend the ways in which one understands and relates to the world. It opens possibilities for addressing issues, problems or concerns in potentially better ways, and it provides the possibility for challenging, stimulating and exciting new ways of seeing, understanding and engaging with others and with the other realities. However, in being closed to other realities, a discourse is protected from the threat of being challenged and possibly undermined by those realities; and individuals whose life-worlds and identities are framed by the discourse are protected from the angst of having their lived realities and individual identities challenged or undermined through exposure to alternatives.

These two imperatives, then, define the tensional poles: on the one hand, the imperative to value difference, to seek benefit from the tempting opportunities that new and alternative ways and visions can offer; on the other hand, the imperative to value continuity, to seek security in the tried, true and proven, to rest content in the knowledge that, while conditions may not be all that one would wish, they are at least known and shown by history to be tolerable, and they are certainly less threatening than any alternatives, which may well turn out to be quite disastrous. Without at least some degree of openness, it is probably the case that no cultural change or development is possible. Conversely, without some degree of conservative closure, any sense of cultural predictability or certainty is problematic: changeability creating the threat of a climate of overwhelming uncertainty. While either of these tensional poles could theoretically exist without the other, in reality it is hard to envision any cultural context that could tolerate either extreme openness or extreme closure. Both poles remain, though, imperatives to human action. Each exists, in other words, in tension with the other. For example, in working as a scholar of workplace knowledge and value, I am constrained importantly by the discourse of contemporary university culture. That discourse impels me to seek new understandings of workplace knowledge and value, new solutions to problems in workplace education and learning, and to do so in novel ways. In so doing, I will stand to be recognised as one who has made a significant contribution to scholarship in the field. However, that very same discourse constrains me, simultaneously, to value and preserve the scholarly practices and procedures and the accumulated knowledge of the field — to show how my understanding accords with that knowledge and how its generation was true to those practices and procedures. The extent that I do or am otherwise, is a measure of the extent to which I reject those traditions and distance myself from academic discourse. I am, in other words, constrained to satisfy both of these contradictory imperatives if I am to be recognised as an academic of any merit or worth.

Implications for Understanding Learning Cultures

Although space does not here allow me to tease out the detail of the differences marked out by those three dimensions, I can at least point to their potential by taking just the eight different combinations of their joint polar tendencies. (Acknowledging here that thought and action may be positioned on any one tension, independently of the other two — in other words, there is no necessary link between a position towards either pole on a tension and the position taken in relation to the other two). The polar tendencies, then, may be seen as separating out a remarkable range of contemporarily influential social philosophies, as follows:

1. An inclination towards the epistemologically particular, ontologically free and culturally closed is seen in both the more traditional nativism and the more contemporary radicalism.
2. An inclination towards the epistemologically particular, ontologically free and culturally open is seen in both the more traditional anarchism and the more contemporary existentialism.

3. An inclination towards the epistemologically particular, ontologically collective and culturally closed is seen in tribalism of all sorts.

4. An inclination towards the epistemologically particular, ontologically collective and culturally open is seen in pragmatism.

5. An inclination towards the epistemologically general, ontologically free and culturally closed is seen in what may be termed "liberal conservatism" or "neoliberalism".

6. An inclination towards the epistemologically general, ontologically free and culturally open is seen in democratic liberalism.

7. An inclination towards the epistemologically general, ontologically collective and culturally open is seen in fundamentalist social philosophies — both religious, such as contemporary Islamic or Christian fundamentalism, and secular, such as State Marxism.

8. An inclination towards the epistemologically general, ontologically collective and culturally open is seen in democratic socialism and scientific humanism.

Although I cannot explore the point here, I would argue that the outstanding qualitative differences between and among contemporarily influential social philosophies may largely or entirely be accounted for by taking the array of intermediate positions on the three dimensions in their different combinations.

To the extent that this is the case, these dimensions may be seen as marking out the culturally important differences between and among different social philosophies, and therefore between and among the "learning cultures" with which they are associated. The dimensions thus may be seen as capturing and interpreting the important ethical differences differentiating these cultural traditions.

References


Policy Drivers
The education policy churn in England goes on. During the last 12 months government has published a number of policy papers. In “Success for All: Our vision for the future” are contained changes in further education and training (the learning and skills sector; DfES, 2002a). Modified arrangements for the planning and funding of the new sector are described, alongside measures to develop its responsiveness to employers’ and community needs and to improve the quality of teaching and learning. The Standards Unit has been established in the Department of Education and Skills (DfES) to spread good practice in teaching and training and targets set for the first time for full- and part-time teachers to hold a recognised teaching qualification.

In January 2003 government issued two policy papers. The White Paper, “The Future of Higher Education”, focused mainly on funding, changes to student support and the decision to allow institutions to introduce “top-up” fees from 2006 (DfES, 2003a). In the same week policies for the 14 to 19 age group were announced in “14–19: Opportunity and excellence” (DfES, 2003b). Finally in July 2003 the White Paper, “21st Century Skills: Realising Our Potential: Individuals, Employers, Nation” was published (DfES, 2003c). In large part 21st Century Skills is a summary document, which draws together initiatives and policies already announced or implemented which form the “National Skills Strategy”; in its own words it is about making sense of and integrating what is already in place. It confirmed the intention to give employers more control over training, and to make the qualifications framework more responsive to the needs of individuals and employers. This paper did, however, break new ground in announcing a new guarantee of free tuition to enable any adult to obtain their first Level 2 qualification.

The official justification of these changes is couched in terms of the New Labour objectives of social justice and economic performance. Despite the government’s success in reducing unemployment and inflation, English productivity and competitiveness remain below those of our competitors. For example, output per hour is 25% higher in the USA and Germany, 30% higher in France. This is related in the “Skills Strategy” paper to the skills gaps shown in the qualifications held at different levels of the workforce. So, at the intermediate level (skilled craft and technician) 28% of English workers are qualified compared with 51% in France and 65% in Germany (DfES, 2003c, p. 12). To improve economic performance these skills gaps are to be reduced especially at the levels of intermediate skills and of “basic skills for employability”.

It is from the “14–19: Opportunity and excellence” that this paper draws its theme. This is significant in that it represents the first official attempt to address the 14–19 phase of education and training (though this was anticipated in “Success for
All”). Reasons for this can be suggested. Now that the majority of 16-year-olds continue in full-time education or training, the end of compulsory education is no longer as significant a point in the lives of young people as it once was. Since most young people (86%, see below) now continue in education, this needs to be reflected in what the document calls a more coherent phase of education and training. The Curriculum 2000 reform changed the structure of qualifications for higher achievers remaining in education after 16. It was aimed extending the breadth of study of that half of the year group who achieved five GCSE passes at grades A*-C and providing an AS level qualification designed to provide a new rung in the qualifications ladder between the GCSEs taken at 16 and the full A levels taken 2 years later. It also converted advanced level vocational courses into smaller vocational “subjects” so that they could be mixed and matched, if desired, with academic subjects. Unfortunately, the AS qualification was provided only for academic subjects. This, plus the facts that (a) a more academic approach to assessment has been introduced so as to “increase standards” and (b) the vocational route is no longer as integrated as it was, may explain the high failure rate that now occurs with advanced vocational subjects.

The 14–19 analysis and proposals appear to be based mainly in concern for the “other half” of the age cohort who do not achieve the five “good” passes and those young people who, often after earlier losing interest in education, do not continue to participate after 16. There is loss of talent to the economy and society in this group and, at worst, disaffection and disengagement which are costly to society and those concerned. Low or non-achievement also reduces individuals’ ability to progress to qualifications later, affecting their chances in the changing labour market and making more difficult the achievement of the government’s learning targets.

Participation
Table 1 shows the current participation of 16-year-olds by qualification aim and mode of attendance. The increase in “staying-on” in full-time education, driven by the disappearance of jobs taken up by school-leavers and by the rising achievements of many 16-year-olds, has taken place mainly in the last 10 to 15 years. There is clearly no possibility of returning to the past, when some significant numbers of school-leavers moved into apprenticeships. Now, almost 40% at age 16 choose general education courses, with 30% going on to some form of vocational training or education.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Participation of 16 and 17-year-olds in Education in England 2000–2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>FULL-TIME</td>
<td>16-YR-OLDS</td>
</tr>
<tr>
<td>GCE/AS level</td>
<td>38.0%</td>
</tr>
<tr>
<td>GNVQ Advanced or VCE A/AS level</td>
<td>7.5%</td>
</tr>
<tr>
<td>NVQ Level 3 &amp; equivalents</td>
<td>4.6%</td>
</tr>
<tr>
<td>GCSE</td>
<td>2.5%</td>
</tr>
<tr>
<td>GNVQ Intermediate &amp; Foundation</td>
<td>7.6%</td>
</tr>
<tr>
<td>NVQ Level 1 &amp; 2 and other courses</td>
<td>10.5%</td>
</tr>
</tbody>
</table>

Total full-time participation | 70.7% (449,600) |
Part-time participation | 7.3% (45,900) |
Total participation | 78.0% (495,500) |
Population aged 16 | 631,900 |
Another way of showing the current educational activity of 16-year-olds is to show where they are receiving their education or training. Table 2 shows the variety of “sites” at which 16-year-olds can be located and the fall in participation at 17.

Table 3 shows that most of those achieving Level 2 at 15+ proceed to Level 3 mostly in schools. Also that of the 50% of 15-year-olds who do not reach this threshold before the age of 16 only 20.6% stay in full-time education. It is at this half of the age cohort that the 14–19 policy is directed.

14–19 Proposals: Improving Vocational Options

In the “14–19: Opportunity and excellence” paper the government propose changes to the curriculum for 14 to 16-year-olds to allow students more freedom and choice. In practice this means reducing the number of compulsory subjects in the National Curriculum 11–16, a decision which will require Parliamentary approval and so cannot be implemented before the 2004–05 session at the earliest. The proposals are that:

- English, maths and science remain compulsory along with careers and physical education, citizenship, sex education and religious education
- All students to learn about work and enterprise
- Information and communications technology to remain compulsory for now (to be taught increasingly through other subjects)

### Table 2

<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Full-time school</td>
<td>28.3%</td>
<td>22.2%</td>
</tr>
<tr>
<td>FE and 6th Form College</td>
<td>36.7%</td>
<td>30.1%</td>
</tr>
<tr>
<td>Independent school</td>
<td>6.1%</td>
<td>5.7%</td>
</tr>
<tr>
<td>Government-supported training</td>
<td>7.0%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Employer-funded training</td>
<td>3.0%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Other education and training</td>
<td>5.8%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Total</td>
<td>86.9%</td>
<td>79.3%</td>
</tr>
<tr>
<td>Not receiving education or training</td>
<td>13.1%</td>
<td>20.7%</td>
</tr>
</tbody>
</table>

Taken from DfES, 2003e

### Table 3

<table>
<thead>
<tr>
<th>Participation of 16-year-olds in Full-time Education by Level and Institution in England 2000–2001</th>
<th>THOUSANDS</th>
<th>% OF TOTAL</th>
<th>% OF COHORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2 and below in schools</td>
<td>29</td>
<td>22.3</td>
<td>4.6</td>
</tr>
<tr>
<td>Level 2 and below in SFCs</td>
<td>9</td>
<td>6.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Level 2 and below FE</td>
<td>92</td>
<td>70.8</td>
<td>14.6</td>
</tr>
<tr>
<td>TOTAL level 2 and below</td>
<td>130</td>
<td>100</td>
<td>20.6</td>
</tr>
<tr>
<td>Level 3 in maintained schools</td>
<td>153</td>
<td>48.4</td>
<td>24.3</td>
</tr>
<tr>
<td>Level 3 in independent schools</td>
<td>32</td>
<td>10.1</td>
<td>5.0</td>
</tr>
<tr>
<td>Level 3 in SFCs</td>
<td>53</td>
<td>16.8</td>
<td>8.4</td>
</tr>
<tr>
<td>Level 3 in FE</td>
<td>78</td>
<td>24.7</td>
<td>12.4</td>
</tr>
<tr>
<td>TOTAL level 3</td>
<td>316</td>
<td>100</td>
<td>50.7</td>
</tr>
</tbody>
</table>

Reformatted from DfES, 2003
• All students to be entitled to learn another language, an arts subject, a humanities subject, and design and technology. (DfES, 2003b, p. 6)

The curriculum time freed up by this "disapplication" of some National Curriculum subjects is intended to give schools and colleges flexibility to offer programs to meet "individual needs and aptitudes" (DfES, 2003b, p. 20). Already the government have introduced General Certificates of Education (GCSE) in eight vocational subjects and they will also introduce new "hybrid" GCSEs which will enable students to study on "either academic or applied tracks" (DfES, 2003b, p. 24). Modern Apprenticeships will be improved so that 28% of young people will be able to enter them by the age of 22.

Finally, the summary states that the government will remove "the sharp distinction between general and vocational GCSE subjects and their respective labels" (DfES, 2003b, p. 24).

To achieve these aims it is recognised that a consistent approach to teaching and learning across schools, colleges and workplaces will be necessary. This will require cooperation in local partnerships between employers, schools and colleges especially to encourage young people to progress from pre- to post-16 learning. With advice and guidance from schools young people will be encouraged to have plans across the 14-19 phase. As a further measure, Educational Maintenance Allowances recently piloted in some areas and providing financial assistance to young people from poorer backgrounds, will be available nationally from September 2004.

This is an ambitious plan, far-reaching in its implications and the issues it raises. Some of these have already emerged. For example:

• It is expected that schools and colleges will cooperate, although the funding of all institutions is related directly to student-numbers; will a school transfer funding to the college as it "releases" its students to attend vocational courses at the college?

• Legally, during the period of compulsory education, learners must be taught by teachers with Qualified Teacher Status who act in loco parentis. Currently many college teachers, in particular in vocational areas, do not hold a recognised teaching qualification and do not have QT status.

• Partnerships will be set up by the chief officers of the local authorities working with the executives of the local Learning and Skills Council. The question of whether this means that the remit of the LSC is now extended to the 14 to 16 age group is not addressed in the paper.

For the longer term a 14-19 Reform Working Group has been set up to consider three areas about which there is "a strong and growing consensus":

• there needs to be a much stronger vocational offer, with a strong underpinning of general education

• assessment needs to be "fit for purpose ... manageable ... and (recognise) a wide range of learning and achievement"

• aims like that of raising the status of vocational provision and the motivation of students would be promoted by a unified framework of qualifications which help progression through Foundation to Intermediate and Advanced levels.

The third of these points refers to the possibility of adopting "Baccalaureate-style qualifications". The working group chaired by Mike Tomlinson, formerly Chief Inspector OFSTED, is expected to publish its final report in July 2004 (DfES, 2003b).

At the time of its publication the 14-19 policy was, unsurprisingly, overshadowed by the higher education document and the issue of "top-up" fees. Since then there has been interest shown and developments have
taken place in particular for 14 to 16-year-olds. "Pathfinder" schemes have been initiated in some local areas in order to trial new approaches and arrangements. In some places college teachers are teaching their vocational areas to classes in schools; in others, groups of school students attend the local college for some teaching. Inevitably there have been difficulties, when college teachers have been required to teach groups of students whom their schools have failed to motivate. In general, however, the value of the proposals has been acknowledged and in particular the recognition that local circumstances will require different local provision and arrangements. How far these local partnerships will be allowed flexibility, and whether successful cooperation between hitherto competing institutions can be established, time will tell.

The Context for Strengthening Vocational Courses

As well as the organisational and resource aspects referred to above there are other factors to be considered if the government’s aim of "strengthening the vocational offer" to this age group is to be achieved. One such is the concentration in the paper on the education side of provision, especially the requirements on schools and colleges to work in partnership and develop students’ learning plans. A third group of local "partners" will be local employers, small and large companies, National Health Service Trusts, local councils and voluntary bodies. The involvement of these enterprises will be crucial if the schemes are to make real the vision of high quality vocational and work-based provision particularly if attractive work-based routes are to be developed. Whether companies and other organisations will see it in their own or in the public interest to invest in these activities is at present uncertain. It is interesting to note that the up-beat exhortation to "industry" to play its part is balanced by the clear condition that their effort must not be damaging to their core business. If the government’s aim that all sixteen year olds will continue in education or training is to be met, and a quality vocational education is to be offered across the attainment range, then effective involvement from business and the wider community will be necessary.

There is, however, considerable confusion within the 14–19 document with regard to the meaning and use of words relating to vocational education and training, confusion which is even more noticeable if one reads across the other official documents referred to above. For example, the 14–19 document in its reforms to tackle "the weakness of vocational education" includes the decision "no longer (to) describe GCSEs or A Levels as ‘vocational or academic’" (DFES, 2003b, p. 6) In the same paragraph it is stated that, in addition to the vocational GCSEs, new "hybrid" GCSEs will be introduced so that students will be able to "study on either academic or applied tracks, depending on their preference and aptitude". In “Success for All” the need for "vocational pathways from the age of 14 which maximize ... participation at 16, attainment at 19 and progression into higher education and (sic) skilled employment" is put forward. This, it continues, puts "work-based learning at centre stage of government policies" (DFES, 2002a, p. 25)

The Qualifications and Curriculum Authority, in its advice on developing the 14–19 phase, refers to the Ministers’ vision of “clear progression through academic, vocational and work-based routes, secured through a diverse range of high quality and coherent learning opportunities’ a reiteration of the recurring tripartite model” (QCA, 2003, p. 2). In the 14–19 consultation document there is discussion of “general, vocational and mixed pathways" and the possibility of a common core and optional general or vocational units through the use of redesigned “hybrid" GCSEs (DFES, 2002b, p. 30). In a speech in February 2003 at the time of the publication of the 14–19 policy paper the
Schools Minister, David Miliband, spoke of the need to raise the status of vocational education and of the government’s responsibility “to ensure that vocational courses are not the default option for those who struggle in the basics” (DfES, 2003e).

Here we have mentions of “routes”, “pathways” and “courses”, subjects and qualifications in relation to the proposed strengthening of the vocational offer. The differences and relationships between these are not examined and explained. The documents also contain inconsistent uses of terms like vocational, specialist, applied, technical, general, academic (and even “hybrid”) when labelling qualifications. Other terms in use include work-related learning, enterprise learning, work-based learning, work experience, skills for employability.

We can continue to illustrate the semantic confusions. At the organisational level in England we now have the Department for Education and Skills and the post-16, non-university education and training is now planned and funded by the Learning and Skills Councils. These titles mix two distinctive entities: education and learning which are processes, and skills which are outcomes. Reflection on this confusion points up and clarifies some important implications. Individuals, companies and society need more than skills for their well-being and prosperity; knowledge and understanding are also important. And with regard to the processes of learning, general education needs to be complemented by specific (and often occupational) training and some learning aims and outcomes require appropriate experience. This is not indulgent philosophical and semantic quibbling. The loose and inconsistent use of language in these official documents reveals that important issues about aims, institutional relationships and learners’ motivation have yet to be resolved. Also, it reflects differing assumptions and priorities held in different parts of government, and at the same time enables policy-makers to avoid addressing important issues such as those of resources and capacity. Some of these issues are discussed below.

Capacity and Resources
It is noteworthy that amid the exhortation and discussion about the plans for more and better vocational provision there has been very little analysis of the need for more and better facilities, including up-to-date equipment and planned renewal programs, and for improvements in the supply and availability of teachers with the relevant vocational expertise and experience. It is inescapable that on average vocational provision is more expensive than academic or general education. Specialist facilities in further education colleges are already under pressure, a problem which is at times recognised in the form of generalised exhortation for closer working with employers. The problem of funding has been referred to above; arrangements for some form of joint funding or transfer of funds from schools to colleges will be necessary. However, the intractable problem is almost certainly to be the lack of appropriate teaching and training staff. They are in short supply in schools, colleges and companies. The inadequate and unnecessarily narrow form of vocational education and training pursued during the last 2 decades has created a succession problem of vocational teachers and trainers in colleges and companies. The expanding parts of the economy, where prospects and pay are good, are also the areas in which colleges would wish to expand but are faced with intense competition for experienced staff.

The Vocational as the “Default” Option
The conflict between a policy aimed at improving the status of vocational provision and the assumption that such provision is particularly suited to students whose attain-
ment is below the average, and whose motivation is low, has been pointed out above. This "suitability" we would argue is largely a matter of assertion, since we do not know whether a redesigned general education might be as, or more, effective. If there is increased motivation does it arise from learning in a different environment, changes in course content and design, alternative teaching and assessment strategies? Each of these is cited as significant at different times, but successive proposals have referred inconsistently and selectively to these factors. There is, too, the contrast with the position in higher education where high levels of academic achievement and motivation are assumed to be required for admission and success in vocational programs such as medicine and architecture.

Overall, it is clear that unless vocational provision is suitable for and used by all learners at all levels of achievement, parity of esteem will never be achieved. This in turn means that as much attention should be given to this aim as to meeting the needs of the "below average" attainers. Improving the performance and prospects of those who do not reach the key threshold of five GCSEs, grades A*-C, by the arbitrary date at which these national examinations are taken, is a pressing issue but not one to be equated and addressed only with improved vocational provision.

**Unstable Companies and Employment**

None of the official papers we have discussed recognise fully the changes that have taken place in the economy during recent years. The once large companies and enterprises, many state-owned, which provided extensive training for their own workforce and indirectly trained staff for smaller firms, have mostly disappeared or are much reduced in size. The smaller companies usually did not have the infrastructure to provide this for themselves, and today still find it difficult to cope with the administration and costs associated with apprenticeships and vocational qualifications, even where they have the willingness and capacity to train staff. Even in those occupational sectors and geographical areas where there are still some large firms, we find that these firms are no longer as stable as they were. Also, the tendency is now is for them to "out-source" functions and production to much smaller enterprises, reducing their own core staff in the process.

Other policies appear to be based on the assumption that an employee has a single employer willing and able to take responsibility for their training and development. In fact, an increasing number of people move frequently from job to job, or have several part-time jobs, or are self-employed. People employed in these ways have to take responsibility for their own vocational training.

These changes in industry and in patterns of employment have the effect of placing more demands on public providers of VET and yet the funding for adult (post-19) education and training is not being increased as the political priorities continue to be 14–19 education and universities. Meanwhile there is increasing emphasis in public policy on greater "employer engagement", as it is now called, in activities that go beyond the training of their own staff: for example, providing work experience for students, serving on governing bodies, and participation in the design of qualifications. All this is called for across the board — with reference to schools, further education colleges and higher education — with no audit of the aggregate demands being made. It may be that, to refer to "employers" in policy documents rather than the more accurate term "companies", has the effect of obscuring the changes taking place in the real world of work.

**Lack of Debate about Curriculum**

Almost all recent debate in England about the "vocational route" has centred on reforming qualifications which are believed
to be inappropriate or lacking in rigour. There has been little attention paid to the quality and attractiveness of the learning experiences of young people on vocational programs. This is why it is possible to make proposals to “strengthen” the vocational route without discussing resource implications. We believe that is important to design courses which are as attractive, exciting and demanding as others assume their time at university will be, otherwise other routes will only be taken by those who feel they have no other choice. Similarly, there has been much debate in recent years about improving the quality of teaching in schools and universities. It says much about the status of VET that there has so far been no parallel examination of what modern vocational pedagogy and curriculum design might look like.

Endnotes


2 Accurate data on numbers entering apprenticeships (seen as long-term skill training sponsored by employers) has become increasingly difficult to obtain. It is estimated that during the 1960s, 34% of boys leaving school, but only 7% of girls, went into apprenticeships (Wolf, 2002, p. 59). The percentage of boys was still approximately 33% in the mid 1970s after which numbers declined steeply. By 1990 it was unlikely that apprentices amounted to more than 5% of the youth cohort (Marsden et al., 1995).

References


Ilyenkov on Education

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The philosophy of education is among the least celebrated sub-disciplines of Anglo-American philosophy. Its neglect is hard to reconcile, however, with the fact that human beings owe their distinctive psychological powers to cumulative cultural evolution, the process in which each generation inherits the collective cognitive achievements of previous generations through cultural, rather than biological, transmission. This paper examines the work of Russian philosopher Evald Ilyenkov (1924-79), who, unlike his Anglo-American counterparts, maintains that education, broadly understood, is central to issues in epistemology and philosophy of mind. I expound Ilyenkov's position and defend it from five objections: (1) that Ilyenkov treats education as a vehicle of social engineering; (2) that he is unduly preoccupied with controlling human development; (3) that he implausibly portrays the mind as a tabula rasa; (4) that his position is utopian; and (5) that it is technocratic. Defending Ilyenkov illuminates a variety of issues about the objectives and ideals of education, compulsory and non-compulsory. I conclude that Ilyenkov's ideas, if complemented by those of other thinkers, Russian and Western, can help rejuvenate philosophy of education and reinstate the field at the centre of philosophical inquiry.

The Paradoxical Neglect of the Philosophy of Education

The philosophy of education is perhaps the least distinguished of all the established sub-disciplines of philosophy. No major works in the field have been published since Dewey's, and no contemporary philosophers of real eminence identify themselves as philosophers of education. The field is rarely considered a necessary ingredient of a serious philosophy curriculum. Indeed, outside faculties of education, philosophy of education is rarely taught. Most philosophers would acknowledge that issues in education sometimes provoke philosophically interesting questions. Adam Swift, for example, has recently published an engaging book examining the coherence of the attitudes of parents who are opposed to private education but who believe that their children's well-being demands they be sent to private schools (Swift, 2003). And most philosophers would recognise that some areas of philosophy, such as the philosophies of mind and language, treat issues, such as concept acquisition, which bear on our conceptions of learning and teaching. But few think that their students are missing something vital if they fail to study philosophy of education. The discipline is seen — and, indeed, represents itself — as a branch of practical philosophy concerned to "clarify the aims, content, methods, and distribution of education appropriate to contemporary society" (White, 1995, p. 216). As such, it is widely thought best left to specialists in schools of education. Very few philosophers hold that systematic speculative reflection on the nature of education is indispensable.

There is, however, something paradoxical about this situation. Philosophy has always been concerned to characterise the distinctive qualities of human beings. What makes us different from "the brutes"? The traditional answers are familiar: we have souls, mind, reason, language, or personhood, and they do not. Many such answers
are now regarded as philosophically inept and morally dubious because they aspire to identify characteristics, possession of which somehow places us outside nature, as if we are outside the purely natural modes of being enjoyed by the beasts. Philosophers have come to accept that we are natural beings too, that our existence is wholly within nature. As a result, it has become fashionable to stress continuities between animals and us. This is undoubtedly a welcome development, but the original question nonetheless retains its relevance. For our mode of life is radically different from that enjoyed by other animals, even the most intelligent and socially developed, and we cannot but ask what explains our striking cognitive and practical powers.

It is unclear that biological evolution is the answer, because natural selection does not proceed fast enough to explain the extraordinarily rapid development of our cognitive capabilities over the last 250,000 years. The key is cumulative cultural evolution (see Tomasello, 1999). We are not just able to create novel solutions to problems; we can consolidate those solutions and transmit them to the next generation. We can coordinate activity around socially meaningful objects and artefacts, which become part of the shared environment in which our children learn to function. Language, especially enhanced by literacy, plays a crucial role in this. In short, we are the beings we are because each generation assimilates the collective wisdom of previous generations (and the collective folly, but that is another story). Nothing like this is seen in the behaviour of other animals. Since the mechanism of inheritance is cultural rather than genetic, it follows that the capacity for education, in the broadest sense, is the essence of the human condition. If this is true, it is extraordinary that Anglo-American philosophy has lost sight of education.

How is this possible? Partly to blame is the individualistic conception of the mind that long dominated the Anglo-American tradition, a conception with its roots in Descartes and the British empiricists. On this view, the individual mind is something self-contained, self-sufficient, and ready-made: a subjective world of thoughts and experiences, intelligible in blissful isolation from the external world and other minds (see Bakhurst, 1997, pp. 153–57). Also to blame is the scientistic conception of the external world that often complements this view of mind: the idea that reality beyond the mind is exclusively physical in nature and wholly explicable in natural-scientific terms. Together these views make it difficult to perceive the reality of culture, and the distinctive nature of the human environment. Another factor is the methodology of “conceptual analysis”, which boxed epistemology in to analysing the concept of knowledge and fending off scepticism. Questions of the creation and transmission of knowledge were portrayed as grubby empirical matters to be dealt with by psychologists, and education found itself outside the purview of philosophy.

In recent years, however, these philosophical prejudices have been significantly challenged. The many descendents of the Cartesian conception of the mind have been roundly criticised. It is widely admitted that culture deserves to be taken seriously in epistemology and philosophy of mind, and there is considerable interest in questions of embodiment and our engagement with others. Philosophers have generally lost confidence in pristine conceptual analysis, and the sharp distinction it presupposes between philosophical and empirical enquiry. Philosophy is now supposed to be open to matters empirical, and philosophers can no longer ignore work in developmental psychology and cognitive science that casts philosophically thought-provoking light on human development. So it would seem that the time is ripe for a renaissance of the philosophy of education, seen no longer as simply a branch of applied philosophy, but as a
Ilyenkov: Culture, Education and the Social Formation of Mind

Ilyenkov was one of the generation of Russian philosophers who sought to reanimate Soviet Marxism after the dark days of Stalinism. In 1960, he published a path-breaking work on Marx's method, which he followed two years later with his best-known work, the article "The Ideal" (Ilyenkov, 1960, 1962). Both exercised a profound influence on his contemporaries. His sophisticated analysis of the "logic" of Das Kapital, and his profound appreciation of the philosophical anthropology in Marx's early writings, stood in marked contrast to the dogmatic formulae of orthodox Soviet Marxism-Leninism and helped rekindle the flames of philosophical scholarship in Russia. These writings also contained an important political subtext. Their criticisms of positivism and empiricism appeared to be directed exclusively at Western schools of thought, but his Russian audience also perceived in them an attack on Soviet idolatry of the "scientific-technological revolution". Such interventions made Ilyenkov a controversial figure, he continued to have a tense relationship with the philosophical establishment until his death, by his own hand, in 1979.

As the Khrushchev "thaw" was succeeded by the colder climate of the Brezhnev years, Ilyenkov turned increasingly to popular and polemical writing. Many of these pieces address questions of education. Best known are those on Alexander Meshcheryakov's work with blind-deaf children, which Ilyenkov portrayed as a vindication of his philosophical commitments (see Bakhurst & Padden, 1990), but I shall focus here on the more general themes treated in his 1977 pamphlet, Uchit' myslit' smolodu (which translates awkwardly as learn to think while you are young).

A number of Ilyenkov's works have been translated into English and other languages. It is important to note, however, that he is a difficult philosopher to read. Many of his writings read today like professions of Marxist orthodoxy. Of course, Ilyenkov had to express himself in the voice of Soviet Marxism-Leninism if he was to publish. But it would be wrong to portray him as simply ventriloquating ideas through an idiom forced upon him. Though a critic of the Soviet establishment, Ilyenkov was a committed, even naïve, Marxist, who expressed his views stridently. It is thus often difficult to distinguish sincere affirmations from obligatory rhetoric, let alone to perceive the messages buried in his writings. (In my work, I have been greatly helped by discussions with Ilyenkov's contemporaries, especially F.T. Mikhailov, V.A. Lektorsky and the late V.V. Davydov [see Bakhurst, 1991, 1995]).

Ilyenkov is preoccupied with the grand philosophical question of "the relation of thinking and being". How is it possible that a physical world can contain minded beings? What is distinctive about his solution to this problem is his insistence that to understand the mind we have to look outside the head. It is crucial that human beings actively transform their
world and thereby lend it significance. The creation of artefacts is an obvious example. When we make an artefact we do not just physically rearrange matter; we create an object that bears significance in virtue of the role it plays in our form of life. This insight, however, applies not just to created objects. Ilyenkov argues that in virtue of our active engagement with reality, the whole world confronts us as rich with meaning. Even elementary perception is a matter of seeing objects as things of a certain kind: all perception is thoroughly conceptual in character. Moreover, the world we perceive is not just meaningful, it is action-inviting: the situations we face present us with reasons for belief and action. The world constitutes what John McDowell, following Wilfred Sellars, calls “the space of reasons” (McDowell, 1994). For Ilyenkov, what it is to be a minded being is just to dwell in such a space, and our capacity to inhabit a meaningful environment — our mindedness itself — is not something that precedes the creation of that environment, but coevolves with it. That is why Ilyenkov maintains that we cannot understand the human mind unless we countenance the kind of world in which human beings exist.

Ilyenkov argues that each human child is born ill-equipped by nature to find her way in the world. She has to acquire the necessary capacities through initiation into the practices and traditions of her community. She must assimilate the conceptual capacities and forms of thought that will enable her to respond to the world as a repository of meaning. As she attains these abilities through enculturation, so she becomes a self-conscious being. Ilyenkov thus presents a vision of the social genesis of mind. He writes, “‘intellect’ is not a ‘gift of nature’ but a result of humanity’s socio-historical development, a socio-historical gift, a gift from society to the individual” (1977, p. 43).

Ilyenkov therefore sees the human mind as something that comes to be in and through education, a process that involves the qualitative transformation of the child from a merely animal mode of existence into a conscious subject of thought and experience. Thus, for him, no account of the nature and possibility of mind can ignore questions of education, which become central to questions of metaphysics, epistemology and philosophy of mind.

I should observe that Ilyenkov works with a much broader conception of learning and development than is normally conveyed by the English word “education”, which is often used as if it referred exclusively to schooling. The Russian “obrazovanie” and “vospitanie” have rich connotations, similar to the German Bildung, and it is a shame that no similar terms exists in English. For Ilyenkov, the Bildungsprozess begins with the infant’s initiation into basic life-activities, play, and the acquisition of a first language. And the process continues both within and outside the classroom and throughout later life. We are never finished articles. We are always capable of learning and development, and the paradigm of education is not what transpires in formal instructional settings, but very the formation of personhood.

Resolving Contradictions: Five Objections

To explore the implications of Ilyenkov’s position, I shall briefly consider five objections.

First Objection: Social Engineering

Ilyenkov seems to think that we are what society makes of us “all the way down”. Isn’t this what we ought to expect from a Soviet communist, given the notorious commitment to produce a “New Soviet Man”? Ilyenkov’s conception of the social formation of mind is simply a theoretical rationale for programs of social engineering.

This objection could not be wider of the mark. Ilyenkov maintains that enculturation
facilitates the child’s transition from a preconscious being to one that is responsive to reasons. To be responsive to reasons is to have the capacity to judge, in Kant’s sense; that is, to deploy concepts to decide what to think or do (Ilyenkov, 1977, p. 43). In turn, the capacity for judgement requires that we think independently and creatively. Independence is necessary because rationality demands that we are responsible for our beliefs and actions, and that requires us to be ever ready to submit our thoughts and deeds to critical reflection. We cannot take it for granted, or on trust, that our beliefs and actions are justified. Creativity is necessary because we must solve problems the answers to which cannot be legislated by rules or principles. “All wisdom”, Ilyenkov pointedly observes, “begins with surprise”, with a confrontation with the unanticipated that calls from us imagination, insight and the transcendence of the formulaic (1977, p. 49). For Ilyenkov, then, the exercise of reason essentially involves autonomy and the ideal of education is to create independent, creative, free individuals. He is therefore extremely critical of any conception of socialisation as “producing” individuals in society’s image, of “stamping out” people who simply adhere to established norms of thought and action. (Mathematics begins, Ilyenkov attests, when we challenge, rather than accept, the proposition that $2 + 2 = 4$ [1977, p. 51]). His paean to the social formation of mind is precisely designed to stress society’s responsibility to create conditions in which free, creative thought can flourish.

Second Objection: Controlling Development

- We might grant that Ilyenkov values the creation of autonomous individuals, but complain nonetheless that he is unduly preoccupied with manipulating the processes in which mental capacities emerge. This is a recurring motif in his discussion of blind-deaf children. Such cases, he suggests, provide data that enable us to understand and better control human development. Isn’t this an obsessively pedagogue-centred vision of education?

Ilyenkov gives the theme of control a certain rhetorical significance. If we consider, however, his general conception of human development, it is clear that the conditions in which it occurs cannot easily be consciously controlled. At the outset of the developmental process, caregivers are concerned with orienting the child in her environment. This is a matter of engaging the child in familiar activities — eating, playing, manipulating objects — and of establishing and developing intersubjectivity. This obviously does not involve teaching or instruction (here the case of blind-deaf children can mislead), but the cultivation of certain kinds of activity.

Such is also true of the infant’s “transition to rationality”, when she acquires a conceptual framework though, in large part, the acquisition of language. We do not teach the child her basic concepts, for how could she learn them unless she already possessed a mass of concepts? Nor do we teach the child to speak. This can make it look as if our basic concepts, and our knowledge of linguistic structures, are innate. Ilyenkov, however, would deny that a skill is either explicitly learnt or innate. Much knowledge is acquired by “absorption”. Enculturation is thus not a matter of instruction, but of creating the conditions for the child to acquire competence by osmosis. This is hardly a process subject to strict control.

Once the child is within “the space of reasons”, teaching becomes possible. We can engage the child’s conception of the world, and introduce new concepts and techniques. But even in the elementary school classroom, teaching should not be seen as the transmission of skills and knowledge, for the guiding end of education is to cultivate the independence and creativity that are essential ingredients of
good judgement. From the outset we have
to respect the child's intellectual autonomy
and this again sets limits to the extent to
which we can view education as a matter of
controlling development. It is also true that
a vast amount of learning takes place
outside pedagogically-oriented activities, in
the child's interchange with siblings and
peers and when she is pedagogically "off-
line". Thus, while we can aspire deliber-
ately to influence the
Bildungsprozess, it is
an absurd conceit to suppose we can
control it. I believe Ilyenkov would have
recognised this.

Third Objection: The Blank Slate

• Ilyenkov's view appears to entail an
implausible nurturism that views the
human mind as a "blank slate" at birth.
Though such views have had enthusias-
tic adherents since Helvetius (whom
Ilyenkov cites with approval [1977,
p. 27]), enjoying considerable currency
in the 1960s, they no longer carry
conviction (Pinker, 2002). Our best
cognitive-scientific theories maintain
that, for all its plasticity, the mind has
considerable innate structure, and its
development is genetically influenced,
if not determined.

Ilyenkov clearly invites this objection, but
here again things are more complex than
they seem. Ilyenkov endorses Vygotsky's
conception of psychological development
and Vygotsky categorically does not portray
the mind as a tabula rasa. On the contrary,
he argues that children are endowed by
nature with a range of "elementary psycho-
lological functions", including sentience,
involuntary memory and attention,
rudimentary forms of thought, communi-
cation, volition, emotion, and desire.
Vygotsky contrasts these with "higher
mental functions", such as linguistic
thought and propositional speech, volun-
tary memory and attention, conceptualised
perception and attention, and self-critical
emotion and desire. These higher functions
are made possible only with the internalisa-
tion of social activities and the acquisition
of language. They form a complex system
of interfunctionally related capacities: each
is transformed through the mutual relations
it bears to others (i.e., "higher" memory
depends on thought and linguistic repre-
sentation in the determination of content,
storage and recall). The elementary
functions cannot therefore be seen as
embryonic versions of their higher counter-
parts. The emergence of the latter repres-
ts a qualitative transformation in the
child's mind: the emergence of the distinct-
vitely human capacities of a rational agent.

Vygotsky argued that the elementary
functions, in contrast to the higher, could
be explained exhaustively in stimulus-
response terms. This now seems implausi-
ble. His position, however, could be
rendered compatible with the contempo-
rary cognitive-scientific view that the child
is innately equipped with a variety of
mental modules that develop indepen-
dently according to their innate programs.
A Vygotskian who embraced mental
modularity for the elementary mental
functions could nonetheless maintain that
the child emerges as a "rational agent" only
when she acquires a conception of the
world as an integral totality. The operation
of mental modules must be made to
subserve a single self's integral vision of a
unitary reality. This demands the unifica-
tion of her psychological capacities into the
system of higher mental functions.
A precondition of this is the child's acquisi-
tion of a conceptual scheme by initiation
into the practices of a community. Hence
enculturation remains a precondition of the
emergence of higher, distinctively human,
mental capacities. This view is contentious,
but it is not guilty of naïve nurturism. On
the contrary, it is open to dialogue with
cognitive science.

Fourth Objection: Utopianism

• Ilyenkov's anti-innatism is motivated
by egalitarianism. He despised the idea
that only some people are innately able,
and he opposed standardised testing designed to stream students according to their “potential”. He argued that societies that rely on a division of labour naturally generate education systems designed to produce people with specific skills to meet particular social needs. This, he lamented, was a disaster, for education should aim to produce “all-round individuals”, whose skills are not limited by specialisation, but open to growth in any direction. Isn’t this view outrageously utopian?

Ilyenkov surely cannot really have believed that if someone is capable of something, then anybody is capable of it, that there are no individual differences in innate potential, and that the notion of talent has no meaningful application. The idea of the all-round person, which he derives from Marx, represents an educational ideal, rather than an empirical reality. It is premised on a position I call “the unity of the intellectual virtues”. This is the idea that a person who has “good judgement” is able to bring to bear on particular situations precisely the cognitive, moral, and emotional resources needed to perceive what they have reason to think or do. But these resources are holistically related: memory, for example, does not operate independently of reason, imagination and emotion; reasoning requires not just formal rationality, but sensitive analysis and interpretation of evidence, and so on. All our intellectual resources must work in consort and with a balance appropriate to the tasks at hand. The problem is not just that a person with a repertoire of specialised skills, developed at the expense of other faculties, is in danger of seeing situations one-sidedly; it is that the skills they do possess are distorted by the absence of the neglected faculties.

In addition, Ilyenkov believed that “the good life” involves an appreciation of reality in all its complexity and diversity, and this requires of us a great breadth of interest and ability. It is important to have a feel for science, technology, history, literature, music, popular culture, sport, and so on. To see education as a matter of the transmission of a body of specialised knowledge, or as training in a series of particular skills, is debilitating, for we must always operate with universality in mind. I think this is a worthy ideal even if, as Ilyenkov himself admitted (1977, p. 30), it is utopian.

**Fifth Objection: Scientism and Technocracy**

- Ilyenkov’s activity-theoretical framework is premised upon a broad vision of the transformation of nature by human activity. This view is preoccupied with the creation of artefacts and tools, and risks portraying human history as a history of technology and the human mind as just another dimension of that evolving technology. Isn’t the position disturbingly technocratic?

This is, I think, a fair criticism of some varieties of activity theory, but Ilyenkov’s is not among them. In fact, he was ruthlessly critical of scientism and of technocratic conceptions of mind, such as cybernetics. He was an advocate of science, but of science understood to encompass all forms of systematic enquiry, including philosophy.

Ilyenkov maintains that rational agents see reality as an integral totality, but interestingly, he does not hold that our intellectual ideal is a kind of supremely consistent God’s-eye view free of contradiction. For reality itself contains multiple perspectives. Our access to the world is mediated by our engagement with other people, who have different and sometimes conflicting perspectives, and with theories, models, stories, myths, and so on. Thus to understand the world as a totality requires us to mediate contrasting perspectives, and this demands, as Ilyenkov would put it, a dialectical sensibility (1977, pp. 50–56). Someone who has good judgement has a way of appreciating contradiction, a facility absent in dogmatic or sceptical minds. To
cultivate this dialectical sensibility, Ilyenkov argues, it is important to study the humanities, particularly philosophy, where systematic inquiry aimed at objective knowledge is possible only through dialogical strategies in which reason must learn to appreciate many shades of grey. Thus, such technocratic elements as exist in Ilyenkov's philosophy are complemented by a profound hermeneutical vision, which greatly influences his conception of education.

Conclusion
Should we conclude that Ilyenkov offers a basis for a renewed philosophy of education?

So bold a conclusion would be premature. I am not suggesting that the philosophy of education be rebuilt on the foundation of Soviet Marxism-Leninism, albeit in its most critical form. But we can conclude that there are important ideas to be found in Ilyenkov which portray education, properly understood, as central to human condition and of profound relevance to deep philosophical questions. These ideas are worthy of further reflection. They should be explored in relation to similar themes in the work of other thinkers, such as Vygotsky and Bruner, Wittgenstein and McDowell. If Ilyenkov's ideas can be freed from the local context in which they were first articulated, and joined with congenial themes in the work of others, there may emerge a stream of thought which will refresh and rejuvenate the philosophy of education, so that it can take its rightful place at, or close to, the centre of philosophical concern.

References
Schemas of Hypermedia Learning Interface (Space?) Use

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For educators, the useability of hypermedia has become an important issue. How learners use hypermedia in order to reach their educational goals is now the subject of much research. Learning using this medium involves the learner in selecting links that will lead to the resources needed to attain their educational goal. In order to do this the learner is required to develop two sets of schema, or mental representations. Firstly, in order to successfully navigate the information provided, a schema of the information interface (or information space as it is often referred to) needs to be formed. Secondly, and in parallel, a schema of the knowledge being acquired needs also to be developed. Therefore, a capacity to develop both kinds of schema would seem to be critical to the successful attainment of any educational goal using this media. Moreover, it would seem that the development of a schema of the information interface would be a precursor to the development of any schema of the knowledge under construction.

In order to assist learners to develop these schema hypermedia developers must understand the effect on learning that the interfaces they develop have. This paper reviews the current literature on hypermedia learning spaces to identify factors important for learners attempting to develop a schema of that space. Further, the information technology literature associated with graphical user interfaces (GUI) is used to extend the understanding of these factors. What is revealed is a challenge to the accepted notion of hypermedia being a “space” in the first instance. Finally, suggestions for the development of hypermedia interfaces are discussed.

Hypermedia consists of interconnected web pages that can contain text, images, audio and video. Pages are linked to one another in various ways (linear, hierarchically, networked) and through these structured linkages users are able to select a link to another page. It is this linkage structure that determines the way in which a user is able to move between pages of information. Movement between pages might be of the users own choosing or it might be determined by the linkage structure itself. It is the capacity of user choice that is often touted as hypermedia’s opportunity for enhancing learning. The assertions that hypermedia has the capacity for a learner to choose a way through the web pages provided, in a way that best suites their learning style and learning needs, has had educators turning their attention to this medium across all sectors of education, including vocational and higher education.

User’s Schema of a Hypermedia Information Space

A learner’s schema of a hypermedia space is seen as being critically important to its useability (Dillon et al., 1990; Farris et al., 2002). An incomplete or incorrect useability schema is likely to lead to a learner having difficulty in locating the required information and therefore reaching their learning goal. As an example, a learner may be required to visit a software manufacturers website in order to find a patch for a piece of aging software. On reaching the manufacturers website home page the learner can only see references to the
current versions of the software and no mention of the version for which they are seeking the patch. Access to the patch is available on a secondary level page, however, access is only available through a link marked “downloads”. If the learner is unable to see the relationship between the “downloads” link and access to the file they seek, then the schema they currently hold of the information space of this particular website is insufficient for them to obtain access to the required file.

This example highlights the important differences between the two kinds of schema that a user needs to employ in hypermedia-based learning. The problem in this case is with the information space schema rather than with the knowledge schema. To a user with a more complete information space schema (e.g., knowing that “downloads” is a logical link to patch files and updates) the opportunity to successfully complete the task is available. Having only developed one of two required schemas about acquiring a software patch was insufficient for reaching task completion in this instance. Therefore, if educators are to make hypermedia learning a more educationally sound proposition, they need to consider the need for the learner to effectively develop both kinds of schema and to be able to deploy both in reaching any educational goal. This paper sets out to identify what constitutes a hypermedia learning space firstly by considering a challenge to the notion of it being a “virtual” space before exploring the notion of it being considered a “user interface”.

The Spatial Metaphor
The term “virtual space” is used pervasively within information technology and computing literature as a metaphor to describe the working space afforded by computer hardware and software to the user. The hypermedia literature is no exception and it seems to be generally accepted that hypermedia has spatial qualities. The presence of these qualities are highlighted by the fact that hypermedia users are seen as having to “navigate” through such spaces. Navigation in hypermedia spaces is usually described as “browsing” through the available information. In hypermedia research the spatial metaphor also seems to be well established. Over a decade ago Dillon et al. (1990) suggested that theoretical work in navigation associated with moving through physical space provides insights for the design of hypertext systems. More recently the work Dillon and Gabbard (1998), Neilsen (2000) and Wang (2003) indicate that hypermedia is still conceptualised in spatial terms.

Farris et al. (2002) believe that some hypermedia researchers have taken the spatial metaphor a step further by proposing that users’ schemata contain spatial information. There review of the literature indicates that in some instances authors merely speculate that users’ schemata may contain spatial information, whilst other literature argues that such spatial information is present. In contrast, Farris et al. (2002) challenge the assumption that users process and retain spatial information when exploring hypermedia. In doing so they challenge the notion that users’ schemata of hypermedia systems contain spatial information. Their argument is that hypermedia is in fact “non-spatial”. They assert that physical environments have spatial qualities and that these qualities allow us to move about and constantly change our point of view, which in turns builds spatial information about the environment we are moving through. In contrast, the “non-spatial” nature of hypermedia does not afford us the opportunity to move through real space and it is therefore illogical for us to build and incorporate spatial information into any schemata of a hypermedia system.

It is true that some types of games software do mimic spacial movement as part of the gaming experience. However, this kind of software behaviour is not usually associated with hypermedia learning software. This point might be best illustrated
using an example that compares these two different kinds of "virtual" environments. Firstly, many real time computer games provide the capacity for the player to move through virtual space in ways that are similar to moving about real space. The player controls the direction and speed with which they move from any given point to another. As they do so the software's visual presentation mimics the surrounding environment and provides the player with a real-time representation of that environment. Secondly, and in contrast, movements between elements of a hypermedia take place instantaneously and provide no artefacts or data of the journey itself. With the gaming software it would be expected that the player would be developing as part of their game playing schemata some spatial aspects. In contrast, and as Farris et al. (2002) assert, a schema developed from a learner's engagement with hypermedia would not contain such spatial aspects.

In an experiment conducted by Farris et al. (2002), groups of learners were presented with an identical set of web pages in which the connection-structure differed across the groups. Following a short engagement with these web pages learners were asked to draw and label the nodes and links they had visited. Farris et al. (2002) believed that if the users based their schema on the website's connection-structure, then their drawings could be expected to reflect that structure. On the other hand, if they based their schema on non-spatial information then errors could be expected in their mental representations of the nodes and links structure across the groups. What this experiment found was that the learners schema were notably consistent and in fact represented the conceptual relationships of the information within the website rather than an accurate representation of the connection structure. From this they concluded that users do not readily form accurate schemata of the connection-structure (the information space) in which they were working.

If it not an information space then what is it that the learner is working within? The graphical user interface (GUI) community would consider it to be an interface that at any one time is two dimensional and afforded a third dimension by program or hypermedia linkages. It is in fact the GUI that a learner has to master in order to advance their learning. Thus, it is a schema of the GUI that the learner needs to develop.

GUI — Another Representation of the Information Space

The information technology community describes the interface between the user and the computer as the "user interface". The latest manifestations of these have become more graphical in nature and have become known as Graphical User Interfaces (GUI). It is these interfaces that educators and hypermedia developers usually describe as the information space in which learners work. Jones (2003) considers that user interfaces (UI) plays a significant role in the success of any computer application. He argues that there are seven UI models with which users are most familiar used by today's software applications. These he describes as:

- Single Document Interface (SDI)
- Multiple Document Interface (MDI)
- Explorer Interface (EI)
- Project Interface (PI)
- Wizard Interface (WI)
- Workbook Interface (WBI)
- Workspace Interface (WSI).

These interfaces have developed as a result of advances in personal computers and their associated applications. The increase in sophistication and complexity of the operating systems that drive today's PCs has caused them to move from being command line-driven interfaces to today's GUI's, capable of multi-tasking and providing information, and access to information, in graphical and less textual ways.
Software applications including hypermedia learning applications have adopted the GUI user interface as well.

The interfaces identified by Jones (2003) are considered as those most commonly used to perform computer-based tasks. These tasks can be generally thought of as being associated with the creating, acquiring, or manipulating of data and information. Moreover, they focus on the solving of either workplace or personal, and in the case of learning, educational problems. Furthermore, they reflect the adaptation of the technologies (i.e., the mouse and screen) to achieving such tasks. These user interfaces have evolved in ways that make them better suited to some tasks than to others and in the following paragraphs the differences between the various interfaces and how this might be applied to learning is highlighted.

**Single Document Interface (SDI)**
This interface is generally associated with small or simple applications and tends to deal with “one thing only”. This UI consists of a main form and any other associated forms are displayed in modal fashion (i.e., the user must close a minor form before being able to proceed with the major form). Examples of this kind of interface can be seen in Operating System GUI's, and less complex application software.

This interface presents the user with single sets of information linked in a linear way. Its strength for learning is that it provides a logical pathway through the presented material whilst also providing the potential for controlled branching.

**Multiple Document Interface (MDI)**
In this interface several forms are capable of being displayed at any one time. This interface displays several common features including having menus, toolbars and status bars. The main form (or window) contains one or more “child” forms which can be moved, resized, minimised or maximised inside the main form. Users are able to easily switch between forms, or tile or cascade them. Only the main window would show on the task bar of the operating system.

This interface provides a learner with choice about the number and nature of the data sets they can see at any one time. This UI is more complex than a SDI, however, it affords the learner more choice (albeit limited by the software) in what they might access. The number and nature of the branching options is determined as much by the user as the software developer. That is, the learner has some capacity to control the complexity of the interface and the information therein.

**Explorer Interface (EI)**
This interface draws upon the look and feel of Windows Explorer, that is, it displays a tree of folders on the left side and the contents of selected folders on the right. Any kind of hierarchical data structure can be represented, however this interface is limited to dealing with one item at a time. It is possible to open this interface several times to display two or more sets of items with the operating system allowing the user to switch between each.

For a learner this interface is akin to having a table of contents page open at all times. The structure of the information provided is readily apparent to the learner and access to it is more random access in nature. This kind of interface is useful in presenting information structures like a user manual where the purpose is not for it to be accessed in a linear fashion, rather for components of it to be accessed from time to time and in no specific order.

**Project Interface (PI)**
This interface sits between the SDI and Explorer. It has a main window that contains icons representing all of the other forms (windows) which can be accessed through mouse clicks. Each open form shows on the task bar and closing the main form closes all forms. When the main form is opened later previously opened forms are restored.
This interface provides the learner with a personalised interface that is remembered by the software (stored). This is particularly useful when the learning happens over time and the learner continually returns to the computer to advance their learning further. In other interfaces the learner must reconstruct the learning so far in order to advance it further.

**Wizard Interface (WI)**

This interface has become increasingly more common and is usually a single form, which accomplishes a complicated task by taking the user through a number of simple steps in strict sequence. Steps are presented in a fixed order and the user is given access to “Next” and “Previous” buttons to move backwards and forwards through the process. On completion of the task the user is presented with a “Finish” button and in most cases the interface had a “Cancel” button that allow the process to be aborted along the way.

This interface is suited to learning situations where the purpose of the learning is for the learner to be able to follow a set of steps or procedures. The interface requires the learner to work in a set and linear fashion, often making controlled choices along the way. Some examples of learning events that could be driven by this interface are; stepping a learner through a mathematics problem, and, stepping a learner through the steps associated with tying off a rope. At each step in this interface the learner either provides information or makes screen based selections. In order to proceed the information provided, or the choice made, is either accepted or rejected by the interface. The learner is able to move backwards through the process in order to make corrections or changes to previous steps.

**Workbook Interface (WBI)**

In the Workbook interface the main application window shows a series of tabs that act like pages of a book. The user can move between these pages by clicking on the tabs that remain visible at all times. Only the contents of the selected tab are visible on the main form. Whilst this interface is more commonly seen in spreadsheet software other applications (e.g., Adobe Acrobat Reader) have adopted it also. The workbook tabs adopt the visible tags in a filing drawer metaphor.

This interface is suited to learning situations in which various kinds of information are assembled for the learner to access as they choose. A workbook tab might provide access to a single document or to a series of documents on a singular topic or theme. While the information within a tab is linear the constant visibility of the tabs affords the learner access to any other tab at any time. Learning applications suited to this interface would include those requiring access to information sets in which only some components are required for the current learning task. Examples would include electronic workshop manuals, and sets of readings for an academic study in which the learner is interested in reaching only selected aspects to complete an immediate learning task.

**Workspace Interface (WSI)**

This is a variation of the Workbook interface and contains two main types of forms — documents and tools. The tools form is usually moveable.

For learners this interface is suited to bringing together text and graphics and providing space in which a learner can interface with the artefacts provided. For example an electrical apprentice is able to take various actions on a circuit layout board whilst solving an electrical task. The tools form could provide the apprentice access to various sizes of cable, different sources of power and different electrical components with which to simulate the task.

**Summary**

In this section the more common types of user interfaces have been described and accompanied by some potential uses in
learning situations. There will be others that have not received attention here as well as others that will emerge in time.

From these descriptions it is apparent that user interfaces have important differences. Firstly, they each provide access to information in different and sometimes unique ways. Secondly, one interface is likely to be better than the others (better adapted) at providing access to a specific kind of information. Thirdly, each interface has attributes that would permit a user to solve specific kinds of problems. And finally, one interface might be considered to be more appropriate than the others in either structuring information or effectively presenting it to a user.

Learners are one kind of user and the various attributes of the GUI's described above can be thought about in terms of their application to learning. In the case of learners then, different kinds of GUI's might be more applicable to different aspects of learning or to different kinds of learning styles. That is, in hypermedia based learning, different combinations of GUI's might be more effective in particular learning events.

Is it an Information Space or is it an Information Interface?

When a learner interacts with any form of computer based learning they are subject to some form of information interface. These interfaces are generally graphical in nature and of the kinds identified by Jones (2003). Whether or not these interfaces have any spatial aspects, as has been along held belief, seems now to have been questioned by researchers such as Farris et al. (2002). More research is needed to clarify this issue. These interfaces can also be categorised according to their utilisation in software applications more generally. Moreover, it does seem that some interfaces might be more effective than others in supporting different kinds of learning events. Clearly more needs to be known about this aspect. However, irrespective of the nature of information interface there seems little doubt that learners engaging with them need to develop a schema of the interface in order to successfully reach any learning goal.

Schemas of Hypermedia Learning

To successfully use hypermedia learning settings effectively learners are required to develop parallel and complimentary sets of schema. The first of these schemas is that needed to negotiate the information interface that provides access to the information and learning events that these interfaces afford a learner. The second schema, is that required to construct the knowledge being provided by the interface. This paper has endeavoured to focus attention on the first of these schemas by discussing the nature of the interface itself and the current understanding of its application to learning.

What is apparent is that although it is possible to categorise these interfaces from their more common usage in software applications (Jones, 2003), far less can be said about their relationships and effectiveness in different learning situations. Ironically much more can be said about the effectiveness of their screen design and layout from the perspective of readability and presentation (Reimann, 1999; Rogers, 1999; Mayer, 1999) than can be from a learning perspective. This situation needs the attention of educational researchers.

Therefore UI's including GUI's need to be investigated with respect to applicability to different kinds of learning or learning styles. This is important to the examination of hypermedia structures of information as it is the space or interface is the context in which it happens.

Much of the research into the use of hypermedia in education has focused on the capability of hypertext for flexible information organisation and retrieval, interface design, or mixed media. The use of hypermedia as a tool for mediating the nature of the cognitive interactions that occur between learners and the computer has been less thoroughly explored (Yang, 2002).
addition, not much attention has been
given to analysing the cognitive processes
that go on in learner's interactions with the
technology. Therefore, there is a need for
further exploration of learners' interactions
with hypermedia in order to better under­
stand the cognitive processes it activates.

The author has undertaken some recent
research in which recordings were made of
learners' interacting with a hypermedia
learning resource. Some preliminary analy­
sis of the data has revealed that learners:

• use of the application is heavily influ­
enced by the interface design
• appeared to use the interface in different
ways for different learning outcomes
e.g., initial learning, revision etc.
• employed additional resources in devel­
oping their meaning making e.g., used
text editing software to cut a paste informa­
tion from the learning materials, and
edited version of the materials
• were divided about the usefulness of
additional media e.g., explanative dia­
grams, sound bites and video bites).

This would tend to indicate that the inter­
face being studied might not be the correct
choice for the kind of learning events in
which the learners were engaged. The
software employed a single interface, which
on the one hand led to users quickly becom­
ing familiar with it, but on the other hand
seemed incapable of adequately meeting the
learning needs of the users. The fact that this
software employed a single user interface
would suggest that the interface developer
focused on its useability at the expense of the
learnability of the materials it contained.

Conclusion

More research is needed in order to better
understand the relationship between hyper­
media user interfaces and different kinds of
learning and learning styles. Some long
held beliefs such as hypermedia having
spatial attributes are being challenged by
current research. Much of the hypermedia
in use today adopts a single interface design
based on the notion that a learner will
quickly become familiar with it as a result.
However, I would argue that to become
more effective, developers of hypermedia
learning settings may need to consider a
multiple interface approach for some kinds
of learning and or learning styles. What is
clear is that more needs to be known about
the relationships between the hypermedia
learning interfaces, learners and their learn­
ing goals. This knowledge is essential for
assisting learners to develop effective
schemas of the learning interfaces they use
as well as the knowledge being acquired.

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A greater acknowledgment of the interdependence between individual and social agency is warranted within current conceptions of learning, and policy and practice within adult and vocational education. Currently, some accounts of learning tend to overly privilege situational agency to the detriment of the more widely sourced, relational and negotiated contributions of individual and social agency. As these accounts fail to fully acknowledge the accumulated outcome of interaction between the cognitive and social experience that shapes human cognition ontogenetically and remakes culture, they remain incomplete and unsatisfactory. In a different way, social agency is also overly privileged in current conceptions of vocations, vocational education and its policy and practice within Australia. A consideration of individual intentionality and agency and its interdependence with social and historical contributions is proposed to balance views that privilege particular social influences in current conceptions of vocational practice and its development.
It also confronts the issue of whether individuals can affect substantial cognitive change (learning) on their own, or whether that is only possible with changes in social institutions and practice (Ratner, 2000). This issue is central to understanding how society and culture are remade and transformed, and whether individuals are active participants and initiators in this remaking or are merely subject to those changes. This is salient to understanding the learning of vocational practice, with its dimensions of tried-and-true practices, yet with a need for practitioners to engage with and deploy their vocational practice in changing circumstances.

Here, learning and cultural transformation is proposed as a reciprocal and interdependent inter-psychological process — between the individual and social sources — that cannot be fully understood without a consideration of individual agency, identity, subjectivity and intentionality, and their geneses. This requires reconstituting individuals as being socially shaped through the distinct and possibly unique combinations of the social experiences that constitutes their ontogenies (Billett, 1998). There is nothing particularly novel about such propositions, except one’s consideration of it. They have been well articulated and much earlier (e.g., Baldwin, 1930; Meade, 1934). Yet, these propositions are worth rehearsing at a time when situational agency is being privileged in current theories of cognition and learning, and when particularly strong social influences are shaping policy formations and practice within vocational education.

If this paper seeks to be corrective, it is through proposing: (a) individual intentionality and agency as having complex social geneses within individuals’ ontogenies; (b) a more social conception of the individual; and (c) a stronger view of relational interdependence between the socially constructed individual and the social world in ontogenetic development and the remaking of culture.

Individual Agency and Human Cognition
There is a need to place the individual once more in the foreground of conceptions of learning. Through interpretation, if not always in conception, there is often an over emphasis on the immediate social contributions to cognition in much current theorising. There is no space here to elaborate particular situated qualities of distributed cognition, activity systems and communities of practice. However, in brief, distributed cognition is bound to particular social systems (Salomon, 1997); activity systems comprise pre-specified components to account for particular social practices (Engestrom, 1993); and communities of practice are bounded by their practices and relations (Wenger, 1998). That is, each account is bounded to particular situations. As such, they are useful for describing, understanding and analysing particular social practice, and, in some ways, individuals’ relations to those practices. Yet, they may fail to adequately account for how individuals elect to engage with immediate influences or provide bases for understanding the influences of premediate experiences (e.g., individuals’ subjectivities) on that engagement. For instance, distributed theories of cognition have proposed that the individual is but one element in a shared cognitive system that shapes human cognition (Pea, Hutchins). Yet, others suggest that individuals are not so enmeshed. Both Cobb (1998) and Salomon (1997) have argued that individuals have a greater independence than this frameworks suggests. They propose learning as a negotiated process, residing in the interaction between the cognitive and social experience. The cultural psychologist Valsiner (2000) goes further referring to the uniqueness of individuals’ cognitive experience — the base by which individuals make sense of and reproduce the world — is central to human cognition. He refers to each experience, even the most mundane, as being in some way unique and special to the individual.
The social experience is what individuals can experience through their encounter with the social world, yet which is not available uniformly. Therefore, its influence will be, at best, partial for some. Even if the degree of individuals' engagement with the social world could somehow be the same, individuals' construction of knowledge would not be uniform, because individuals actively appropriate knowledge, in ways shaped by their ontogenetically-derived values and subjectivities, and as exercised by their agency. However, the social and cognitive experiences represent interdependent dimensions — that are dualistic only in relational terms. Understanding how individual agency shapes this process seems important for at least two reasons: (a) individuals' cognition develops ontogenetically, as does their learning; and (b) interactions between the social and the individual is how culture (society) is remade and transformed. Individuals' intentionality and agency is held to influence these processes.

Firstly, in anthropological and sociocultural accounts of learning, individuals' participation in social practice is associated with learning. Lave (1993) suggests that wherever you encounter practice, you also identify learning. Rogoff (1995) emphasises the central role of participation in learning. Across these theories, and consistent with cognitive views (e.g., Anderson, 1993), the consequences of individuals' engagement in goal-directed activities is more than achieving those activities' goals, there is a cognitive legacy: change that is shaped by this experience (Anzai & Simon, 1979; Newell & Simon, 1972). Together, Vygotskian and Piagetian constructivist perspectives, propose that whenever we deploy our cognitive resources when engaging in tasks and interactions, cognitive change results (Billett, 1996). These and cognitive theories suggest the scope of change is likely to be influenced by the novelty of the activity to individuals and the degree of effort they elect to engage in when undertaking activity (Newell & Simon, 1972). So the kind of impasse or perturbation that constitutes individuals' responses shapes the kind and extent of cognitive change (Van Lehn, 1998). That is, the construction of the impasses and responses (outcomes) are in some ways person-dependent. They are not predeterminable or predictable. Moreover, individuals decide which problems they engage in and with what degree of engagement: what problems are worth solving (Goodnow, 1990). Therefore, the kinds of activities that individuals engage in throughout their lives, and the degree by which they elect to engage with tasks are some bases by which participation and learning are linked ontogenetically. In appraising individuals' intentionality and agentic action in this process it is worth considering the inter-psychological process of appropriation.

Appropriation refers to individuals "making their own" from what they encounter in a social world (Leontyev, 1981). Appropriation is often viewed as a desirable form of change because it reflects what is important to individuals as well as what is privileged by social practices. Following Leontyev (1981), Wertsch (1998) distinguishes appropriation from mastery. Individuals appropriate consensually, while mastery is reluctantly and superficially learnt and practised only under social monitoring. Compare the engagement of the enthusiast, with the reluctance of the conscript. Yet, individuals may well appropriate knowledge that is inappropriate (e.g., gender or racial bias), short-term (e.g., costly shortcuts), or just plain wrong (e.g., dangerous work practices). Therefore, this individually sanctioned learning needs to be viewed critically, particularly in terms of the subjectivities that shape appropriation. For instance, Somerville and Bernath (2001) found that, in different ways, both coalminers and aged care workers came to accept workplace injury as part of their occupational identity. Conversely, individuals might elect to only master crucial knowledge (e.g., being fair, precise, careful). So individuals play an
active role in appropriation. At least, they select options that shape inter-psychological processes and transform what is encountered in ways influenced by their histories and agency. The question is the degree by which this personal agency has a social genesis. This is taken up later.

Secondly, beyond proposing how individuals' change or learning proceeds, the negotiated process of appropriation is also seen as the means through which culture is transmitted and transformed (Rogoff, 1990). Appropriation is held to bridge the historical heritage of human beings and each new generation's taking over that heritage (Leonteyev, 1981). So, if this view is upheld, beyond merely selecting and making choices, the "active role of appropriation presents the learner as a constructor of new choices, not constrained to those in immediate circumstances." (Valsiner, 1998, p. 114). Therefore, rather than being constrained by the immediate social experience, individuals are capable of initiating and formulating their own change and development. Individuals transform culture as they appropriate practice and carry it forward to the next generation in an altered form (Rogoff, 1990). Rogoff proposes that individuals' creativity builds upon technological transformation and occurs through engagement in and with the resolution of problems being addressed. So vocational practice is not merely reproduced, it is elaborated, refined and transformed by individuals (remade) as their agency and intentionality interacts with socially-determined tasks and activities. This suggests culture is reproduced and transformed, not through behavioural-like social determinism, but in a complex dialogue between each generation of individuals and the social world as meanings are negotiated (e.g., Bhaskar, 1998; Gergen, 1994) and as these meanings change through life histories.

Therefore, socially generated knowledge and cultural practice has as its vanguard individuals' collectively and accumulatively confronting new problems at particular moments in their life histories and at particular points in history. How individuals elect to remake the cultural construction of concepts is of necessity, partly a product of their agency and intentionality. Within Australian vocational education, Seddon (1999) found that teachers and administrators transformed their roles in response to the changing conditions (i.e., the marketisation of VET) and new accountabilities. They created new roles for themselves. Their agentic actions in generating change were enmeshed in changing cultural practices. Yet, this does not deny their agency in transforming these practices. To use Dilthey's terms, rather than situational determinism these individuals took a "seat in life" (Sitz im Leben). Without a consideration of individual agency and intentionality, theories of learning privileging situational factors may well fail to account for individuals' role in transforming culture (e.g., vocational practice) and their ontogenetic development. Those proposing a strong role for social agency, of course may reject this view, claiming that such individual autonomy is illusory.

The Social and the Individual
Of necessity, knowledge with cultural and social geneses has its location in the past. This is a great strength, as it can reflect proven practices that have evolved over time as new demands emerge and technologies change. This kind of historically derived knowledge constitutes the occupational knowledge upon which vocational education often focuses. However, such socially sourced knowledge may have limitations in addressing new situations or circumstances. This was Dewey's concern about the highly reproductive model of Russian education that had existed since Catherine the Great and was then being reified in Soviet Russia (Valsiner, 1988). Rather than being just socially reproductive, Dewey proposed that, education also needed to be responsive to new circumstances and requirements, be generative of fresh insights
individualising the social — socialising the individual

and individuals' contribution, and be tolerant of divergence (Glassman, 2001). Cole, a principal advocate of cultural historical activity theory, shares these concerns suggesting that individual agency stands as a necessary prerequisite for the successful deployment of historically-derived knowledge to novel circumstances. Recently, Cole (2002) commented being unable to advise his teacher education students on how they might best survive and teach in contemporary American high schools. In doing so, he conceded that the historically derived and culturally constituted classroom management concepts and practices would fail these novice teachers. Instead, their personal agency and capacities will shape their success in developing and negotiating classroom practices; thereby remaking what constitutes these practices. Cole has been quite consistent with this view. Two decades earlier, he and Griffin (1980) reached a similar conclusion about literacy. Salomon (1997) summarises their conclusion “that while some cultural artefacts, such as those related to literacy, may have some cognitive residues, these residues are in fact quite modest in comparison with the changes brought about in the way people function when literate” (p. 126).

So the potency of socially-generated knowledge, such as literacy, is premised in part on individuals' agency. Vygotsky also concluded that social guidance is secondary to individual agency in the development of psychological functions. In referring to child's play, he noted that

In play the child is always higher than his [sic] average age, higher than his [sic] usual everyday behaviour; he [sic] is in play as if a head above himself [sic]. The play contains, in a condensed way, as if in the focus of a magnifying glass, all tendencies of development; it is as if the child in play tries to accomplish a jump above the level of his [sic] ordinary behaviour ... Play is the resource of development and it creates the zone of nearest development. Action in the imaginary field, in the imagined situation, construction of voluntary intention, the formulation of life plan, will motivate — this all emerges in play. (Vygotsky, 1966, pp. 74–75, cited in Valsiner, 2000)

Here, beyond individual agency, Vygotsky also refers to the importance of the cultural purposes and goals of activities (e.g., play) and their contributions to individuals' intentionality in their engagement in their zone of potential development. For Baldwin (1930), a key element of the development of the kind that Vygotsky referred to is the "conscious and social accommodations, imitation, invention and volition ..." (p. 4). He proposed an interplay between the social practice and individuals' intentional task formation. Yet, imitation is exercised in particular and intentional ways, that reflects the interplay between the social experience and individuals' construction of it (the cognitive experience).

Championing individual agency within discourses that privilege social agency brings risks of being hotly refuted and misinterpreted. Dewey's work was expunged from the Soviet education system after he criticised its emphasis on social reproduction (Glassman, 2001). Valsiner has been accused of treachery in proposing a key role for the individual within cultural psychology. Ratner (2000) claims that Valsiner's assertion that culture is a set of suggestions that individuals can freely accept, reject or modify as they wish and his replacing sociohistorical psychology with co-constructionism is undermining cultural psychology as a corrective to earlier and highly individualised psychological views. Of greater substance, is Ratner's claim that this more individualistic perspective fails to account for the contributions arising from the social world, defined more broadly. So having considered the role of human agency in cognition, and the need for social theories of learning to acknowledge this agency, it is appropriate to now consider the relations between the social and individual in a way that includes socially derived subjectivities.
and individuals’ construction of their intentionalities, subjectivities and identities.

The Relations Between the Individual and the Social World
The key purpose here of bringing the individual to the foreground is to consider the interdependence between the individual and the social, including socially-derived subjectivities. Within sociology and philosophy, the relations between structure and agency are well-exercised and perhaps more mature in their deliberations than those in psychology (Gergen, 1994). So these perspectives are worth considering. Both offer highly structural accounts in which individual agency is seen as illusory (e.g., Bourdieu, Durkhiem), accounts that grant individual autonomy (e.g., Goffman, Rousseau, Weber) and those that acknowledge interaction between the two (e.g., Giddens, Bhaskar, Berger, and Luckman).

Highly structured views, such as Foucault’s earlier position, render individuals as mere placeholders in social networks (Mansfield, 2000) because they are so enmeshed in social structures and in ways that diminishes their personal autonomy. Bourdieu (1991) refers to the socially constrained nature of individual action. The constraint comprises a battery of dispositions, comprising a habitus, that orientate individuals’ actions. He cites, for example, how social practice determines individuals’ dialects. Similarly, Foucault (1979) suggests individuals are subject to pervasive social press and “placed under” or subjected to the influence of cultural norms and practices encountered throughout the life histories — the premeditate experience. So, in these views, individuals’ structurally derived subjectivities determine their behaviour and cognition (Davies, 2000). Others suggest that ultimately individuals are less constrained by these structures (e.g., Rousseau, 1968; Goffman, 1959). Then there are others who view structures as being facilitative. The philosopher Bhaskar (1998) claims that sociology is not about mass action but relations between individuals and social practices. Some sociologists view structures as being more enabling than constraining. For instance, Giddens (1984) proposes a key role for personal agency in the social structuring of knowledge through his concept of structuration. Through acknowledging interactions (interdependence) between social structures and individuals he links individual intentional-ity and their subjectivity. In ways analogous to the Piagetian concept of disequilibrium, Giddens (1991) suggests the problem for the self is in maintaining its security in a culture that threatens its stability and the reference points for its stability. Yet, as Fenwick (1998) proposes, that while permitting a role for individuals, this view positions them as anxiety ridden and their agency restricted to reflexive relations with culture. So how do we navigate through or around such perspectives?

Cartesian dualism is often held as the epitome of a separation between body and the mind. Its demise has been heralded as the basis for reconciling the human mind with the social world (e.g., Scribner, 1997/1990) or that “beyond the skin” as some prefer (e.g., Hutchins, 1991; Wertsch, 1991). However, ultimately, Descartes was a nonadherent to what became Cartesian orthodoxy. In his last work, Passion in the Soul (1649), he claimed a substantial union exists between the mind and the world beyond. Significantly, he saw human passion as a key link between the external world and the mind. Passions are used deliberately to account for influences outside the body and beyond physiological responses (i.e., pain, hunger; Copleston, 1994; Haldane & Ross, 1971). Moreover, for Descartes beatitude was the “tranquillity or contentment of soul tenable in this life by one’s own efforts” (Copleston, 1994). That is, the self in action with the world constitutes this desirable state. Similarly, Schopenhauer (1883, cited in Cottingham, 1996) also referred to human will as means by which
the mind is linked to the external world. More recently, Foucault (McHoul & Grace, 1993) has come to see desire as a socially-derived subjectivity and individuals' response to them emblematic of their capacity to act agentically. In this way, they emphasise what in contemporary terms is described as human intentionality (e.g., Malle et al., 2001) to bridge the cognitive and the social experience.

Scribner (1997/1990) suggested that, having overturned Cartesian dualism, the task for psychology is to understand the relations between the social and behaviour. She characterised these relations as irreducible, claiming that to separate them was akin to attempting to separate sodium and chlorine and still retain its saltiness (Martin & Scribner, 1991). Rogoff (1990) also refers to the inseparability of individuals' efforts, social interests including the broader cultural milieu in her consideration. Finding a pathway between social determinism and highly individualistic accounts is important in understanding their relationship (Miller & Goodnow, 1995). Accounts such as situated cognition (including one's own e.g., Billett, 2001), distributed cognition, activity systems, communities of practice run the risk of privileging situational determinism, at a cost to considerations of individual agency and broader social and cultural influences. Just as behaviourism denied human consciousness (Taylor, 1985), accounts that emphasise situational determinism risk denying human intentionality and agency, as well as premediate contributions such as individuals' subjectivities and identities.

Valsiner (1994) and Bhaskar (1998), while acknowledging the ubiquity of social influence, give priority to the relatedness between individuals' interests and goals, and the processes and goals of the social practice. It is these that shape how individuals elect to engage in inter-psychological processes. Valsiner (1994) holds relatedness ranges from total involvement to being wholly disengaged. The sociologists Berger and Luckman propose “socialisation is never completely successful. Some individuals inhabit the transmitted universe more definitely than others. Even among the more or less accredited inhabitants, there will be idiosyncratic variations in the way they conceive the universe” (Berger & Luckman, 1966, p. 24). Yet, what is proposed as idiosyncratic by these authors is seen here as being the product of personal histories (premediate experiences).

Therefore, participation and learning in social practices such as workplaces, community activities and education institutions alike can be seen as being founded on a reciprocal interdependence between the affordances of the social practice and how individuals elect to engage in a social practice. Their interdependency or their relatedness are founded on the negotiations between two sets of continuities. Firstly, the social practice likely affords opportunities in ways directed towards securing its continuity and development or those of interests within it. Workplaces, educational institutions and community groupings will provide opportunities directed towards advancing their goals and practices or interests within them (Billett, 2002a, 2002b). However, individuals’ participation in social practice is also mediated by their intentions for continuity and development, albeit shaped by more general concerns and subjectivities about cultural or occupational identity (Billett, Barker, & Herron-Tinning, in press). These qualities influence individuals’ intentionality and participation in their work practice (Somerville, 2002; Somerville & Bernoth, 2001) and shape how they direct their agentic actions. The interplay between these two sets of continuities and the degree of their consonance or contestation underpin the relations that also constitute the parameters for its remaking. An instance of social practice, such as a vocational classroom or college or workplace, needs understanding in terms that include participants’ interests, identities
and subjectivities and their active role in its remaking. This reciprocity and dialogicity is inherent in the process of meaning making and construction of knowledge. Newman et al. (1989) claim that Vygotsky's greatest contribution was not in linking the external and internal, but in emphasising the dialectic between the inter- and intra-psychological. Similarly, Suchman (1997) in considering human-machine interactions suggests.

The point is not to have the price of recognizing the agency of artefacts be the denial of our own. Agency — and associated accountabilities — reside neither in us or in or in our artefacts, but in our inter-actions.

Valsiner's (1994) concept of the co-construction of knowledge accentuates the interaction between the cognitive and social experience. For Valsiner, appropriation emphasises not just the individual coming to share their social partners' understanding, but to shape and transform that understanding in the face of new experience. Setting aside a socially deterministic view, and de-emphasising Foucauldian subjugation he proposes "most of human development takes place through active ignoring and neutralisation of most of social suggestions to which the person is subjected in everyday life" (Valsiner, 1998, p. 393). He suggests that this is essential to buffer individuals' personality against the demands of constant social suggestions. He continues,

Hence, what is usually viewed as socialisation efforts (by social institutions or parents) is necessarily counteracted by the active recipients of such efforts who can neutralise or ignore a large number of such episodes, aside from single particularly dramatic ones.

Taylor (1985) claims that humans are not alone in having desires and motives in making choices, yet unlike other animals, appear to have the capacity for reflective self-evaluation manifested in second order desires. Rather than merely being driven by external pressures and sources — subjectivities of cultural and social norms that are part of the premediate experience — individuals have the capacity to be reflective and evaluative about their societal subjugation. Therefore, even when confronted with strong social press, the negotiated process of meaning making can direct individuals in quite another course of action. Hodges (1998) through exercising her agency came to reject the kinds of values that underpin an institutionalised view of childcare education. This led her to disassociate and dis-identify with the social practice in which she had participated. Similarly, Fenwick (1998) identifies women's exercise of agency as they come to find meaning in their work, which extends beyond selecting options of what is provided by workplaces. In a hairdressing salon where there was a strong, pervasive and particular social guidance that directed the activities in the salon (e.g., who did what tasks, how they were done, on what basis individuals were allowed to talk) did not result in the hairdressers' uncritical acceptance of these demands (i.e., appropriation), nor were there uniform responses in their cognitive representations of activities and preferences, despite the strong social press (Billett, 2003).

These interpretations suggest that that human agency operates within and through social structures (Ratner, 2000), but are not subjugated by them. So there is interdependence. Individuals are always socially related, albeit through their subjectivities or more immediate experiences (Bhaskar, 1998). Therefore, any action that individual agency initiates, including action to transform society, always takes place from a social basis. Yet, Bhaskar recognises reflexivity in this process. The degree of social subjection, therefore, is not uniform or uniformly impelling. It represents a suggestion that may be weaker or stronger dependent on its influence or emphasis. Every day, individuals engage with or transgress any number of social practices, mostly obliviously. This is because they are not key
interlocutors. There are social (communities of) practice in the canteen, shop, service station that individuals engage with fleetingly and as highly peripheral participants. There are social (communities of) practices in which we engage with perhaps a higher degree of interdependence (e.g., family, our workplace). So just as the social suggestion is not uniform or easily extended, so too its engagement by individuals might be at best partial, perhaps because the press may be unknown and unrecognised (e.g., adolescents' social fads may be lost on their parents). Yet, as with appropriation, we are capable of being voluntarily enmeshed by our subjectivities. So cultural transformations arise through an interdependence constructed through agentic action and social subjectivities.

Socialising the Individual

While side-stepping the task of reconciling distinct views about structure and agency, a more socially inclusive, engaged and sympathetic view of the individual may be helpful in bridging some differences. The individual is often characterised as being oppositional to the social. Cognitive psychological accounts are presented or interpreted in ways that represent individuals and their minds as asocial beings, or without social reference points. Much is made of this in social cultural critiques of individualistic orientations to psychological theorising (Bruner, 2001). To incorporate the premeditated influences of cultural practices over time (e.g., subjectivities) as well as the immediate social experience (situational contributions), and post-immediate experiences (how subsequent experiences are constituted) there is a need to reconstitute what comprises the individual in psychological accounts, to acknowledge the cognitive experience is shaped reciprocally and continuously through participation in different and diverse instances of social practice throughout their ontogeneses (Billett, 1998). Or, as (Valsiner, 1998, p. 2) proposes, that the individual "simultane-ously maintains his or her autonomy relative to the given social context, and has become the way he or she is through the history of such relations".

The concept of ontogeny — individual development over a lifespan — positions the individual centrally in the ongoing process of interdependence between the cognitive and the social experience. This includes the subjection to cultural and social norms and practices that individuals engage in different ways and in different combinations of multitudinous social practices and the social world that surrounds and shapes those practices. Individuals' idiosyncratic cognitive experiences can then be understood as a social outcome (Baldwin, 1930). This offers a more reflexive way of addressing the question of whether change is premised on individual or social factors by proposing that changes are wrought in complex interdependences between the two. With hairdressers, it was the particular pattern of procedures that constrained the selection of possible procedures — "what we do here is", yet, more authorised individuals (i.e., owners and managers) exercised solutions outside of the salons' norms (Billett, 2003). One hairdresser, an owner of his salon, suggested a radical haircut to confront the rather than hide a client's birthmark.

If individuals' cognitive experience is seen as being shaped through participation in different ways in multifold instances of social practice through moment-by-moment or micro-genetic processes (Rogoff, 1990) then the sociogenesis of individuals' subjectivities, identities and agencies are to be understood as being negotiated between unique cumulative experiences and the social world. This view posits individuals' cognitive, individualistic traits and ways of dealing with the world as being accumulatively social: negotiated ontogenetically with social practices and norms at different points in their life histories. It suggests that individual idiosyncrasies and their cognitive experience are a
unique combination of experiences throughout their life histories. Rather than being asocial, the concept of individual can be seen as being socially shaped, albeit in unique ways, with individuals playing a role in constructed their subjectivities. This may help in elaborating and understanding how the individual and the social interact and their consequences for ontogenetic development, and the generational transformation of societies and communities.

Individual Agency and Agentic Action at Work

One way to exercise the role of individual agency and interdependence with the social world is to consider how individuals think about and participate in their paid work. In research that sought to understand learning in workplace settings, individuals were identified as engaging in a highly committed manner in work that many would view as being low status or lowly paid (e.g., coal production workers, process workers, call centre workers; Billett, 2002b). While these workers often reported dissatisfaction with their workplace affordances (e.g., conditions and the actions of fellow workers and employers), they also claimed and demonstrated high levels of commitment to and interest in their work. The sense is of workers who take their work seriously, want to do a good job and be accepted by their peers as good performers. That is, they engage in this work in ways that exercises their agency, yet directed to their subjectivities (e.g., approval of peers) and identity (e.g., a seen as being a good team worker). How should we think about these individuals? Are they merely cultural dopes, who have been duped into self-exploitation and self-management, as structural accounts would suggest? Or are these individuals intentionally exercising agency consistent with their identities and subjectivities? If the former view is taken, it suggests that we should value individual's vocational practice and engagement in terms of its extrinsic worth (e.g., its status, standing, purposes). That is, some forms of work are highly paid, have high status and are viewed worthy of individual's engagement and exercise of their interest, passion, desire and agency, and some are not.

The sociologist Wright Mills (1973) claims that “For most employees, work has a generally unpleasant quality. If there is little Calvinist compulsion to work among property-less factory workers or clerks, there is also little Renaissance exuberance in the work of the insurance clerk, freight handler, or department store saleslady”. He supports, what some contemporary commentators propose about service work, such as call centre workers. Yet, the call centre work is complex, varied, subject to skillfulness and, the operators worked in a collaborative and supportive way (Billett, 2002b). It has many qualities that elsewhere enjoy high status. So valuing work by its extrinsic qualities is precarious. Salary levels and status do not assure social worth. From a values perspective, it has been claimed that auditors' work is non-emancipatory and, therefore, not worthy of higher education. This suggests that individuals' work should be valued on an objectified measure of social standing or worth. This suggests that the extrinsic worth of work is central rather than its value to individuals in terms of their identity or subjectivity. However, to somebody from a low socioeconomic background or who achieved poorly at school becoming an auditor might be personally or socially emancipatory. Although doctors, lawyers and accountants are seen as desirable occupations and have potential positive social purposes (like call centre workers), they are not immune from bad practice and exercise of self-interest. Similarly, although the degree of discretion workers are permitted is seen as highly desirable it can be a perilous measure. In a recent study, (Billett et al., in press) a worker granted high levels of discretion in work, while closely aligned to her personal goals and values, was exploited by the breadth and discretion her work practice afforded her. Even though
her work was of social worth, being directed to social justice, it made almost intolerable demands upon her.

To propose that worthwhile work is confined to that which is highly paid, of presumed social benefit, permits significant personal autonomy and potential advancement, may render the majority of workers as engaging in worthless pursuits, as Wright Mills (1973) suggests. However, across different kinds of work individuals want to be seen as performing effectively, often gaining a sense of identity and sense of self through their work and its relationship to their lives in the community outside the workplace. In one study, a group of males were facing redundancy. Given the shortage of work in the region that attracted that level of pay and carried similar masculine qualities, the threat to these workers was more than loss of income, it included their standing as males in the community. Somerville (2002) illuminates the powerful links between cultural practices and individuals' identity in the aged care and coal mining sectors. This extends to individuals sustaining and accepting injury as part of the interplay between individual and community identity (i.e., age care workers have bad backs, coal miners carry work-related injuries with pride). Significant incidents were required for these workers to critically appraise their identity and subjectivities as manifested by their work practices. Yet they in turn were frustrated when their suggestions (as injured workers) to colleagues were rebuffed.

On what basis should we value particular vocational practice over others? Or is such a process unnecessary. It seems no more problematic to value it for its worth to individuals' identity and subjectivities than to more socially objectified and commodified purposes. Such a view is consistent with that advanced by Dewey (1916) about vocations as directions in life, a personal journey linked to individuals' goals and interests. He proposed that all kinds of human activity should be seen as equally valid vocations, from the practice of professionals, to the trades, to the act of parenting. Their validity resides in what they mean to and how they suit individuals engaged in them. To engage in paid pursuits that they were not suited to or interested in was a waste of human potential and akin to slavery he argues. However, advancing individual agency as a means through which individuals can be fulfilled, is not to absolve social problems such as inequity, nor is it about creating a false sense of equity, democracy and fulfilment and denying alienation (Ratner, 2000). It is about humanising social relations and social structures, and locating a legitimate and appropriate role for individuals in directing their cognition, learning and remaking of culture. This is the basis of the post-structural critique by feminist theorists such as Wedden and Davies.

This issue goes beyond curiosity. It has a lot to do with how we consider vocational practice and how we direct resources in vocational education. For instance, if call centre work is deemed to be beneath individuals' dignity and without social value, then it would be difficult to support call centre workers' learning particularly using public funds. If Wright Mills and others views are correct, then we should curtail much of what currently constitutes the provision of vocational education. However, this view denies the importance of vocations to individuals' personal goals and identities. A more relative position might help thinking about how vocational education should best proceed.

Implications for Vocational Education

Over the last 2 decades, in response to domestic and international sentiments and economic pressure, the concept and purposes of Australian vocational education have become intensely focused on meeting the needs of powerful interests (i.e., industry, enterprises, unions). The concept of occupation (a more humanised concept)
has been set aside as industry standards, employer needs and industrial demarcations have shaped both the conception of vocational education and the method of its enactment. All this constitutes a significant privileging of a particular kind of social agency that has acted to deny the agency of many of its actors. To secure a better balance, it is worth considering vocational education and issues associated policy and practice from perspectives reflecting the interests and agency of those individuals who participate in it. Dewey (1916) proposed two goals for vocational education: firstly to help individuals identify and select desired occupational pursuits and, secondly, to assist them develop the capacities to achieve their vocational goals. This suggests a view of vocation education more focused on individuals’ interest than current conceptions.

Curriculum development practices in Australian vocational education have done little to acknowledge the interests of those who are expected to implement or are subject to its products and practices. As papers presented at this conference over the past decade have claimed, teachers have been largely been ignored in these practices. Their interests, subjectivities and identity as content and pedagogic experts has been set aside and they are expected to be subservient to those powerful interests who have been granted leadership and control of curriculum development processes. Teachers are merely to implement what others have designed. Yet, there is a greater independence than sponsors intended. Teachers have ignored, subverted or transformed imposed practices such as competency-based training, yet are constrained by them (Billett et al., 1999). Moreover, students, the key participants of vocational education, are routinely ignored, despite having interests and goals that will shape their engagement and success. It is an exception when students are consulted about their needs and aspirations in ways that shape curriculum development and policy. Anderson (1998) claims that only one of the 1200 consultations about the national training reform agenda in the early 1990s involved students. Some might say that students are uninformed. Yet, they often have clearly defined and strategic intentions. For instance, one cohort of TAFE students at a regional college identified their purposes of participating in a clerical industry course in the following terms:

- A good job, which is not in a factory and pays well so I can buy a house.
- Partner wants to retire from train driving in 5 years time and drive trucks. She wants to be the bookkeeper for this business.
- Has been in catering for the last 10 years but was made redundant last year. She enjoyed some short computer courses and decided to work her way up the ladder.
- Daughter is now in high school and will need to know how to use computer. It is important that she can show her, because the daughter has a learning disability.
- Completed a course last year, Cert. in General Ed. for adults, and decided she wanted to do another course. She is new to the region and hopes to meet people and get some work in office admin, even as a volunteer. She has not been in the workforce for 20 years and wants to bring herself up to current standards and get over her fear of computers. (Billett, 2000)

These purposes suggest goals and subjectivities that are salient to these students. Yet these purposes are manifested in ways often remote from the aims of industry-derived national curriculum initiatives. Therefore, even for the most pragmatic purposes, there is a need to understand how students direct their agentic actions. One recently graduated mature student pointed to the need to leave her new job because having spent so much time learning word processing, spreadsheet and databases it only had a typewriter. School leaving age vocational students, also articulated their purposes for participating in vocational education, which reflected clear direction. Teachers, of
course, know the consequences of the mismatch between students' aspirations and expectations, and experiences that they are able or directed to provide. They also know that not all students' goals or preferences are either realistic or well informed (Hodkinson & Bloomer, 2002). Nevertheless, these still provide bases by which students engage in vocational education. The focus for curriculum development might be to position vocations as individuals' goals as well as something demanded by industry and enterprises. Rather than being wholly subject to it, key curriculum and pedagogic goals might be to invite students to actively participate in the process of remaking vocational practices in which they are, or aim to exercise their career trajectory. That is, to position them as participants in this remaking. Perhaps. As Cole (2002) has proposed, it is these students who will play the key role in remaking these practices. Perhaps, teachers might also be invited to perform a similar role. Perhaps.

The salience of individuals' interest and intentionality has been elaborated in recent work. In investigating how small business operators came to learn about implementing the goods and service tax, individuals' identity and intentionality was salient in their engagement and learning. Beyond the localised support that these operators engaged with, the key factors determining how they engaged in learning and what support they sought and, from where, was associated with their interests and identity. Their level of interest shaped the intensity of their efforts to learn and the scope of the learning experiences they initiated or organised. For instance, while an entrepreneur was highly focused on this task, professionals (i.e., vet and optometrist) whose practice constitutes a small business were less interested in learning about this administrative process. Others could take care of it. Analogously, the evidence arising from another study suggests attempts to persuade employers to invest in their employees' training is unlikely to be achieved through government mandate, as these are generative of mastery not an appropriation of the value of the further development of employees' skills. Where there resides a clear need, as identified by those who have to make a commitment, then the likelihood of expenditure is higher. Clumsy efforts to mandate behaviour (e.g., the Training Guarantee Scheme) appear to have generated outcomes contrary to intentions: recalcitrance and the commodification of enterprise commitment to training.

In Australia, individuals' occupation, the standing and status of the occupation is central to individuals' identity (Pusey, 2003). However, policies and practice in the last 2 decades have arguably eroded the standing of many vocational practices and subjected them to contested social relations that have subordinated occupational and personal concerns. The insistence on competency-based standards, non-graded assessment, modularisation and the widespread marketisation of vocational education has probably done little to elevate the standing of vocational practice and knowledge. This situation is exacerbated by a lack of championing of vocations within the community — the supportive exercise of social agency. While some communities make a virtue of particular activities (e.g., agricultural work, manufacturing work, coal mining), elsewhere, there appears to be little of the kind of championing of paid vocations that occurs in some countries in northern Europe. In Australia there are few trade associations or guilds championing the richness, significance and worth of vocational practice, except when some perilous skills shortage occurs (e.g., the recent activities of the Victorian Brick and Block Layers association). Instead, vocational education has been aligned to contested industrial relations. If unions make claims about the complexity of work practices, they will be dismissed as ambitions. Employers are unlikely to champion the
richness and sophistication of vocational knowledge least this jeopardise their efforts to control wages. All this works to the detriment of vocational education. Lacking here is the kind of social affordance and individual intentionality (subjectivity and identity) that elsewhere (i.e., Germany and Switzerland) sees the higher level of enterprise sponsorship of vocational skills development and individuals (i.e., apprentices) making complimentary sacrifices in their levels of pay and hours of work to secure skill development. These subjectivities appear to be the product of reciprocated interdependence between partners.

Summary and Conclusions
In sum, it has been proposed to bring the individual to the foreground in conceptions of the sociogenesis of knowledge and learning, vocations, vocational education policies and practices. The attempt here is an initial drafting and outlining of some bases by which we might consider the relatedness and reciprocity in the interdependence between individuals and their social worlds in learning vocational practice. To view individuals as being wholly or strongly subject to the social world, in its immediate, premediate and postmediate forms, denies an interdependent role for individual agency. As with the immediate experience, the premediate experience, which is the source of identities, subjectivities and intentionalities is held as a product of an accumulative and ongoing interdependence between the social and individual experience. However, it is acknowledged through engagement in social practices and subjectivities. Yet even when there is sympathy between the cognitive and the social experience, as in appropriation, there is likely to be misunderstanding, misinterpretation and differences in constructs. Human cognition is neither uncritical nor limitless, nor is it machine-like or wholly rational. Instead, it is a selective, discriminating and mediating, yet at times just plain woolly as is our intentions and energies. Although the degree of individual autonomy in transforming knowledge remains the source of debate and difference, more than being able to select from social suggestion, individuals’ agentic actions likely have the capacity to remake cultural practice in transformative ways. Yet it is not helpful to view individuals’ goals, choices in the options available, and how they are pursued without a consideration of subjectivities arising through these cultural practices and shared experiences across a lifespan. Relations between individual and the social world might best be understand as those between ontogeny and history, operating in parallel and through negotiation where the immediate and pre-mediate coalesce and shape the post mediate experience. It is these relations that are continually engaged in remaking and reproducing cultural and social practice, as in vocational learning.

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Learning Through Working Life: Individuals’ Agentic Action, Subjectivity and Participation in Work

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Maintaining and improving the capacity to be effective in work is held now to become an important social goal in order to maintain, individual, local and national well-being, including standard of living (Organisation of Economic and Cultural Development [OECD], 1996). Yet, without knowing more about how individuals are able to engage in work and learn through that work, and are motivated to continue to learn there can be no certainty about whether the expectations upon individuals are realistic. This paper reports the initial findings of an investigation that aims to understand something of these relations through understanding the working lives of five individuals. It aims to explore these individuals’ working lives including how they exercised their agency ethically at work. In doing so, it aims to identify how this agency is shaped by individuals’ identity and subjectivity, and how these shape their participation in and learning through work.

Change and Working Life

Learning throughout working life is seen as essential in circumstances where the requirements for work and the means of participating in work are held to be constantly changing. Maintaining and improving the capacity to be effective in work is now held as an important social goal in maintaining individual, local and national well-being, including the standard of life and social provisions (i.e., health, aged care, education; OECD, 1996). Rather than cyclic periods of high and low economic activity, structural adjustments in global economic activity (Green, 2001) now require enhanced skills to sustain the standing of the economy of countries like Australia. Yet, without knowing more about how individuals are able to engage in and learn through work, confront change and be motivated to learn, there can be no certainty about whether the expectations upon individuals are realistic. Therefore, it is important to know more about how individuals participate in and learn throughout their working life, how they are able to exercise their agency and participation and how these are linked to their values and beliefs. What is it that directs individuals’ lifelong learning?

The discussion here centres on the role of agentic action — how individuals construct their goals for and act in the social world (Somerville & Bernoth, 2001). That is, how human agency shapes participation in work, with that agency reciprocally shaping but also being shaped by individuals’ identity and subjectivity. Central to individuals’ development is their decision-making and ethical action, and the degree by which these are shared across working lives and life outside of work. This is an important discussion because individuals play a key role in initiating, sustaining and directing that development, albeit
mediated (e.g., either assisted or inhibited) by workplace practices and/or working
communities and the social milieu beyond (Rogoff, 1990). Although the press of
immediate environmental factors, such as in workplaces, can be strong, learning is
not held as being captive to situational determinism. Instead, Valsiner (1998)
claims individuals are able and indeed required to ignore much of social sugges-
tion, except the most extreme and forceful ones, in order to buffer their personality
against constant social suggestion. So individuals’ intentionalities play a key role
in decision-making and learning, albeit shaped interdependently by subjectivities
that are societal and cultural in origin. Wertsch (1998) distinguishes between
compliant learning (i.e., mastery), which is superficial, and learning to which the
individual is committed (i.e., appropriation), and where richer learning is more
likely. Therefore, individual intentionality and agentic action are central to individu-
als’ participation in and development throughout their working lives. Yet, a
clearer understanding of the influence of individuals’ identities and subjectivities on
that development, may assist understanding the prospect for achieving key economic
goals through lifelong learning.

Constructing Knowledge and
Identity: Agentic Action at Work

The conceptual focus here is in assisting understand how individuals’ thinking and
acting throughout working life is related to their identities and subjectivities. In doing
so, it centres on the interdependence between the social (e.g., geneses of subjec-
tivities, cultural demands and situational requirements) and individual (e.g., inten-
tionality and agentic action) contributions to thinking and acting (e.g., Valsiner & van
identity that was previously related mainly to work and was constructed mainly on
the basis of work ethics, is now being constructed on different bases. Ethical
attention as a chosen road to moral improvement might be transformed so that work will be judged by the amount of pleasure it affords, or its centrality to individuals’ goals. The road to self-identity and meaningful existence now resides increasingly in the market place, with the individual now charged with the task of self-construction. Yet, nowadays, a continuous and logically coherent working life may be less available. Many new jobs are contingent — fixed term and part-time (Carnoy, 1999). The notion of vocation as a pathway to self-identity may have become less likely, as well-regarded and assured jobs becoming a rarity (Bauman, 1998). Nevertheless, employment in routine, but very necessary and productive work, may provide a source of material comfort, the ability to consume, yet provide for family and to progress personally and socially. Objective measures, such as salary levels, objective social good, personal discretion in how individual engage in work and for how long and to what intensity, interesting work may be the privilege of fewer workers. For instance, according to Rifkin (1995) more than 75% of the labour force in industrial nations engages in work that is little more than simple repetitive tasks that do not provide any gratifying and meaning-
ful identity for the workers in the current social conditions. For those workers, it
might be claimed that there may be a limited prospect of constructing a lifelong identity on the foundation of their work. However, there are other bases, apart from the judgements of external observers about what constitutes meaningful work and workers’ identity. The outcomes of this self-construction may be prized differently dependent upon the values of the observer. Dewey (1916) holds that the meaning of an individuals’ work is found in its consonance with their life goals or directions. Others may not share satisfaction and sense of self that individuals might derive from
some kinds of paid work. Yet, not all individuals’ work will provide the desired personal identity nor will it be afforded through their work. So what are the bases for this self-construction?

As the requirements for work and the means of participation in work are transformed, they have direct consequences for individuals’ subjectivities and identities. Understanding these consequences may be enriched through a consideration of the enactment of human agency and the kinds of decision that reside within that agency — the exercise of agentic action. This is the focus of their self-construction and life goals. Lifelong learning is viewed as a journey of development each individual negotiates as they engage in changing work, work practices and shifting bases for engagement in work. Throughout their journeys, individuals’ identity, subjectivities and actions will likely be transformed through contested and reciprocal engagement with the social world which influences their decision-making and what constitutes ethical action. A key element of agentic action is in its bases for decision-making. This in turn may shape their decision-making in and for their working lives, including how they engage in the demanding processes of extending their knowledge throughout their working lives. These sets of concerns motivated the investigation reported below.

Procedures
The investigation reported here attempts to identify the bases by which five individuals engage in their paid work and what guides their practices and decision-making. The principal method of data gathering comprises a series of recorded conversations with the participants. These conversations occur every 6 weeks or so over period of 11 months. They are used to elicit data about transitions in working life, learning, the exercise of agency and the bases of that agency. These conversations will lead to the production of biographies that are used to verify and provide a basis for further reflection and discuss recent, current and emergent working life issues. The interviews with individuals focus on: (a) the role of work in their lives; (b) bases of ethical decision-making; (c) key moments and transitions in individuals’ working lives; (d) reflections on those moments; and (e) causes of changes in identity and subjectivity. For each of these focuses particular questions are used to assist in eliciting data and shape its analysis. The data will be used to identify the trajectories of the participants’ working lives and their ontogenies or personal histories of work. A key concern of the investigation is to continue the conversations through a process of refinement and extension over a year-long period. The aim here is map changes in working life, subjectivity and decision-making over this time. To refine and appraise the initial analyses, the data from each interview and its initial analysis are discussed with participants in the subsequent interview. The data presented and discussed here is derived from the first two interviews. These focused on their work, changes to the work, issues of identity, motivation and personal goals and what constitutes ethical activity and practice.

Participants
The five subjects were selected to encompass diverse forms of work and engagement with work, as well as diverse work histories (e.g., migrant, part-time worker). Lev is an electronics engineer who works for a large multinational corporation as part of the team on transportation projects, particularly trains. Mike is an automotive mechanic who works as a supervisor and coordinator in a large motor vehicle dealership, working between the workshop and sales departments. Lyn works part-time as a member of small team of workers in a wholesaling business in the metropolitan fruit and vegetable market in the early hours of the morning and into the day. Carl is a broker who works for a large national insurance
brokerage company on a commission-only basis. He is essentially a sole operator business within a large enterprise. Ken is a manager of an information and communications technology unit within a corporatised state government department.

These individuals took diverse pathways in arriving at their current work. Lev learnt his electronics skills in the Russian military and practiced them in Russia in transport related work, before moving to Australia. However, here he had to initially engage in relatively menial and unrelated work as he developed the English language proficiency required to effectively practice electrical engineering. Mike’s paid work has consistently focused on motor mechanics. However, much of it has been as a service operator assisting motorists whose vehicles have broken down. Lyn has engaged in a range of work (e.g., retail work, detailing cars in sales yards and factory work) in between being the sole parent for her three children. Carl was a professional sportsperson before retiring and taking up insurance brokering. Ken grew up in a church community and his first work experiences were church activities. He then engaged in a range of service-oriented work (e.g., retail, restaurant management, pest eradication) before developing expertise with security within information technology. Through this expertise he became a manager within a corporatised government department. So, of the five participants’ only one has had a continuous vocational path: Mike (who is interested in customer servicing as much as mechanics). The others, by different degree, have experienced discontinuities or transformations in their work and occupational identity, and perhaps as with Lyn, that identity remains immature and she integrates her identity as a caregiver with that of worker. This suggests that lifelong learning is more than being generative of skills it is about negotiation and remaking occupational identities.

Changing Work
Each of these individuals’ work has changed in recent times and by transforming work requirements. Yet, rather than being disruptive and disarming, they absorbed these changes, which in some instances were also instrumental in their work progression and identity formation. Lev's current employer has been affected by the downturn in the aviation sector following the attacks on New York and Washington. Previously, he held a similar position in a large enterprise that was taken over by a multinational company that centralised its maintenance work elsewhere, thereby making him redundant. However, he moved to this more prestigious job. Mike’s current job is in large part a response to the extended warranty periods offered by manufacturers to customers buying new cars. These warranties tend to wed customers to the dealership yet demand the provision of services and maintenance. Consequently, interacting with and maintaining clients has become a key focus for dealerships because clients may go on and purchase another new vehicle at the end of the warranty. Mike possesses the combination of automotive and interpersonal skills required to address these clients’ needs and coordinate work activities to support the continuity of the relationship between the dealership and its customers, and those in the workplace. Therefore, this change resulted in an opportunity for Mike. Lyn’s workplace tends to have a high employee turnover, like other businesses in the fruit and vegetable market. Work in the market commences in the early hours of the morning and continues until all the orders have been sent to retail customers. Lyn is a relatively new employee, and is aiming to secure and develop a niche role for herself, which includes organising weekly export orders. Carl’s work has been changed recently because of governmental regulations and legislation that demand greater evidence and transparency in the processes of advising clients about their insurance quotes. Each quote now takes...
longer and is documented more meticulously. Consequently, small insurance jobs have become less attractive. These are passed to company employees. A new boss is shaping how Ken’s department operates and is transforming his work. As his work involves IT security processes, within and outside the department, it has recently become more intense and of greater interest.

The changes in work have facilitated these individuals’ career development, as much as challenged it. Carl who likes working on large insurance projects because of social interactions and relations, is now directing more attention to these kinds of projects, and reports being successful in this. Mike’s employment standing and security have been enhanced by extended warranty arrangements. Moreover, he enjoys this kind of work. Although Ken does not support all his new boss’ initiatives, the new emphasis on security has buttressed and secured Ken’s work role. Lyn is using new requirements in the workplace (i.e., export orders) to bolster her particular place in the work team and make more secure her position. Unlike clerical workers whose contracts were not renewed Lev’s position, has also been bolstered because he works on train transport in a corporation whose reliance on air transportation projects has become imperilled. So, although changes to work bring about challenges and intensification, it has also supported the continuity and development of these individuals’ work. This is, because in at least three instances, there is coincidence between their work goals and the changing requirements of their workplaces. Moreover, as discussed below, these changes permit the projection of their personal values into their work.

Identity, Motivation and Goals
All five subjects claimed that their work was largely a means to an end, and that things outside their working lives are of greater importance than their work and working life. For Lev, family life, aesthetic pursuits and a small business installing security equipment are claimed as important goals beyond the workplace. He directed efforts into his small business, and looked to this and his salary to generate the income he required to maintain the particular lifestyle, to educate his son and take him to Russia in order to learn about his father and mothers’ cultural heritage. He will change jobs if another will provide him better financial benefit, because this is important to him. Mike stated that rather than working in the garage he would prefer to spend his time messing around with computers. This, and his family, are the ends to which his work efforts are claimed to be directed. As a single parent, Lyn’s goals are to provide more for her family through work (e.g., buy a house, have a holiday). Carl emphasised the importance of his family life, his good relationship with his wife and his interest in his children and their development. He referred to divorces that some of his colleagues had suffered from focusing too much time and energy upon their work. The lesson here was salient: there had to be a healthy balance between work and family. Ken was quite insistent that his family and church represented the ends towards which his work efforts were directed. His commitment to a life outside of work was evident in the weekly tithe he paid to his church. He stated that beyond retirement he would never consider or think about his paid work. All individuals stated life outside work as a major point of their life engagement. This supports a theoretical claim that work is no longer the only force that shapes individual identity.

Nevertheless, they each acknowledge the important role that their working lives played as a part of their identity and sense of fulfilment. By different degrees, they all referred to the importance of being respected as being effective and valued by their peers and other workers and from whom others would seek advice and be valued for their counsel. They are required
to be effective at work, so they can secure their employment. Lev referred to his work as providing a status of a respectable middle-class person (i.e., electrical engineer) as well as the financial freedom that a good salary provided for him and his family. Since arriving in Australia, Lev has worked hard to become proficient in English and realise the use of his electronics knowledge in productive employment, after a period of engaging in menial and unfulfilling work roles, constrained by his poor English language. Yet, he feels under-utilised in his current position and believes he has the capacity to contribute more and deserves higher remuneration. His work has not provided opportunities to establish close friendships with his colleagues. However, as he considers social relationship an important part of his identity, he realises this through socialising in an emigree Russian community. This suggests a sense of work identity and agency that is strong and frustrated by a lack of potential fulfilment.

Mike has high professional and personal standards and views about understanding clients' needs and responding to those needs. These are central to his identity as a worker and a decent human being. For Lyn, work in the fruit markets provides the opportunity to demonstrate her capacity to perform roles other than being a caregiver to her children. A strong sense of industry and organisation, and desire to build a further financial foundation for herself and her children sees her direct her energies proactively to her work. In becoming a worker and having sole responsibility for an area of work seems to fulfill an urgent need to reaffirm her identity outside of the family home. In the first interview, she expressed an interest in becoming an expert in the purchasing and transportation of fresh herbs, arising from an opportunity in previous employment. By the second interview, her intentions and agency were directed to another opportunity, being responsible for export orders. This requires understanding and responding to quarantine and costumes requirements that she alone would have expertise in. Insurance broking for Carl is something at which he is highly proficient and follows a career as a professional sportsman. He enjoys the work, the interactions with business people that brokerage work brings, his freedom to develop his clients and contacts and watch his business grow. Ken likes his work because it is an area of growth and employment security (which was not a feature of his earlier working life) and should provide him with meaningful and well-paid work until retirement. However, any stable, well-paid work will suit his needs, because he does not associate his identity with work. So his work identity is shaped by more general employment goals. The process of self-construction relates to both working life and that outside of it. The degree of their relative importance differs across these individuals.

In addition, each individual, apart from Lev, views their current work as being satisfactory in the current progression of their careers. Lev, although enjoying the status of his job, would like more responsibility and to be more valued, respected, and influential. Lyn is making the most of her opportunities and sees prospects for the future that are associated with personal goals (e.g., buying a house, having holiday) but also establishing an identity for herself outside of the family. Mike is doing the kind of work he enjoys and is not seeking advancement. Carl is quite content, and if he sought advancement it would be through the start of his own brokerage business. For Ken, his job offers the prospect of continuity of paid work through to retirement. A significant difference is that between the role work play for male and female subjects. All male subjects accepted work as given, as something that has been with them forever. For the female participant work is playing more important role, it's something new for her. She is just establishing her working identity.

For all five individuals, work relates to their identity: they are identified as an
engineer, supervising mechanic, effective worker, diligent and trusted insurance broker and manager. However, all five subjects are able to exercise a part of their personal agency at work. If the exercise of individual agency is through personally fulfilling activities is a measure of the link between individuals identity and their work, it might be concluded that all five individuals were exercising their personal agency and engaging willingly and reciprocally in their work. That is part of their identity and sense of self (self-construction) and the exercise of agentic action is being directed and remade through interdependence with their work. This sentiment reflects what Pusey (2003) concludes is the role of work for middle Australia — “For nearly everyone work is a social protein, a buttress for identity and not a tradeable commodity” (p. 2). All five subjects referred to the importance of being able to exercise their agency in their work activities. Whether it was the ownership of the work undertaken, the possibilities of trying to do new things, being able to manage oneself, being able to exercise standards of work and discretion that reflect individual, or the exercise of personal licence, the significance of the exercise of agency was amplified by each informant. A measure of this agency is what individuals construe as ethical activity and decision-making.

Ethical Activity and Decision-making

The common motif running through all the interviews about what constitutes ethical activity at work was the idea of “doing the right thing”. Within this idea was the dual goals of being ethical with others ultimately meant “doing the right thing” by yourself. The projection of what constituted ethical action appeared closely linked to the participants’ personal values. Given that these values were often linked to prior experiences and events, some semblance of links between the personal history and ethical activity in working life and outside of it emerge, although are not fully endorsed in the available data.

The focus of ethical action for others’ sake was quite diverse. Perhaps because Lev’s clients are very remote from him (although he considering safety of the passengers as the main issue), much of his focus of ethical action work was associated with working with others, particularly how they would collaboratively complete a project. For Lev, this meant an effective work environment in which he could exercise his interests as fully as possible while maintaining a high level of salary. Completing things was claimed to be important and by being able to act agentically and with some autonomy he was able to exercise this goal. The “others” for Mike were the workshop mechanics and the clients whose cars were being serviced and maintained. Doing “the right thing” by both of these groups — reconciling their needs and resolving problems — was the key factor in directing Mike’s energy at work and a key component of his job. Yet through working to ensure the right thing was done by the mechanics as well as done by them and clients, he was able to realise important personal-professional goals for diligence and careful work, addressing others’ needs and high standards of work performance. The “others” for Lyn comprised the fruit and vegetable shops that they supplied throughout the state (and now overseas) and her boss. This was important for her standing and the viability of the business. Lyn’s concern of “doing the right thing” by her boss was reflected in belief that he was to the right thing by her (she described him as being more like a mate than a boss). For Carl, the “others” were his clients and the company for whom he worked as a commission-only employee. The clients were important to him and he needed to demonstrate to them that he was working ethically in their interest. The company had been good to him, therefore Carl felt quite loyal to the company as an employer. Surprisingly, for a commission-only employee, he engaged
in activities associated with developing employees' skills and capacities. This effort would not secure more commissioned work for him, but nevertheless he claims to have put considerable effort into these employees' development. In discussing the sources of his personal and work values Carl referred to his country upbringing and sporting life. Being fair, playing hard but fair and being part of the team seem to resonate in his claims about his personal conduct in the workplace. Ken makes a distinction between his ethical action towards his subordinates and towards other managers and his boss. As a manager, he gives his subordinates as much discretion as possible was a way of "doing the right thing" by them. His ethical behaviour in all other instances are restricted by organisation and he felt that his personal values are much "higher" than those required by organisation. Similar to Lev, he believed that with more autonomy and trust, he could achieve more. In these two cases, large organisations prescribe a set of rules that regulate employees' behaviour and relationship towards the others. Perhaps what was missing was significant distance between individual and workplace values and what constituted ethical action. All this suggests, the way that these individuals have deployed their personal values is consistent across their working life and that outside of it, and these values are sourced in earlier iterations and development of values and identity through earlier engagement in life activities.

In conclusion, from an initial analysis of the first two rounds of interview data, some patterns emerged about these five individuals' agency, identities and bases for participation in (and learning through) work. Against some predictions about changes adversely affecting workers, it was found that change for these five workers had either buttressed or facilitated their standing in the workplace and their vocational goals. While all five participants claimed that their working life was merely a means to an end, the evidence suggests their identities, agentic actions and subjectivities were exercised and enacted in both their working life and that outside it. By different degrees, there was evidence of an interdependence between these two lives. In particular, it seemed that these individuals' capacity to exercise their agency at work was strongly associated with how they valued that work and identified with it. That is, it reflected how they might exercise their efforts in participating in and learning through their working life. This suggests that for lifelong learning to be successfully enacted consonance between the qualities of work and individuals' identity and interests may be required. These propositions will be explored further in the subsequent series of interviews.

References


In Enriching Learning Cultures, Recognise the One that's There!

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The paper critiques the assumption that managers, HRD or training personnel or consultants have to "create" a learning culture. The cultural edifice that is built may not "work". One reason for this is the lack of a sound foundation. An appropriate foundation is the existing culture within the organisation. Whether the existing culture is good or bad is not the key question. But knowing what to retain, change or reject in the new culture is based on an understanding of the current culture, as a foundation. The paper uses the concepts of the formal and informal organisation and of structure and education/learning to discuss the enriching process and then suggests strategies by which the existing culture of an organisation may be explored, understood and appreciated — as a foundation for the enrichment process.

The basis for the argument of the paper is first established. Then the concept of culture is examined. Two selected cultural features, structure and learning, are next discussed. Finally, some strategies are proposed whereby the existing culture of an organisation may be discovered. The paper concludes with some concluding remarks.

The Conference theme is "enriching learning cultures". It is a very appropriate theme. The wording suggests that there exists a culture and the goal is to make that culture more effective and more valuable. That is an important, but difficult, task for global, national, regional and even organisational cultures. While accepting the importance of all these types of cultures, the present discussion focuses on "organisational cultures".

In relation to organisational cultures, the writer's experience is that manager's or HRD or training personnel "within" an organisation or consultants from "outside" have tended to place a different, and narrower, interpretation on the task of enriching the organisational culture. They may be seeking to "enrich" the culture but assumptions explicit in, or implied from, their activities suggest they have distorted "enrich" to become "impose".

With beliefs in the tradition of Henry Ford that the historical is useless and valueless, the cultural imposers ignore what is extant and seek to construct de novo, setting up what they know/believe/hope is better, and therefore enriching. This type of approach is criticised because the counter argument is that the organisation already has a culture. The fact is that there are people who interact to achieve goals and who have developed practices to achieve these goals within a set of "approved" ways and with some level of shared values. The culture is unlikely to be "ideal": that is why the need for enrichment has been identified and action taken to make changes and make improvements. But what is frequently overlooked by those organisational culture enrichers is that to improve the organisation's culture, the existing culture must be recognised and understood.
The enriched culture needs to be built on the foundation of the existing culture, linked of course to an appreciation of the strengths and weaknesses of the existing culture and the degree to which the organisational members identify with and support (or reject) the current culture. The existing culture whatever its status or strength is a necessary foundation for whatever new culture may be developed.

Certainly those involved in the cultural enrichment process for an organisation (insiders or outsiders) may develop some sort of situation statement about the existing culture but it is suggested that this statement may be limited in certain ways. These ways will be specified following a brief discussion of the concept of culture.

Culture

Whether the focus of the discussion of culture is directed towards sociology or anthropology or history, what is evident is that "culture" has been part of human existence. Whenever humans joins together in groups to undertake a range of activities, then a culture for that group emerges. The culture will be concerned with the purposes of the specific organisation. Some purposes will be more evident. These are likely to focus on helping the organisation achieve its major purpose(s). Others may be of a secondary nature, concerned for example with helping the organisation to continue to exist.

For definitional guidance, reference is made to the dictionary as the breadth of the term is explored. In *The Macquarie dictionary* (1990, p. 227) eight meanings are offered. Two comments are made on the meanings generally and an operational definition for this discussion is cited. The importance of the relationship to "cultivation" is noted. Whether in soil or plants, micro-organisms or tissue, the notion of "growth" is stressed. So culture in relation to an organisation may also be concerned with growth but also implied are the concepts of decay or ruin. The positive features of "culture" broadly used are also noted in meanings that imply that culture itself may lead to enlightenment or improvement. The dictionary also offers a definition that acknowledges sociology. It is that culture is "the sum total of ways built up by a group of human beings which is transmitted from one generation to another" (1990, p. 227). The possibilities for organisations to spread over several generations, in contrast to national or imperial "cultures", does however support the proposal for a longer time view of the organisation to be "enriched".

In exploring then the existing culture of an organisation it is important to encompass the sum total and therefore all the activities of the organisation as a whole. That is a major task. Some selection of significant and representative activities or features of an organisation may be required. Two features of the culture of an organisation are noted at this time: structure and education. One represents the means by which the organisation functions while the other represents an area of activity.

The structure of organisations has been a major focus in the study of organisations. The work of Weber (Gerth & Mills, 1948; Parsons, 1947) provided a foundation for the study of organisations and especially bureaucracy. A reason for the use of structure as an element in the study of organisations is that the structure is usually able to be mapped quite easily. Mapping the structure involves identifying the lines of formal authority and responsibility and within those lines communication channels may also be noted. Associated also with the structure is the differentiation of various roles members are required to fulfil. The structural features of an organisation and its culture may thus be illustrated, frequently diagrammatically. Recommendations for change may emerge from the structural picture developed.

Education, or as it is often called "training", is an activity within the organisation that may be easily identified. The
programs (and perhaps their origins), and who offers what to whom and when this happens and by what means are usually able to be documented. Thus a picture of the educational activities of the organisation may be developed to allow for some conclusions to be drawn about that aspect of the organisation's current culture.

The question may be asked whether this data collecting activity is worthwhile. While strongly supporting the investigation of the existing culture as a prerequisite for seeking to "enrich" it, the focus on the above mentioned activities is — it is suggested — provides an inadequate basis for a cultural redevelopment.

The reason for the lack of enthusiasm for the study of the two features above (important as each may be) is that they are both part of the formal aspects of the organisation and its culture. There is another complementary part, the informal. In live organisations, it is argued that the understanding of the informal as well as the formal aspects of the culture is vital if the culture as a whole is to be understood and enriched successfully.

The two features noted above — structure and education — have been chosen with a purpose. Each of those features manifest a parallel feature in the informal culture of the organisation. Parallel to the formal structure is the informal structure: the informal companion to education is learning.

Structure
The differences but interrelatedness of the twin types of structure is illustrated by two simple examples. The diagram of the formal structure may indicate on the line below the Chief Executive Officer the positions of three Executive Officers. On the formal chart they are equal with designated fields of responsibility. However, what happens is that one of these persons is, or is perceived to be (and the perception may be as important as the actuality), more powerful and have more influence with the CEO and throughout the organisation. So a pictorial representation of the actual situation as noted in the informal structure is of three Directors who may have the same titles and roles but are not on the same "line" as one has more power/influence than the other two.

Secondly, the formal organisational structure may indicate that there are functional "teams" in the various parts of the organisation and that these teams all have a "leader". What the informal structure of the organisation may reveal is that there are some — and the number will vary over time and perhaps depend on circumstances — who are the designated leaders but who are not the "real" leaders. In those teams there are other organisation members who take the leadership role or who are seen by the team members as the people who have the team's loyalty and/or respect or the persons to whom team members turn in times of doubt or when problems occur.

The informal structure identifies variations from what would normally be assumed from the formal structure.

If there is evidence of an informal structure within an organisation, and it is proposed that there will be, then plans for the enrichment of the culture of the organisation that do not encompass an understanding of that informal organisation are doomed to failure.

Learning
Learning appears to be a highly relevant activity of an organisation. As the dictionary definition noted, there is the process of the transmission of the culture from one generation to the next, and that transmission will be carried out through the learning of the organisational members.

There is an ongoing problem in dealing with learning. People who look for learning tend to look for it primarily or solely within education. So I would argue that most of the learning is seldom included or appreciated.

In the process that has become popular in the 1990s, learning cities, the initial
points of contact are the schools and TAFE colleges and ACE Centres and training in industry. The pubs and clubs, the so-called community or welfare or age-related organisations may be considered, but only as an after thought.

Even in relation to schools themselves, there is a focus on the classroom as the locus of learning. The point however is made that some percentage of learning — and I think it is higher than the school people are prepared to recognise — occurs outside the classroom. These loci for learning beyond the classroom are the playground, the canteen, the buses to and from school and the toilets. Further I am convinced also that there is a great deal of learning goes on for teachers in the staff room!

Some appreciation of the education/training that has been carried on within and outside the organisation is relevant. It may be only half (or a quarter or a tenth) of the total story. And culture is about the totality of the organisation.

Those who seek to discover the learning of an organisation in the 21st century do have an advantage. There has been a discovery of learning and its importance in organisations and workplaces. From the work in North America by Marsick and Watkins (1990) on informal and incidental learning in the workplace, Billett’s work in Australia on workplace learning (1996 and onwards) and Brennan (1997) on learning in professionals’ practices, there is not only an awareness of this learning but an understanding of how and where it operates and how it may be understood.

The terms “mentor” and “model” provides means of illustrating the differences between the formal and informal features of an organisation’s culture. A mentoring program concerned with helping to induct new members into the organisation is clearly a formal educational activity. By contrast, the use of models is an unstructured individualised activity and may be part of the informal learning repertoire of some few or many members of the organisation. Both types of activity may be central to understanding an organisation’s culture and providing a basis for enriching that culture. Individually these two types of educational/learning activity are important but linked together they may reveal a wide range of the ways in which members learn about and transmit the culture of the organisation (see Brennan, submitted for publication, for a more detailed examination of these two terms).

Strategies

The following strategies are suggested as being important for developing a useful picture of an organisation’s culture in the process of drawing together a position statement (that was noted above) as a first step in “enriching” the culture of the organisation. The strategies are not “difficult” nor are they considered controversial. However, some or all or some mixture would appear to be necessary if a successful culture is to be developed on the basis of what already exists. The primary concern is not to assess how “good” or “bad” the existing culture may be but to gain an overall picture so that the magnitude of the task is more clearly understood. In this picture, features of the current culture that need to be retained are as important as those that have to be changed.

One of the obvious strategies is observation. Observe what actually happens as the living organisation carries on its business:

- what it is supposed to do according to its expressed objectives
- what it does and how it does it, in relation to maintaining itself as an organisation
- what it does that is unusual or unexpected or perhaps on the surface or initially as contrary to its expressed objectives.

Such observation is possible at formally planned meetings or at tea breaks or as the members begin or cease work or as they tackle the major tasks of the organisation. The sharing of the notes of the observers
allows confirmation or rejection of special features of the organisation’s functioning or perhaps issues needing further exploration.

At a more formal level, interviews offer a means of gaining information. Face-to-face communications may provide “richer” data than surveys. The decisions about the degree of open-endedness or structure to the interviews provide an opportunity to discuss the specifics being explored in the interviews. Another vital question is “Who will be interviewed?” A random sample or those suggested by others? Asking members to nominate others who “have a good understanding of the organisation” may provide important data about the culture of the organisation before a question is asked in the interviews. In earlier decades, sociometry was used to understand the structure and operations of groups. Some sociometric measures or approaches may be useful to develop the list of those to interview.

The stressing of the face-to-face communication in the previous point was not designed to infer that written records are not important. The inspection of records is potentially important. However, the more formal documents such as annual reports or minutes of formal meetings are not recommended as the most useful. From the observation and/or interviews some information may have been gained on the “successes” and “failures” of the organisation — or that could be an important question to pursue in those strategies. Both successes and failures are important. Perhaps the organisation, or its current leaders, may not wish to have failures revisited but the failures may reveal relevant details. What do these events reveal about the organisation’s culture, and particularly how it learned, did not or refused to learn, from the success or failure. An option to looking at successes and failures is to seek opinions from members, during observation and interviews, about what they consider to have been “crises” in the organisation’s history. As with other features of this approach to discovering culture in an organisation, the identification of who notes which event or program as a crisis (or a success or a failure) and who does not is significant for mapping the existing culture.

Another strategy is to create special “test” situations. One the “tricks” of the sociometry approach was to deliberately “spread a rumour” and then observe who spreads the rumour and to whom and how the details of the rumour are reinterpreted. Like other strategies, rumour creation does present risks to those who perpetrate the strategy. But useful information is gained about how the communication works (not how it is supposed to work).

An example of an activity in which I was involved — and which was not designed to be a strategy for discovering the culture of the organisation in which it occurred — illustrates the potential value of “test” strategies to gain an understanding of how the organisation works. I was an “outsider” who was invited to become involved in assisting the HRD people in a large organisation to develop a “new” way to approach the staff’s professional development. So the organisation used a version of an instrument I had developed to help professionals explore their professional development needs. The instrument was distributed widely throughout the organisation and its many branches. I was involved in the initiation of the distribution of the instrument and it was planned that I would also be involved later with the assessment of the data. The first part went “fairly well” though I was hesitant about the likely results. I was not involved in the second stage. Some organisation members had responded in the manner required. The majority had not, but had used the occasion to write many original and not complimentary views on surveys, requests, requirements, their priority for getting on with their work and questions about whether the instrument developer had any idea about the problems the organisation was experiencing. For me this was important data on which to work: the HRD
people did not agree: the data were shredded. The culture of this organisation needed enriching drastically. Data that would have been very valuable in the enriching process was destroyed.

The suggested strategies have stressed different types of activities. The choice of activities should not be rigid and guided by the information that is revealed.

Another option is to preselect an area from the formal and informal cultural areas, for example, mentors and models, and use it as the exploratory/introductory means of examining the existing culture.

The value of these strategies is the degree to which they inform those responsible for developing the organisation's culture about the culture that already exists. The strategies may provide information but the information that relates to the way the organisation and its members perform is central, and the structures that the performance reveals and the ways of learning exhibited are crucial to the sorts of development strategies proposed but also the manner and timing of the proposals.

No simple “how-to-do-it” manual for the process of enriching organisations’ cultures is possible. Organisational cultures are different. There are organisation-specific features. To enrich the culture of an existing organisation, it is however necessary to understand the culture that already exists within that organisation.

Conclusion
Those concerned with changing the culture of an organisation, for whatever reasons, may have a strong desire to “get on with the task”. Therefore the sort of preliminary work associated with preparing a position statement and gaining an understanding of the existing culture may not be appreciated. “Let’s change this poor/weak/old-fashioned culture and let’s do it quick!”

There is a further word of warning of the dangers linked to this “quick” approach. Thomas (1991) noted as he examined the characteristics of learning in a social context, for example, in organisations, that “learning takes time” (1991, p. 14). Culture change because it involves learning and relearning is unlikely to be achieved over night. Therefore spending some time gaining an understanding of the existing culture will not only provide insights for the enrichment process but also extend the time in which the members of the organisation are focusing attention on their organisation’s culture. The gaining of an appreciation of the organisation’s culture by the cultural enrichers will, if the process is carefully handled, also provide “time” for the organisation members to appreciate and challenge for themselves the nature of the organisation’s culture. This extended time frame, rather than being a handicap for the cultural enrichment process, may in fact be an asset in developing a more appropriate culture and convincing the organisational members that the new enriched culture is preferable to its predecessor.

For those who seek to change, by enrichment for example, the culture of a living social organism like an organisation, establish first before making plans for that enrichment, the structure and practices of the existing culture — in its formal and informal dimensions. Failing to do this is a guaranteed way of ensuring that the culture will not be enriched!

References
Brennan, B. On mentors and models. Manuscript submitted for publication.


This paper reports on research into the professional development of VET teacher practitioners that occurs through the completion of authentic work-based projects. The projects of the participants were undertaken in the designated project based subject/s of a Graduate Diploma program. This research analyses and documents these projects for the purpose of identifying and negotiating a future RPL pathway. Getting due recognition for work-based projects is the right of all learners within the VET sector. However, most successful for gaining credit and RPL into university based programs are pre-arranged credit pathways that are negotiated and agreed to by the stakeholders.

This paper reports on a research study that was undertaken collaboratively with VET staff across a dual sector university. The study involved a cohort of 15 VET practitioners who negotiated authentic work-based projects as part of both their individualised work plans and also as part of their professional development plans. Each participant was enrolled in the project subject/s in a Graduate Diploma program. Each received academic credit for one or two subjects based on their completed work. Participants were initially presented with a basic curriculum framework. However, participants were encouraged to deviate from this in order to develop variations that were more aligned with the specific requirements of their projects. The assessment format involved writing up a project report, compiling a portfolio of work-related artefacts, and doing a brief presentation.

Authentic work-based projects that are recognised within a Graduate Diploma offer teachers a means to complete relevant work tasks, develop professionally and participate in higher education. The projects reported in this study have importance in both an educational and in an industrial sense. In Victoria, the TAFE Teachers industrial agreement has provision for teachers to access and progress to two further industrial classifications (and increments) on the basis of completing an academic educational qualification. Therefore, when teachers complete the Graduate Diploma, if this is their first university based educational qualification, they are eligible to apply to move onto the higher increments as specified in their award.

Selected Review of Literature on Learning Through Authentic Work-based Projects

Project-based learning (PBL) has become very popular in enterprise based training and work-based learning. Poell et al. (1998) have described the processes of solving work problems through learning projects. From their empirical studies of learning
projects these authors have developed a three-dimensional model that can be used to categorise and differentiate between four types of learning projects. Located at the centre of their model is “a liberal learning project”. These projects are designed and initiated by the student based on what they think is necessary to deal with work-related problems.

The second type of project is where the trainers and managers in an organisation identify and design the project for the participant. In short, the parameters of the project are determined for the learners (by others). The third type of project is referred to as a horizontal learning project. With this type, the learner/worker acts collaboratively and in the interests of their colleagues to systematically tackle work-related problems. The fourth type is the external learning project. This refers to learning through a project that goes across a profession. Under this design the learners who contribute to the project can be outside of any particular organisation. Such projects address the learning that occurs across a profession, through a professional organisation, continuing professional development and/or formal education and experiential learning.

This three-dimensional model assists in amongst other things understanding and identifying the influence of managerial prerogative and the degrees to which students are autonomous and initiate their own projects. It also signifies the relationship between their endeavours with their project to their colleagues, their managers, the organisation and their profession.

In the early 1990s, there was a push to expand the provision of VET beyond campus-based delivery and include on-the-job training in actual workplaces. As workplaces changed and restructured, there was a need to provide skills training and upgrading to an existing workforce. With this push came an argument for work-based learning (WBL). However it has been found that rather than training to provide access to credentials, it is considered more powerful to align training to programs that directly involve organisational and workplace change (Sefton, Deakin, & Waterhouse, 1994; Sefton, Cooney, & Waterhouse, 1995; Virgona et al., 1998).

Worker/learners working alongside and in conjunction with creative educators in work-based programs have achieved impressive results through authentic and innovative projects, (Sefton et al., 1994; Deakin, 1995; Virgona et al., 1998). It is generally acknowledged that people learn to do their work through a mixture of approaches. The three streams most often cited as the way that people develop their work-related learning are, structured off-the-job learning, structured on-the-job learning and also unstructured on-the-job learning from activities and experiences (Billett, 2001; Henry et al., 2001). Amongst the on-the-job experiences are the development opportunities that occur through engaging with routine and non-routine situations and activities (Billett, 2001). Amongst these are work-based projects.

Methodology

The researcher is also the lecturer and coordinator of these project based subjects in the Graduate Diploma. For the researcher, the study explores the two themes offered by Hamilton and Pinnegar (1998), namely “the reconceptualisation of teaching practice” and “self study within teacher education”.

Reason (2001) has explored the idea of first, second and third person inquiry. Under this arrangement, first person inquiry involves personal considerations and the learning of the researcher. Second person research is the immediate group that is involved in the inquiry. This focuses upon what was learned by the group involved and it has a social or public dimension. Third person research has two aspects. Initially it is the meta-concerns about the research process itself. The other aspect of third person research is that these discussions may have ramifications for a
wider audience than those interested in a specific research project such as a professional group.

Kemmis and McTaggart (2003) describe one form of collaborative action research (CAR) where university based researchers with academic expertise in a subject area and in doing research collaborate with teacher practitioners. This form of CAR brings together the academic expertise and the potential for access to the resources of the university with the cutting edge of actual practice.

There are three major sources of data for this research. The first source of data was obtained through discussions with the practitioners and their written proposals. Their proposals included what they intended doing, why it was important, how they intend to do their project, who was involved and their expected timelines. A second source of data was the final project reports authored by the VET practitioners together with analysis of the portfolios of work-related artefacts. The third source of data was the accounts constructed by the coordinator following a series of three or four interviews (progress and consultative meetings) that occurred throughout the period of enrolment (one or two semesters). Extensive notes were made both during and after these meetings. These accounts captured the emergent nature of the VET practitioners' projects.

The Format of the Outcomes of the Work-based Projects

It was agreed from the outset that the work-based projects that were undertaken by these participants were to culminate in three final components. The work-based project was to have outcomes that were useful in the context of the practitioners' actual workplace. This took the form of a portfolio of artefacts. The form and contents of the portfolio was left open to individual participants to negotiate. These variously took the form of a collection or folder of human resource materials, teaching and learning materials; texts for use within educational programs, and even, a marketing strategy.

The second component for final assessment was to be some kind of document, or report, that discussed in educational terms the processes behind the project, the participant's research and their learning. This text was where participants were expected to explore their own learning through the processes of reflective practice, (Moon, 2000). The third component was a presentation where they could showcase their portfolio and findings to others. Like the second component this encouraged participants to think through issues of representation around what they were doing and what they were finding. Moon (2000) argues that it is through this representation both written and oral that the reflection process is further intensified resulting the possibility for even deeper and more significant learning.

Documenting Each Project

Table 1 provides a brief description of the participants work role, a brief description of their project and the amount of credit they received in the Graduate Diploma.

Analysis of the Projects

Five variations emerged on the initial framework. These are described below.

Variation 1: Based on an Internal Professional Development Program

Participant (M-09) undertook their project as a component of a strategic internal professional development program that is offered annually by the university to develop and encourage “innovation and entrepreneurship”. This resulted in negotiations with the PD providers to ensure others who do this internal PD program and complete the associated work-based extension project can gain an automatic credit for one subject within the GDIET. The option remains to extend this credit in some cases from one to two subjects on
<table>
<thead>
<tr>
<th>ID #</th>
<th>TEACHING AREA</th>
<th>BRIEF PROJECT DESCRIPTION</th>
<th>GDIE CREDIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-01</td>
<td>Business</td>
<td>Customised curriculum, teaching, learning and assessment materials on Finance for overseas client group — taught in Singapore</td>
<td>2 subjects</td>
</tr>
<tr>
<td>F-02</td>
<td>Health and Biosciences</td>
<td>Development of a companion text substituting Australian terms for nursing and health sciences (to accompany textbooks sourced from the USA)</td>
<td>2 subjects</td>
</tr>
<tr>
<td>F-03</td>
<td>Industrial design</td>
<td>Development of teaching, learning and assessment resources for a subject on platonic forms</td>
<td>1 subject</td>
</tr>
<tr>
<td>F-04</td>
<td>Business — IT</td>
<td>Development of teaching, learning and assessment resources for a subject called Organisational development in IT</td>
<td>2 subjects</td>
</tr>
<tr>
<td>M-05</td>
<td>Electrical/Electronics</td>
<td>Redevelopment and rewrite of Module NE 31 Workbook and resources</td>
<td>1 subject</td>
</tr>
<tr>
<td>M-06</td>
<td>Electrical/Electronics</td>
<td>Development of a pre-course program for the Subject 4 for Sergeants course in Electrical and Electronics</td>
<td>2 subjects</td>
</tr>
<tr>
<td>M-07</td>
<td>Chemistry</td>
<td>Development and teaching of a program on food chemistry to ADF personnel</td>
<td>2 subjects</td>
</tr>
<tr>
<td>M-08</td>
<td>Telecommunications</td>
<td>Development of a unit on Communications systems including program documentation, teaching, learning and assessment resources</td>
<td>1 subject</td>
</tr>
<tr>
<td>M-09</td>
<td>Fashion &amp; Textiles</td>
<td>Marketing plan for the dept’s teaching programs and services to the TCF &amp; L Industry</td>
<td>1 subject</td>
</tr>
<tr>
<td>M-10</td>
<td>Electrical/Electronics</td>
<td>Research into adult apprentices and trainees, their use of computers and computer skills</td>
<td>2 subjects</td>
</tr>
<tr>
<td>M-11</td>
<td>Aerospace</td>
<td>Development of program related documentation including a curriculum design project that identified a teaching and learning pathway</td>
<td>2 subjects</td>
</tr>
<tr>
<td>F-12</td>
<td>Business — IT</td>
<td>Development of teaching, learning and assessment resources for two subjects in Certificate IV in IT</td>
<td>2 subjects</td>
</tr>
<tr>
<td>M-13</td>
<td>Health and Biosciences</td>
<td>Mentoring program for online teaching and learning in Myotherapy</td>
<td>2 subjects</td>
</tr>
<tr>
<td>M-14 &amp; M-15</td>
<td>Automotive Mechanics</td>
<td>Exploration and analysis of software for the development of teacher/students workbooks and resources</td>
<td>1 subject</td>
</tr>
</tbody>
</table>

Presentation and assessment of the actual project completed. This decision for one or two subjects of credit needs to be made on the basis of a work value judgement. Similarly, the project undertaken by participant (M-13) was an extension of another internal professional development program for using the Distributed
Learning System (DLS). This internal program consists of four modules of which the first two develop basic understandings for using Blackboard for student interaction. Modules 3 and 4 involve program participants developing an actual learning site using Blackboard. This is considered to be a work-based learning project. This participant’s extension project involved mentoring other staff in the use of the DLS and online teaching learning. This work was written up and the appropriate credit provided. A recommendation has been made to extend this credit principle to other VET staff completing Learnscope projects in 2003. Again this would involve judgements being made on the scope and depth of each project on a case-by-case basis.

**Variation 2: A Research Project**
Participant (M-10) teaches Electrical and Electronics. He designed a small-scale questionnaire based research study. The study was guided by a research question to determine the level of use and the skill levels a group of trade-based apprentices had with computers. This participant designed the questionnaire, collected data, analysed the data, wrote up a report with graphical representation of the data, discussed the analysis and developed findings and conclusions. He also presented his report to others in his department.

**Variation 3: An Evaluation Project**
Participants (M-14 and M-15) worked collaboratively and conducted an evaluation project. They developed selection criteria for software used for web-based publishing and their suitability to write up student workbooks. They organised site visits to organisations and spoke with people who were already using the different softwares. They tested selected software and made purchasing recommendations to their department on which was most appropriate for their needs.

**Variation 4: Design and Development of Teaching, Learning and Assessment Materials**
Of the 15 participants in the study, eight participants chose projects that fell into this category. For three of these eight, the decisions to do this kind of project was based on a belief that a subject that they were directly involved with as a teacher should be improved and developed more thoughtfully. Two others were associated with the development of new materials because of the implementation of new training packages into their teaching areas. One of these, in Aerospace, involved the identification of “a learning pathway/curriculum”. This represents an innovative approach to the implementation of training packages. The final three projects in this area were associated with the development of customised programs for external clients. One of which was for a cohort of students located offshore and the two other programs for Australian Defence Force personnel. All eight projects were focused on developing what Turner-Bisset (2001) has called “pedagogical content knowledge”, which is described as the unique professional understanding of teachers.

**Variation 5: Is a Hybrid Mix of a Number of the Above Basic Designs**
The project by participant (F-02) is an example of a hybrid model. On paper this project appears to involve the development of a companion text to accompany nursing textbooks sourced from the USA. The texts from the USA use different terminology to the usage in Australian workplaces. The way that this participant undertook this project meant that the selections and complex decisions about terminologies occurred through highly consultative processes, using focus groups and individual and group interviews. Interestingly, it became necessary to restrict this participant’s work and contain the project to a double subject credit. This gives rise to the finding that there is a balance needed
between the inquiry process, the production of the project portfolio and the writing up of the reports. When any one of these components, expands during the course of the project to become larger than expected then flexibility and judgement need to be shown to readjust the balance. This ensures that the participants receive a fair and equitable equivalence for their project by the number of subjects for which they receive credit.

Participant (M-10) in his development of a student workbook in the area of electrical and electronics diagrams and codes also used a hybrid approach. This participant designed and conducted an evaluation project, using questionnaires and group discussions. The responses to his investigations identified the strengths and weaknesses of the existing materials and informed him on where his efforts needed to be concentrated with the redevelopment. Changing contextual issues made this project highly emergent.

Interestingly, six of the 15 participants enrolled and completed a negotiated major workplace project (that is equivalent to two subjects). Four participants enrolled into the negotiated minor workplace project that is equivalent to one subject. Four participants initially enrolled into the minor workplace project and as their project emerged it also grew in magnitude. These participants took up the option to extend their enrolment by another subject and therefore gained a two-subject credit for their project. Taking this logic further, it would theoretically become possible to grow a project and using the subject options already available in this program, a participant could gain credit that is equivalent to a three or four subject sequence.

Most projects were being undertaken as the final subjects associated required by the participants to complete the Graduate Diploma. Accordingly, the participants were able to bring considerable educational knowledge, understanding and experience to bear on their projects. The educational discussions that were developed to accompany and explain the project portfolios demonstrated high levels of educational expertise. The sophistication of the educational component contributed to the assessment grade that was awarded for each project. For ethical reasons the grades are not discussed here, however two further ways of analysing the projects other than by the use of grades are (1) by the type of project according to the schema developed by Poell et al. (1998), and (2) by their normative quality (Kemmis, 2001).

As described earlier, Poell et al. (1998) has identified four ideal types of project. The first is a liberal or student initiated project, (designated here as Type A). The second is a top-down initiated and directed project, (Type B), the third type is a collegial project (Type C) and Type D is a project focused on a broader professional issue. In this study, two projects were considered to be Type A; none were solely Type B; three were Type C; none were Type D; eight were considered to be a hybrid of Types A, B and C; and two others were a blend of Types C and D.

A different analytical approach involves consideration of the normative quality of the projects. Here the focus and outcomes of these projects are considered in terms of the Habermasian notion of three knowledge-constitutive interests (Kemmis, 2001). This is an analysis of the interests that guide the quest for knowledge. Kemmis describes these succinctly as technical, practical and critical. The technical is instrumental or a means-end interest that is focused on getting things done effectively. A practical interest is more than technical and instead is about making wise and prudent decisions in practical situations, while the critical (and emancipatory) interest is about freeing people from determinations of habit, custom, illusion which can otherwise frame and constrain social and educational practice (p. 92).

The 14 work-based projects of the 15 VET practitioners can be analysed with
regard to these three knowledge-constitutive interests. Using the indications of a scale of 1 to 5, with 1 representing the technical instrumental interests, 3 the practical and 5 the critical, all of the 14 projects undertaken in this study fit between 1 and 4. All 14 projects involved developing functional improvement. Four of the 14 did not go beyond the means-end approach to improvement and so were rated as 1 on the scale. Six projects were focused on improvement but also included some aspect of developing understanding for the purpose of developing and informing practice (rated as 2).

The highest rated project rated between 3 and 4. This project collected and analysed data to show a gap between a previously unidentified but perceived student need, to have around the clock access to computers. This research documented the current situation and identified how this could be improved. It was questionnaire based and fell into the higher end of the practical category.

The next three highest rated projects were driven by practical interest for wise and prudent action (rated as 3 on the scale mentioned above). One of these developed a companion text for use in nursing and health science courses. The criteria developed for judging existing texts was founded on critique and the research process used throughout was very inclusive. Another project considered to be pursuing a practical interest was in Aerospace. This also contained implicit critique of existing training packages. But the strength of this project was that it demonstrated an alternative approach for teachers to develop VET curriculum. This approach is more educationally sound than most common practice and clearly relates to the pedagogical content knowledge of the teacher. The third project considered “practical” (rated as a three) involved the development of online teaching and learning. This project involved a questioning of educational goals.

Conclusions
This paper sets out to study authentic work based programs undertaken by VET teachers as a form of professional development and for which they gain academic credit within graduate level studies. This arrangement and recognition has many advantages and appears to provide a win/win return for participants and stakeholders. Further, the documenting of these projects means that a credit pathway can begin to be established that can be used for the RPL of future participants doing authentic work-based projects. However at another level, the process can be contested on the basis of educational idealism. Academic credit for work-based projects can be seen in terms of also being a lost opportunity. This academic recognition can be considered a lost chance for teachers to participate in the reflective and dialogic space provided by higher education. From an idealistic perspective, teachers lose the opportunity to study aspects of their own work and develop much needed critique.

References


Building a Framework for the Collaborative Study of VET Teachers’ Practice

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RMIT University

This paper offers a framework to guide VET teachers who are taking up postgraduate study as practitioner researchers. This framework is intended as a heuristic and pedagogical device that will provide scaffolding to orientate VET practitioner researchers. The framework is a resource. It allows practitioners to locate their investigations within existing bodies of knowledge and research. The intention is to decrease the practitioner’s feelings of alienation with respect to postgraduate research by them being able to find connections between their experience of teaching practice and existing areas of research. The framework provides one possible arrangement of some of the significant aspects of these teachers’ work and their learning. It also provides a place to begin thinking about the work-related learning of VET teacher practitioners.

Methodology
The researcher, who is also the coordinator of the postgraduate research program, is connected to the issues under investigation. These issues are directly related to his practice. Therefore the development of this framework like any project involving significant curriculum development is a form of practitioner research (Zeichner & Noffke, 2001; Brown & Waterhouse, 2002; Brown, 2003). This particular inquiry contributes to considerations about two larger themes, which have been described by Hamilton and Pinnegar (1998), as “self study within teacher education” and, “the reconceptualisation of teaching practice”.

Four different sources of data contribute to this framework (though only three are discussed in this paper). The first draws on a selected review of published approaches to understanding VET teachers’ work. The second is derived from ongoing discussions with five university-based lecturers that are supervising VET practitioner researchers in their postgraduate studies. The third is from the reflective writings of the researcher who is also a supervisor and program coordinator for a higher degrees by research program. The fourth data source involves an analysis of 45 student initiated projects in postgraduate research designed and undertaken by VET teachers in a Victorian-based university over the past 3 years. This is the subject of further ongoing analysis and due to limitations of space in this paper it is not presented or discussed here.

The framework is a work in progress and has emerged from one cycle of the action research, but remains untried in its role of guiding studies and projects within postgraduate research. Therefore this needs to become the subject of the next cycle of the research. The framework is presented at the beginning of this second cycle in the way that Schmuck (1998) has called proactive action research.
The Framework: Learning is at the Centre

Learning is the purpose and intended outcome of teachers' work. It is also one of the main purposes for undertaking postgraduate research. Therefore at the centre of this framework sits learning and in this context, this is the notion of work-related learning. Work-related learning (WRL) takes on three forms. The first is very general as it relates to a field of activity and study. The second is more specific as it applies to a group of worker/learners such as VET teachers. The third is at the situational level of a particular group of worker/learners in a particular organisation or location, for example, literacy teachers working with youth at risk at the Werribee Institute of TAFE. Therefore, for VET practitioners, work-related learning is:

- the field in which they work
- what they teach and support others to learn
- the learning that they do in their roles as VET teachers.

It has become common for learning to be aligned with different forms of knowledge. In the VET sector this is expressed as underpinning knowledge, skills and attitudes, or simply KSAs. Billett (2001, p. 55) describes these more accurately as propositional knowledge (concepts, facts and propositions); procedural knowledge (means of securing goals); and dispositions (values, attitudes and preferences). These categories can be used to organise or specify the knowledge associated with work-related learning. (The paper will return to discuss knowledge/s in a latter section).

Curriculum/Pedagogy

Curriculum is generally considered to be a plan for the teaching and learning. Pedagogy on the other hand is taken to be about teaching and instruction but can be expanded to refer to all matters relating to teaching and learning. Smyth et al. (2000) provide definitions and discussions on curriculum and pedagogy and explain that at their most abstract level these terms converge. Hence they suggest the term curriculum/pedagogy. Smyth et al. (2000) argue that curriculum/pedagogy provides the specification for teachers' work. This being the case, curriculum/pedagogy are central concepts in determining the scope and focus of teachers' work and learning (McCormack & Murphy, 2000). Accordingly, these two concepts are also located near the centre of the framework.

McCormack and Murphy (2000) explain that curriculum can take at least three forms. These are, the curriculum as specified, enacted and experienced. The first two of these are directly related to the work of teachers while the third remains significant but centred on learners. Stevenson (1990) explains that curriculum development includes both design and implementation. Teachers develop and enact curriculum as part of their day-to-day work practices.

With respect to Australian VET, Stevenson’s definition leads to a simple two-staged model of curriculum development as design and implementation. Significantly, this reflects the division of labour that occurs within the VET curriculum development process. The curriculum development process within VET separates those that plan curriculum from those that enact it. VET is a sector that is in part characterised by the requirements and interests of external stakeholders. Often it is these interests that are most influential in the initial planning and designing of curriculum. Except in a handful of cases, teachers who are the doers or enactors and implementers of curriculum are excluded from the planning and the design with respect to determinations about outcomes. Learners too are excluded and instead have their interests determined for them by others. Unfortunately, it has become a radical political position to suggest that learner/workers and teachers need to have...
more of a role in the determinations about what gets taught, to who, when, where and how with respect to work and learning.

The Knowledge Bases for Teaching
Despite these shortcomings, with the exclusion of educators from these important aspects of education practice, the curriculum/pedagogy work of VET teachers in interpreting, developing and enacting curriculum still requires a great deal of specialist knowledge. Within VET curriculum development, teachers are involved in making complex interpretations. Interpretations need to be made of publicly stated outcomes as to what these actually mean in a range of workplaces. Next, teachers need to design and develop the means of engaging with learners. This involves an understanding of, teaching, learning, assessment, and knowledge of learners, educational contexts and educational purposes. Shulman (1986) has done much in the area for teachers’ knowledge and his work on identifying and explaining seven categories of knowledge provides a useful foundation. These knowledge/s also need to be recognised in the framework.

Recent thinking from Turner-Bisset (2001) builds on Shulman and suggests that the main knowledge base for teaching is “pedagogical content knowledge”. This represents “the blending of content and pedagogy into an understanding of how particular topics, problems or issues are organised, represented and adapted to the diverse interests and abilities of learners, and presented for instruction” (p. 13). Turner-Bisset (2001) differentiates between 12 different knowledge bases. Interestingly eleven of these fit directly into the categories suggested by Shulman (see Table 1).

Turner-Bisset concludes that pedagogical-content knowledge is the most significant knowledge base for expert teaching and for her this category is all encompassing. The eleven other forms of knowledge she identifies contribute to understanding and

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<td>Comparison of Shulman’s (1986) and Turner-Bisset’s (2001) Categories of Knowledge Bases</td>
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<th>SHULMAN’S CATEGORIES OF KNOWLEDGE BASES</th>
<th>TURNER-BISSET’S KNOWLEDGE BASES</th>
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<td>A. Content knowledge (Subject matter knowledge)</td>
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<td>3. Beliefs about the subject</td>
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<td>B. General pedagogical knowledge (General classroom management and organisation)</td>
<td>4. General pedagogical knowledge</td>
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<td>5. Knowledge models of teaching</td>
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<td>C. Curriculum knowledge (Grasp of materials and programs that serve as ‘tools of trade’)</td>
<td>6. Curriculum knowledge</td>
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<td>D. Pedagogical content knowledge (The unique professional understanding of teachers)</td>
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<td>E. Knowledge of learners and their characteristics</td>
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<td>F. Knowledge of educational contexts</td>
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<td>G. Knowledge of educational ends, purposes and values</td>
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<td>12. Knowledge of self</td>
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developing this main knowledge base. She also explains that pedagogical-content knowledge remains greater than the sum of the other eleven knowledge bases.

**VET Teachers’ Work**

In a recent research project into the changing nature of VET practitioners’ work, Chappell and Johnson (2003) interviewed 28 practitioners who worked across a range of different VET providers. In this research, an analysis was made of the issues and talk of the practitioners with a view to finding out how their practice and their sense of identity might be changing. The transcriptions from the 28 interviews were analysed and identified five themes. These were, talk of change, commercialisation, administrative work, educational identity and industry identity. The transcript data was also used to develop brief career biographies for each of the practitioners in the study. These biographies were used to provide information on the points of commonality and difference amongst the practitioners.

Chappell and Johnson (2003) found that VET teachers working in the competitive and marketised VET system have seen their job roles expand and intensify. While teaching and learning remain central activities, other tasks such as assessment, customising curriculum, marketing, promotion, record keeping, audit requirements and reporting all provide increased demands upon teachers. Interestingly, some of these are reflected in the range of competencies described in the latest drafts of the Training and Assessment (TAA) Training package.

Billett is another who has specifically considered what competence means when applied to the work of VET practitioners. Billett (2001b) describes three levels for understanding and analysing work practice. He lists these as the sociohistorical, the sociocultural and the situational. In considering competence with respect to VET educators work, the first level of the sociohistorical is of limited specific use. It is the other two levels of the sociocultural and situational levels that are more important when considering in situ application. The sociocultural analysis refers to deriving understanding of work practice at the level of the industry or occupation. Billett explains that it is the occupational level that is most often used to identify the contents for educational courses. But he warns that this level of analysis provides an idealised and contested account of practice. In contrast, it is in the analysis at the situational level where the specific (situational) requirements of authentic practice are apparent.

In considering context, Billett explains that there are six factors that distinguish the education work of the VET practitioner. He states that in VET, the education has a specific vocational focus; the teaching is directed at cohorts of adolescents and adults; there is a need to balance the demands of powerful external sources of intents and contexts; the kinds of vocational courses that are taught; the broad range of activities expected of vocational educators; and assessment involves comparison against actual work practice in a field. It is in this context that VET educators form their significant work identity. This identity has been found to involve a combination of being both a vocational and an educational practitioner, (Billett, 2001; Chappell & Johnson, 2003). Billett argues that activities and interdependencies can be used for describing the requirements of work practice. He subdivides each of these further when he identifies five different subcategories of activities and seven different forms of interdependencies for understanding work practice. The five different forms of activities are qualified by degree around, routine-ness, discretion, complexity, multiplicity, and accessibility of knowledge. While the seven forms of interdependencies are, working with others, engagement with work practices, status of employment, values, and access to participation, homogeneity, artefacts and tools.
Significantly, goal directed activities and the interdependences (interactions with others and artefacts) mean different things at each of the different levels of analysis. Billett shows the differences in analytical specificity between analysis at the sociocultural and the situational levels. Interestingly, he uses the work of VET teachers as the example to demonstrate his point. Billett contrasts what and how tasks might be described under each of the subcategories at both the sociocultural and situational levels of analysis. It is suggested that this work may provide a starting point for consideration by new VET practitioner researchers. Clearly the framework under construction needs to represent teachers’ work and their practices.

**Teachers’ Lives and their Values**
Under the sociocultural approach to learning, acknowledgment is made that learning is a social activity. In fact, according to Vygotsky learning is interpersonal before it becomes intrapersonal (Billett, 1997). It therefore follows that the life history, experience and social interactions of learners whether they be teachers or other worker/learners will be significant to what they learn, how they learn and why. Learning is related to the interests, attitudes, values, and feelings of the learner. Dispositions are defined as interest, attitude, and the values associated with a way of life. An activity or knowledge must be valued or of enough interest to be considered worth learning and it is here that dispositions are important. It is also in this way that dispositions are said to be the tendency of the individual to put their capabilities into action.

Dispositions are thought to determine whether individuals value a particular outcome enough that they are willing to participate in the effortful activity required to secure the requisite knowledge (Billett, 1997). Hence dispositions are the means of recognising the value-laden nature of thinking and acting. Billett refers to Nunnaly’s work (1976, p. 7) which proposes three categories of dispositions and proposes their likely source. Interests, that is, the preference for a particular activity is considered to have its source in personal histories. Attitudes are considered to be positive and negative feelings are likely to be a product of personal history. Values in the form of life goals are shaped by personal history, while values as a way of life, are thought to be shaped by a particular social environment.

Billett explains the interrelationship between “the press” of the external and internal environments. Primary amongst the external environment are the values and characteristics of the clients; while amongst the internal environment are the preferences of managers and role models. These have a direct impact upon both the culture of practice and the individual’s life history. The individual’s experiences and life history formulates their dispositions that can feed back in an indirect way to the culture of practice.

**Discourses**
Contextualising conceptions of VET teachers’ work and learning are dominant and competing discourses. Discourses are value laden and political. They also provide ways of thinking and speaking about work and learning. Chappell and Johnson (2003) identified two dominant and competing discourses amongst VET teachers though many others also exist and influence the work of teachers. The first was prominent amongst the more experienced practitioners within public institutions. These teachers were more likely to view VET and education generally as a public good. They were also more likely to be interested in issues of social justice, access and equity. The second discourse identified by Chappell and Johnson (2003) was around education as a business and where learning and knowledge are considered commodities. Adherents to this discourse were more likely to work within private providers. These practitioners saw teaching and learning in terms of
adding value and they considered learners to be clients.

**Teachers’ Work-related Learning**

Figure 1 illustrates the interrelationship between various significant aspects of teachers’ work, their lives and their practice. It begins to identify areas of teachers’ work-related learning such as knowledges of teaching that the newer practitioner researchers can relate to and begin to consider and investigate.

In summary, at the centre of the framework is learning. This means that learners, orientations to learning and learning theories are highly significant. In the framework learning is surrounded by curriculum and pedagogy. These are major work activities for teachers, and the central features of teaching practice. Orientations and approaches to curriculum, curriculum development, pedagogy and learning are important aspects of teachers’ work and learning. These make up the inner focus of the framework. On the next layer are the notions of teachers’ work, teachers’ lives, teachers’ knowledge and teachers’ values. All of these are large areas of study in their own right yet even together these areas form only part of what contributes to understanding and developing the work and learning of teacher practitioners. The framework acknowledges that surrounding all the components discussed so far are the influence of dominant and competing discourses.

**Researching the Work-related Learning of Teachers**

Practitioner research is the methodology that is suggested for these inquiries. This is a multi-modal approach to research that is often based on the group processes and approaches of action learning/action research (Zeichner & Noffke, 2001; Brown & Waterhouse, 2002; Brown, 2003). Importantly, this is an approach to research that acknowledges, values and builds upon what practitioners already know.

**Conclusion**

Therefore, it is suggested that the work-related learning of teachers is a complex interaction that occurs between teachers’ work, their knowledge, their lives and their values. Furthermore understandings of these areas impact upon the curriculum and pedagogical practices of teachers as they support worker/learners in their engagement with learning for and about work. A framework is provided that provides a diagrammatic representation of the interrelationship of various aspects of teachers’ work, lives and learning. Practitioner research is a methodology that can be used to investigate teaching practice, (Zeichner & Noffke, 2001; Kemmis & McTaggart, 2003). This is a methodology that practitioners come to with a sense that what they already know and do is recognised and valued.

**References**


First Identify the Problem Type:  
The Cognitive Processes Used in Solving Practical Legal Problems

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Queensland University of Technology

This paper tests the strength of problem categorisation as a means of identifying the cognitive processes that problem-solvers use to solve particular types of problems. The paper uses problem type theories from the cognitive psychology, instructional design and creativity literatures to categorise practical legal problems in the nature of lawyer and client interviews in family law matters. The categories used relate to the problem source, the problem structure, the solution process, and to a combination of structure, domain specificity and complexity. The categorisations are used to develop hypotheses as to the types of cognitive processes that legal practitioners will employ in solving those problems. Those hypotheses are tested in three exploratory case studies of experienced legal practitioners engaged in simulated first interviews in family law matters.

This paper relates to the author's ongoing investigation of the cognitive processes and knowledge structures that legal practitioners use in solving practical legal problems. The aim of the investigation is to develop strategies for improving the vocational education of lawyers based on a fuller understanding of the cognitive aspects of legal problem-solving.

Investigation Focus
The author is investigating lawyer problem-solving in the context of first interviews in family law matters. The legal interviewing literature conceptualises that type of interview as involving the lawyer in (a) understanding the client's concerns, needs and wants; (b) identifying the client's options in respect of each aspect of the matter; and (c) identifying the client's preferred options and the means of carrying them out (Chay & Smith, 1996). These aspects of this type of interviewing correspond to Anderson's (1995) three essential features of a problem-solving episode: (a) is goal directed, (b) involves sub-goal decomposition, and (c) involves operator application.

Problem Types as an Indicator of Problem-solving Processes
The cognitive psychology, instructional design and creativity studies literatures provide several bases for categorising problems, which include: problem source (Dillon, 1982); problem structure (Reitman, 1965); solution process (Greene, 1978); and a combination of structure, domain specificity and complexity (Jonassen, 2000). These problem type theories explicitly or implicitly link particular problem categories to the cognitive processes that are used in solving that problem type. Middleton (1998) used various problem type theories as a framework for investigating the characteristics of design problems. Middleton (1998)
however found that the classifications provided by those theories over simplified the characteristics of that type of problem and in particular did not adequately accommodate the figural complexity of the problems and creativity required to solve them. This paper tests the strength of using problem types as an indicator of the cognitive processes used in problem-solving in the form of first client interviews in family law (hereafter called "first interview problems").

First this paper uses the legal interviewing literature to identify the general characteristics of first interview problems. The paper then uses those characteristics as the basis for categorising first interview problems according to four problem type theories. The paper then identifies the cognitive processes that those theories indicate will be used in solving first interview problems. Finally, those findings are compared with preliminary findings from three exploratory case studies of experienced legal practitioners solving simulated first interview problems.

Features of Family Law Problems

The legal interviewing literature suggests that first interview problems have these features (Hunt, 1962; Binder & Price, 1977; Redmount, 1979; Sherr, 1986; American Bar Association, 1992; Chay & Smith, 1996):

1. The client's problem may involve various non-legal aspects, such as financial, relational, and psychological aspects, which are outside the lawyer's professional expertise (and problem-solving abilities) — "... a 'problem' cannot be defined solely in terms of legal constructs: It must take into account a wide range of fact-specific variables as well as the client’s goals, attitudes, and feelings" (American Bar Association, 1992, p. 141).

2. The lawyer's knowledge of all the attributes of a problem is never likely to be complete. One reason for this is that the client will not necessarily disclose all the aspects of the problem (as known to the client) to the lawyer. This can be due to reasons such as the client not being aware that something is relevant to the problem or the client choosing not to reveal the matter to the lawyer.

3. There will not always be a clear legal solution to the client's problem. Sometimes there will not be any legal solution to a client's problem. Sometimes there will be a legal solution but the client will not be able to access it due to cost or other factors. In many instances a solution will depend on decisions by third parties such as judges or juries.

4. The problem that the client presents will only be one person's view and interpretation of a situation that may involve several other persons who all have differing and conflicting views and interpretations of the situation.

5. The lawyer's view and interpretation of the problem is likely to change over time as more information becomes available.

6. The problems that clients present are usually complex in that they involve multiple issues, multiple legal principles, and multiple possible solution paths.

7. The problems that clients present are messy real-life practical problems rather than the abstracted and sanitised problems usually presented in academic contexts (Sternberg et al., 2000) and laboratory experiments (Simon, 1973).

Problem Types

The four problem type theories used in this investigation are Dillon's (1982) theory that categorises problems as existent, emergent, or potential; Reitman's (1965) theory that conceives of a continuum of problem definition from the ill-defined to the well-defined; Greeno's (1978) theory that categories problems as problems of inducing structure, transformation problems, and arrangement problems; and
Jonassen’s (2000) theory which places problems in 11 categories according to the “different cognitive, affective and conative processes” that the problems engage in the problem-solver (Jonassen, 2000, p. 63).

**Dillon’s (1982) Taxonomy**

Dillon’s (1982) taxonomy comes from the problem finding literature that separates the problem finding process, on the one hand, and the problem-solving process, on the other. In Dillon’s (1982) conception, problem-solving does not begin until a clearly posed problem has been found. In contrast, most of the focus of the cognitive psychology literature is the problem-solving process rather than the problem finding process. Some of this is because much of the cognitive research uses what Dillon (1982) describes as “given” problems (e.g., Newell & Simon, 1972). Other cognitive researchers conceive of identifying the problem as a part of the process of solving the problem (e.g., Simon, 1973). Cognitive research involving complex problems in knowledge rich domains does however theorise as to the importance of problem representation (which can in some respects be seen as analogous to problem finding) in problem-solving (e.g., Chi, Glaser, & Rees, 1982). Irrespective of the view one takes of the problem finding/problem-solving distinction, Dillon’s (1982) taxonomy is useful because of its focus on problem source.

Dillon identified three problem types — existent, emergent, and potential — each of which is linked to psychological activity (Dillon, 1982, pp. 103–104):

- An existent problem has fully developed being and appearance in the phenomenological field of events facing the observer. In psychological terms, the problem is evident and the observer perceives, recognises, identifies it. At a second less developed level an emergent problem exists which is implicit rather than evident. After probing the data — nosing about in the field of events, so to speak — the observer discovers of “finds” it. At a still less developed level, a potential problem exists. No problem in an ontological sense exists qua problem, but constituent elements are present, striking the observer as an inchoate problem. By combining these and other elements in some way, the observer creates, produces or invents a problem.

The legal interviewing literature indicates that first interview problems are in existent and emergent type categories. Sometimes the client will present a situation that the lawyer immediately recognises as a solvable legal problem. In most instances however the lawyer will only recognise a problem after a considerable amount of information gathering. The legal interviewing literature assumes that most of the activity in a legal interview relates to searching for problems, their attributes, and their solutions.

The cognitive processes that Dillon (1982) associates with existent and emergent problems are problem recognition and search for problem attributes.

**Reitman’s (1965) Continuum**

Reitman’s (1965) continuum is based on problem definition or what Simon (1973) refers to as problem structure. Reitman (1965) suggests that all problems can be positioned somewhere along a continuum which runs from “well-defined formal problems on the one hand to such ill-defined problems as composing a fugue” (Reitman, 1965, p. 151).

In his seminal work on the nature of problems Reitman (1965) links the concept of “ill-defined” to the existence of ambiguity in “a community of problem solvers” (Reitman, 1965, p. 151):

... to the extent that a problem situation evokes a high level of agreement over a specified community of problem solvers regarding the referents of the attributes in which it is given, the operations that are permitted, and the consequences of those operations, it may be termed unambiguous or well defined with respect to that community. On the other hand, to the extent that a problem evokes a highly
variable set of responses concerning referents of attributes, permissible operations, and their consequences, it may be considered ill defined or ambiguous with respect to that community ... it is the open constraints that are the locus and source of this ambiguity, interindividual variability, and problem ill-definedness.

Thus ambiguity is due to the existence of open constraints — variables that do not have values attached to them (Reitman, 1965).

Problems at the well-defined end of the continuum have well-defined problem states, well-defined intermediate states, and well-defined goal states and criteria for testing solutions. The problem-solver can use powerful problem-solving techniques in the nature of algorithms to solve the problem (Lindsay & Norman, 1972; Simon, 1973). Problems at the ill-defined end of the continuum have ill-defined initial states, goal states or intermediate states. The problem-solver can only use weak problems solving techniques in the nature of heuristics to solve the problem (Lindsay & Norman, 1972; Newell, 1980).

The first interview problems investigated in this paper are positioned more towards the ill-defined end of Reitman’s (1965) continuum than towards well-structured (formal) end. The legal interviewing literature indicates that they will contain numerous open constraints and no group of family lawyers is likely to reach agreement on either the optimal solution or the means of attaining it.

The cognitive processes that are associated with these types of problem are search for problem attributes, moves to close constraints, and use of weak problem-solving methods such as heuristic search, hill climbing, means-ends analysis, and planning (Newell, 1980).

**Greeno’s (1978) Typology**

Greeno (1978) identifies three ideal problem types: (a) problems of inducing structure, (b) problems of transformation, and (c) problems of arrangement. Greeno (1978) suggests that these types do not constitute a hierarchy and that most problems situations will be a mixture of all three types. Greeno’s (1978) criteria for problem categorisation relate to the cognitive processes that problem-solvers use to solve the particular problem (Middleton, 1998).

Greeno (1978, p. 244) describes problems of inducing structure as problems that involve "a process of apprehending the relations present among the problem elements and a process of generating an integrated representation of the pattern". The category of induction problems includes analogy problems such as verbal problems in which a problem-solver must determine the relationships between pairs of terms, and series exploration problems.

The category of transformation problems describes situations in which a problem-solver must use given procedures to change an initial state into a goal state. The Tower of Hanoi problem (Simon, 1975; Anderson, 1993) is a transformation problem. Other transformation problems can involve the application of abstract rules of logic (Newell & Simon, 1972). Transformation problems typically lend themselves to means-ends analysis (Anderson, 1993) as the initial states and goal states are defined.

The category of arrangement problems describes problems in which a problem-solver has to fit given elements together according to some given criteria. The cryptarithmetic problems investigated by Newell and Simon (1972) are examples of arrangement problems.

The legal interviewing literature suggests that first interview problems will mainly consist of inducement type problems and transformation type problems. The inducement problems are those in which the lawyer has to identify relevant problem elements from the information provided by the client and from information stored in the lawyer’s own memory. The lawyer then has to determine
the relations of those elements to each other. For example, the lawyer may have to detect a pattern in a client's financial circumstances that fit the Family Law Act 1975 criteria for an alteration of property interests.

The transformation problems involve the lawyer identifying legal and non-legal rules and procedures to transform some initial state into a goal state. Most of the goal states will be ill-defined, for example "I want the best deal I can get". The cognitive processes that relate to inducement problems and transformation problem in the first interview problem context are search for problem attributes, identification of patterns, and search for operators.

Jonassen's (2000) Typology

Jonassen (2000) distinguished 11 problem types after conducting a cognitive task analysis of several hundred problems. Those problem types are: (a) logical problems, (b) algorithmic problems, (c) story problems, (d) rule-using problems, (e) decision making problems, (f) troubleshooting problems, (g) diagnosis-solution problems, (h) strategic performance problems, (i) case analysis problems, (j) design problems, and (k) dilemma problems.

Jonassen (2000) makes these claims about the typology. First, it is not complete in that an analysis of more problems may reveal new categories. Second, the categories are not mutually exclusive from a cognitive perspective as the same cognitive processes might be needed to solve problems in two or more categories. Third, the typology generally represents a continuum of well-structuredness to ill-structuredness running from category (a) to (k) (cf. Reitman, 1965; Simon, 1973). Fourth, categorisation can be context dependant as similar problems arising in different contexts can exhibit different characteristics. Fifth, categorisation is dependant on the individual problem-solver as different problem-solvers may attribute different characteristics to similar problems. Part of the usefulness of this typology is its attempt to take account of the situational, affective and conative aspects of problem-solving.

The first interview problems investigated in this paper have characteristics of "decision making problems" and "diagnosis-solution problems".

The cognitive processes associated with this category of problem are generating and evaluating options and pattern recognition. Option evaluation may have to include evaluation against some external criteria, which in the case of first interview problems are the relevant laws and rules of procedure.

Hypotheses

The legal interviewing literature suggests that interview problems will involve incomplete or uncertain problem states and goal states, numerous open constraints, and multiple possible solution paths. In many instances the problem will not be given but will have to be found (Dillon, 1982). A synthesis of the problem type literature indicates that the following cognitive processes will be present in first interview problem situations having regard to those characteristics of interview problems: pattern and problem recognition; search for problem attributes; moves to close constraints; option generation and evaluation; identification of operators to transform initial states into goal states. Generally, weak problem-solving methods will be evident.

The Author's Case Studies

The author's ongoing research into lawyer problem-solving involves case studies of experienced lawyers engaged in problem-solving in first interviews and case studies of recent law graduates. Only three of the experienced lawyer case studies are considered for this paper. The case studies use data in the form of transcripts of videos of experienced lawyers interviewing actors playing the role of clients in simulated first interviews in relation to family law problems. The interviews occurred in the
context of those lawyers seeking Queensland Law Society accreditation as family law specialists. The videos were also used to conduct video stimulated recall interviews with each practitioner.

The research uses a positivist type paradigm. The methods used to identify the knowledge structures and cognitive processes that the practitioners use during the problem-solving episodes are an analysis of the accreditation interview transcripts and an analysis of the video stimulated recall interview transcripts. Video stimulated recall is often used as a post-factum means of identifying cognition (King & Tuckwell, 1983; Meade & McMeniman, 1992).

The observations in this paper are based solely on the author’s preliminary analysis of the accreditation interview transcripts. The transcripts disclose the actions (in the form of what the lawyers say to their clients) that the lawyer’s cognition produces: that is, the transcripts disclose cognition in action. That cognition in action includes moves, search and inference (Eckersley, 1988). Examples of moves are problem decomposition, goaling and sub­goaling, and the assignment of values to constraints. Examples of search are requests for more information from the client and observations that particular information is needed from another source.

Comparison of Preliminary Case Study Findings with Hypothesis

The preliminary analysis of the interview transcripts indicates that these cognitive processes are evident from the lawyers’ actions in the interviews: search for problem attributes; problem recognition; moves to close constraints; option generation and evaluation; and identification of operators to transform initial states into goal states. The processes most frequently observed are search for and identification of problem attributes and moves to close constraints. The most frequent type of move used to close constraints is the assignment of a value in the nature of a prediction as to what a court might decide or do if the matter goes before a court.

Less evident is the use of pattern recognition. It is anticipated however that the analysis of the video stimulated recall transcripts will disclose pattern recognition as a common basis for problem identification, attribute identification, and solution identification by the lawyers.

The most common problem-solving strategy evident is problem decomposition (Simon, 1973). Again it is anticipated that a fuller analysis of all the case study data will disclose more information on problem-solving strategies.

These tentative findings indicate that use of problem type theory has considerable value and strength in identifying the cognitive processes used in problem-solving. This now has to be verified through a full analysis of all the case study data and by further research.

References


Synergies Between Indigenous Education Methodology and Eastern Philosophies and their Application for Community Education

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The current educative paradigm pays much "lip service" to the concept of lifelong learning but in reality it only addresses learning for work and even that constricted view does not, in practice, address the whole of one's working life. For many people the only vehicle for lifelong learning (i.e., post-compulsory education) that is not necessarily related to the workplace, other than the university sector which has it's own prejudices in this area, is the community education sector. If we believe that learning is at the core of human development and in the transformative nature of education, then it should not be based on a "one size fits all" paradigm. Education should "speak" to the whole person and focus on concepts not content, questions and not answers, interrelatedness and not reductionist abstract fragmentation. The synergies between eastern philosophies and Indigenous education methodologies can provide a useful map for community education which is not reliant on the next government policy document but instead is rooted in genuine learning in communion. This paper will briefly explore the community-orientated learning paradigms of eastern philosophies and Indigenous education methodologies, map the synergies and discuss the application of these synergies to lifelong learning through community education in the 21st Century.

Western society is becoming increasingly fragmented. The reasons for this fragmentation are many, and they can be traced back to the mechanistic/scientific paradigm which the west has inhabited for the last 400 years. Any paradigm is a human construct built up by decades, often generations of actions, decisions and experiences all shaped by the dominant culture. So the aggressive colonial history of the industrialised nations in the last 3 centuries, and has ensured that the "technical" solution is perceived to be the answer to all our issues and the "what we can do we must do" attitude has brought us to where we are. Unfortunately where we are means there is an increasing gap between rich and poor, and an increasing number of people forced to take contract and casual work reducing the feeling of job security and making it increasingly more difficult to access credit, financing for homes etcetera. It also means there is increasing despair leading to crime, drug use, meaningless sex and violence both domestic and out on the street ultimately leading to the reduction in social capital and the breakdown of community. Finally this paradigm is devouring our environment through degradation of soil and water systems, poisoning of the land for generations and damaging our atmosphere-possibly permanently. Yet our elected politicians will not enact measures to counter these actions because national economic and industrial interests are too tied up in the structures of the dominant paradigm to allow it.
Education as a Support for the Dominant Paradigm

It is clear that the structures and institutions that exist in society reinforce the dominant system. The education system is one of those structures. The modern child can start preparing for the world of work as soon as they enter kindergarten. These proto-workers begin to be moulded to become a “valuable” member of society. The new vocationalism reinforces the status quo for those in trades or midlevel positions. It has removed the craftsman from the equation, instead substituting standards and qualified assessors to take responsibility for shaping the workers of the future. The university sector reinforces this system at the higher education level. However, the notion that the whole is greater than the sum of its parts often does not quite make it through this reductionist methodology. It does this whilst ensuring that there is limited encouragement of freethinking or alternative approaches to academic work and condemning research sources that are not deemed “academically impeccable” despite they may be culturally impeccable. Post-graduate students walk the tightrope of doing socially valid and vital work, yet not rocking the academic boat too much to lose funding or worse the supervisory stalemate. This educative paradigm is purely geared to producing workers — any attention that is paid to “lifelong learning” is also geared to retraining an aging workforce to be “useful” throughout their working life. The notion of learning to enrich the self or empower oneself or one’s community is barely contemplated.

In a world where the total knowledge in the world more than doubles in less than 5 years this methodology is flawed and society will always be playing “catch up”. So, the structures and institutions that shape the educative priorities are rooted in an obsolete paradigm. This means we will be condemned to continually reprise our mistakes, and as those same educative priorities are the main reinforcement to the dominant paradigm, it ends up as a kind of epistemological mōbius strip. This paradox will be impossible to exit without revising the educative system we inhabit.

Alternative Educatve Approaches

There has been increased interest in eastern philosophies and Indigenous cultures in the west in the last 2 decades. There may be a number of reasons for this such as search for meaning, disillusion with western religions or worldviews or attraction to the peace-orientation of these philosophies. One can say that Buddhism and Taoism are generally focused on the transformation of our health, the aim being to be in balance with the natural world. Sefa Dei et al. (2000, p. 19) say:

Indigenous knowledges are unique to given cultures, localities, and societies ... Indigenous knowledges are acquired by local peoples through daily experience. They deal with the experiential reality of the world. They are forms of knowledge that reflect the capabilities, priorities and value systems of local people and communities.

What is clear is that localised or not, Indigenous knowledge or wisdom is “… the accumulated wisdom of the group since time immemorial, handed down from generation to generation by word of mouth” (Gostin & Chong, 1998, p. 148). This localised knowledge that has been accumulated experientially and added to by generations means that Indigenous people have a deep connection to the natural world.

The main vehicle for this transformation in eastern philosophies is meditative practice; meditative practice is rooted in awareness and promotes well-being, not just for the meditator but also those around them utilising whole body/mind awareness. In Indigenous cultures the vehicle community connections. Brant Castellano (2000, p. 26) says “The personal nature of knowledge
means that disparate and even contradictory perceptions can be accepted as valid because they are unique to the person”. This view is supported by Holmes (2000, p. 43) who discusses knowledge emerging through families in the form of stories. He says, “knowledge is validated ... through connection. The memories passed down through connection are inviolable”. Thus Indigenous wisdom or knowledge is made up from a variety of sources and has been given validity because it “can serve as a basis for common action ... validated through collective analysis and consensus building” (Brant Castellano, 2000, p. 26).

The Buddhist meditation practice to cultivate inner well being is known as the Four Divine Abidings. The four Abidings are, loving kindness, compassion, gladness and equanimity. These qualities ensure:

- the removal of resentment
- empathy with all others who share our world — not only other people
- generous attitudes considering the well-being of others including the letting go of envy
- inner stability and even mindedness.

Buddhists believe these qualities are in naturally in everybody as parts of our true nature. The holistic nature of the Indigenous existence means that all day, everyday people were involved in learning, reinforcing what had been learned and reinforcing the practicability of their cultural beliefs. Greg Cajete (1994, p. 21) talks extensively about the links between culture and knowledge. He believes that traditional systems of education were more than just the transfer of knowledge. He says “In traditional American Indian life, the foremost context for understanding is the Spiritual, the orienting foundation of Indigenous knowledge and process”. Holmes (2000, p. 47) talks of Hawai‘ian Kapuna, (lessons voiced by Elders). She says:

The Kapuna describe cultural practices, values and conventions as continuous within their families — as having been passed down through generations. Memories centre on the land as the basis for communal existence and translate into ethical imperatives.

She is demonstrating the holistic nature of Hawai‘ian culture. The Kapuna links environmental behaviour with personal and group ethics as well as carrying the stories of the people. So in Indigenous cultures living virtuously is intrinsically part of interacting with the community and the land whereas in Eastern philosophies that virtuous living comes from deliberate practice.

The ancient Taoist manual T’ai Shang Ch‘ing-ching Ching (Cultivating Stillness) says, “everyone can become a sage, a Buddha or an immortal ... If you have the motivation” (Wong, 1992, pp. 24–25). The role of the teacher in eastern philosophies is key. The Taoist text Cultivating Stillness says (Wong, 1992, p. 154):

The ancient sages say that no matter how intelligent you are, if you search for enlightenment through books and writings and do not have the guidance from an enlightened teacher, you should not try the methods of training on your own. Those who intuitively understand the Tao are people who have accumulated good deeds. When the teacher appears, they must humbly ask the teacher for guidance. They must practice diligently and must not abandon their training along the way.

This statement emphasises the need for a teacher, commitment and virtuous practice. The relationship of the teacher and learner is always of paramount importance. In Vajrayana Buddhism the student is required to search for the teacher which will stimulate their learning (Dorje, 2001, p. 11) and Wong (1992, p. viii) repeatedly notes that to truly understand the Taoist teachings, “require[s] the guidance of a Taoist master”. In both these cases the teacher and learner form a tight bond from which wisdom emerges. Although this is usually a one to one relationship it is learning in community.
none the less. The role of the teacher is to provide guidance on the learning journey. On the other hand Krishnamurti (2000, p. 15) councils against religiously following the ideas of one “guru” as he call them, emphasising that the learner needs to take from many sources and shape their own views. He says, “truth is a pathless land” (Krishnamurti, 2000). Meaning if one is to find the truth of life, one needs to build the truth oneself through experience and reflection. Groome (1998, p. 268) talks of how in pre-colonial Australia teaching “was the responsibility of everybody and learning went on all the time”. In many cases knowledge was learned experientially by mimicking what Elders did and repeating actions, songs, stories et cetera, until the young person had mastered that task. Brant Castellano (2000, p. 31) says:

[Stories] teach without being intrusive, because the listener can ignore the oblique instruction or apply it to the degree he or she is ready to accept, without offence. Stories of personal experience can be understood either as reminiscences or as metaphors to guide moral choice and self-examination.

Oral tradition was not only used to pass on the life skills a person would need for their own, and the communities survival, but also to pass on the sacred knowledge of the group. At each stage of life they received higher levels of sacred knowledge. This pattern was not just based on age though says Brant Castellano (2000, p. 26). “In passing on knowledge the teacher has an obligation to consider whether the learner is ready to use knowledge responsibly”. In this the role of the teacher as critical friend is vital. Not only is there a responsibility for the teacher to ensure the learner is ready but they also have responsibility for ensuring the accuracy of the transmission of information (Mclsaac, 2000, p. 96). This is an interesting concept when it is known that narrators will “rejig” the story to fit the circumstances that prompted its telling, or add their own personal perspective if they are relating a story of an event at which they were present. It would then appear that there are two kinds of story. The first the strict culturally significant stories which are delivered in formalised settings to limited audiences by high-level Elders. The other the more “every day” stories used as an exemplar of social behaviour or ethics, or to rationalise or demystify occurrences, or merely just to pass on every day knowledge needed for survival. Yet both kinds of story ensure the people “established and maintained a dynamic participation with the natural world that deeply informed the meanings and understandings they had about themselves as a particular kind of people” (Cajete 1994, p. 90). Whilst still emphasising “The value of co-operation was the theme of many proverbs, because as every African knows, ‘One hand cannot tie a bundle’” (Elabor-Idemudia, 2000, p. 103).

Also at the root of eastern philosophy is the notion of lifelong learning. However, it is common to hear it described as an endless road. Suzuki Roshi (cited in Chödrön, 2002, p. 1) says “in the beginners mind there are many possibilities, but in the experts there are few”. And Krishnamurti (2000, p. 18) says, “[for] the man who is seeking ... the search itself is knowledge”. The most revered masters of Buddhism and Taoism, even the Dalai Lama, will commonly describe themselves as just beginning on their learning journey. To believe we know is to close down our minds. With the learning through self-awareness and self-discipline of eastern philosophies comes social awareness and out of that comes the practices of tolerance, mutual respect and the goal of peace (Hsing, 1996, p. 5). Grigg (1989, p. xxvii) notes “we live freely only when not living willfully”. Reminding us of the “deep balance and harmony that is found in Taoists” (Grigg, 1989). The practices noted above manifest in the concept of compassion (Grigg, 1989, p. 12), a concept vital for community (Bopp & Bopp, 2001,
p. 117). In Buddhism the concept of community is summed up by the scripture (Hsing, 2001, p. 9), “When all the rivers flow into the ocean, they have only one taste, and that is the taste of saltiness”. Essentially we are all part of one whole. Indigenous cultures are also focussed on the interconnectedness of our existence when they say, Mitakuye Oyasin. Cajete (1994, p. 164) notes this expression though strictly meaning “We are all related”, it “personifies the integrative expression of what Indian people perceive as community”. However, this expression incorporates not just people but birds, animals, plants and so forth. (Chief Arvol Looking Horse, 2001, pp. 4-9). Master Hsing Yun (1996, p. 2) notes:

Confucius said, “He who respects others will be respected, and he who loves others will be loved”. Equality among people can never be attained through the use of force. When there is full and mutual respect among people, then we will be able to create a world in which equality prevails.

He also says (p. 3):

A fundamental Buddhist principle is that we all should respect and treat one another equally, regardless of their nationalities, races, social classes, genders, and ages. Buddhists believe fundamentally in the equality of all cultures, they are able to respect and adapt readily to the ways of other people. ...It is clear that mutual respect is not only the foundation of equality and reciprocal benefits but also the prescription for peace and progress.

Mohawk people believe that any decision that is made in the community needs two things:

- Firstly, it needs to be agreed by all members of the community. In negotiations a spokesperson will be chosen on a daily basis from the community and all members of the community will be fully informed of all developments.
- And secondly any decision made it is not just judged on how it will affect the community today but also what effect it will have on the community for the next seven generations.

The criteria used in all decision-making are:

- Peace (how will the decision affect the peace of the community, the land and the surrounding people).
- Righteousness (is the decision morally and ethically right).
- Power (how will this decision affect the power in the region — will power over the communities affairs be devolved to or taken by someone else as a result of this decision).

The Great Law of Peace (the overarching rules of life for the Six Nations) was the major influence in the forming of the United States Constitution. It was also the major influence in the forming of the United Nations Charter. For Indigenous people, a leader serves their community (Cajete, 1994, p. 175) but power is distributed via the clan or kinship system and in many cultures everyone had an equal voice.

The Adult and Community Education Sector

Community education is not a new concept in western society. In fact, in 2001, 415,262 people were enrolled in the ACE sector in NSW alone (BACE, 2002, p. 4). Many communities have been involved in some form of community education. The ACE sector in the developed world has long been the way adults get a “second chance education”. This second chance may occur by learning new skills or acquiring new knowledge for personal development or fulfilment. Or, more likely in recent years, using the skills and knowledge gained in the ACE sector to meet the demands of an ever-changing workplace. In 1991 the Senate Standing Committee on Employment, Education and Training said there are four broad areas of adult and
community education. This shows a shift away from the personal enrichment emphasis of the past to one of supporting the dominant industrial/educative paradigm.

The *Come in Cinderella* report acknowledged the ACE sector as the "fourth sector" of education in Australia, along with schools, TAFE and universities. This recognition brought with it the beginnings of a more formal structure, moving the non-formal ACE sector toward the more formal model of TAFE and other private training providers. This recognition of the ACE sector's key role in the Australian community brought with it the restrictions of the National Training Agenda. This occurred despite the Senate Employment, Education and Training References Committees' recommendation that the ACE sector should "remain an educational chameleon, modifying the nature of its presence according to the environment in which it finds itself" (1997, p. 18). However, in an attempt to recognise and acknowledge the invaluable contribution of the sector, successive governments have succeeded in removing the very assets, which made it great. The local, community-focused organisation seeking to enrich the community by sharing community knowledge.

**Summary**

In this paper I seek to briefly explore the educative paradigms of eastern philosophies and Indigenous cultures. This is not to infer that all eastern philosophies or indeed all Indigenous cultures are synonymous. However, there are similarities and consistencies within each paradigm and synergies between both. Community education provides opportunities for adult whose needs are not met or who does not feel comfortable in, other education sectors such as TAFE or universities. It also provides a valuable avenue for public education campaigns. As such it is vital to maintain as a "grassroots" educative path. Recent opportunities for studies through the ACE sector to be "validated" through accreditation and registration are also a vital to ensure that ACE retains funding and gains appropriate status in the eyes of government and other institutions. Until we can achieve a more soulful educative paradigm it is essential that ACE be still seen as relevant.

Having said that community education is the perfect catalyst for the paradigm shift. ACE is situated "in community". It is well placed to address the physical, social, psychological and spiritual needs of the community members. ACE "teachers" and learners are self-motivating, they teach and learn for the benefits of themselves and the community. Community education further develops these qualities. ACE is experiential, flexible, viable and effective. It is adaptable to the unique learning styles of the learners. Finally, its facilitative nature allows the natural "opening up" and self-development of the learners, allowing them to overcome their previous learning impediments. These four points coincidentally are at the root of the Indigenous teaching and learning orientations (Cajete, 1994, pp. 222-223). Through this process, connections to the community and their environment at large are allowed to emerge, continue, transform and vanish in the continual cycle of learning development. This self-development or opening up is also at the root some eastern philosophies. They accentuate the experience, not the learning about the experience. Grigg (1989, p. xiii) says "Language does not replicate experience although it might replicate what is thought to have been experience, which is quite another thing". By developing an ACE educative paradigm which emphasises connection (which is the nature of ACE, but has been subordinated to the dominant measurable paradigm) learning then becomes acknowledgement of "the whole". Krishnamurti describes this as "Right education" (2001, p. 30), saying "Right education is surely finding a different way of life, setting the mind free from its own..."
conditioning. And perhaps in its action will bring about true relationship between man and man”.

Community education rooted in interconnectedness can facilitate this “true relationship”.

References


Competency-based training was introduced as an attempt to increase the skills of the workforce and productivity. There has been a marked reluctance of government authorities to engage in evaluation of the policy. The two officially commissioned evaluation studies have serious limitations while the independent study, although with limitations, has revealed serious failures. This paper analyses competency-based training from policy formation and implementation perspectives. From analyses from these perspectives it is concluded that competency-based training policy reveals serious shortcomings in both policy formation and implementation. In many ways the policy falls well short of the better suggestions for effective policy development/implementation advanced in the early-mid 1990s.

Policies are inevitably a reflection of the ideas of the times and the politics of the era in which they were framed (Bosso, 1994). Competency-based training (CBT) was introduced in countries like the UK, Australia and New Zealand, as an attempt to increase the skills of the workforce and productivity when the impact was felt from the technological, economic and social revolutions that commenced in the 1980s (Cornford, 2000). The immediate spur for policy change was the loss of economic competitiveness, rising unemployment and balance of payments problems. CBT and related ideas on efficiency in management were all part of the economic rationalism ideology that had swept the UK under Margaret Thatcher and the USA under Ronald Reagan. Interestingly the rhetoric surrounding economic rationalist policies indicated benefits of public accountability and sound economic management to try to “sell” the ideology to the voting public.

CBT remains the major plank of all VET policy in Australia and has remained so for over a decade. Because it is essentially a philosophical position on assessment it pervades all elements of VET policy whether they relate to Recognition of Prior Learning or to Training Packages that have become the vehicle for transmission of skill content. Performance-based assessment has had a long history, but the ideological and policy additions of CBT (see Cornford, 2000), particularly as they relate to industrial standards operating for workplace learning, mean that it has ideological overtones that do not correspond to conventional performance-based assessment approaches (see Hayton & Wagner, 1998). In this paper it is argued that the policy formation and implementation that occurred in Australia in relation to CBT were fundamentally and deeply flawed. The position generally adopted is that advanced by Calista (1994) that argues that policy formation and implementation...
are of necessity deeply entwined because of the four institutional contexts of implementation and the issue of how to make the policy work effectively. These four contexts are highly interactive with the same major variables iterating through each context. They include constitutional choice, collective choice, operational choice and distributional choice groups and entities (see Calista, 1994, pp. 120–128). For the purposes of this paper, these four groups roughly correspond to operative and distributional contexts (i.e., decision-making and implementation contexts). Calista’s framework indicates that effective policy development and implementation will be of added complexity in a federated system of government when the power of each group can alter implementation. Hence it follows that consultation between and agreement by the major stakeholders in these processes are vital because of the interaction between the four levels of institutions/decision process groups.

This paper will examine the issues of CBT conceptualisation and the related research base, consultation with stakeholders, administration and review of policy implementation, and the nature of research conducted and its use over the period, with a particular emphasis upon evaluation in its various forms. The argument advanced is that for any policy to have the potential for success all of these elements in policy formation and implementation must be meet for successful outcomes to be achieved. Given the restrictions on the length of this paper, there are going to be noticeable omissions. Because of the restriction on length, this paper will focus almost exclusively upon CBT even through other government VET policies have interacted with CBT policy, for example, the opening of the training market and encouragement of private training providers, workplace training and the employment of training packages.

Conceptualisation of CBT: Its Philosophical Base

CBT in various forms has been used in VET since at least the second world war. The notion of performance outcomes being assessed after closely focused training is linked closely to military training and Taylorist principles in effective management practices. To economic rationalists, who lack any understanding of the complexity of learning or its wider social purposes beyond the instrumental and the satisfaction of employer needs, such training must seem ideal and easily achievable. Such simplistic views of competencies and learning do not recognise that military training setting have few constraints in terms of ready accessibility and modern equipment. Such settings also have relative flexibility in terms of timing while finance does not appear to be a major inhibiting factor in conducting and assessing training operations for the military. By contrast, TAFE/VET educational setting generally have major restrictions in budgetary terms. Nor does the military have to deal with pressures form employers expecting that their employees/trainees/apprentices be passed as competent.

The philosophy underlying CBT is essentially behavioural in nature. Hyland (1997), amongst many others (see Collins, 1993), has focused upon the essentially behavioural philosophy that underpins this form of training. In Australia this essentially limited basis of CBT was widely recognised (e.g., see Collins, 1993). Policy makers themselves appear to have recognised this too, and attempts were made to overcome these limitations. The work by Gonczi and Hager (e.g., Hager & Gonczi, 1993) over several years was an attempt to make the concept more acceptable in educational circles (Cornford, 2000) and adapt the essential conceptual framework to what increasing over the past few years has been recognised as a knowledge era. The fact that the knowledge era was upon us was recognised by government reports
(Jones, 1995) at the time the CBT implementation was underway.

The attempt at theory modification by Gonczi and Hager, under patronage of policy makers (Cornford, 2000), was to add cognitive and affective elements in a lego-block like way to the basic behavioural theory that could not necessarily bear such so that they were workable additions (see Stevenson, 1995). This theoretical model was not really subjected to extensive, practical evaluation in any way (Cornford, 2000). While trials of CBT occurred in some trade and professional areas, such as metal trades as reported by Lidbury (1995), with these presumably reflecting the more behavioural approach, results were never published. In practice the addition of cognitive and affective elements to the tight, behavioural model meant that the statements of desired performance outcomes became less precise with this reducing the reliability and validity of assessment (Cornford, 2000).

Possible restrictions on the range of occupations or trade areas, and levels of training, where CBT might be beneficially employed appear never to have been investigated. Instead a blanket CBT policy was implemented in VET, specifically in TAFE with government and quasi-government instrumentalities used since governments have less control over the private sector (see Cornford, 2000). Generally the conclusions drawn are that only limited, less complex areas of skill learning are likely to benefit substantially from a CBT approach (see Smith & Keating, 2003) with there being noticeably substantially fewer and less concerted attempts to apply CBT to higher levels of management although there have been some initiatives in this area. Indeed there appears to be a substantial class based bias in the implementation of CBT to working as opposed to managerial or governing classes. In short, the conceptual underpinnings of CBT were seriously questionable with approaches incorporated into policy and then implemented on a wide scale that had never previously been effectively and extensively trialled. That this occurred indicates the ideological dimension of VET CBT policies.

Consultation with Stakeholders

In terms of policy formation, consultation with stakeholders is of inestimable importance since they are able to convey to policy makers their wants/needs, what are perceived to be the problems and potential solutions for the groups experiencing the problems (Calista, 1994). These suggestions then can provide a focus for policy formation. There are also major additional benefits of having stakeholders, who will play a substantial role in the implementation of policy, being cooperative if not actively accepting and promoting the adoption of the policies. It is widely accepted that there was wide consultation among business leaders, politicians and trade union representatives prior to the introduction of CBT on a wide scale. Notably absent from the consultation were the groups that ultimately carried the responsibility for direct implementation, namely VET teacher and experts in VET education more broadly (Hawke & Cornford, 1998). Moreover this omission was acknowledged in an influential government report (Jones, 1995).

That those who would ultimately implement the policies were not consulted, were deliberately omitted from consultation and thus influence on the policy outcomes, appears to have been driven by the mistaken belief that teachers were not cooperative and would in fact be obstructionist. In terms of policy implementation this is a great concern since in educational program design it has been widely recognised for a long period of time that no major curriculum revision or innovation ever has been successful without the cooperation of the teachers (McBeath, 1995).
Administration of CBT Policy

There is substantial evidence of general lack of attention by Australian government authorities to issues surrounding implementation in CBT policy (McBeath, 1995, 1997). As McBeath (1995) noted, the Australian federal government appears to have believed that mandating change was sufficient to achieve it. Glaser (1991, p. 129), a leading American educational psychologist, made the important distinction between “visions of reform and instrumentalities for change” and the need for detailed and close attention to “tools methods, techniques, delivery systems, environmental design, and theories of cognition and learning that we bring to bear”. The fact that this thoughtful analysis was published in an educational journal makes it unlikely that it was ever read by Australian policy makers. It is also noticeable that VET reform policies and most research have lacked any substantial consideration of effective learning, an observation supported by close examination of numerous training packages, with these focusing upon performance and largely neglecting underpinning theory. Given that change can only come about through learning, and that change management should be about managing circumstances and systems to effect new learning, this is a serious indictment of Australian VET policy makers given the task of formulating and implementing a revolutionary VET policy.

Training in business and industry rather than TAFE settings was a parallel policy and an important adjunct to the overall CBT framework. Yet it is evident that there were very limited or no attempts to educate teachers, trainers and employers of apprentices, let alone apprentices themselves. The Certificate IV in Assessment and Workplace Training was introduced to provide an obligatory training qualification when many industry trainers lacked any qualification. However this essential minimum qualification also became the maximum qualification for TAFE teachers with the training involved markedly below requirements for qualified sports coaches (Cornford & Beven, 1999) and relaxing higher, for example, degree, qualifications for teachers. Wheelahan’s (2003) analyses using NCVER data indicate that most teaching still occurs in TAFE classrooms with only approximately 30% of training occurring in the workplace. The creation of effective minimum and maximum teaching qualifications, in terms of the Certificate IV to privilege business and industry over TAFE, has thus guaranteed a decline in teaching standards in the setting where the most teaching and learning occurs.

However, whilst in some ways they have been privileged by government policy (Wheelahan, 2003), many in business and industry have not been informed of important issues in CBT affecting them. Lidbury (1995) in his study of metal trades apprentices in the Hunter region, found that the employers who were supposed to play a key role in the learning and workplace assessment of the skills of their apprentice employees to CBT standards, knew virtually nothing about CBT and their role in assessment. This he concluded was because there had been no effective government policy to disseminate material to these employers. More recently, unpublished evidence from a reputable source has indicated that, in a recent focus group/survey, 38 out of 50 employers had not heard of training packages (the preferred mode of CBT delivery) and did not want to know about them. Lack of any substantial in-service education for teachers and the establishment of minimal training standards indicate a disregard by policy makers for quality of instruction, maintenance of standards in teaching and thus quality of VET skill standards more generally. Failure to ensure that information was disseminated to employer groups when CBT was introduced to supposedly favour them indicates a total lack of insight into implementation processes and/or degrees of
naivety that should preclude anyone from employment in higher levels of policy formation and implementation. That the problem of ineffective dissemination of information on VET training continues, particularly knowledge about training packages, to potential employer groups is nothing short of inept management of public resources.

Central to the concept of CBT are standards of performance and quality assurance. Noticeably absent from early CBT policy formation was any adequate conceptualisation of how standards might be maintained with Registered Training Organisations (RTOs) as accrediting agencies (see Hawke & Cornford, 1998). The push to enlarge the share of the training market by private training providers (Anderson, 2002) guaranteed the potential for corruption of standards in an era of self-regulation and clear favouring of the private sector by the federal government. Only the revelations of the 2000 Senate Inquiry into Quality of Vocational Education and Training in Australia led to federal government attempts to control quality through tighter registration requirements for RTOs. However there remain major issues in quality control and maintenance of standards, especially on account of the limited funding that has generally meant under-resourced policing agencies, and quite apart from lack of stringent legislation to enable prosecutions. Currently the NSW Independent Commission Against Corruption is hearing a case involving serious breaches of safety and training standards that has involved false certificates of competency being issued (Brown, 2003, p. 6). In one case a crane operator, given a certificate of competency, hit power lines and electrocuted a co-worker. Having opened Pandora’s Box with RTOs and private providers, it is now very difficult to exercise quality control when this should have been a major consideration in initial CBT policy formation given the nature of CBT.

Nature of Research Conducted over the Period and its Use

Research is an important tool for developing and implementing VET policy as well as evaluating policy effectiveness (Callista, 1994). In any policy or program implementation it would be expected that there would be need for formative assessment and tuning of policies (Owen & Rogers, 1998). This is in addition to the initial use of available data and research as a basis for the formation of policy. Ultimately there would also be expectation of summative assessment when the policy had matured and had time to settle down. Owen and Rogers (1998) identify six distinct forms of orientation in program evaluation. These include synthesis, clarification, improvement, justification/fine tuning and justification/accountability research.

There have certainly been numerous studies conducted in relation to clarification and improvement, usually in relation to short-term policy “tweaking”, that are singularly devoid of concern for effective learning despite rhetoric to the contrary. However there has been a notable lack of government initiated research in the categories of justification/fine tuning and justification/accountability as judged by this researcher. A different judgement may well be made by policy makers and bureaucrats since there is room for argument about the category research may fit into the first four orientations of Owen and Rogers (1998). However the attempts at assessing overall impact, and thus justification and impact with notions of accountability, are notably few.

There have been only two published government sponsored “attempts” at some kind of evaluation of competency-based training, with these seriously flawed on account of the scope allowed by the commissions (see Mills & Cornford, 2002). The other independent evaluation (Cornford, 2000), with limitations of scale, concluded that the CBT policy has been a failure. Subsequently, limited but important research
by Mills and Cornford (2002) has provided the first empirical evidence that skill levels have actually fallen since the introduction of CBT contrary to the stated aims of these policies.

What is particularly disconcerting, apart from lack of substantial, commissioned, evaluation research, is the inability of managers and bureaucrats involved in policy formation and implementation to understand and make use of relevant research to produce better policy outcomes. Effective policy implementation requires a gradualist approach (Calista, 1994) in which quality research, knowledgeable interpretation and intelligent, persistent application will play vital roles. Research conducted by Selby Smith et al. (1998, pp. 113–120) found that many senior VET managers and policy and decision-makers have little understanding of research conducted in the VET area. Furthermore, they rarely used it except to reinforce decisions made on other grounds. Many of the managers and decision-makers surveyed had been in the positions for only short periods of time with often very limited, specialised knowledge of VET. While middle management and advisers at lower levels were found to have a much higher understanding, these groups exercised much less influence in decision-making.

Under these circumstances it is not surprising to find that there have been wild policy gyrations as well as the “reinventing of wheels” (Hawke & Cornford, 1998). While there would be a normal expectation of tuning with any policy implementation, the changes with CBT and related policies have been relentlessly ongoing. This in part is owing to the inadequate conceptualisation of the CBT policies initially, and then the inability of VET managers and decision makers at various levels in the framework to understand and make intelligent use of research to fine tune. It is also quite definitely allied to the ideological basis and the need for continual adjustments by politicians as the results from policies failed to meet the perceived expectations of their chosen constituency with CBT, namely business and industry. Bosso (1994, p. 96) has argued convincingly that the root causes of policy failure are political. The knee-jerk reactions and sudden changes have meant that in many cases there has been total confusion about what aspect of policy is now operative. What was “world best practice” one day was/is often jetisoned with there not being sufficient time for any policy change to become fully operative and assessed reasonably reliably before another change is unleashed (Hawke & Cornford, 1998).

Given the failure of policy managers and decision-makers to constructively use research indicating problems to improve policy outcomes, it should be little wonder that reform fatigue is generally acknowledged to have set in with the practitioners in the front line, namely the teachers and lower level managers. NSW TAFE is having problems filling promotions positions and there are instances where individuals have voluntarily returned to lower promotion levels. This has occurred at a particularly dangerous time since there is growing recognition that the CBT reforms have not solved the skill requirements of Australian society and that new policies will be required with renewed effort. Examination of submissions and Hansard accounts of committee proceedings of the current Senate Inquiry into Present and Future Skill Needs indicate that the serious skill shortages facing Australia stem, not only from lack of what once was known as a manpower planning policy during war time, but the CBT policies that have been implemented.

**Conclusion**

The analysis of CBT from a policy perspective reveals major shortcomings in both policy formation and implementation. The importance of good policy formation and implementation along with the need for gradualist implementation if success is
desired has been recognised for a long time (see Bosso, 1994; Calista, 1994). These issues were a focus of discussion in the serious policy literature well before the introduction of CBT in the 1990s. Paramount amongst the failures with CBT are the lack of understanding of what the concept actually involved in teaching/training practice in the VET system and hence an inability to consider a plan for its implementation. Failure to consider implementation issues is unlikely to give a policy much chance of effective implementation even if the policy is of potentially great value (Calista, 1994). Here, where the value of the underpinning concepts is particularly limited, there is little likelihood of real success. This may in part explain the distinct aversion to any substantial evaluation of the effectiveness of CBT by government bodies in Australia despite the fact that evaluation should be a major issue in any economic rationalist policy that purports to demonstrate value for the tax payers’ dollar. As has been pointed out by Cornford (2000), there has been no costing of the implementation of CBT made available to the general public and this is intriguing given the ideological framework and claims made by politicians and bureaucrats for economic rationalism.

The failures in CBT policy formation and implementation are so large in scale that there is a manifest irony in the fact that policy makers have seen fit only to attempt to introduce CBT to the VET sector. There is a savage irony in restricting the introduction of CBT to VET and the working rather than the managing classes. Patently there should have been competency-based assessment of policy making formation and implementation skills for both bureaucrats and politicians who could be judged to have failed by most measures of effective policy formation and implementation.

References


Cognitive Load Theory and the Information Processing Model: Strengths, Weaknesses and Implications for Skill Learning in VET of the Two Models

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Cognitive Load Theory has emerged relatively recently as an important model for understanding effective learning. It is supported by a strong body of empirical research and has many practical implications for teaching/learning. It shares some similarities with the Information Processing Model that has been severely criticised and that consequently has fallen from favour in educational psychology research circles. This paper looks at the similarities and differences of the two models, their respective strengths and weaknesses, and the practical implications for skill learning in vocational education and training.

**Historical Background**

The Information Processing Model (IPM) is a model seeking to explain learning processes. This model was developed partially from research into computer development and the important research conducted by Miller in the mid fifties into the limitations of short-term or working memory (STM). The latter research established the essential distinction between the conscious STM and long-term memory (LTM) that exists at a subconscious level. Also important in the basic IPM was a sensory input component, with some versions of the model disseminated in textbooks also building in a sensory register-screening mechanism between the sensory input and STM (e.g., Gage & Berliner, 1992). More sophisticated versions of the IPM (e.g., Woolfolk, 1995) also include an executive system component that involves decision-making. The executive system, in the author's view, is essential to explain the functions and decision-making regarding focused attention on limited numbers of stimuli at the sensory input stage instead of potentially large numbers, and decisions to engage in coding. It is also essential to explain decisions to engage in chunking and rehearsal to transfer information into LTM, and, circumvent the 7 plus or minus 2 units of information capacity limit and the approximately 20 second duration limit of STM. Implicit in the model also is motivation that is important for executive decision-making, initial selection and focus, and effort to move or code data, et cetera.

There have been criticisms of the IPM, particularly the literal model as opposed to a more constructivist interpretation that takes into account the ways meaning and knowledge are constructed by individuals (Mayer, 1996). While the IPM was popular in the 1970s and 1980s, it seems to have fallen from favour on the basis that it deals with linear processing, cannot explain parallel processing, and a range of other
criticisms (see Mayer, 1996). What has emerged recently has been Cognitive Load Theory (CLT) that has focused upon the limitations of the STM. This model appears to have support from numerous empirical studies involving cognitive load and split attention effects, all of which relate to the limitations of STM.

This paper will examine the phases and results from CLT research before considering its limitations as a model for understanding learning-teaching processes, especially skill learning that is so important in VET. After that the IPM will be examined, since many of the limitations of the CLT are potentially resolved in the IPM after some degrees of modification and development of the IPM model.

Cognitive Load Theory
CLT has been developed from research conducted into the limitations of short-term working memory, and the implications of this for education, over more than 2 decades. Concentration upon this area has led to the specific name of this newer theory. From a teaching-learning perspective, there have been a series of studies and finding with important implications for effective learning and teaching, particularly in relation to the structuring or ordering of learning experiences and materials. The research to date and the theory have focused upon three main areas that also tend to represent the phases of development of CLT. These three phases have been centred around: firstly, the cognitive load in using texts and printed materials in learning; second, the transition from use of worked examples to problem-solving; and third and last, the most recent concerns that give greater consideration to individual motivation in goal configurations and processing strategies.

The initial research centred upon John Sweller and associates' investigation of the limitations of STM in learning from texts and the teaching-learning content as designed by the teacher. In this early work (e.g., Sweller, 1993) the problems of having diagrams on different pages to the explanatory text, and the need to carry information in STM between the positions, were examined quite fully. What this research demonstrated was the need for much greater consideration of the design of learning tasks so that the load on STM was substantially reduced. Stemming from this earlier research was the conceptualisation of cognitive load into three different types. As described by Paas, Renkl, and Sweller (2003) there is firstly intrinsic cognitive load. This is the inherent load in the learning activity. Second, there is extraneous or ineffective cognitive load that results from ineffective instructional design and does not take into account the structure of information or cognitive architecture. Lastly there is germane or effective cognitive load that enhances learning. This enhancement occurs through the learner's cognitive resources being devoted to schema acquisition and automation. The theory posits that the individual's working load cannot be exceeded through the addition of all three components, that is of intrinsic, extraneous and germane cognitive loads. That is to say there is fixed capacity in working memory and the amount of available load is distributed amongst these three types of load. Any individual cognitive load capacity beyond intrinsic load can be devoted to extraneous and germane loads. As schemas and automatic processing occurs, then intrinsic load is reduced which in turn frees up more of working memory, with this in turn leading to potential development of more advanced schemas (Paas et al., 2003, p. 2).

The processes of schema development are further explored in the CLT relating to the use of worked examples and the development of problem-solving schemas. Worked examples came into prominence in the CLT research because study of worked examples allows the development of understanding and processes for problem-solving while reducing the load on working
memory (Van Merrienboer et al., 2003). This reduction in load occurs because the steps and processes involved are clearly set out in the worked examples with these generally being drawn from maths and science subject matter. However, there has also been realisation that worked out examples are very useful in initial stages of learning but actual problem-solving becomes more effective in later stages of learning for successful real world performance (Renkl & Atkinson, 2003, p. 15). The solution appears to be a gradual weaning of learners from dependency upon worked out examples to types of examples that increasingly have more or the steps/processes of solution removed until the individual can tackle straight problems without support. This process is generally regarded as scaffolding of learning.

There has been consideration of presentation of information to obtain optimal learning in terms of cognitive load at various points in the learning process. This has involved the distinction between supportive information, which appears best to be presented before the learning experience, and the use of procedural information scheduled at the appropriate time and step of the learning process (Van Merrienboer et al., 2003). By selective introduction of procedural information there is reduction on the cognitive load in the earlier stages. That is to say not all information needs to be provided initially since this will increase the cognitive load unnecessarily in early stages.

The most recent additions to CLT have centred upon the issue of configuration of goals. This involves both teacher and learner goals. Gerjets and Scheiter (2003) see these intermediary variables as necessary to explain patterns of learner control. Essentially what these variables introduce into CLT is motivation and locus of control issues. While these are implicit in the IPM, Gerjets and Scheiter's work is the first attempt to more directly recognise these variables in CLT. It is the writer's opinion that it is impossible to explain individual differences in approaches to learning or different learning outcomes without these variables.

Strengths and Limitations of the Cognitive Load Theory Model

CLT has taken learning from the laboratory research setting to more realistic types of classroom and real world learning and attempted to examine the complex processes involved in this. To this stage, this model appears to have further developed Anderson's (1982) notion of knowledge compilation and proceduralisation in cognitive skill learning and VanLehn's (1996) concept of learning events. Through the terminology employed, there is clearly acknowledgment of long-term memory and schema acquisition as well as skill learning. The skill learning components do not appear to have been explicitly acknowledged, nor is the use of metacognition (planning, monitoring, evaluating) through the executive system, although this is assumed in the model, especially through the use of germane cognitive load in schema development. Again, transfer of learning is acknowledged implicitly as an important issue in the process of developing problem solving skills for real world application (Van Merrienboer et al., 2003, p. 8), but there has been little attempt to date to develop sections of the model directly relating to this.

There are also sections of CLT that acknowledge the research and conceptualisation of the stages in the development of expertise (see Kalyuga et al., 2003). Specifically there is recognition of development of schemas to higher levels, thus implicitly paralleling those of experts in the area of learning. There is also explicit recognition of reversal of expertise effects that essentially involve acknowledgment that approaches to learning adopted in the earlier stages of learning may prove less than effective, or outright impediments at more advanced stages, if the same processes
continue to be employed. This relates very clearly to findings in earlier work on self-regulation and skill learning by Zimmerman and Kitsantas (1999) although this does not appear to be drawn upon or directly acknowledged. Zimmerman and Kitsantas' work clearly identified that process goals change during skill acquisition and move towards outcome self-regulatory goals with increasing experience.

In sum, with the CLT there is clear movement to try to account for the learning that occurs with complex tasks. However the degree to which elements like schemas, skill learning stages, conceptualisation of transfer of learning are explicitly recognised, and built into the model with appropriate explanation, raises questions about the adequacy of the model overall and its usefulness as an explanatory model.

Towards a Modified, Improved Information Processing Model

The research stemming from CLT essentially involves focus upon the short-term working memory component and long-term memory storage. In this the CLT has demonstrated the essential value of these elements in the earlier IPM. However CLT has further refined elements of the older IPM through the knowledge compilation-proceduralisation processing with this building upon Anderson's (1982) and VanLehn's (1996) work through concentration upon just one component of the IPM, namely short-term or working memory. What is also apparent from a critical reading of CLT, is that the Sensory Input, LTM and Executive System components are invoked, although to date there has not been much work in CLT in explicitly acknowledging existence and exploring the interaction of these subsystems. Clearly CLT cannot usefully explain learning phenomena without recourse to these elements (see above).

It would seem that the IPM, that acknowledges STM, LTM and the executive system in its more sophisticated forms (e.g., Woolfolk, 1995) when interpreted as constructivist in nature (Mayer, 1996), is potentially a more sophisticated model than the CLT because it posits a central role for individual learners to construct meaning. Furthermore, it would seem that the research findings from CLT can be explained quite comfortably by the IPM with only minimal modification of it. More generally it would be useful for theorists and researcher in educational psychology to acknowledge that the complex processes of making meaning, understanding new information and making meaningful linkages between new and existing knowledge, storing information into LTM and utilising it from this source, are not well understood. The CLT has helped elucidate some additional areas but a great deal more still needs to be clarified.

A Constructivist Interpretation and Parallel Processing in the IPM

Criticisms that are levelled at the IPM are often refutable simply by seeing the model as involving constructivist philosophy rather than engaging in a very literal reading (Mayer, 1996). Constructivism sees individuals as constructing their own meanings of the world and the IPM at least indicates that only individual effort will result in effective learning. Implicit also in the IPM is the concept of motivation that has only recently been introduced in the CLT through the notion of processing goals (see above). In the IPM, motivation is necessary to explain selection and attention at the sensory input stage, chunking and rehearsal to overcome the limitations of STM and to ensure the transfer of information from STM into LTM. The executive system itself involves and is necessary to explain the decision-making processes that result from motivation and the planning, monitoring and evaluation that occurs as selected cognitive and metacognitive skills are engaged to overcome natural human
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limitations in processing information and to store and use information in LTM.

The charges that the model only accounts for serial and not parallel processing (see Mayer, 1996) are hard to sustain, particularly when the subconscious nature of LTM functioning and storage and the nature of much of the executive system are taken into account. These charges become also less credible when Fitts' skill learning theory is invoked to explain autonomous activities, that is largely subconscious cognitive activity involving previously learned schemas. As the author has argued elsewhere, the process of autonomasticity frees conscious, short or working memory to engage in other information processing (Cornford, 1999). When autonomasticity is taken into consideration, parallel processing is naturally and logically recognised as occurring. That there is little understanding of skill learning, which is a real, world of work phenomenon beyond the laboratory and often classroom (see Cornford, 1999), is more a damnation of critics, and their limited understanding of all types of learning, than of the IPM.

Also what needs to be taken into account is the notion of long-term working memory advanced by Ericsson and Kintsch (1995) to explain remarkable performances by genuine experts in a range of occupational areas where the use of working memory clearly exceed the normal limits of 7 plus or minus 2 units of information. This work by Ericsson and Kintsch indicates that there are subconscious elements also involved in what is generally regarded as area of conscious processing. What seems to occur is that long-term working memory involves the development of schemas or mental models that assisting chunking information and transcending the normal short-term working memory limits. These cognitive skills are developed over longer periods of time and, while they become specific to situations or processing of particular types of knowledge, they become procedural skills in cognitive functioning rather than being ends in themselves. Long-term working memory, for which there is convincing evidence (see Ericsson & Kintsch, 1995), thus would appear to introduce the notion of parallel processing and dismiss any notion of simple linear processing through the IPM system. Ericsson and Kintsch's work is not acknowledged in the CLT literature but it is not represented in most textbook versions of the IPM either.

Schema Formation in LTM and Transfer of Learning in the IPM

While there have been numerous attempts to delineate the structure that constitute schemas or mental models in LTM (e.g., Rumelhart & Norman, 1978), very little of the more specialist attempts to explain the nature and functions of schemas have found their way into general accounts of the IPM in educational psychology texts (e.g., see Gage & Berliner, 1992; Woolfolk, 1995). This is despite the fact that this work was done well before these publications. Yet the related research and theorising really needs to be incorporated into a more sophisticated account of the model to provide a better understanding of how LTM structures operate in relatively sophisticated ways to continue effective learning over the longer time frame, as with, for example, lifelong learning.

The concept of tuning of schemas or mental models advanced by Rumelhart and Norman (1978) is particularly valuable. Tuning involves the increasing refinement of initially crude mental models to obtain better functioning and congruence with the world as increasing numbers of slightly variant examples of essentially the same phenomenon are encountered. In essence tuning recognises the effects of practice and feedback on memory structures and thus is closely allied to skill learning theory (see Cornford, 1999). Furthermore, the tuning concept helps explain the ways in which generalisation of concepts occurs (Rumelhart & Norman, 1978). Generalisation is seen
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by at least some researchers (e.g., Cornford, 2002) as quite critical in the development of effective transfer of learning. Transfer of learning may itself consist of yet further tuning to new or slightly different contexts since use of existing schemas or past learning is what is involved in the transfer of learning. The empirically validated sequential skill practice model advanced by Cornford (2002) involves skill tuning through careful consideration of training design, practice and feedback to learners. This model thus also involves a schedule for developing appropriate schemas to support the skills being learned. The model includes training and practice stages to establish that initial learning has occurred and consolidation of this initial learning, before moving on to variable tasks over two stages which allow the assessment of the acquisition and consolidation of the generalised skill. Subsequent to this, the model indicates the need for performance to occur in a more complex, transfer situation that allows assessment of training effectiveness for transfer. Certainly Cox (1997) has seen transfer as involving an active learner in adaptive processes, and Cornford’s model establishes a central role for the teacher/trainer in assisting the tuning of the learners’ schemas through gradual adaptation to more complex task demands.

Prior to this there do not appear to have been attempts to incorporate transfer into the IPM. However, what has been outlined here should be enough to indicate that the model may be sufficiently robust to allow this when tuning is acknowledged as an important concept and process in explaining the types of changes that occur through learning and interaction with schemas already extant in the LTM.

Conclusion

It is somewhat curious that there does not appear to have been any substantial updating and substantial refinement of the IPM since the late 1980s to early 1990s. Yet there is enormous potential to use the basic framework to add schema development as part of LTM, to recognise the importance of skill learning and the development of expertise research in much the same way as has been done with the CLT. There is also ample opportunity to incorporate research into metacognition and cognitive learning strategies into particularly the executive system component but also into LTM. Work by Pressley (1995) clearly indicates the importance of metacognition in information processing but models in texts of the same period (e.g., Haberlandt, 1994) do not reflect this theorising. The quite extensive research and theory work on schema development is relevant to both LTM and the executive system. The addition of theory of transfer into the model also seems a distinctly logical progression in development, through recognition of the tuning of schemas (see above). When the IPM is expanded along logical, natural lines, charges against it reflecting the lack of understanding of real world skill learning processes become unsustainable. The model is more robust and capable of explaining real world learning phenomena than has generally been acknowledged.

The newer CLT theory has drawn upon issues such as schema development, the development of expertise and there is also concern for transfer of learning in many experiments spinning off from this model. Importantly there are now also attempts to incorporate individual motivation and processing stemming from recent research. However, although it is not spelled out in the IPM but is implicit, the issue of individual choice and motivation is essential to understand that model. For example attention is selective, that is driven by choice and motivation to focus upon stimuli in the environment for information to be processed through the sensory input. Motivation is also important for decisions to transfer information into LTM and to decide upon processes adopted for storage
as well as rehearsal maintenance and chunking for storage at the STM stage. There are also motivational decisions involved in the metacognitive functioning in the executive system.

The CLT model has specific strengths and is providing greater detail on what Anderson (1982) called proceduralisation of learning and VanLehn (1996) called learning events. Of particular interest are attempts to investigate what happens in complex skill learning in natural environments where multiple factors have to be taken into consideration in producing a performance outcome. In this the CLT theorising and research have centred upon the limitations of STM and the problems of developing schemas for effective, long-term learning. However, what is transparently lacking at present in the CLT model is more comprehensive identification of constituent elements and theorising that makes explicit the interrelationships and how all the elements interact and work together. To date, the most sophisticated model advanced by Gerjets and Scheiter (2003) only builds in the individual goal setting and motivational processes — it does not explain the components and inter-relationships. The writer is prepared to argue that the IPM has the potential to explain the interrelationships and interactions more fully and in more sophisticated ways than CLT unless there are radical additions to the CLT model. Research into scientific models and paradigms indicates that competing models rarely continue to co-exist: instead the stronger model or paradigm comes to dominate and the weaker disappears (Kuhn, 1970).

References


Learning and Leadership: Enriching Post-compulsory Curriculum Through VET?

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This paper is a report from the "Vocational Education and Equity in Senior Secondary School" project focusing on the role of institutional leadership over reforms to post-compulsory secondary education qualifications. This project examined as an exemplar the changing place of VET in schools and VET in TAFE between 2000-2003 under the banner of "Securing Their Future", the NSW government white paper on reforming the Higher School Certificate. Nationally, VET has increasingly been viewed as providing a link between senior secondary education and further/higher education by adopting AQF accreditation, and by jointly resourcing industry-based curriculum frameworks, sometimes in non-traditional settings. While VETiS and TVET in NSW primarily are focused on improving equity and access outcomes for a more inclusive community of students, it is being experienced also as a catalyst for potentially enhanced learning through a broader use of competence assessment and workplace skilling. Of interest to this paper is the role of leadership in facilitating VET as an education tool, and structural and institutional lever, for re-positioning public education, both in schools and colleges of technical and further education towards these ends in a climate marked by a "poverty of expectations".

The Research Issue
Throughout the 1990s, as the McGaw Reviews of the Higher School Certificate in New South Wales (1996, 1997) proceeded, education was restructured through a set of policy interventions as a result of a timely but difficult collaboration between industry, the unions and government. The objective of this unheralded collaboration was to improve national educational and economic outcomes. One specific objective was an increase in retention rates for senior secondary education with young people encouraged to "stay on" (or return) to complete senior school and/or further education and training. However, to what extent that this period one of productive policy development, inspiring educational leadership in schools and colleges of TAFE, or one continuing to be marked by a "poverty of expectations" about what public education can do?

Vocational education in schools (VETiS) was a key link in this chain of planned events. One concern, in starting this research project reported on in this paper, was that some groups could still be missing out on the intended improvement of employment prospects because VETiS could remain on the margins of what is important to students and their families in getting through the senior school in a way that improved life chances, partly because schools leaders, their mindset dominated by academic goals, could overlook the opportunities these policy initiatives offered through holding a "poverty of expectations" about the policies possibilities for changing educational outcomes. An alternate, even complementary, possibility was that the policy initiatives themselves were burdened with a "poverty of expectations", and offered little new, nor sufficient support, to make the policy initiatives work.
While community understanding about the relationship between education and work expanded in the 1990s, as the nature of work changed and employment options disappeared and/or evolved, vocational education has a long history as a being perceived to be a secondary, lower, level of work and thus of lower status. Until the new HSC in NSW, VET courses did not carry much attraction — nor reward — for students seeking entry into higher education, and did not necessarily assist with entry or progress through further education.

Education systems, not only in NSW, responded to these changing circumstances by developing more integrated approaches to providing employment-related courses in schools and by seeking cross-sectoral cooperation where, previously, there had been protectionism and distrust between levels, sectors and providers. These responses are important given recent research which shows that, for increased job chances, the most significant stage of education is upper secondary school, its graduates a third less likely to be unemployed in their early 20s than non-completers (OECD, 1998, p. 8). Thus this project took on the important role of exploring changes to the new HSC in NSW with a special emphasis on VET, and on how teachers, students and families managed.

Policy and Practice —
What the Literature Suggests
In this paper, some observations are made on managing education through policy research and analysis, drawing on this example of a major policy change that could only work if it worked at the school level. The experiences built on in this report are grounded in a set of policy processes that are currently impacting on school-level and district-level policy decisions in a number of different contexts throughout NSW and elsewhere in Australia. These processes offer a way to think about future policy development, underpinned by a collaborative research partnership (see below).

At the macro level, policy is represented as decisions that mandate action. A change in policy is intended to result in new ways of doing things that result in improved practices or more efficient and/or effective use of resources. Our interest in this Australian Research Council funded SPIRT (now Linkage) project was the intersection between macro and micro-policy, that is, policy events that have systemic implications and were intended to significantly change existing local practices, with particular reference to VET in the “New HSC” years (senior high, Years 11 and 12).

In the school sector, as well as TAFE, this type of policy decision usually involves changes to such things as resource levels and distribution, curriculum content and structure, assessment regimes and reporting methods. Any of these would represent a significant new policy footprint, though research and anecdote suggest that such footprints often are not very large or deep, and easily lost with the tide brought in by the next policy directive.

Research evidence that supports the view policy decisions frequently do not result in the intended changes to existing practice can be found in, for example, Ball (1994); Caldwell and Hayward (1998); Ball, Maguire, and Macrae (2000); Crump (2001). In the worst cases there appears to be a policy–practice dichotomy that requires practitioners and leaders to adjust to a work environment characterised by paradox and ambiguity or retreat into “presentism” and just ”get on with” their teaching. This phenomenon results in educators having to negotiate differences between the espoused policy rhetoric of the organisation and the practices that are modelled within it at different levels (centre, district, school).

What this leads to is the phenomenon where there are often two schools in one: an official school as formally recorded in
documents, and the informal school as it exists in daily practice. The same can be said for early education, for technical and further education and for higher education. There is thus an interesting meeting ground in these sites between macro and micro-politics that has rarely been exploited in managing education policy. As Ball (1994, p. 10) argues, policy is part of the workings of the state but it is also:

... text and action, words and deeds, it is what is enacted as well as what is intended. Policies are always complicated insofar as they relate to or map on to the 'wild profusion' of local practice.

I recognise, however, that while policy paradox and ambiguity are not unique to educational settings, the consequence in education is significant given that those consequences impact on young people's lives. In educational settings we expect that the most significant changes are intended to improve the educational outcomes for the majority of students with the greatest benefits flowing to those for whom the system has traditionally worked least well. However, school practices unequally distribute power between groups.

It was clear at the start of this project that unequal distributions of power also need to be understood as unequal distributions within groups. For example, inequitable structures of power exist between groups of students and between groups of teachers and administrators. While this is not a new insight (see Lynch & Lodge, 2002) it has not penetrated policy making as deeply as it should, especially when dealing with the traditional divide between vocational and general education, complicated as it is by gender, class, ethnicity and racial factors depending on the type of school and its location.

Effective macro-policy should result in changes to institutional practices that are consistent with the changes desired by decision-makers, though contextualised to suit the particular constituency of the local site (be in school, college of TAFE or university), and the professional skills of the site's staff.

The aim of policy management outlined in this paper is that of allowing growth within the context of centralised policy hierarchy and power. This is a significant advance on linear implementation policy models, and even on models which see policy as a cycle. This view was a premise of the SPIRT project from the start. All policy ideas have the potential to improve or make worse the issues they are addressing. The research task set for us, as expressed by Ball (1994, p. 11), was not intended "to minimise or underestimate the effects of policy"; rather, we hoped to problematise them to better understand the ways we can improve policy inputs, processes and outcomes.

We think the way educational change is managed through policy implementation is central to making a positive difference, or not, to the lives of teachers and students as well as to social and public policy objectives for the state and nation. Thus, the aim of school-level management of VET in the "New HSC" should have been to enable systems, sectors and individuals to continue the policy process. This is possible only in an organisation where interests are reasonably equitably distributed whether that organisation is the school, college of TAFE, district (and now regional) or state office.

Research Data and Analysis
The research plan envisaged fieldwork in eight public secondary schools across the state of NSW. This number of schools was chosen in order simultaneously (a) to represent the social and geographical diversity of the public school system, (b) to gain enough understanding of each individual school and its community to understand VET issues in concrete detail, and (c) to remain within credible limits of time and likely funding. In each school it was proposed to interview students enrolled in Year 11 and 12 VET courses,
while also to feed information in "real time" to the BOS and DET to help with the development of curricula and other issues related to the implementation of new courses. Reproduced below is the application summary, which held true for the life of the project.

Australian education systems face difficulties in reforming their structures while maintaining full access for all social groups. This project examines vocational education as a key issue for disadvantaged groups in the reform of the NSW HSC. A combination of methods — statistical research, school ethnographies and interviews with students and parents — will feed rich information back to administrators and teachers making the changes, while the new curricula are actually being introduced. The project seeks both to improve the relevance of new curricula for disadvantaged groups, and to pioneer a model for linking research to policy development in education.

Early in the data collection phase, we asked ourselves "Does the practice of VET in new HSC represent a closing down or opening up of educational and employment/career horizons for young people?" This general question encompasses families and schools as institutions and cultures/sub-cultures. The aim was to explore the stated objectives of a set of new policy objectives against sets of practice (the experiences and perspectives of participants from eight different case studies). The question leading this exploration was "How can institutions synthesise their planning to facilitate practice?" Before reviewing one school leader's response, general positions are presented for a number of themes:

• Theme 1: Reactions to industry curriculum frameworks in a school's program.
  (Parents): Yeah. Better than the old days ... I think it's fabulous, and combining with TAFE is an excellent idea" ... they're one step ahead when they do leave school.
  (Students): I think the units we do (for 'Metals') are the same as up in TAFE. I think if the course was up at TAFE that it would be much more free flying and you would get credit a lot quicker.
  (Teachers): We are held in pretty high regard by most of the staff which is nice. Because I hear sometimes when I go into other schools that the (VET) teachers feel they count for nothing.

• Theme 2: The school community formulates an explanation of the new HSC, replacing the fixed creeds of earlier HSC practice?
  For a whole lot of kids it has made school a whole lot more relevant.
  I think the other good thing about the VET though is the opportunity to do the examination. I'm not saying that it has increased the credibility of the subject but it has made it a lot more attractive to kids who want UAIs ...
  VET courses have been quite attractive to Koori kids as well. We've got a couple doing Business Services, and one of those girls out of the 'support class' is doing Hospitality.

• Theme 3: There are two schools in one? (a) as formally recorded in documents, and (b) as the school exists in daily practice.
  For the VET teachers, most of them, it's only one of their classes, and it's a substantial commitment to one of their classes where they're only teaching it for 6 periods.
  (School students at TAFE) treat you differently to how they treat you here. We're on first name basis there and they sort of follow the TAFE ('rules'. It's pretty casual. (The same students are) certainly not as rough as they were here.
• Theme 4: School–systemic–community connections are seen to be limited and unequal?

At the end of the day, the people that have to make all the compromises are the school. Toyota won't make them.
We change the schools. They (DET) don't make the change — they actually respond to what's happening.

• Theme 5: Schools (etc.) are experiencing a series of dislocations that force revision of practices, so the 2001 HSC reforms were disruptive to schools, though largely evolutionary?

Even though it's been a lot of work, there have been some advantages in terms of people re-evaluating what they're doing and why they're doing it, and having to think in terms of outcomes.

• Theme 6: New patterns of meaning about the HSC are emerging but so far these are incomplete, especially for ICFs?

I would have said, 5 years ago, that most kids were thinking about University and nothing much else. Whilst the majority of our kids still go to uni., there are a lot morenow considering other options because they've had the background (of VET) and have the skills (to extend in TAFE).

• Theme 7: HSC reforms are part of a larger movement in educational change.

VET has become a part of the school. We haven't said 'You're the dummies, you do VET'. It's integrated, so we've got a lot of quite academic kids doing VET courses for different reasons, so it's all inclusive ...

Discussion
Some premises were that these institutions tend to be poorly correlated, so that old and new expectations, differing as well as cohering, raise tensions in a way that are hard to resolve, except at the local level. In public management policy, not only in education, the tension between systemic objectives, and those that are local and specific, threatens to make driving reform through systemic policy, tenuous and ad hoc preventing real reform (Caldwell, 2001).

However, this phenomenon does not lead to a rhetorical fallacy (policy is just rhetoric). Policy is directed towards institutional structures (symbolised by buildings) and is specialised and legalised. But education policy research suggests that there is little (or poor) evidence for reflexivity within institutional structures.

The educational pathways and credential building practices of young people now can follow obtuse, tangential and sometimes improbable trajectories, aided and abetted by further and higher education keen to enrol students, often outside the UAC. Plus, students' talents are being recognised in contexts outside schools. Students are using work to make sense of schooling, as well as to further career goals in a way that traditional schools could never assist or enable students.

VETiS teachers know this and are able to put that knowledge to use when the school's administration provides the flexibility and where–with–all. This shift in perception, if widespread, could reaffirm the value of a community comprehensive secondary school, though most privileged government and non-government schools continue to shun VETiS, despite the clear advantages.

Therefore, a school's curriculum can create a perception of "choice" towards a brighter future for young people, but this can mask constraints shaped both by education systems and the socioeconomic and cultural milieu of each school's community. School and TAFE arrangements have not been ruptured, but micropolitical contexts remain the key to making new institutional formations work.

A school's leader is the keystone to these micro-political contexts, without which not much else happens. But what does happen when change of this
magnitude begins (Hargreaves, 1998). Resourcing VET in the new HSC did not include directly a policy for changing the organisational cultures. The failure to plan for regeneration of the original impetus for change lead to interim arrangements that, in some cases, differed little from the status quo, without strong leadership intervention. Even where there was strong leadership, the school leader sometimes felt disempowered and rudderless. For example:

I Have you wanted to send some messages back to the Department, or the Board, about what needed to change, you know, what would you be wanting to say?
P I'd be wanting to say that they're not going to invent teachers at all. I'd be wanting to say that the reporting system that they've adopted is absolutely disgraceful because we tend to be sending in the same — not exactly in the same information, which makes it difficult, but very similar — information to the Board, to the Department, to ASTF, to our district office, and you can't use the same, because it has to be in a slightly different form. So that's very, very time consuming. There's costs involved. Resourcing-type costs. I mean, I just had to buy a fax machine for the social science department because they've got to use it for the Business Services thing, so there's costs involved there. There's costs involved with staffing. More particularly say in Hospitality where there's a little group — 15 in the class. Very costly to run that.

I Sending them to VET, TAFE?
P Look, two schools in a country town maybe. A few schools in the city where they're close by, they can do it. But it certainly is not — we've heard principals whingeing "you need to work together". Well, you know, we've tried our heart out here. We've tried to do it, we have done it here, but in the end we had to give up because it was so ...

I Is it also about, kind of in a more general way, about the way the Department issues those kind of edicts?
P But what they tend to do is say "here's the way to do it" — if you can't do it, you're not supportive.

I Yeah, well, is it all about the culture of the organisation, that's ...
P They would have been better when Bridge Street was vacated some years ago — made it into a museum, but not moved to Market Street just said to everyone "all the teachers, would you go back to school and teach — the clerical people, put your district/regional offices up there. The small organisation, you can look after teachers' leave pay and whatever, and some of you have money". Take it from there. T & D ventured in and spent billions of money — we never see a thing in school. We've got curriculum branches — I don't know what they do. We've got hundreds of people in these curriculum branches. There's another 20 positions in Voc Ed just been created at a fairly senior level. They don't do a thing for me, I don't know what they do. They prove who can be — I don't know what they do. But they don't effect a thing that happens here ... I'm a cranky old principal aren't I [laughs].

The poverty of expectations, even failure of imagination, is not something to be pinned to the individual leader, but on to the occupational culture and systemic milieu, sometimes maelstrom (as a present) within which educational leaders work and are expected to make work. Human nature itself tends to favour responding to demands like those outlined above within a context of experiencing similar demands, whether well or badly, in an earlier context (possibly only months earlier). School
leaders tend to hear what they expect to hear in policy pronouncements. Unless something quite radical is proposed, peoples’ mindsets do not get re-calibrated, but simply reinforced, despite the policy intentions that there be a change of direction. It is extremely difficult to reshape educational practice simply through a policy directive. As the example shows, trust is a complicating factor in all this.

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References


Diversity in Post-compulsory Education: Problems and Prospects for Multi-sector Partnerships

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The dramatic increase in retention to Year 12, from 35 per cent in 1980 to 73 per cent in 2001, has had important effects on post-compulsory education provision in Australia. The changing student population and purposes of senior secondary education have led not only to diversity in curriculum and pedagogy within existing secondary schools, but also to diversity in institutional arrangements. This paper discusses prospects and problems of the relationship between senior secondary education and other educational sectors, which traditionally have functioned separately. In recent years, senior secondary education has been re-aligned, in some instances, with further education rather than with junior secondary education. Experienced most clearly in multi-sector campuses and through inter-sectoral arrangements, the increasing diversity of educational provision for young people is redefining post-compulsory education, with the potential to enrich learning cultures in Australia.

This paper provides an account of the history and rationale behind the planning for a multi-sector partnership in education, with reference to some research findings on a range of issues relevant to the topic. After an outline of the project brief, key “problems and prospects” will be addressed. The points present a variety of views as “discussion starters”, not necessarily proven points, nor ones necessarily explanatory of a specific case. On the basis of some of these issues, and the broad sweep of information exposed by the process, a view on some “essential features” of the a multi-sector partnership is presented at the end for discussion.

**Diversity in Post-compulsory Education**

Various approaches have been adopted in education, in a variety of organisational structures, designed to give better integration of services and delivery through cross-sectoral and/or collegiate groupings. Since the 1990s the New South Wales educational system has diversified, with an increased number of selective high schools, specialist high schools and senior colleges. The first senior college, St Mary’s Senior High School, was established in 1989. By 2003, another four stand-alone senior colleges have developed within the public system, as well as nine senior campuses which are part of a collegiate structure with junior “feeder” schools.

Many senior campuses/colleges have collaborative arrangements with educational providers from the TAFE and university sectors, occasionally through location on the same site. Senior campuses which are part of a collegiate tend to maintain many of the usual school practices, such as the continued
existence of school uniforms, although some senior campuses pride themselves on their "corporate look" uniform.

The development of collegiate structures is part of a system-wide strategy in New South Wales towards diversification (Cisłowski, 2001). A plurality of models was recommended by several respondents in a study by Lundberg on the provision of post-compulsory education (1995), with one school principal commenting that "No one single model will be right for every senior school student" (p. 124). Similarly, the recent Victorian Ministerial Review of Post Compulsory Education (Kirby, 2000) recognised that flexibility in the delivery of programs is required to cater for the diversity of needs of young people.

While it has been reported that Victoria has most multi-sectoral institutions combining university and TAFE elements (Anderson, 2000), activity is growing rapidly in NSW. One of the NSW Government's election commitments in 2003 was to break down barriers between schools, TAFE colleges and universities to maximise cooperation across the public education sector. Examples of multi-sector and joint campus sites in NSW include:

**Bradfield College** (North Sydney) is a stand-alone senior college, managed by the Northern Sydney Institute of TAFE to provide education for students who are studying for both a Higher School Certificate and a TAFE Certificate. As part of this training students are provided with 1 day per week of industry training. The college administers the entry of students into the Board of Studies courses and monitors the requirements for the Preliminary Record of Achievement and the Higher School Certificate as well as the six TAFE Certificates offered by the college.

**Callaghan College** (Newcastle) includes Jesmond University High School, Wallsend and Waratah Technology High Schools to form a senior campus and two campuses for Years 7–10. The University of Newcastle and Hunter Institute of TAFE will be partners in the college providing credit towards TAFE and university qualifications. There is a "sister" senior college recently developed at the Great Lakes on the Central Coast.

**Central Coast Campus** (Ourimbah) made up of the University of Newcastle, Hunter Institute of Technology, and the Central Coast Community College. Joint approach — "an integrated single management, with only one set of buildings, one library, one set of laboratories etc., which all institutions share". University courses include information technology, building and construction, business and commerce, and humanities.

**Coffs Harbour Education Campus** includes Southern Cross University, North Coast Institute of TAFE and Coffs Harbour Senior College (a government high school). “There are no sectoral boundaries between facilities on the campus; all are jointly owned and utilised as appropriate by the three partners. Students share all facilities. Classes from all sectors are on an integrated timetable and the staff from all three sectors have offices in a shared environment”. Offered for university study are: introductory computing, foundations of management, and applications development.

**Dubbo College Senior Campus** forms part of the new Dubbo College, together with two junior campuses. The transition of three high schools to the new junior/senior campus structure began in 2000 and is now complete. The senior campus is located next to the Dubbo campus of Charles Sturt University, Dubbo School of Distance Education, and the Dubbo College of the TAFE NSW WI, and facilities are shared between these campuses.

**Georges River College** Senior Campus draws its intake from three schools, Penshurst Girls’ High School, Peakhurst High School and Hurstville Boys’ High School. The Southern Sydney Institute of TAFE and Adult and Community Education offer courses on this campus. Two universities — Wollongong and University of Sydney — have a presence.
The school has over 800 students in Year 11 and Year 12.

Nirimba Education Precinct and the Nirimba Collegiate Group is co-located with the University of Western Sydney (Hawkesbury and Blacktown), Western Sydney Institute of TAFE, Senior DET College (Wyndham), Senior Catholic College (Terra Sancta); three feeder high schools (Quakers Hill, Riverstone, Seven Hills). Numerous pathways through HSC/T AFE to university degrees are offered here.

Northern Beaches Secondary College was set up following an extensive review of secondary education in the Northern Beaches area in late 1999. Under the “New Horizons: The Northern Beaches Education Plan” it is intended that the district will offer its students university study, TAFE (NSW) training and a full range of secondary education opportunities. There is a new multi-campus secondary college, Northern Beaches Secondary College, with a separate senior campus for Year 11 and Year 12 students on the present Freshwater High School site. There is a new TAFE Business Centre for business studies, information technology and e-commerce, operated by the Northern Sydney Institute of TAFE. A new Study Centre for the University of Technology, Sydney, will be established, offering students the opportunity to study selected courses articulated with the university’s programs. By 2003, Year 11 and Year 12 students will be able to elect to study all or some of their courses at the new Senior Campus, and an enrolment of about 500 is expected. UTS considered offering courses in engineering and nursing “and more, enabling students to ‘fast track’ degrees”.

South Coast Education Centre, consisting of Shoalhaven Centre and Bega Education Access Centre, and affiliated with University of Wollongong and Illawarra Institute of TAFE. A senior high is planned for the Nowra site. University courses include Bachelor of Arts and Bachelor of Business Studies. Other degrees can start at SCEN but must be completed at Wollongong.

Enriching Education Through Post-compulsory Partnerships?

In 1999 The University of Sydney approached the NSW Department of Education and Training to discuss the possibility of establishing a joint educational facility at Orange. On 2 August 2000 the Vice-Chancellor, Professor Gavin Brown, and the Minister for Education and Training, John Aquilina, announced the establishment of a study of the potential for an educational partnership between The University of Sydney (USyd), Orange, and the TAFE NSW — Western Institute (WI), called The Centre for Regional Education, Orange (CREO). The Minister invited the public school sector to consider involvement with the partnership.

The Federal Department of Education, Training and Youth Affairs, The University of Sydney (USyd) and The NSW Department of Education and Training each contributed equally to the cost of the study. By early 2001 recommendations were made on specifications for a multi-sector educational facility, located on the University of Sydney, Orange campus [UOso] site. The Steering Committee’s vision was for:

An internationally renowned multi sector educational partnership, which enhances educational opportunities and career paths for rural, regional and related communities and industries.

The final mission statement, developed in 2003, is:

To create and provide greater learning flexibility through high-quality, accessible education via a cross-sectoral partnership.

Anticipated features of the CREO were a significantly enhanced range of courses offered by USyd at the Orange campus. The role of the “Faculty of Rural Management” will be defined in its broadest terms, encouraging the development of courses beyond the field of agriculture. Other faculties from
The University of Sydney will develop an increasingly significant presence in Orange, in both an actual and virtual modes.

1. A significant increase in curriculum cooperation between schools, WI and USyd, including articulation of qualifications and embedding of WI curriculum items into USyd and UoSO programs.

2. The creation, documentation and marketing of learning pathways, from Year 11 to postgraduate degrees. This will be an ongoing process, ensuring that the CREO curriculum reflects community needs.

3. An increase in the number of students accessing educational opportunities in Orange and an increase in the retention of students.

4. The developing use of technology to facilitate distance education and alternate delivery models. Video conferencing and online delivery will be key technologies.

5. A clearly defined partnership for the leadership and management of the CREO. A model for the CREO will include a commitment to growth that enhances and ensures appropriate and relevant integration of curriculum, personnel and facilities.

6. A commitment by all parties to the sharing of relevant resources and facilities.

7. The relocation of some TAFE facilities to the Orange campus. As a second stage WI is also considering locating other facilities, relevant to the "site curriculum", on the Orange campus.

8. The establishment of a senior high school on the Orange campus (the preferred option of the CREO partners). The school would cater for approximately 600 Year 11 and 12 students and may grow.

9. The enhancement of co-operative industry ventures.

University of Sydney, Orange

The University of Sydney's Orange campus is located on a 500ha property just north of Orange in the Central Tablelands of New South Wales. Orange Agricultural College was opened in 1973 as a College of Advanced Education and its foundation courses were in the area of farm management. The first enrolment comprised 30 students and enrolments grew consistently during the next 13 years to the peak enrolment of 1,300 persons, of whom approximately 1,000 were enrolled for study by distance education. At the end of 1999 the operations at Orange were restructured and the Faculty of Rural management replaced the former Orange Agricultural College.

In autumn semester 2000 there were 375 students enrolled for face-to-face study and approximately 700 were enrolled for study by distance education. These students are enrolled in seven undergraduate programs, four of which are offered by either mode of study, one is available by face-to-face study only and the other two are offered by distance education only. The courses are in business and a range of courses in agricultural management, horse management and land resources management. A farm using 400ha produces beef and prime lambs within a recently developed sustainable agriculture model. A vineyard produces commercial quantities of winegrapes, which enables the university to produce and market a variety of red and white wines with its own Templer's Mill label.

In 2000 there were 80 full-time staff and a further 15–20 casual or part-time staff working on campus at any point in time. There are approximately half the full-time staff employed in the faculty, and it employs the majority of casual/part-time staff. The balance of the full-time staff support the operation of the campus, agricultural and viticultural enterprises.

Staff and student numbers are changing rapidly, as other university faculties are offering courses at the Orange campus. The first intake of students in the Bachelor of Pharmacy (Rural) started in 2003, as well as students undertaking the first year of a Bachelor of Liberal Studies degree.
ENRICHING LEARNING CULTURES

The library is a branch of the University of Sydney Library, one of a network of 25 libraries on 10 different campuses. The library has a large number of subject-specific databases which index journal articles, conference papers, government documents et cetera. Some of these databases include summaries and the full text of selected articles. Computers in the library have Internet access for student use. The campus has a variety of sporting facilities including basketball and tennis courts, a large oval suitable for football, soccer and cricket, and two hockey fields. The tennis courts and football oval have lights. A sports amenities building is located between the tennis courts and the oval has change rooms and storage space.

TAFE in Orange and the Western Region

The Western Institute of TAFE NSW has the largest physical area of any institute within New South Wales. It covers almost 50% of the state's landmass, from Lithgow in the east to Broken Hill in the west, Grenfell in the south to Lightning Ridge in the north, and some of Australia's most remote and isolated communities. These dimensions are unlikely to change with the latest re-structure in NSW, Lifelong Learning, but a number of regions will be reformed, and an Assistant Director-General located in Orange.

The Institute's 24 campuses enroll some 29,000 students annually, in the faculty areas of information technology arts and media, access programs, manufacturing and engineering, primary industries and natural resources, construction and transport, community services health tourism and hospitality, and business and public administration. The institute employs some 252 full-time teachers, 1,300 part-time teachers and 675 administrative and support staff.

Orange Campus currently comprises three sites, March Street, Anson Street and Forest Road. The institute's administrative offices are also located in Orange at Lords Place. March Street is the main campus site and houses campus administration, information technology arts and media, access programs, manufacturing and engineering, transport, community services health tourism and hospitality, and business and public administration as well as several institute functional units. This site also holds the campus library, canteen and main store. Anson Street houses construction, painting and decorating and provides office accommodation for some of the faculty managers. Forest Road campus houses the Primary Industries and Natural Resources faculty. This site covers 27.5ha and incorporates indoor and outdoor learning areas for each program area, together with specialist facilities for machinery storage, plant propagation, earthwork instruction and extensive gardens and plantings for horticulture demonstration.

Orange Campus of TAFE NSW — WI enrolled 6,454 students in 1999. Approximately 25% of these enrolments come from outside the Orange postcode. Orange Campus staffing comprises 66 full-time teachers, 292 part-time teachers and 143 administrative and support staff. The Primary Industries and Natural Resources Faculty in Orange enrolled 1,049 students in 1999, generating 167,219 actual student contact hours. These students studied within the program areas of extensive agriculture, intensive agriculture, amenity horticulture and mining/forest industries. This faculty delivered 30 different courses in 1999.

High Schools in Orange

There are five secondary schools in Orange, two public and three private. The public schools are Orange High School and The Canobolas Rural Technology High School. Orange High School has 1,066 students and 71 staff and is the original public high school in Orange, with a reputation for academic focus. The Canobolas Rural Technology High School has 833 students.
and 66 staff and draws many of its students from East Orange.

Analysis of enrolment data indicates that the public high schools are not attracting a significant number of students in the transition from public primary to secondary school. There is also evidence of a loss of students during the years of secondary schooling. The current total of Years 11 and 12 students in the two public secondary schools is 504. It is estimated that the combined enrolment would be closer to 800 had the schools been able to attract and hold students from the public primary schools. Whilst there are a variety of reasons for student movement in and out of the public system, it is evident that the non-government secondary schools have demonstrated consistent growth in student enrolments over recent years, at the expense of the public schools.

Secondary Schools, TAFE and University Research Issues

- NSW government offers scholarships to HSC students who have successfully completed VET courses to AQF Certificate Level II or higher; these scholarships are designed to encourage more school leavers to continue their education and training at TAFE NSW.
- Clearly identifying the progression opportunities to TAFE students: Sydney Institute of TAFE "mapped articulation pathways across a range of vocational areas for school students participating in VET programs. These maps were designed to assist school students to make better decisions about educational opportunities in TAFE NSW and employment prospects" (DET, 1999, p. 9).
- Some have challenged the pathway metaphor as oversimplified (Dwyer & Wyn, 1999, pp. 292–293), but it remains a useful concept. Students likely to be attracted to a multi-sector campus are already integrating study and work so their pathways may not be as sequential or linear as usual.
- VET is perceived as a fall-back position for a "substantial number" of school leavers: of 30,000 Victorian school leavers, 11% sought TAFE as first preference, but 24% actually enrolled after finishing school (Dwyer & Wyn, 1999).
- At one Australian university, 18% of commencing undergraduates were admitted on the basis of TAFE qualifications (Fuller & Chalmers, 1999).
- In meeting student needs, TAFE graduates raised questions about (Kirby, 2000):
  (a) lack of career counselling
  (b) information regarding course and subject choice
  (c) quality of equipment
  (d) convenience of venue and class times
  (e) course content not reflecting industry practice.
- 66% of TAFE respondents (n = 2,300) rated the top services as (Anderson, 2000):
  (a) employment services
  (b) information services
  (c) learning support
  (d) student association services
  (e) financial assistance
  (f) counselling services.

Problems and Prospects?

In working through the implementation of the CREO, only in practical existence since March 2003, a number of problems and prospects have been delineated. These include:

- Specific Needs of Rural and Regional Students. What is the underlying ethos of CREO in regard to rural and regional education? Can it successfully integrate existing and/or competing courses for regional community needs as well as service students statewide?
ENRICHING LEARNING CULTURES

• *Curriculum and Teaching.* What is the underlying ethos of CREO in regard to teaching and learning? Can it successfully integrate existing and/or competing cultures, from the University and TAFE perspectives and be appropriate for senior school students?

• *Flexible Delivery.* What is the underlying ethos of CREO in regard to flexible learning and delivery/distance learning? Can it successfully integrate existing and/or competing modes of delivery, especially with respect to emerging ICT capabilities?

• *Models of Management.* What is the underlying operational arrangement for the CREO, given the autonomy of the partner institutions, how can shared organisational understandings be encouraged and developed, and how can educational issues take precedence over territorial, financial, cultural and workplace issues?

**Reflections**

Factors contributing to successful amalgamations of universities with colleges of advanced education, following the Dawkins' reforms to higher education of the later 1980s, included: it is voluntary in nature, it is has clear goals, enough time was allowed for implementation, it established a firm timetable with realistic goals, it planned for real savings particularly with regard to administrative costs, and that there were frequent evaluative and reflective meetings. Much the same list can be seen to apply to the formation, and success, of cross-sectoral partnerships that came about in the late 1990s. Whether these partnerships promote student learning through the different sectors, strategically respond to student needs and values about education, and serve the differing purposes of each of the sectors has not yet been established. However, at least cross-sectoral partnerships are attempting to achieve these goals, and that is better than doing nothing about the unequal distribution of educational outcomes in Australia.

**References**


Changing Views on Knowledge and Knowledge Acquisition and the Role of Technology

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Multimedia applications enable the realisation of didactical concepts such as inquiry learning, collaborative learning and situated learning. These didactical approaches are not novel in the sense that they have just emerged, but multimedia applications help to realise these approaches in new types of contexts. The design of such a multimedia application is a multifaceted endeavor. First, the processes and difficulties involved in inquiry, collaboration and knowledge application have to be identified so that measures that actually support learners in these learning processes can be created and incorporated in the application. Second, personal, curricular and organisational requirements and constraints for the multimedia supported didactical innovations should be recognised. This article presents examples from large projects (SimQuest, KMQuest, Co-Lab, and ZAP) in which integrated learning environments have been developed and evaluated.

New types of (online) learning environments are becoming available for use in the actual classroom rapidly. Trends that nowadays dominate the field of learning and instruction are constructivism, situationism, and collaborative learning. More specifically, we can say that the new view on learning entails that learners are encouraged to construct their own knowledge (instead of copying it from an authority be it a book or a teacher), in realistic situations (instead of merely decontextualised, formal situations such as the classroom), together with others (instead of on their own). These new trends have not emerged just by themselves; they are based on changing epistemological views. First, knowledge is not seen anymore as something that is assessed in relation to an external objectivistic "truth", but as individually flavoured and thus potentially different between people. Second, these individual knowledge states are exchanged between professionals that seek for mutual understanding and agreement. In this respect knowledge has a strong social character. Third, we have started to value knowledge that is applicable in realistic situations, and thus is not restricted to abstract knowledge. Figure 1 provides an overview of changes in views on knowledge and related trends in learning and instruction.

Technology plays a major role in implementing the new trends in education. Constructivism is supported by computer environments such as hypertexts, concept mapping, simulation, and modelling tools (see De Jong & van Joolingen, 1998). Realistic situations can be brought into the classroom by means of video, for example in the Jasper series (CTGV, 1997), and collaborative learning is supported in Internet-based learning environments such as Knowledge Forum (see http://kf.oise.utoronto.ca/), Belvedere (see http://lilt.ics.hawaii.edu/belvedere/), and BioBlast (Carlson, Ruberg, Johnson, Kraus, &
Sowd, 1998). The next few sections provide a short summary of four large projects that reflect these new developments in learning and instruction.

**SIMQUEST**

**SIMQUEST** was created to serve teachers and learners involved in discovery learning. **SIMQUEST** is an authoring system dedicated to simulations for discovery learning. It has the following two goals:

- To provide *learners* with supportive environments for discovery learning, in the form of cognitive tools directed at scaffolding the processes of discovery learning.
- To provide *authors* with a flexible tool for creating simulation-based discovery learning environments, containing both technical and conceptual support for the authoring process.

The **SIMQUEST** authoring system was designed as an open system for the design and implementation of simulation-based learning environments for discovery learning. The **SIMQUEST** system is an object-oriented system, meaning that a large number of predefined objects are present which can be used to compose a learning environment. Object types include simulation models, interface elements, instructional measures and test elements. The object orientation of **SIMQUEST** means that each element in this library acts according to a specific protocol, making it relatively easy to extend the library with new elements (see van Joolingen & de Jong, 2003). **SIMQUEST** is, in the first place, meant as a design and delivery environment for teachers. Teachers normally are not programmers and have limited experience with the use of simulations for discovery learning. This means that they should not be required to write any kind of programming code, and that they should be well supported, both on technical issues and on the design and on the pedagogical background of discovery learning. For the technical design, authors have at their disposal the object oriented approach of **SIMQUEST**. Basically, they only have to select an element from the **SIMQUEST** library (which can be an element of the model, interface, or instructional support),
edit it (this is adapting the characteristics and filling in the domain content), and
determine the place of the element in the
total learning environment (this is e.g.,
determining when the element should be
available or shown to the learner). Part of
this process is displayed in Figure 2. For the
pedagogical support of authors SimQuest
contains an extensive information system.
This information system consists of generic
background information on discovery learn­
ing and dedicated information on the use of
SimQuest specific instructional aspects.
This dedicated information is, for authors,
accessible, through a general menu access,
but is also available in a context sensitive
way. For example, clicking the "advice
button" when editing an "investigation
assignment" brings the author directly to
information (definition, examples, etc.) on
investigation assignments (see Limbach,
Pieters, & de Jong, in press).
The primary learning goal for learners
working with a SimQuest learning
environment is to construct knowledge of
the domain under inquiry. This does not
necessarily imply that the learner must
know the model underlying the simulation
in all detail. The goal is to understand
the principles of the domain that account
for the observed behavior and/or the effects
of actions performed within the domain (we
have called this "intuitive knowledge", see
Swaak & de Jong, 2002). To reach this
goal, students have to overcome the many
problems they have with discovery learning
(see for an overview de Jong & van
Joelingen, 1998). In SimQuest applica­
tions, simulations are embedded in instruc­tional support, which is aimed at
supporting learners in the discovery
process. Currently, the SimQuest author­
ing environment provides four types of
instructional support for learners:
• Model progression. A learning environ­
ment created with SimQuest may
contain a number of different simulation
models, ordered along dimensions such as
difficulty, "order" (qualitative versus

Figure 2
Screenshot from the SimQuest authoring environment.
ENRICHING LEARNING CULTURES

Figure 3
Example of a simulation with an assignment for a learner.

quantitative), or perspective on the domain.

• Assignments. Assignments provide the learner with short-term goals, like finding a specified relation, predicting the behavior of the simulation or achieving a specified simulation state. In cooperation with model progression, assignments decompose the overall learning goal of a simulation into a number of subgoals. Learners can answer assignments and then receive feedback on their answer.

• Explanations. In the SIMQUEST authoring system, the author can define textual, graphical, and multimedia explanations. These explanations can be used to provide for extra information on variables, relations, or events in the simulation.

• Monitoring. The monitoring tool helps learners monitor, compare, and replay the experiments they have been doing, and that, in relation to answers to investigation assignments, can provide feedback on the relation between the experiments and answers chosen.

Figure 3 gives an example of a part of a learning environment created with SIMQUEST (see van der Meij & de Jong, 2003). In this learning environment (called “Moment”) learners explore the behavior of moment in two situations: moment on a bolt caused by a force on an open-end spanner, and moment on a hoisting crane caused by a load. The figure shows one situation with the hoisting crane together with an assignment for the learner.

Instructional support (e.g., assignments) and the simulation are fully integrated in SIMQUEST. The simulation can be set in a certain state by the assignment and can be controlled from the assignment by the learner. Also, values from the assignment are used for generating adequate feedback.

KMQuest
In the KITS project we develop an online simulation-based game (called KMQuest) in which trainees collaboratively learn about
knowledge management (KM). In order to achieve its objective, the project developed and implemented a model for game-based training that includes instructional interventions, mechanisms for remotely playing the game, a knowledge management model and a knowledge management relevant business model. In the game three players together play the role of knowledge manager in a fictitious company called “Coltec”. Coltec produces adhesives and is an example of a “product leadership” company. Players have to react to events that happen to the company and they do so by selecting knowledge management related interventions. They observe the results of their interventions by looking at the development of values of business and knowledge management related variables. KM-Quest is built in such a way that the specific case (Coltec) can easily be adapted.

In KM-Quest several instructional approaches are combined (see also Leemkuil, de Jong, de Hoog, & Christoph, 2003). By using a game the idea of constructive learning is introduced. Learners have to discover the underlying principles of knowledge management by introducing interventions and observe the effects of what they do. Compared to simulations as were described in the section on SIMQUEST, games have the additional characteristics that certain goals need to be achieved (learners have to optimise certain variables, e.g., profit, in the game), specific constraints need to be obeyed (e.g., learners have limited financial resources and every intervention they apply cost money, e.g., installing an intranet in the company), and there is some form of competition (in KMQuest learners have to reach a specific ambition level so they play “against themselves”). A related aspect is that games have a certain level of reality. KMQuest is situated in a “real” (or better realistic) company, there is an element of “surprise” (events happen, e.g., a competitor of Coltec has invented a new and very competing adhesive), the complexity of the situation presented resembles reality and there is a sense of “involvement” (learners play the role of knowledge manager). Finally, KMQuest is designed as a collaborative game; three learners collaborate and together play the role of one knowledge manager. KMQuest, therefore, has facilities to communicate over the web and also has “voting” mechanisms that learners can use to make decisions on certain action to take. In addition to these three characteristics that are similar to the trends signalled in Figure 1, KMQuest also contains a module in which learners are directly trained in performing the (complex) knowledge management procedure that is used in KMQuest. This procedure (to be distinguished from the KM principles discussed earlier in this paragraph) consists of a series individual actions and products that result from these actions. Figure 4 shows the interface of the first prototype of KMQuest. Involvement and situatedness is emphasised because the learner is sitting behind the desk of the knowledge manager. The two collaborative players are shown, and in the upper left corner the learner has access to the values of the main (business and knowledge management) variables. The books on the bookshelf give access to actual and background information. If an event occurs the newspaper starts to blink and the news (e.g., new EC legislation) is presented to the three learners. They then enter the notebook on the desk and by doing so open the KM model. Together they follow the steps in the model and decide upon which action to take in response to the event.

The first prototype of KMQuest was formatively evaluated with 18 managers of different companies in the area of consultancy, training and education, and research, and with a group of 23 students. The formative evaluation focused on the usability of the environment, the behavior of players and models, and the acceptability of the environment. A full account of the evaluation can be found in Christoph et al. (2002), a summary is presented in
Leemkuil et al. (2003). Some highlights of the evaluation are presented here.

In relation to the situatedness of the game it was found that learners had problems with transferring the underlying principles in the game to their own organisation. Also the constructive aspect led to problems. Learners found it hard to trace back the resulting values on business and knowledge management variables to the interventions they had selected. Some of these problems may be solved by introducing a reflection and debriefing phase in which attention is given to the general principles and ideas behind the situations encountered in the game and to transfer knowledge to other types of organisations. In this debriefing phase also an external human advisor could play a role. The collaborative aspect in the KMQuest prototype was found to have some shortcomings. The conclusion was that the central chat facility should be visible at all times so players can instantly see new contributions. It should not be possible that players miss messages because they have not opened the chat facility or because it is covered by other layers/windows. Furthermore, learners experienced problems in the collaboration since they had trouble locating other players. Players of the simulation game mention that they do not have an overview of the presence and activities of their peers when all are online. Workspace awareness can be improved by installing a kind of observation unit. This observation unit should inform players of the presence, location, and activities of fellow team members.

Co-Lab

In today’s working environment, employees have to collect, make sense of and use more and more information to keep up with developments in their field. To make the most of this information they need to acquire new knowledge and skills and develop better ways to collaborate with fellow workers based at different locations. The Co-Lab project is designed to develop a
learning environment that will give users remote access to a virtual workspace for collaborative inquiry-based learning using experimentation and modeling. Initially, Co-Lab will develop demonstration software for the fields of water management and climate control in greenhouses.

The objective of the Co-Lab project is to design, develop and evaluate a new system for collaborative, inquiry-based learning. Basically, Co-Lab follows an inquiry based approach with a number of (not necessarily sequential) phases: orientation, hypothesis, experiment, data interpretation, conclusion, and evaluation (see Njoo & de Jong, 1993; de Jong et al., 2002). Compared to simulation-based learning environments Co-Lab has a number of specific characteristics:

- In Co-Lab a series of instructional support measures is built in, as it is in the SIMQUEST learning environments.
- In Co-Lab expressing the conclusions of the discovery process is done in a specific way, namely by "modelling". Learners in the end create a runnable model of the domain. To create this model, learners are provided with modelling tools in the phases orientation, hypothesis, and conclusion.
- In Co-Lab, for discovery, learners do not only have a simulation environment available (as is the case in SIMQUEST) but also local and remote laboratories and databases. This means that learners can work with "real" data.
- In Co-Lab the learning process is a collaborative endeavor. Over and in all phases of the inquiry cycle three learners work together to reach the ultimate goal (a runnable model). Inquiry learning forms an excellent basis for collaboration since at a number of points in the learning process specific decisions need to be taken (e.g., which hypothesis to test, which variable values to change etc.). To facilitate this collaboration they have access to collaborative workspaces (based on whiteboards) and dedicated communication facilities.

The design of Co-Lab is based on a "building metaphor". Learners enter a building for a specific topic and may move between floors (different levels of the same topic) and at each floor move between a laboratory (to do experiments), a theory room (for the modelling aspect), and a meeting room (where overall planning and discussion takes place). Initially, in Co-Lab we will develop demonstration software for the fields of water management and climate control in greenhouses. For water management we have access to large external databases of water flow in actual rivers, for climate control in greenhouses an external laboratory will be built. Figure 5 shows an overview of a mock-up of one level in a Co-Lab building.

In parallel with the technical development of the Co-Lab environment, a comprehensive support system (similar to the one created for SIMQUEST) will be developed to help learners in their experimentation, collaboration and modelling activities. In addition, Co-Lab will be designed to be integrated with the curriculum.

ZAP

Experiential learning can be applied in many domains, among which the domain of psychology. Because we can easily experience the way we process different types of information, psychology is very suitable for an experiential type of education. The ZAP project tries to meet the needs of experiential learning in psychology.

ZAP stands for Zeer Actieve Psychologie, which is Dutch for Very Interactive Psychology. The aim of the project is to develop interactive learning material for introductory psychology courses. At the end of the project, the learning material will consist of about 45 short modules, called ZAPs, in which relevant phenomena and classical experiments from psychology are treated. Eliciting experiential learning and stimulating discovery and thus active learning can be considered as the central pillars of the project. Other
characteristics of ZAPs that were taken into account in their design are that they have to be interactive, short, simple and concrete. The result is that ZAPs allow students, as their name implies, to “zap” through psychological experiences in a way that will benefit their learning experience.

Interaction with ZAPs can foster experiential learning in two ways. Students can either take the role of subject and experience phenomena themselves (either by being part of an experience or by taking part in an experiment), or they can take the role of researcher and learn by discovery (e.g., by performing experiments with a dog to learn about classical conditioning). These interactions resulted in three distinct types of ZAPs. The first type is called experience ZAP. In this type of ZAP, students directly experience how they react to certain psychological phenomena. The second type is called experiment ZAP. In this type of ZAP, students take the role of subjects in a classical, psychological experiment. The experiment consists of several trials in which the subject has to give a reaction to a certain stimulus. After having completed the experiment, the learners get feedback on their performances by their data which can be compared to the data as can be expected from the theory. The third type is called discovery ZAP. In this type of ZAP, students take the role of experimenter. They can look at a psychological phenomenon by performing experiments on a virtual subject. From these experiments, the learner can derive the underlying theory.
However, ZAPs are more than solely interaction with the learning material. The phenomenon or experience is embedded in an introduction to the phenomenon and a theoretical explanation afterwards. The introduction starts with a concrete example from everyday life, so that students can easily identify themselves with the phenomenon which makes the problem situation clear. It tells what will come without giving away the underlying theory. The introduction is followed by the interactive component in which the learner learns by experiences, experiments or discoveries. In this component, the learner can think of explanations which can be checked in the theoretical component. The ZAP ends with additional examples from everyday life or with similar phenomena or experiments in which the theory plays a role. In this way the text in each ZAP is kept as short as possible and only functions to support the direct experience.

Figure 6 shows an interface of a ZAP, in this case the ZAP on a visual illusion, the Ponzo illusion. In this illusion subjects have to adjust the length of a line that appears to be nearby to a line that appears to be further away. Learners can ask for the difference between the two lines once they think themselves that they are of the same length and the can make a direct comparison by removing the “perspective” lines and dragging the lower line to the upper. After this experience they can do an experiment in which they are offered a large set of situations and have to adjust the bottom line. After having gone through all these situations the ZAP shows them their overall performance.

Trends and Conclusions
In the course of developing our environments they have become more situated. KMQuest is a nice example of a very
situated learning environment, not only for the topic chosen (the realistic Coltec factory of adhesives) but also because of the gaming and collaboration facilities. The Coltec case has been modelled to simulate a realistic company as good as possible. The underlying business model is a realistic and very complex model and includes not only the traditional “business variables”, but also an extensive set of “knowledge management variables” (see Anjewierden, Shostak, & de Hoog, 2002). In Co-Lab the situatedness of the learning environment has been extended by adding data sources such as real (remote and local) laboratories and also by introducing the collaborative aspect. This collaborative aspect is included to foster learning but it is also an important aspect of real scientific discovery (see Dunbar, 2001). Gradually, our learning goals have also shifted from specific domain related learning goals to include other professional goals such as “collaboration”, “communication” and “working methods”.

Developing learning environments that follow innovative pedagogical concepts is one thing, having them introduced in actual instruction and training is yet another accomplishment. For SIMQUEST we have now found cooperation with professional publishers and have produced simulation environments that form a unit with other course material (most particular a book). This helps teachers in the way that they now can choose for one integrated course and do not need to use the SIMQUEST authoring facilities to adapt a simulation to their own situation. Although, intended originally for use by teachers directly, we now have found that teachers do not have the time, skills and interest to design or even adapt a computer-based learning environment. Having the software fit with the curriculum is also a major concern in the Co-Lab project. One issue that is particularly important here is that working in the Co-Lab environment almost inevitably means that (a) this concerns a multi-hours involvement of learners, and (b) there is an integration of different science domains (physics, chemistry, biology etc.). The demonstrators to be developed in Co-Lab (in the areas of water management and climate control in greenhouses) are situated and appealing topics, but both require an integration of domains and an extensive time investment. Currently, this does not always line up with the curriculum structure. For KITS (KMQuest) we have made an extensive investigation of how KMQuest can be used in companies. The result of this is that we need to be very flexible, there is not one similar policy of companies. Overall, there seems to limited space for synchronous playing of the game at the workplace, therefore we have made facilities for an adequate asynchronous play mode. An example of this is that non-playing participants receive an email warning when a playing participant has changed something important in the learning environment. The approach taken is ZAP is somewhat different. The ZAP modules are short and can be used as the interactive part only or with the textual part surrounding the activity. This makes that they can be used very flexible, as stand-alone modulus or as parts of a (traditional) lecture. Currently, negotiations with an international publisher are close to being completed to market ZAPs worldwide.

Related to these issues is the very important place of the teacher or trainer (or training department). For SIMQUEST we have found that teachers have little experience in discovery learning, and especially the teachers we have been working with (who came from middle vocational training) had fear to give their students the freedom and responsibilities that these open learning environments require. What we found was that teachers sometimes restricted the freedom of discovery learning again and changed the learning environment in a very structured, set-by-step learning experience (see De Jong et al., 1998). What we see for the introduction of KMQuest is that companies have no structure for having a non-lecture type
approach. Participants in the game find it hard to maintain their involvement over time (when played in an asynchronous way the game may continue over a longer period), in the actual workplace many things happen that keep the participants from learning with KMQuest.

A third point that hampers the introduction of innovative learning environments is the need for new ways of assessment. Introducing new ways of learning necessarily means that new goals are reached and thus new assessment methods should be used. For SIMQUEST we have developed a new type of test, the intuitive knowledge test (Swaak & de Jong, 1996). For collaborative learning environments assessment methods that takes the learning process into account need to be developed.

Many innovative approaches to learning and instruction developed in projects fail to make it to the actual schools or companies. To have a lasting place in the actual curriculum, a strong relation between the software and the rest of the curriculum (in content, timing and approach) and/or the conditions in the working environment is a necessary condition. In addition teachers should have the adequate skills and the necessary commitment. Finally, there should be a readiness (and the formal authority) to use new ways of assessment.

Endnote

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References


An Action Research Study of Critical Care Nurses’ Informal Workplace Learning

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This paper is a work in progress that examines the question of how nurses’ understanding of their informal workplace learning strategies can enhance their nursing practice in the critical care unit of a large metropolitan hospital. Through action research, an initial focus group enabled the nurses to choose the means for exploring their learning. During the focus group, the nurses discussed the formal learning strategies currently in place in the unit and the learning that is achieved through informal learning processes. Options for exploring their own informal learning were discussed and the nurses chose to use narratives. The preliminary analysis of nurses’ narratives of their informal learning strategies has been undertaken. The narratives reveal not only the informal learning strategies that nurses use, but also the external forces, that impact on their survival strategies, of informal learning in a busy critical care unit. The narratives reveal stressful learning experiences, but the underlying reasons for apparently successful outcomes for the patients, are still to be investigated.

The critical care unit in which the research was undertaken is a 15 bed unit in a large metropolitan hospital in the southern hemisphere. The patient to staff ratio is generally one-to-one with up to four additional Registered Nurses. The unit is staffed for a nine bed capacity and when this is exceeded, relievers from the hospital pool, other wards, or nursing agencies are allocated.

The role of critical care nurses in the unit has expanded, due to the increased complexity of additional and changing surgical procedures and treatments such as, cardiac bypass surgery, continuous renal dialysis, liver transplants, and an additional trauma load undertaken within the hospital. Also, medical equipment that is predominantly managed by the critical care nurses, is constantly being changed or updated, often without consultation with the nurses who are required to manage the equipment. The training and the updating of nursing skills, consequent on this, is limited by the time and funding, that is made available for workplace learning.

In the critical care unit, there are workshops for nurses who are extending their skills from patient care to a team leader role, in which they assist and supervise others, and then to a role of shift coordinator. There are learning packages that have been produced by motivated nurses over a number of years, but need to be updated, and a unit manual, which is a ready reference for basic nursing care. Nurses who are not in the transitional phase between roles, or undertaking the critical care course, fall through the gap of learning. With variable shifts, it is difficult for nurses to attend learning sessions when they are presented. Sales representatives occasionally provide information on new equipment, in the form of a lecture and demonstration. There has been
very little in-service training for permanent night staff who must work 1 month per year of day shift to achieve the mandatory Occupational Health and Safety requirements and upgrade their clinical skills. The night staff may access the workshops in the unit if they attend during the day. Consequently, most of their ongoing learning is achieved informally through other nurses who may have some experience in the procedure, from manuals or by trial and error. It is difficult for nurses, especially part-time nurses, to recall the patient care for procedures that have not been undertaken for long periods. At these times, the nurses seek out the information, by any means, as best they can. The revision is informal and acquired as quickly as possible. Informal learning commonly occurs in all workplaces, for full-time, part-time or night workers. Beckett (2001, p. 91), argues that both “informal and incidental learning have emerged as significant concepts in the further development of workplace learning”. Garrick (1998, p. 1) recognised the rich sources of learning in the workplace and that “what is learned from experience is dynamic and open to multiple configurations”.

It may be through trial and error, incidentally, or through “just-in-time” learning from manuals or colleagues. Informal learning is described by Marsick and Watkins (1990, p. 7), in their seminal paper, as predominantly experiential, non-institutional, unstructured, self-directed and the outcome is not predictable. In contrast to formal learning, informal learning usually occurs under conditions that are not routine and so the normal response, of the adult learner, to the problem has failed (Marsick & Watkins, 1990, p. 6). Incidental learning is referred to as a sub-category of informal learning and includes trial and error, learning from mistakes, or learning by testing the limits with another (Marsick & Watkins, 1990, p. 13). It is a “by-product of another activity” and as the assumptions and actions are implicit, the learner may draw the wrong conclusions. Trial and error is not the nurse’s preferred method of learning in a critical care unit. In this environment, learning through taking chances or making mistakes can not be encouraged.

It is inevitable that in the workplace, learning will take place in informal settings. Many studies have shown that the workplace offers benefits that cannot be attained in formal courses (Billett, 1994; Boud & Garrick, 1999; Candy & Matthews, 1999; Evans, 1994). It is not possible to predict or reproduce the uniqueness of the real life context, that is, the expertise and infrastructure, in a classroom setting. Also, the motivation to actively learn new information depends on what the learner needs to know to do the job (Daley, 1999, p. 140), and on the urgency of the situation. The highly contextual nature of informal learning was identified by Hager (1998, p. 8) refers to the unstructured nature of informal learning. In the absence of any formal training, the close relationship to the individual learners’ workplace make it specific to that workplace and hence “unquantifiable” and undervalued, because it does not conform to industry standards (Billett, 1994; Boud & Garrick, 1999; Hager, 1998; Harris, Willis, Simons, & Underwood, 1998).

In this paper, the initial findings of the nurses’ narratives and discussion of their learning in the workplace will be described. The strategies that emerged from that enable them to enhance their learning will be discussed.

Methodology
The structure of the unit is open, both physically and socially, so the use of focus groups, in action research, enabled a collaborative approach. A qualitative approach, using focus groups, fits the openness both physically and socially in the critical care unit.

Sim and Snell (1996, p. 189), define focus group as a group interview-centred on a specific topic ('focus') and facilitated and
coordinated by a moderator or facilitator—which seeks to generate primarily qualitative data, by capitalising on the interaction that occurs within the group setting. (Sim & Snell, 1996, p. 189).

Focus groups can be used as a distinct research method or in conjunction with other methods (Morgan, 1988; Carey, 1995). In this study, focus groups will be used within an action research approach.

Lewin (1947, describes action research as a spiral of “analysis, fact-finding, conceptualisation, planning, execution, more fact-finding, or evaluation”. Fact-finding or evaluation in this study is the reflection on learning and critically informed plan of action that will take place in the focus groups. Wong et al. (1997, p. 3), describes action research as “collective, reflective inquiry that aims at gaining a fuller understanding of a practice situation and improving the quality of a social situation”. Action research enables the critical care nurses to participate in the decision-making and trial of the informal learning process. This approach allows the participants and the researcher to develop an understanding of the situation, from many viewpoints and to evaluate, and reframe the problem, according to the findings.

The participants were critical care nurses, employed part-time or full-time in the unit and who have either, a minimum of six months of experience in the unit, or in critical care nursing. Project information sheets were placed on the notice boards in the unit, including a request for nurses who were interested in participating, to approach the researcher. Following a series of three presentations in the unit, outlining the research, 20 Registered nurses who met the criteria volunteered to participate. The staff knew those who volunteered because they attended the focus groups during the overlap of shifts. It is not possible to maintain confidentiality within the focus groups in the environment under study. Therefore, prior to the first focus group, the participants were informed that they were free to discuss the research with any other nurses who were interested in the study. The nurses were identified for their comments and suggestions and encouraged to share the information that emanated from the focus groups. The aim was to promote a collaborative approach and to minimise the potential for polarisation between those nurses who were involved in the research and those who were not directly involved. The narratives, however were considered to be confidential by the researcher unless the participant clearly indicated that the narrative could be shared with other nurses.

The study was undertaken in three cycles of the action research spiral. The first cycle began with the planning phase as a focus group, in which the nurses explored informal learning and devised ways of investigating informal learning in the workplace. The action and evaluation phases of the cycle, began when the participants implemented their plans in the workplace setting. The next focus group comprised the reflection phase, in conjunction with the planning phase of the second cycle. In the second cycle, the participants discussed and reflected on their findings, and explored ways in which they may enhance or optimise their informal learning skills. Their decisions and choices were explored, by the participants, in the clinical setting, during the second action and reflection phases.

In the third cycle, the participants evaluated and discussed their findings with an aim to putting into practice the most effective ways of enhancing their informal learning skills. The first cycle will be presented in this paper.

Results
In the first cycle, the critical care nurses looked at how they learn in the unit. Twelve of the 20 participants who volunteered were able to attend the first focus group. The time available for the focus group had been reduced due to the
workload on the day and the potential for staff to be called away. During the focus group there was a discussion on the informal learning currently taking place in the unit and a decision was made on the way in which the nurses preferred to record their learning. The options of questionnaires, or of narratives and anecdotes were considered and the group decided that written narratives would enable them to describe the way they are learning in their own way and it would be more informative. Subsequently, the group determined a list of guidelines for the narratives. Notepads, with the pages numbered so the sequence could be tracked and with the guidelines on the front covers, were placed on the nurses’ central consul. The narratives were written in the numbered notepads provided by the researcher or any bit of paper available or sometimes printed from their computer at home. The narratives took a variety of forms. Some nurses wrote a series of facts about what they had learned and some wrote about how they learned. Some described events that had taken place that were recognised just in time or that had a detrimental effect on the patient. When there was a detrimental effect the nurse wrote about the other’s learning as well the effect on the participant’s learning.

[Patient had been transferred to a different location in the unit.] 2nd Day. follow up with GNP (fairly new to unit) seemed a little unaware as these patients are usually “set up” I asked who had helped her. 3rd Day. follow up spoke with one of the TLs … (fairly new …) but was unaware of the GNP’s “newness” and that the patient had not been connected. 4th Day. Asked GNP’s preceptor … 7th Day. Saw GNP now seems more aware of connecting patients …

Some wrote about how they teach others and some described how they felt about the way they had learned or the lack of time to learn and the consequences.

… get someone who knows how to fix the problem. I explained there was no one in equipment and I have never cleaned the bronchoscopy. His … reply was get someone Now … Having worked so physically and mentally challenged all day, giving my best. I felt humiliated and worthless …

There is often urgency in the need to learn procedures that even experienced nurses may be unfamiliar with the management of new equipment.

Critically ill patient — requiring urgent treatment. Dialysis needed to be set up and administered rapidly. I had not performed this procedure before … Information was gained from collaboration with colleagues and by following the prompts in equipment manual and software in the machine. The situation was critical and the need to learn urgent. Procedure was completed successfully …

A section of the first group of the phrases from the narratives and focus groups are presented separately.

**Narratives**

Firstly, the researcher identified phrases that reflected learning in the narratives. For example, phrases such as “time for teaching”, “learning by teaching”, “clinical teaching skills” and “bedside orientation”, “showing/demonstration”, “described how to do something”, “explained/told” were grouped under learning by teaching.

“Learning from each other”, “from a number of nurses collaborative”, “from team leader/shift coordinator”, “learning from colleagues” and “identify nurse ‘expert’” were grouped under learning from others.

The category of self-directed learning emerged from “revision”, “trying things out”, “practising”, “problem solving/trouble shooting”, “watching others”, “learning from mistakes” and “lack of experience” and “observing”.

**Focus Groups**

There was also a discussion about shift by shift bedside hand-over and the teaching and learning inherent in this interaction.
between nurses. This emerged as a category from "learning from the nurse on the previous shift", "learning from the Senior at medical handover" and "from bed-side hand-over". The disadvantage is "it doesn’t reach everyone", is "possibly inaccurate" and "wrong things [are] passed on for days". The nurses also spoke of the "time constraints" in detailing hand-over as a disadvantage.

Nurses spoke of "looking for those who will know", "looking for the one who has the experience", "use the <equipment> once and you’re the expert", "ask around the unit who knows", "easier to ask someone" and "asking how to do something". They were identifying nurses they were asking who were resources of specific knowledge.

A category reason for asking emerged from "quicker to ask than use the manual", "ask some one if it’s urgent", "lack of experience", "problem solve quicker for a person, rather than helping him problem solve", "manual doesn’t solve problems", "easy way out", "creates good interaction", "you’re not gonna know everything about everything" and "you’re gonna have to always tap into someone else’s brain".

Self-directed emerged from "working it out for your self if no one’s around", "working things out" and "I question and look up things but does everyone do that?"

There was one specific reference to stories in the tea room, but the nurses talked about and wrote about finding things out in the tea room. The phrases that emanated from these stories in the tea room fitted other categories.

Discussion
In this study, an action research approach enabled the critical care nurses to explore their experiences of learning in the workplace and reflect on the way that they may shape their working environment.

The emphasis in the narratives, was on how nurses are learning rather than what is learned. The focus groups differed from the written stories in that the focus groups, centred on what happens with informal learning in the unit and learning in general.

The categories that emerged, reflected strategies that allow the nurses to efficiently gain the information they need, in a timely manner. They also use mechanisms for gaining the most accurate information to meet the specific needs of the patient, by identifying those who they consider have the expertise.

Learning by teaching implies necessarily reflecting on a process in order to retain it and teach it. In contrast, the strategies that are grouped under the categories of learning from others, asking and reasons for asking emanate from the need to acquire relevant, accurate information for immediate use possibly without reflection. The lack of reflection as observed by Jarvis (1987), has the potential for non-learning responses to situations with no learning outcome and subsequently retention of knowledge may be limited. The nurses who are motivated to learn by teaching are themselves engaging in self-directed learning. However, although it is recognised that "unstructured informal" training in which workers are "helping others learn in their setting" is occurring in workplaces like the critical care unit, it remains undervalued as a means of learning in the workplace (Harris & Simons, cited in Velde, 2001).

"Problem-solving, practising, question-ing and finding things out" were grouped into self-directed learning that emerged as a category in the narratives and focus groups. These means of enhancing knowledge through self-directed learning are pursued by some nurses but not others. The nurses are afforded the opportunity to learn but the opportunity is not always taken up, not only when more formal learning opportunities are offered as identified by Billett (2001) but also with informal learning processes.

The unit became busier and the nurses found it increasingly difficult to write their stories of learning. They participated in action research with all the restraints of
shift work, of not all being able to get together, with emergencies and having to take the phone to the focus groups in case a “retrieval” arrived. They not only needed to explore how they were learning but also how to find the time and the means to explore it.

**Conclusion**

It was found that the critical care nurses developed learning strategies that enabled them to gain the information they needed at the time as quickly as possible. They primarily access information from colleagues who they consider to have the appropriate expertise, but also use other sources of information in the unit and troubleshoot problems. They recognise teaching as a means of enhancing their learning and the significance of self-directed learning in teaching.

*Stories in the tea room* will be explored further as will problem-solving that may emerge as a separate category. The phrases “learning from others’ mistakes and your own”, and “the stuff you learn informally is retained better because you relate it to the patient or event” also have the potential to lead to other categories or overlapping categories.

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**References**


Learning in a Knowledge Economy: What Strategies are Required?

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The concept of a knowledge economy presupposes that those working within it are able to construct, deconstruct and reconstruct knowledge in order to meet changing conditions of work and global markets. This leads to a fundamental question which needs to be addressed by vocational education and training practitioners and policy makers: how do we best prepare our current and future students to access, maintain and manipulate information within such a climate? This paper reports on some of the tentative findings of a nearly completed PhD research project. Although the research focused on the perceptions of practitioners of how they adapted their current competence when moving across changing or different contexts, there was also an emphasis on the strategies which would enable such knowledge and skill transfer. The paper discusses these emerging strategies and speculates on how learning might be understood and practised.

The concept of a knowledge economy, knowledge workers and/or knowledge society is based on the premise that the construction and reconstruction of knowledge is a marketable commodity. This necessitates a change in the way in which we view learning. Learning can no longer be seen to reside in the domain of formal education. Instead it becomes an essential and frequently used part of our everyday work and life activities.

What, then, is the role of educational practitioners with respect to knowledge and learning and how is the shape and nature of learning transformed in its role as a marketable commodity? Certainly the idea of the academy as a group of those whose role is the creation, dissemination, validation and protection of knowledge becomes an outmoded concept. Learning becomes an everyday, universal activity by which information and observation is transformed through reflection and experience across different contexts, to a greater or lesser extent, to create or reshape knowledge.

Knowledge as a marketable commodity also creates new hierarchies by which knowledge is valued. Knowledge may be created by individuals, by groups, by communities, by societies and by globalised systems. Its value to others will depend on such factors as:

- its degree of specificity or universality with respect to contexts and applications
- the ability for the knowledge to be generalised
- its range of applications
- the parameters which have been built around its dissemination (e.g., copyright)
- its usefulness to others.

All this means that educational practitioners need to rethink their role with respect to learning; both as facilitators of learning and as learners. Barnett (2002) describes the conditions under which we work and learn as those of supercomplexity. He
argues that, in a world characterised by contestability, challengeability, uncertainty and unpredictability, the frameworks we use for comprehending the world, for acting in it and for relating to each other have become problematic. “Work has become learning and learning has become work” (p. 7).

Learning Through Work

Work is not necessarily a site of learning at the individual level. Much work is routine and our absorption in the particular often means that we do not question or reflect on whether the ideological spectacles through which we view our world need adjustment. However, on a societal level, learning is deeply embedded in work. Barnett (2002) argues that there are three dominant factors involved, namely:

• the interconnectedness of economies means that the events and actions of those at a distance have effects at a local level
• the rise of the evaluative (or audit) state “spawn(s) more and more complicated internal quality assurance systems which impact on work (at the local level)” (p. 11)
• the information technology revolution, and the forms of communication that the computer makes possible, leads to significant learning within the workplace.

Such embeddedness is structural and manifests itself in the culture, practice and mores of the workplace. Failure to respond to the need for learning to keep pace with change will result in what Barnett calls “a self-imposed redundancy” (2002, p. 12). Work increasingly provides opportunities for personal change and development, that is, for learning opportunities.

Lave (1993) argues that, even at the individual level, there is no separation between participation in work and participation in learning through that work. Microgenic development, or moment-by-moment learning (Rogoff, 1990, 1998), occurring through work is shaped by:

• the activities individuals engage in
• the direct guidance they access
• indirect contributions provided by the physical and social environment.

Basically workplace activities act to reinforce, refine and generate new forms of knowledge. This is analogous to what Piaget (1966) referred to as accommodation and assimilation. Consequently, learning through work can be understood in terms of the affordances that support or inhibit individuals' engagement in learning through work. Such factors include:

• opportunities to participate in work activities
• the contested nature of the workplace environment with respect to participation
• the struggle of contingent workers (part-time and contract) to maintain their skill currency relative to full-time workers (or, in some situations, vice versa)
• the practice of rewarding competence with invitations to further participate widens existing skill imbalances.

For example, Wertsch (1998) argues that the agency of the individual will determine whether the learning is mastery (as in the cheerful enquiries by staff at McDonalds as to whether you would like some fries with your ice-cream sundae) or appropriation (when the rare staff member from the same chain consistently demonstrates through his/her sales patter that for effective on-selling there must be an obvious link between the product the customer has already purchased and the product being suggested). One of the consistent mistakes within the Australian vocational education and training (VET) system has been to see competency-based approaches as mastery rather than as a transformative educational process based on defined outcomes.

The research of Billet et al. (1998) indicates the potential of individual agency
LEARNING IN A KNOWLEDGE ECONOMY: WHAT STRATEGIES ARE REQUIRED?

to offset some of the limitations of an environment whose affordances are weak; and to determine what enables an individual to participate. More pertinently, it showed that the readiness and the capability of the individual to participate and to engage in workplace learning is critical.

... the kinds of opportunities provided for learners will be important for the quality of the learning that transpires. Equally, how individuals engage in work practice will determine how and what they learn. Nevertheless, these factors may be overlooked if the links between engaging in thinking and acting at work and learning through these actions is not fully understood. (Billet, 2001a, p. 67)

Billet (2001a) identifies three important conceptual implications which arise from this understanding. These might be summarised as:

1. Rather than being a mere element of social practice (e.g., Hutchins, 1991), individual agency within social practices is both interdependent and independent (Engstrom & Middleton, 1996). Individuals' socially derived personal histories (ontologies), together with their values and ways of knowing, mediate their participation and learning within social settings.

2. Individuals' participation at work is neither passive nor unquestioned. Billett's research showed that even when the workplace is highly invitational, individuals may elect not to participate in learning. This suggests that a range of invitational qualities are required to enable all participants to participate in ways that allow them to contest and/or transform existing values and practices and to find meaning in participation.

3. Workplaces can facilitate the hard-to-learn knowledge of vocational practice. It is, therefore, important that individuals' have the capacities necessary to take advantages of the affordances offered by workplaces in order to achieve rich learning outcomes.

Motivation for Learning

However, if learning is structurally embedded in work, work is similarly embedded in learning. Learning presents both personal and intellectual challenges; it takes us out of our zone of comfort and challenges our identity both as a worker and a learner.

It, therefore, follows that there must be a strong motivation for learning. A basic and most effective motivator is the need to do something which is currently outside your capability. Workplace change, both organisational and functional, produces the necessary conditions for learning.

The information technology revolution has demonstrated the quality, and ease, of learning which occurs at the point of need and at the time of need. Most workers have developed their computer skills through a combination of formal learning activities, assistance provided by co-workers in times of need and task-oriented trial-and-error. It is the second strategy which is commonly the most effective as it is immediately followed by the application of what has been demonstrated — often on a repetitive basis.

It can thus be argued that the greater the separation between learning and its application, the more likely that the learning will be superficial and transient. Nor, in the supercomplexity of today's workplaces can we make learning safe or lower the inherent risks in the learning process. The uncertainty inherent in the process of learning can only be overcome through critical engagement.

We combat multiple and conflicting frameworks not by resisting them or giving in to them in any facile way. Instead, we live dangerously with them by bringing to bear yet further possibilities of thought and action, which we in turn subject to critical scrutiny. (Barnett, 2002, p. 19).

The Nature of Learning

Each profession and vocational area has its own mix of factual knowledge, theoretical
principles, competencies, understanding of actions, process knowledge, tacit knowledge and communicative competence (Barnett, 2002, p.8). Those wishing to participate within a particular profession or vocational area need to engage within the particular community of practice of that area. As Lave and Wenger (1991) argue, participation will initially be peripheral as membership of a community of practice is dependent on learning and perpetuating the explicit and implicit behaviours, understanding and values of that community.

Learning which occurs outside of the context of professional or vocational practice is preparatory learning and is, at the time, peripheral to practice. Such learning provides learners with an image of professional practice and, in many cases, provides the learners with the competence to engage with the practices, culture and mores of the workplace. However, such learning must be enhanced by engagement with the reality if it is not to remain a distorted view of everyday practice within that vocational area. It is the engagement in practice and reflection on the experience of that engagement which adds dimension to the learning and allows the development of the tacit and implicit knowledge which defines and gives shape to professional (or vocational) practice and organisation.

Workplace learning is grounded in the social relationships, proximities and hierarchies of the workplace. It is the understanding of the infrastructure and the ways people work with and within it which defines practice within a particular workplace.

As Billett wrote, “we humans are not passive recipients of what we experience. Instead we are active meaning makers” (2003, p. 227). The outcomes of learning will be shaped by the social circumstances within which the learning occurs but will also be mediated by the learner’s unique set of cognitive experiences. It is this interplay between individual agency and social contribution which provides the reciprocity between the learner and his/her social world.

Dimensions of Learning
A perusal of the literature about learning and, in particular, workplace learning, reveals a number of dichotomies by which learning is described, such as formal and informal learning; individual and group (or social) learning; and, more recently, bounded and unbounded learning. Of course, these are not really dichotomies but the end points of continua showing the relativities of the different forms of learning which occur simultaneously in learning situations.

For example, Billett (2001b, p. 21) argues that it is imprecise to refer to workplaces as informal settings for learning as workplace experiences are likely to be structured by the enterprises work practices. He argues that the difference is the degree to which the learning is formalised.

Perhaps the dichotomy which my research has foregrounded is that between bounded and unbounded learning. Engeström (1999) argues that standard theories of learning are based on the proposition that the knowledge or skill to be acquired is itself stable and reasonably well-defined and that there is a competent teacher who knows what is to be learnt. In contrast, learning in the workplace is often concerned with something which is not stable, nor even defined or understood ahead of time. This is the learning involved in personal and organisational transformation and thus, it can be argued, is the learning which forms the basis for a knowledge economy.

If we consider the two apparent paradoxes — formal and informal learning, and bounded and unbounded learning — and use them as vertical and horizontal axes then we develop a concept of learning which might be represented as Figure 1:

Thinking in terms of this two dimensional representation, then we see that there
might be four different categories of learning, that is:

- **Formal bounded learning** — that is, learning which arises within a curriculum framework in formal teaching and learning situations.
- **Formal unbounded learning** — that is, tacit learning which arises from participation in formal teaching and learning situations and which is unplanned and largely unrecognised.
- **Informal unbounded learning** — the understanding developed outside of curricular and structured work expectations which is tacit, contextual, personalised and very powerful in informing practice.
- **Informal bounded learning** — that is, learning at work and through life which imitates (but not completely replicates) the learning provided by formal teaching and learning situations.

This categorisation could then be extended through a third dimension, that of individual versus group learning then we get eight possible categories (see Figure 2).

Of the eight possible categories that such a representation depicts, only one of these, formal, bounded, individual learning, is the focus of most of the teaching and learning, assessment and recognition within our educational institutions. Whilst there are indications of a greater interest in formal, bounded, group learning and in the recognition of the unbounded and tacit learning which occurs from participation in formal learning situation, this category of learning is still peripheral to the traditional concentration of formal learning of known facts, processes, theories and principles.

The important question which faces workplaces and enterprises is concerned with the identification and incorporation of the group and individual, unbounded, informal learning which occurs through processes of change, such as the introduction of new machinery, new processes and new personnel. This is the learning which enables enterprises to function at the "leading edge" and which increases their preparedness for further change. Unless this learning is recognised and shared with management and co-workers, it will remain with the worker(s) concerned and will not add to the knowledge capital of the organisation.

Thus, learning support for enterprises and individual workers is needed to maximise the learning through and for work which is part of the everyday practice of organisations. This is being addressed through guided learning (Billet, 2001a, 2001b, 2003) and through mentoring and coaching programs within many enterprises. However, it is the development and implementation of strategies for preparing people to effectively learn through work and for such learning to be recognised and shared within the organisation which
is critical if we are truly to become a learning society.

Conclusions
Arising from my current PhD research is a sense that if we are to enhance learning so as to develop a sustainable and healthy knowledge economy that we need to rethink our common attitudes to learning and knowledge and, whilst not abandoning formal bounded learning, to recognise and support the far-reaching capabilities which members of communities develop through processes of unbounded and informal learning.

The rapid introduction of new technology and the concomitant information technology revolution have brought with them a state of permanent white water with respect to the stability of knowledge. This means that the traditional approaches to the development and recognition of knowledge are neither sufficient nor necessarily appropriate within such conditions. Rather than seek to support the development of workplace learning within our current approaches, we need to seek new paradigms and to value and recognise the potential of humans to develop their own individual or group understandings and to transform their practice in response to change.

Unless we can find ways to harness, support and recognise the outcomes of our informal and unbounded learning, especially that generated through the effects of change on groups of workers or communities, then the concept of a knowledge economy will, at best, further contribute to a fractured society where the gap between societal participants and those forced onto the sidelines will continually widen.

References


Employability Skills: Revisiting the Key Competencies or a New Way Forward?

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Over the past few years, there has been considerable research activity into the need for and role of generic skills within vocational education and training. This activity reflects an increase in industry enterprise demand for the generic skills necessary for work organisation, contingency management, problem-solving and working collaboratively. This paper reports on two ANTA initiatives aimed at identifying effective approaches to the inclusion, within vocational education and training, of a set of generic skills, identified by the Business Council of Australia, which have been given the collective title of Employability Skills. These initiatives are concerned with the development of models for the recognition and certification of the employability skills within Training Package programs as preparation for wider consultation with vocational education and training stakeholders.

The report from the Australian Chamber of Commerce and Industry (ACCI) and the Business Council of Australia (BCA), Employability Skills for the Future (2002), was commissioned by the Australian National Training Authority as a result of an increased interest in the development of generic skills within vocational education and training (VET). Its authors identified a number a personal attributes, generic skills and elements of these skills which were the building blocks of the Employability Skills Framework. In doing so, they acknowledged that:

- these skills build on the Key Competencies
- employer recognition and integration of the Key Competencies within work, learning and recognition were strong
- employers identified the importance of those personal attributes that contribute to employability
- the same critical mix of skills had been identified by small and medium enterprises and large enterprises
- the skills identified as critical were broadly consistent across industry sectors
- it was at the element level that the contextual and industry nature would become apparent
- the priority placed on the employability varied from enterprise to enterprise
- employability skills are as relevant as job specific or technical skills
- employability skills are relevant to both entry level and established employees
- there is strong recognition of the role of lifelong learning in skill development and response to change
- the skills identified in the framework underpin the capacity for leadership
- customer service is not an isolated skill but, rather, is the outcome of the integration of a range of different skills
- the employability skills are as important for effective participation in the community as they are in employment.
The ACCI/BCA report has received a mixed reception with the controversy centred on a number of key elements, namely, the term "employability skills", the skills identified, the proposed recognition of attributes as well as skills and the perceived lack of consultation within the VET community. Nevertheless, ANTA has accepted most of the recommendations of the report and has since commissioned at least three projects aimed at the inclusion of employability skills within Training Packages in order to ensure their development and recognition. As the author has been involved in two of these projects, this paper looks at where this work is leading and what it means for VET practitioners.

The Employability Skills Framework
The key skills identified in conjunction with the personal attributes to make up the Employability Skills Framework are:

- communication skills that contribute to productive and harmonious relations between employees and customers
- team work skills that contribute to productive working relationships and outcomes
- problem-solving skills that contribute to productive outcomes
- initiative and enterprise skills that contribute to productive outcomes
- planning and organising skills that contribute to productive outcomes
- self-management skills that contribute to employee satisfaction and growth
- learning skills that contribute to ongoing improvement and expansion in employee and company operations and outcomes
- technology skills that contribute to effective execution of tasks.

This selection of skills is not very different from the Key Competencies, which were identified more than a decade ago by the Finn Report (1991) and reformulated and enhanced by the Mayer Report, *Putting Education to Work* (1992).

It is not this selection of employability skills which has caused most of the dissent but the inclusion of a list of personal attributes which contribute to overall employability and in which these skills listed above must be embedded. These attributes are:

- loyalty
- commitment
- honesty and integrity
- enthusiasm
- reliability
- personal presentation
- commonsense
- positive self-esteem
- sense of humour
- balanced attitude to work and home life
- ability to deal with pressure
- motivation
- adaptability.

A Rose by Any Other Name Would Smell as Sweet?
By deciding to call the set of generic abilities they are championing "employability skills", the ACCI and BCA seem to be repeating one of the mistakes which was made with the Key Competencies.

Key competencies are not competencies as understood within a competency based framework. They should perhaps have been called capabilities which might have reduced the ensuing confusion about levels as well as the ongoing debates as to whether they should be embedded within other Units of Competence or taught and learned as a stand alone entity. By using the term capability, the sense by which these are the learning tools or glue, which enable the learning of other competencies and the embedding together of competencies into knowledge and performance, is clearly conveyed. In a similar sense, the employability skills are not skills in common parlance which often distinguishes between
doing and knowing as in the use of the phrase “knowledge and skills” in the definition of competence (ANTA, 1996). The ACCI & BCA definition of a skill, namely:

Term used to describe the learned capacity of the individual. Skills has been used instead of competencies reflecting the language of the enterprises interviewed and to avoid any confusion with the different ways competencies is used. (ACCI & BCA, 2002, p. 5)

does nothing to avoid confusion by using skill as an overarching term for learned capacity when it is commonly used to denote a performance. The continuing debate on the nature and role of underpinning knowledge within Units of Competence has its roots in the use of the term “skill” to describe a capacity for action, which consequently leaves in question the underpinning knowledge which may or may not be embedded within this action.

Of even more concern is the use of the term “employability”. Although the authors of Employability Skills for the Future noted that these “skills” apply equally to those in work as to those seeking work, it is the latter group with which the word is commonly associated. Employability carries with it the connotations of entry level, prevocational, low AQF levels when these generic capabilities are, clearly, an essential part of our lifelong learning and development as social beings.

It has been suggested that these should, perhaps, have been termed “employment capabilities”. This is preferable in terms of conveying a lifelong development — but only for some. It excludes the voluntary workers, the self-employed, those who choose not to be employed, the unemployed and retirees. The capabilities they describe are as useful in our out of employment lives as they are at work. They are essential capabilities for work but they are also essential for our lives as a whole.

Re-badging or Innovation?
The second issue of concern with the listing of the employability skills in Employability Skills for the Future is the actual “skills” involved. The longer one looks at them, the more obvious it becomes that these are basically the Key Competencies re-badged. It is true that using mathematical ideas and techniques has slipped off the agenda and that cultural understandings appears to be a non-starter. One wonders why. Is it the discomfit that many people have around their experience of school mathematics, that leads to a failure to recognise that estimating, prioritising, counting, making spatial comparisons and many other mathematical skills which we use everyday in our work are in fact mathematical skills? Do cultural understandings need to stay in the too-hard basket in a world which stresses working with others, collaboration and partnerships? How can we work together without understanding the “way we do things around here” and the factors which marginalise others in such an environment?

Initiative and enterprise and self management appear to be new to the list. Learning is an enhancement of the first of the Key Competencies defined by Putting Education to Work (Mayer 1992), whilst the other six can be viewed as a re-statement of the original Key Competencies. But are initiative and enterprise and self management really new?

When we look at the ANTA definitions of competency (ANTA, 1998, 1997), we find that the competency includes:

- task skills
- work organisation skills
- contingency management skills
- work environment management skills. Surely it is in our management of contingencies that we demonstrate our initiative and enterprise and is not self management an inclusive term for us being able to organise our work and operate effectively with the work environment?
As someone who has long argued that until our assessment of competency takes all these dimensions into account, we are taking a single dimensional view of competency and, as such, assessing the shadow and not the reality, I have concerns about this sleight of hand which moves essential dimensions of competency and renames them as employability skills. Of course they are essential for work — just as they are essential for existing in society. The worry is, by naming them as employability skills, do we run the risk of continuing to view competency as simply the ability to perform task skills under ideal conditions. Where then is the need for underpinning knowledge? My dogs can perform all sorts of obedience exercises — but even they choose or make judgements about when and where they will apply them!

It is to be hoped that the promised consultations with the wider VET community will provide the opportunity to renegotiate the actual skills which make the final list.

The Inclusion of Personal Attributes

The potential difficulties in systematically assessing one’s initiative and enterprise, within an environment where consistency is seen as a major concern and is often confused with sameness, pales into insignificance when we try to imagine how the “personal attributes which contribute to overall employability” (ACCI & BCA, 2002, p. 8) might be recognised without bias or cultural insensitivity.

When competency-based training (CBT) was first introduced in Australia, it was sometimes described as being comprised of knowledge, skills and attributes. The A word was rapidly discarded along with other A words such as attitudes and awareness (of context and its effect, role and functions) as being too hard to assess and far too hard on which to get agreement. At the time, this disappointed me as I do not think we should avoid hard things if they add to our understanding and performance. I still believe that it is the three As which transform a capability into a competence. But given that more than 10 years have passed since the introduction of CBT and that assessment is still skewed to a focus on task skills alone within many of our institutions and workplaces, there is a need for some serious research and work on how the recognition of attributes will need to be implemented and played out.

After all, the inclusion of attributes within American skill frameworks has resulted in a very slow adoption rate of the skills framework within industry (Kerka, 1998) and most of the countries with similar vocational education and training approaches to our own, have to date avoided anything more than a superficial acknowledgement of the role attributes play in the exercise of competence. Should we respect their wisdom and experience or must we insist on our right to make the same mistakes for ourselves?

Consultation Process

My understanding is that ANTA intends to develop a number of support processes around the employability skills identified by the ACCI & BCA report and to then present this material to the state and territory training authorities for wider consultation. This would appear to be a sensible course of action and it is hoped that the resultant consultation will be as inclusive and consultative as possible.

There persists, however, a fear in some quarters that this may not be so. Underlying this fear (or cynicism) are unresolved issues around the respective roles of ANTA, industry and the vocational education and training community of practitioners. Although in the recent consultations by ANTA in the development of its strategic directions, there were some signs of a growing recognition that industry, government and VET providers needed to develop a tripartite relationship to avoid the issues arising from an industry-led VET system,
there were also signs that any watering down of the primacy of industry in such arrangements would be resisted. Theoretically, industry defines what, providers determine how this might be achieved and the role of the government is to provide the statutory, policy and fiscal environment in which this might happen. In reality, it is a contested environment and one in which the (perhaps unintentional) alienation of providers has resulted in much discomfort, disengagement and disillusion.

Further Progress
In order to prepare for the consultation process, ANTA has commissioned a number of research and other projects in order to collate the necessary strategies and resources for the integration of the employability skills within the National Training Framework. At the same time, a number of other bodies, such as state training authorities, the Department of Education, Science and Technology (DEST) and the National Centre for Vocational Education Research have sponsored investigative work into the employability skills. I have been involved in two of these projects.

The first of these was a project in conjunction with ratio — a Sydney based consulting group headed by Tess Julian. The objective of this short, intensive project was to:

1. Develop options for incorporating the employability skills in Training Packages in a way that facilitates the recognition and certification of these skills.
2. Test options with a small sample of Training Package developers and departmental staff in States and Territories responsible for Training Package implementation.
3. Prepare a report for consideration by the NTQC.

In doing this, a set of eight possible models for the inclusion of the Employability Skills identified by the ACCI/BCA Report were developed. In a subsequent project, examples of how these models could be used across a number of Training Packages were developed through consultation with industry and VET practitioners. These examples were then used as the basis of focus groups with a cross-section of the wider VET community and elicited considerable support. They also demonstrated a need for the development of common understandings about the employability skills which have not yet been realised. The final parts of this paper uses material from the report by ratio & Down (2002, pp. 10–17).

Understanding Employability Skills
Employability skills are those basic skills and capabilities required for getting, keeping and doing any job. They complement the technical skills required for a specific job. Our training and education system has traditionally conceptualised skills in a way which responds to a paradigm of work which is fast disappearing. We are now moving into the age of the high performance workplace in which all employees are expected to have the necessary skills to enhance the performance of the enterprise as a whole. For example, until recently the need for creative thinking among the general workforce would have been unimaginable, and yet now it is almost the highest on the list of sought after attributes.

Employability skills are usually not discrete functions of work, although at times can be. They operate within and between work functions, they underpin work and provide an integration of work. They are often not related to academic performance or technical performance and have more to do with emotional intelligence than traditional notions of intelligence. Employability skills are context specific and cannot be accurately assessed out of a specific application. For example, working in a team cannot be assessed outside of a team in meaningful work,
problem-solving at work cannot be assessed outside of a work problem.

The Employability Skills are not a package of skills, they operate in many different ways, for example:

1. Employability skills can be an integral part of a specific technical competency. It is one thing to know how to set up lights for a function, but competency means having the capacity to improvise when equipment fails, to keep calm when the deadline is brought forward, to reassure a new team member — these aspects are employability skills.

2. Employability skills operates across tasks as well as just within them. The skills serve to link a number of work tasks. Skills such as working together, time management, multi tasking and the capacity to transfer across contexts are core skills about work rather than about one task. So expressing them within one competency standard ignores the fact that they are relevant to most. Expressing them in every competency standard devalues them. Expressing them as a separate competency standard removes the context.

3. Employability skills are needed by individuals to manage their work life. While there is debate about whether many of the attributes can be taught, they perhaps suggest that young people in particular need guidance in identifying the behaviours appropriate for a work environment. Currently, many believe that these are not defined sufficiently explicitly in our training programs. In addition, everyone needs the skills to be able to manage themselves at work and between jobs, to identify what they need to learn, and to access the learning that they need.

4. Employability also includes new skills needed by organisations and individuals to survive the new global commercial landscape. Increasingly, employees need to enhance their cognitive and interpersonal skills. It is now as important to learn how to think as to what to think, to learn the skills for lifelong learning and adaptability, to learn to deal constructively with diverse colleagues, markets and products. It is also important to be able to contribute to an innovative work environment and to knowledge management.

The challenge for educators then, is how to capture, describe and deliver these skills in a way that makes sense. Our past efforts, the Key Competencies, went a long way in identifying them; they acknowledged that they are critical to all work, however, feedback suggests that they do not address the complexity of the way the employability skills operate and enhance work performance.

Moreover, there is evidence to suggest that Training Packages are still not well understood by many trainers and assessors. This means that much of what is possible in innovative delivery against Training Packages is not being realised and this further impedes the development of employability skills.

Context of VET

In discussing the recognition of the employability skills within Training Package development and implementation, it is essential that the current context of VET practitioners is taken into account. The Strategic Evaluation of the Qualitative Impact of the Introduction of Training Packages on Vocational Education and Training Clients, which was completed earlier this year, presented a snapshot of a context in which variability, uncertainty and confusion with respect to Training Packages was evident.

Whilst an increasing number of practitioners are gaining confidence in their new roles and embracing the flexibility and multiple delivery and assessment pathways, which Training Packages enable, to meet the diversity of student needs, others are still clinging to the
practice and expectations of the past. In particular, the report highlighted:

• The variability in understanding the nature, function and roles of Training packages across VET practitioners and the subsequent diversity of effectiveness in implementing Training Packages.

• Infrastructural barriers to the introduction of Training Packages where systemic or institutional policy and procedures were not compatible with the flexible use of Training Packages.

• The need for effective professional development to enable teachers and trainers to develop and use their educational competence to develop effective learning paths for different groups of students within the Training Package framework.

• The need for a supportive environment which encourages innovation, manages risks and is, thus, tolerant of error and learning through innovation and experience.

• The lack of sufficient educational leadership at all levels of the VET community who can model and assist practitioners in finding ways to effectively implement Training Packages and to envisage a better vocational and training future and seek to achieve it.

This means that the standard at which employability skills will be demonstrated and recognised must be consistent with the standard of the other skills and learning in which the employability skills are embedded. In practice, this means that the employability skills will be recognised at the Australian Quality Framework level of the qualification being undertaken.

Conclusion
It is hoped that, following this preparatory work, a discussion paper will be prepared and be the subject of intensive consultation in order to ensure that VET practitioners can develop a sense of ownership of and commitment to the Employability Skills. This will only happen if the concerns of the VET community are listened to and a mutually agreed final position is reached. For, unless this happens, there is a real danger that the Employability Skills will become as impotent after 10 years as the Key Competencies have proved to be.

Levels of Employability Skills
Employability skills are developmental capabilities. This development is not bounded and is experientially based. This means that the development of employability skills is influenced by:

• experience in developing and using skills within a meaningful work task

• approaches to learning

• effective reflection on the outcome and process of work tasks

• interaction with and understanding of the context of the meaningful work task

• need to plan and organise work task

• performing the work task in non-routine or contingent situations.

References


Role of Identity in VET Learning

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Adults use all sorts of resources in their learning events. For example, they might use a computer, a book or a face-to-face interaction with a colleague. An elusive component of learning events — another of these resources — has been shown to be the identities of the learning participants. These identities are key to influencing the effectiveness of the learning outcomes. Some researchers identify the importance of the role of identity as an aspect of social capital development in workplace learning communities of practice. Others, such as Falk and Kilpatrick (2000) refer to “identity resources” as a component of social capital building and learning. However, the articulation of the rather general term “identity” remains incomplete. What is required is to identify the kinds of identity resources that are called into play in interactions and what this might mean for VET learning. This paper provides a framework for practitioners that helps make identity work explicit in the design of VET programs.

How Does Identity Impact on Learning?

That identity and learning are somehow linked seems to be what Gerber (2001) describes as “common sense” (p. 72). Educators understand intuitively that the learning of their students is in some way affected by “who they are” and that “who they are” is somehow affected by how and what they learn. As well as it being part of the common sense that educators distil from experience, the involvement of one with the other has been the subject of much academic theorising. Especially since Erikson’s (1975) ground-breaking work on conceptualising identity not only as a lifework of the individual but also as a lifework located in community and, more generally, society, the disciplines of psychology and sociology have produced many theories of identity that have informed what we understand about learning.

By way of example, developmental psychology has produced stage models of adult development. From social psychology we have social learning theory (Bandura, 1977) and social identity theory (Tajfel & Turner, 1986) that explains how our group memberships go toward defining who we are. Environmental psychology (e.g., Dixon & Durrheim, 2000; Proshansky et al., 1983) has given us theories of place-identity that explain how the question of Who am I? is tied to a second question of Where am I?

In contrast with psychology’s focus on the individual, sociology’s contribution to understanding identity has been in great measure a response to the questions of how much and in which ways are people at the mercy of the structure and culture of society and to what extent do they have agency. The macro-sociological or structural perspective holds identity to be a construction produced by societal systems and structures with individual agency being downplayed. In contrast, most work from the micro-sociological or interactionist perspective maintains that it is individuals who fundamentally define who they are.
through the meaning making that takes place in their social interactions.

In different ways, theorists such as Bourdieu (habitus), Habermas (critical theory) and Giddens (structuration theory) have produced understandings of identity that link or integrate the macro and micro perspectives. Attention to the role of language and discourses by poststructuralists and others has done likewise. Ethnomethodology has also contributed to the understanding of identity because of what Hilbert (1990, p. 805) describes as its indifference “to structure at any level and likewise to any kind of 'linkage' problem” and its focus on “concrete empirical social practices wherein both macro- and microstructures and their interrelations are produced, reproduced, used, and managed”.

The abundance of literature from different disciplinary traditions can lead to a great deal of confusion of terms (e.g., identity, subjectivity and self are often used in sociological literature almost synonymously, correctly or not), apparently conflicting definitions and seeming incoherence about how identity and learning are linked. For practising educators, clarity is further obscured because learning theories, while implying that identity does matter in the process of learning, rarely make explicit what the relationship between identity and the process of learning might be. There are some notable exceptions to this, for example, Senge et al.'s (1994) work on personal mastery, Wenger's (1998) on the negotiation of identity in communities of practice and Lesser and Storck's (2001) research on how identity shapes the workplace learning process.

This paper endeavours to contribute to a better understanding of how identity and learning are explicitly related. Here we use the term “learning” to describe the processes whereby people interact with each other and other texts to lead to changes that may involve knowledge, skills, values, attitudes or beliefs (Falk & Kilpatrick, 2000). The paper does not propose yet another new theory of learning and identity — although a model explaining what happens in learning interactions has been presented previously (Falk & Kilpatrick, 2000), and has been developed in later work (Falk, in press). It argues for and presents a new interdisciplinary application of existing theories in the form of a framework for enacting identity in learning. Our first aim is to show that there are three key elements of identity involved in learning that can be usefully described as a content element which we call identity resources and two process elements which we identify as a storying process and an interacting process. Our second aim is to describe a tool that we are currently developing that can be used to make identity work explicit in the design of VET learning opportunities.

Methodology

The task of the research was to draw some coherence from the many strands of literature about identity for the purposes of producing a useful aid for educators. The process comprised a thematic analysis, a text analysis and a literature review in that order, the latter resulting from the former two steps.

The thematic analysis (e.g., Aronson, 1994) involved categorising the different ways in which the word identity occurs in cross-disciplinary data bases. The text analysis, used in parallel with the thematic analysis, sorted the different ways into groups via a grammatical classification. Frequency of mention was not a consideration. The titles and abstracts of refereed articles were scanned in two literature databases Infotrac and Proquest and 179 different occurrences were found before terminating the process. These occurrences formed four categories: (a) the use of identity as a noun preceded by an adjective (106) for example, Indigenous identity, lost identity; (b) the use of identity as an adjective (22) for example, identity journey, identity markers; (c) the use of identity in a phrase (29) for example, quest for identity;
and (d) the use of identity after a verb (22) for example, making identity, transforming identity. The two strongest impressions produced for the researchers from this categorisation process was the large diversity of verbs used to describe the many ways of enacting, or "doing" identity and the large diversity of types and components of identity.

Through a cross-disciplinary review of the literature that followed the thematic and text analyses we aimed to reduce these lengthy lists to a set of fundamental or core elements that seem to be implicated in identity and learning. We searched for processes that could serve as the core ways of "doing" identity, processes that might in different contexts present themselves as any number of the 22 verbs found in the text analyses. We also searched for a general concept that could successfully refer to the diverse clusters of elements or facets of identity evident in the text analysis.

That search led to identifying three elements through which the interrelationship between identity and learning can be considered, namely, the notion of "identity resources" (with the related notion of "sources of identity") and the two processes of storying and interacting. In short, it was the thematic and text analysis that helped us develop a frame as to which specific aspects of identity we should look for in the literature review.

The thematic and text analyses, and resulting literature analysis, were used to produce one version of the identity framework for supporting learning. Other revisions to the framework resulted from researcher, policy and practitioner feedback.

Results: A Framework for Making Identity in Learning Explicit

The results reported here comprise three sections, each of which address one element of the framework for enacting identity in learning. The first section makes the distinction between identity resource and sources of identity, the relatively more common expression. The next two have to do with processes we use to produce identity resources. One process we refer to as "storying", which is how we go about "banking" and updating (or renewing) our supply of resources. The second process is the immediate interacting that occurs, and it is this process where the banking and renewing takes place, as well as where the identities are publicly displayed, new aspects tried out, and changes saved to the bank.

Sources and Resources

The Macquarie dictionary (1997) defines a source as "any thing or place from which something comes, arises, or is obtained; origin" (p. 1798). It defines a resource as the "available means afforded by the mind or the personal capabilities" and "capability in dealing with a situation or in meeting difficulties" (p. 1609). The distinction we make between the more common term "identity sources" and the way we use "identity resources" is similar to the dictionary definition in that we refer to identity resources as those individual attributes that have their site of production in various sources or origins.

Concepts such as social identity, personal identity, self-identity and ego-identity imply different sources of identity depending on the qualifier. The term "identity sources" is more often associated with the idea of social identity and refers to those social categories which in some way shape the way we see ourselves and the way others see us. For example, sociologists write of class, gender, age and ethnicity as being sources of identity. To this list we can add family, work, religion, organisations and nationality. Place, too, is a source of identity.

A wider interpretation of sources of identity can include all of life experience. From the sum total of that experience, we might see different aspects of our identity in terms of categories other than the ones listed above. We might also have a sense of
our identity as learner, as friend, as carer, as stayer, as devil-may-care, as go-getter, as winner, as loser, as trier, as struggler, as plodder, as fringe dweller, as peace-maker, as fighter, as thinker, as doer, as a “good person” as a “bad person”. The list goes on. These categories are different from the first set and are more aligned with interpretations of identity other than that of social identity.

This brief discussion suggests that “sources of identity” is a term used to categorise experience into different pools depending on our purpose and from which we derive our sense of who we are. Because of the way we use language to abbreviate, we tend to use the sources of the identity as the descriptors of identity, a practice that runs the risk of being stereotyped or stereotyping. Also, and as noted below, there is potential for confusion between the terms “sources” and “resources”, and for this reason we will refer to “sources” of identity by the longer, but accurate, term — categories of experience.

Now let us turn to identity resources, a term first used by Falk and Kilpatrick (2000) when they described how social capital is built and drawn on at the point of interaction. Falk and Kilpatrick defined identity resources as comprising cognitive and affective attributes such as self-confidence, vision, trust and commitment to community. More generally, they describe identity resources as the “common understandings related to personal, individual and collective identities” (p. 100) that people produce in an interaction. The implication here is that identity resources are socially produced even though they may end up being personally owned in the form of specific knowledges, behaviours, feelings and beliefs that come with identifying oneself as a certain sort of person.

In fact, Cote and Levine’s (2002) use of identity capital focuses on the individual ownership aspect of identity resources. They define identity capital as “the varied resources deployable on an individual basis that represent how people most effectively define themselves and have others define them, in various contexts” (p. 142). They speak of tangible resources such as qualifications and intangible resources such as self-esteem.

Identity resources then are the specific attributes of our broader experiential base (identity sources). They include the behaviours, beliefs, feelings and knowledges, that we hold as a result of belonging — in different ways and to different degrees of intensity in any given context at any given moment — to categories of experience such as those listed above. The value of the notion of identity resources to understanding how identity is implicated in learning is that it permits a more fine-grained view of what takes place in interactions than that afforded by the stereotype prone notion of identity sources. However, the value of the concepts themselves is undermined somewhat by the potential confusion caused by having two such similar terms (sources and resources) used with different meanings. For this reason, we will use the term “categories of experience” to refer to the sources of identity, and retain the term “identity resources” to refer to the behaviours, beliefs, feelings and knowledges that result from and feed back into the processes that create and (re)form them.

The Storying of Identity

In the last 20 years or so, there has been a “narrative turn” to the understanding of identity and self in psychology (e.g., Bruner, 1991; Sarbin, 1896; Gergen & Gergen, 1983) and to a lesser extent in sociology (Maines, 1993). It proposes that the way we construct identity (or in our case identity resources) is through narrativising or storying our experience. Sarbin (1983) describes the process of storying or emplotment as follows:

We construct personal narratives complete with plots and subplots, dramatic personae, settings, goals, beginnings and endings, climaxes and anti-climaxes etc. In construing a self from the referents for ‘I’ and ‘me’ in spoken or silent monologues, the person does not simply

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chronicle experience, he/she renders experience. The doings of persons and the happenings of nature are rendered to form a comprehensible self-narrative. (p. 340)

The process of storying is of necessity temporal and involves an ongoing reinterpretation of the past from the position of the present that also looks toward an anticipated future. The narrative perspective assumes that identity formation is about working toward a sense of coherence and continuity and sameness (going back to the Latin origins of the meaning of identity).

From the field of neurological research, Damasio (1999) adds to the understanding the identity formation through the metaphor of narrative. He refers to identity as the autobiographical self and describes how autobiographical memory builds identity:

The idea that each of us constructs of ourself, the image we gradually build of who we are physically and mentally, of where we fit socially, is based on autobiographical memory over years of experience and is constantly subject to remodelling ... The autobiographical self we display in our minds, at this moment, is the end product not just of our innate biases and actual life experiences, but of the reworking of memories of those experiences ... The changes which occur in the autobiographical self over an individual lifetime are due not only to the remodelling of the lived past that takes place consciously and unconsciously, but also to the laying down and remodelling of the anticipated future. (1999, p. 224)

The idea of the storying of identity serves the purpose of understanding how identity resources are accumulated and reconfigured into coherent identities over time. However it is not sufficient to explain how identity resources are produced in the here and now.

**Interacting in the Here and Now**

One convergence in the literature is that it is through interactions that our selves — our identities — are reviewed, reinstated and adjusted. By interaction we mean interactions that are face-to-face with other people or social objects representing people (such as computer software, the internet and so on). While it is arguable, and not an essential understanding for this paper, we also regard as interactions those processes that go on inside our heads that involve us “talking or conversing with our selves”, and this is what the process of reflection involves. It is interaction because we are taking conversational turns with another voice “in our heads” using our primary language and its linguistic forms, even though these are often abbreviated.

In the previous section, we saw how Damasio’s (1999) concept of the autobiographical self was explained in this paper as storying. Storying, moreover, constructs an operational image of autobiography that allows learning facilitators to view learning of and about identities through learners scripting and rescripting their self-stories and so gaining a new perspective of their own capacity and willingness to act in new ways.

Damasio also refers to the core self, a transient entity, ceaselessly re-created for each and every object with which the brain interacts. It is this attribute of identity formation that we cover in this section on interaction.

Lesser and Storck (2001) find in their research into workplace learning that:

... a sense of identity is important because it determines how an individual directs his or her attention. What one pays attention to is, in turn, a primary factor in learning. Therefore identity shapes the learning process. (p. 832)

Our view of identity as the incessant and recurrent manifestation of our interactions, is pertinent to the field of learning in that it shows how Lesser and Storck’s finding actually occurs. Educators know well that learning only occurs through interactions. Identity resources are central to effective learning. Moreover, identity resources are
only available through interactions (Balatti & Falk, 2001; Falk & Kilpatrick, 2000; Lesser & Storck, 2001). Making and using identity resources explicit for and through planned learning interactions also ensures they are available for learners’ independent learning interactions.

In summary, the interactions in the here and now are the central processes that draw on our categories of experience to produce identity resources. The dynamic of the three dimensions of the identity framework act to simultaneously and interactively produce and (re)construct identities. Put simply, these interactions are the engine room of identity.

The Framework

The framework for articulating identity in learning is presented in Figure 1 and Table 1 below. Figure 1 shows the relationship between the three dimensions of identity just discussed in detail: the process, categories of experience and identity resources involved in identity (re)formation. Table 1 elaborates on the three elements described in the last section: (a) the content element of identity resources and the categories of experience from which they stem, (b) the process element of storying, and (c) the process element of interacting.

As can be seen, the figure shows how the three dimensions of identity relate to each. The processes are where the various categories of experience of the interactants are drawn on, and the identity resources result from these processes, while feeding back into the dynamic. It is noted that the dynamics are difficult if not impossible to capture accurately in a visual representation, and that the best we can do is approximate relationships and interactions. The detail of each of the three dimensions now follows in Table 1.

The processes column attempts to capture the interactive or “doing” dimension of identity formation, reformation and co-construction that occurs in learning by identifying some of the more significant ways in which the processes of storying and interacting take place. Both of these processes produce resources, and interactants call on them simultaneously to reproduce and reconfigure what counts as identity in those interactions. The next three columns condense the literature on the categories of experience from which identity resources stem into the three clusters of individual, group and place. The last column identifies the different categories of identity resources that are called on and/or generated in learning through the processes of interacting and storying. The literature review showed how identity is co-constructed in interactions using the itemised categories of experience that are the sources of the resulting action. Some, if not most identity resources are manufactured. That is, they are the result of what we do with experience.

In terms of applications for learning in vocational courses, it can be seen that the above figure articulates processes and

![Figure 1](image-url)

Dynamics of identity in learning.
Table 1
Dimensions of Identity in Learning

<table>
<thead>
<tr>
<th>PROCESSES</th>
<th>CATEGORIES OF EXPERIENCE FOR IDENTITY IN LEARNING (SOURCES)</th>
<th>IDENTITY RESOURCES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>INDIVIDUAL</td>
<td>GROUP</td>
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<tr>
<td>Interacting and storying through</td>
<td>Age</td>
<td>Class</td>
</tr>
<tr>
<td>Anticipating</td>
<td>Appearance</td>
<td>Communities</td>
</tr>
<tr>
<td>Choosing</td>
<td>Education</td>
<td>Consumer</td>
</tr>
<tr>
<td>Creating</td>
<td>Health</td>
<td>Ethnicity</td>
</tr>
<tr>
<td>Evaluating</td>
<td>Name</td>
<td>Family</td>
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<tr>
<td>Experiencing</td>
<td>Physicality</td>
<td>Gender</td>
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<tr>
<td>Feeling</td>
<td>Sexual orientation</td>
<td>Language</td>
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<tr>
<td>Performing</td>
<td>Spirituality</td>
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<td>Redefining</td>
<td>Time</td>
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<td>Remembering</td>
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<td>Talking about</td>
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sources of identity in a way that allows learning practitioners to identify and address explicitly the various components of identity as they may impact on learners’ capacity and willingness to adopt new practices and apply new or existing knowledge in different ways.

A Concluding Discussion

The need to better understand how learning and identity are co-involved is acute. Identity related issues are directly implicated in the postmodern world of VET. The assumptions underpinning lifelong learning for example, take as given that adults would want and are able to identify as formal and non-formal learners for life. VET students — and their teachers — can now find themselves in multi-age groupings ranging from 15-year-olds to people in their 40s or over, groups that can encompass Year 10 school children, university students, full-time VET students, employed and unemployed learners. How are identities being negotiated in such learning spaces? What is being required of the educators? Increasing numbers of students are leaving the enclaves of Indigenous specific courses and entering mainstream. How are they experiencing learning and identity? And let’s not forget the influence of identity on VET consumerism or choice. Gender, for example, continues to be a variable on the road to access. Despite the broadening of the definitions of traineeships and apprenticeships, males still outnumber females by almost 80% (NCVER, 2003).

The identity in learning framework presented in this paper provides three interrelated dimensions of the identity/learning nexus for educators to consider in the provision of VET: (a) the content element of identity resources, (b) the process element of storying, and (c) the process element of interacting. The content element contains the identity resources which are the knowledges, behaviours, attitudes and beliefs associated with who we are. Through interacting and storying, identity resources are consciously or unconsciously, deliberately or non-deliberately drawn on and/or produced.

Accounting for identity in learning across these three dimensions allows educators to more effectively design and deliver programs. It provides a structure for ascertaining in
more detail the resources that their students bring with them, the intended changes to identity resources that the VET program is requiring explicitly or implicitly and the processes by which such changes could occur. The highly complex, idiosyncratic and ultimately personal nature of learning is acknowledged by Wenger (1998) when he states that "learning cannot be designed: it can only be designed for — that is, facilitated or frustrated" (p. 229).

The challenge to VET educators is to design effective programs that capitalise on the unique pools of identity resources that learners bring with them and to provide the opportunities to transform or add to those pools to meet their learners’ goals.

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**References**


Constructing the Language of Work in Technologically Hybridising Workspaces

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One of the new education spaces opened up through globalisation is the hybridising workspace (Farrell, 2003; Farrell & Holkner, in press). Increasingly, a workspace is not an identifiable geographical place so much as a network of people, technologies and practices stretched across countries and regions and joined up by communications technologies. Communications technologies do more than meet the pragmatic requirement of putting people in touch with each other, however. When established technologies (like print, telephone and two-way radios) and new technologies (like video walls and chat rooms) are brought together, their interactions create new discursive resources, discursive resources that make available new working identities, values, and practices and sideline others.

A distinctive feature of the contemporary workspace is the demand it makes on the language and literacy practice of the people who work within it (Gee, Hull et al., 1996). This is not a straightforward requirement for increased literacy skills. Rather, it is a requirement that people in contemporary, globally distributed workspaces understand the power of the texts they engage with to construct new knowledge and transmit existing knowledge; to regulate and produce work practice through hierarchical structures, but also through communities of practice; and to produce and transform working identities (Deetz, 1995; Engeström & Middleton, 1996; Gee, 2000; Lesser et al., 2000; Farrell, 2001). In globally distributed workspaces the production and reception of these texts is likely to call on the multiple discourses of the various local worksites, sometimes in unpredictable ways. A complicating characteristic of these texts, as they wind their way through the labyrinth communications networks of global companies, is the way in which they are produced and transformed through various communications technologies (Wellman et al., 2000) so that even the most casual texts are routinely removed from their originating contexts and communicative channels (email, voicemail etc.) and translated into others.

When discourses are unstable like this they are vulnerable to interruption and transformation. In this paper we discuss what workplace educators need to understand about the ways in which communicative practice is shaped by technologies in workspaces to exploit these points of vulnerability. We argue that a significant aim of workplace education should be to help workers intervene in the ways that
technologies are developed and integrated into their hybridising workspaces.

**PaceSetters: The Company**

PaceSetters is a global company that develops, manufactures and sells sophisticated technological responses to life-threatening medical conditions. Central to its practice is innovation and research development, both in-house, through strategic alliances, and sponsorship of clinical trials conducted by universities and hospitals. Globally, the company employs over 12,000 people and has an annual revenue of about $(US)3 billion. It has presences in North America, Europe, Asia (including Japan), Australia and Central and South America. While individual components of the company are 30 years old, in its present form it is still a relatively new company, incorporated in 1994. Since that time it has been judged one of Fortune magazine’s 100 Best Companies to work for. As a company it is explicit and public about its stated values, rating transparency of process and compliance with regulatory obligations (in the US and elsewhere) highly. PaceSetters also presents itself as a good corporate citizen, identifying a perceived obligation to be a productive part of the different communities within which it is located. Overall, PaceSetters would be judged to be a very successful company, growing rapidly, attracting and keeping able staff and attracting investment. Operating in a highly competitive market which relies on rapidly evolving technological innovation, it is, like all such companies, especially vulnerable to breaches of compliance and regulatory procedures applying in the countries in which it does business. Consequently, control of work practice across the global web of operation, while allowing for the flexibility and hyper-responsiveness the industry demands, is a major management challenge.

The Australian operation (employing about 80 people) represents only one percent of PaceSetters’ worldwide business. It is not involved in the primary research and development of new appliances but it is involved in clinical trials and collaborative health education, and, of course, with the marketing and sale of appliances in Australia. The company has a head office in an Eastern state capital city and smaller offices in a number of other cities. The company is organised into traditional departments, with managers and staff. These departments are geographically dispersed. In some cases managers are located in one state while the majority of the team members are located in another. The sales department is managed from one state (not head office) with staff located in every state.

The Australian operation is relatively closely integrated into the global company. The public website, and the company intranet, is operated from the US, broad marketing directions, and marketing materials, are determined and produced in the US and regional meetings are held in Tokyo. From time to time the company holds a giant “town meeting”, with all employees invited to participate in a global telephone conference where they are addressed by the CEO and have the opportunity to ask questions and make comments on company policy and direction. In an industry like this, which relies on continuous technological innovation, training is a critical and ongoing part of work practice. While a good deal of the routine training is conducted in Australia, a majority of Australian employees travel to the US at least annually to attend medical meetings and the PaceSetters’ training programs which are organised to coincide with them. Australian staff meet their US counterparts on these occasions and many maintain these relationships with early morning telephone calls to the US, a mode of communication they find superior to email. Contact with European and Asian counterparts is less frequent.

When we think about PaceSetters, then, we want to think about it as a network of people, technologies and
practices stretched across countries and regions and joined together by communications networks. In the study we refer to here we focus on a group of marketing and sales people who, together, create and sustain a significant part of this communication network. A bare majority of the group is located at head office. The manager is located in another Eastern states office and the sales staff is dispersed across (and occasionally called upon to operate within) all states of Australia. The group we are interested in also includes two IT professionals who are responsible for maintaining the technological dimensions of the communications network for the Australian operation.

Communication and Community at PaceSetters
Communications networks are the fundamental infrastructure of geographically dispersed global companies like PaceSetters (Gee, Hull et al., 1996). While the new Australian Head Office premises reflects the companies commitment to providing technologically sophisticated communications technologies, it is the personal equipment of staff that most powerfully signals the fundamental role that technologically mediated communication plays. Staff are equipped with networked desktop computers and landline telephones at the office, and they can also make use of video conferencing data projection facilities in the main meeting rooms. In addition, almost all staff members are provided with their own mobile phones, pagers, laptop computers, and palmtop computers. Staff located in offices also have access to a stationary cupboard and a library. These technologies provide a variety of communication channels, channels which have their own specific temporal dimensions, which affects how texts are produced, received and perceived (Holkner & Farrell, 2003).

The global PaceSetters company cannot, however, be confident that the communications infrastructure they have put in place will elide local differences and produce a work force united in common values and work practices. They have provided a uniform operating environment, uniform equipment, standardised products and marketing materials, standardised access to clinical trail databases, and a global intranet which updates company information on a daily basis. It remains the case, however, that the communications networks of the organisation are taken up and used in local working communities in distinctive ways, ways that incorporate and transform existing communications practices, and the values and beliefs, and working identities, that go with them.

The sophisticated technological communications networks which define the PaceSetter workspace are not necessarily the networks that people at PaceSetters use. People take up specific technological networks selectively, and they use them in ways that may not be intended by the company. They use them to access other networks over which the company has little knowledge and less control. These patchy, geographically, commercially and technologically hybrid networks of communication define the significant communities of practice at PaceSetters (Wenger, 1999; Gee, 2000). They produce and regulate knowledge and work practice, and provide the discursive resources from which people manufacture working identities. It is these interlocking, often informal, often local, networks of communication, rather than the formally represented lines and channels of communication, that constitute the organisation and its working capital — its knowledge in action.

When we talk about PaceSetters as a hybridising workspace we mean, first of all, that lots of traditional and new technologies are used together — the more established pagers used as a backup to mobile phones or as a means of alerting staff to email, for instance. We also mean that the distinctive communications practices,
shaped and sustained by the individual technologies, come into dialogic relation with each other, they build new discursive practice. A simple example of this is the way some people at PaceSetters construct email messages when they understand that they may be read on the frustratingly small screen of a palmtop computer in a noisy hospital cafeteria. These new discursive practices are significant because they are the resources that build and renew local communities and create discursive spaces for new working identities.

Given the heavy reliance that the global company places on ICT, it is not surprising that PaceSetters is saturated with text. The company relies on technologically mediated texts to create workspaces across geographical and temporal boundaries, to promote and regulate work practice in contexts where there is minimal direct supervision, to provide complex technical information to a range of staff and clients in a timely way, to generate and disseminate new knowledge in a highly competitive field, to solve medical and management problems on the ground and under pressure and to keep people personally connected in ways they hope will allow them to work productively with each other. People at PaceSetters could be buried under a mountain of indistinguishable text.

So, what happens to all these texts? What do people do with them? How do they make sense of them? Sort them? How do they use them? Select from them? Ignore and reject them? And how do they impact on the development and maintenance of the local communities that sit, somewhat uncomfortably, within, between and outside the global company?

To begin to understand this process we'd like to talk about what some of the salespeople report about the ways they use the technologies and texts of PaceSetters. Salespeople do their work in hospitals. They are highly trained in the appliances they sell and they work with medical staff in clinics and operating theatres to implant appliances in patients. Selling appliances involves positioning yourself as a healthcare professional, and speaking as a professional colleague, through professionally preferred channels, as a member of the healthcare team. Adam explains his place in the team like this:

there's a doctor X who [...] does 100 implants a year and he does a lot of things besides implants. Now, it's not his job, and [he] doesn't necessarily want to know, [the] intricacies of every single appliance that's on the market. So he trusts me, so, so I give him as much information as I can so he feels comfortable that the appliance is good ... [At] the end of the day, a lot of the time, it comes to me, whatever feels comfortable with me. Because I am a part of their patient care. They have to organise an anaesthetist, they need to organise nurses, they need to organise an [appliance] technician, and depending on the quality of the [appliance] technician, often depends how many visits the patient gets.

While Adam is clearly selling appliances, from his point of view he is also selling his expertise as a technician, and his expertise in this particular appliance. He saves the medical specialist time by filtering information about the various appliances, but he also saves the medical specialist time by taking professional responsibility:

The patient needs to get checked before they go home ... If I'd checked it, it's been checked, all right? And the patient can go home based on that, then he [the doctor] is putting a lot of weight on us to make that decision. If they feel comfortable with us, then that can overcome a lot of the deficiencies of the [appliance], the particular brand of [appliance].

From Adam's perspective, the sale of the appliance relies on an ongoing, peer-like, relationship of trust and respect between himself and the medical specialist. His allegiance to the healthcare team is at least as tenacious as his allegiance to PaceSetters as a company, and is in complex relation to it.
This makes things tricky for people who work in the marketing department. Head Office in the US makes available generic product information and academic reports of independent clinical trials. It is not a simple matter to get these complex and dense texts to the salespeople. Salespeople are located all over the country and are rarely, and unpredictably, in the office. Reports of clinical trials are sent as hard copy, by mail, or as email attachments. Hard copy piles up in the sales representative’s home office. Email attachments take too long to download on the palmtop computer, and there is far too much text for them to be read on the small screen in any case, so they are often ignored. Marketing complain that sometimes sales staff respond to emails literally months after they are sent, when they respond at all. Sales people report that they (or at least some of them) do read some of the information, but they rely for critical information on their network of friends in the field, and they get that by mobile phone.

The marketing department in Australia customises some of the material for local markets, but it is difficult to customise to the level of specificity that the local sales representatives require. Adam, for instance, reports drawing a diagram on a napkin in a cafeteria, illustrating precisely how an appliance might be used with a particular patient, and attending to:

how the doctor learns, how the nurse learns, you need to study them in some respect to find out.

While it is possible that the marketing department could produce more appropriate material if they knew what Adam knows about the sales context, it is unlikely that they will have that information. Sales representatives are asked to report monthly to the marketing department, but only 40% of them do, by email, and even then there is vast differences in the scope and detail of the report.

Sales representatives are hard to pin down. Although the company has an online diary, through Outlook, and many people use it, the sales staff tend to organise appointments on the run:

We use Outlook. We think everything through Outlook. So, for example, today I have nothing for my diary, now I’m coming to appointments, but we did two [appliances] this morning and we’ve got another [appliance] this afternoon.

In practice, sales staff divide the work up amongst themselves, calling each other on their mobile phones, or meeting at hospitals or coffee shops, and calling staff from interstate to assist where they cannot manage a sudden surge in demand. The sales manager has only a vague understanding of where the staff are and what they are doing.

In understanding how it is that sales staff use the communications technologies available to them differently in different communities of practice, to express different working identities, it is helpful to look briefly at how Adam uses his mobile phone. As a healthcare professional he uses the phone to communicate directly with medical specialists, either because the doctor himself has phoned to request an appointment or:

I’ll use the mobile phone only as a tool to follow up regarding a specific patient. So I’ll call a doctor only about a patient [ ] and say ‘Ric is fine’. And I’d never use it to book in an appointment. Occasionally I do, but most of the time it’s just really to follow up regards specific information. Because I know. I’m here in the lab when they get phone calls, when they’re getting phone calls and it drives me nuts, so I try not to call them unless its after hours, and they are driving home, or it’s about a specific patient which I know, even if they’re busy, they want to know.

Here Adam is using the mobile phone to establish and maintain personal and durable connections within the healthcare team, using the channel of communication initiated by the doctors and preferred
by them. The very fact of using the mobile phone, exploiting its capacity to reach a doctor personally, after hours or when they are driving, asserts his membership of the healthcare team and his status as a professional colleague.

When Adam is communicating with PaceSetters, or in the more likely event that PaceSetters is trying to communicate with him, his preferred channel is the pager. This is the case even though the company now has access to a new SMS feature.

Adam: No, but they will leave a message, so 'please ring', so the pager is the critical bit ...

Int: There's an SMS feature now though that brings it to your notice ...

Adam: Yes, I can't stand this. I hate, I don't turn it off, I get the SMSs, but often I don't see. The pager for me works beautifully, because even if I am busy, I've got the message there to call someone back, the SMS I miss, I often miss them because I'll see a message and say I can't reply right now and I'll delete it all or I'll close it down and it comes up on the screen so I've got there as a reminder ... ye, because they've just started up a new feature for SMS where I think I can take and send an SMS from email, which is gonna drive me nuts as well.

The pager allows Adam to keep his distance from members of the PaceSetter community, and it allows far less nuanced communication. As a health professional Adam uses the mobile phone to establish and sustain healthcare practice and connection. As a sales representative for PaceSetters, he uses the Pager to establish distance and control. The sheer quantity of text he receives in hard copy and by email attachment also serves to create distance, or at least a barrier. The quantity of text, and attempts to disseminate knowledge through text, is a source of ongoing friction at PaceSetters.

**PaceSetters as a Contested Workspace**

Earlier we talked about the way that Adam, with the other sales representatives, sits within two communities of practice, communities which sit uneasily together, although they rely entirely on each other. As we have begun to show, the boundaries of the workspace are themselves contested, created by hybrid communities of practice that are facilitated by the communications technologies that PaceSetters provides. PaceSetters is, although no more than most, a contested workspace where what is contested is knowledge and identity. At this early stage in the project we find it helpful to think about the contest as operating in two dimensions of the workspace:

**Standardisation/Homogenisation Versus Localisation**

PaceSetters calls on communicative technologies to create standardised versions of knowledge and work practice. Theoretically, all PaceSetters salespeople have access to the same knowledge and are trained in the same work practices. If Adam is an indication, however, PaceSetters' sales representatives work those technologies not to homogenise, but to localise, knowledge. They work to produce "local knowledge", knowledge that is taken up, represented and used in distinctive ways in unique local contexts. The discursive resources that ICTs make available include Janet and Adams' professional friendship network, and, at present at least, they localize knowledge far more effectively than PaceSetters standardises it.

**Structuring of Working Identities Across Global Fields Versus Production of Local Working Identities**

PaceSetters makes a clear bid to generate and regulate work practice across their global webs of operation, focusing on producing specific working identities (like
sales representative) by regulating the practice end of communities of practice in the way Gee (2000) describes it. Adam creates enduring local working identities (like healthcare professional) through practice, too, but his practice is local and the ligatures that bind the community of practice are personal.

**Conclusion**

What we have begun to argue here is that, when Adam talks on the phone with medical staff, and when he glances at, but does not answer, his pager message, he is engaging in a much larger contest about what counts as knowledge at PaceSetters, what kind of professional communities he will be a part of and what kinds of professional identities he will take up, when and with whom. In a technologically hybridised workspace however, this is a far more textually complex process than he, or we, might expect. The critical next questions for us are, therefore: What do people need to learn about text, context and building communities in technologically hybridised workspaces? What do people need to learn about attending to the impact of channels of communication on the discursive production of identity and the creation and disruption of bonds of practice?

**References**


Building Local Capacity in a Globalising Labour Market

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This paper focuses on the challenges facing stakeholders in three regional communities as they identify, and try to meet, their local training needs through Training Packages. It reports on part of an NCVER study: “Serving client needs in local and regional communities”. Through a series of case studies the project identified a number of tensions between the demands for specificity and reflexivity at the regional and industry sector level, and national and global demands for mobile, flexible and responsive workforces. While these tensions are not likely ever to be resolved, our concern in this study was to observe the ways they were managed at local sites and to identify some possible ways forward for regional communities. We found that the most productive approaches to managing these tensions occurred where (a) trainers were able to resist the dichotomy between general and specific skill, reconceptualising all skill as having both having both generic and specific dimensions; (b) training brokers (often, but not necessarily, trainers themselves) were able to bring stakeholders together to broker training that went beyond a simple set of compromises to produce useful, transferable training.

This paper is about the ways that local and regional communities organise their training, the competing pressures they contend with, the accommodations they arrive at and the solutions they develop. It is about how they try to build local capacity to meet immediate (sometimes contradictory) felt local needs while at the same time recognising the compelling demands of a globalising labour market on individuals and communities. We draw on parts of a study of seven communities, one in each state of Australia, and, more specifically, on three communities which were the particular focus of the study (Farrell & Wyse, 2002). When we began the study our aim was to find out what local communities thought they needed as far as training went, and to what extent Training Packages were meeting the needs of clients in local and regional communities. For simplicity’s sake we focused on three training packages (Aged Care, Agriculture and Tourism), packages we believed would be common to many regions of Australia. Our preliminary research questions were:

1. Who are the stakeholders, and what do they want?
2. How, and to what extent, are Training Packages customised at local sites to meet the needs of stakeholders?
3. To what extent are providers packaging competency standards to allow for cross industry qualifications?
4. Does the customisation of training packages preserve portability and opportunity to gain higher levels of skills and qualifications?
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It is clear from these questions that, initially at least, we predicted that the tensions would be between the demands for specificity and reflexivity at the local and industry sector level, in terms of mode of delivery, time and place of delivery, content and packaging on the one hand, and national and global demands for a mobile, flexible and responsive workforce on the other. Our overarching research question, therefore, became:

- How are these tensions managed at individual local sites?

By the end of the study we were beginning to understand our research problem differently. We were less inclined to see the issue as one of customisation versus transferability at the local and even national level, and more inclined to see it as fundamentally about the way skill is conceptualised, produced and developed in local communities. A feature of each of those local communities was that global forces were already playing across local people, practices and histories. It seemed to us also, that, although the global forces may be common, the ways those forces played out in specific local communities were often very different. In this paper we explore some of the challenges local communities face when they try to figure out, much less deliver, what they want. Although our focus is on local communities, we found that, in order to understand the kinds of challenges local communities are facing, we have to begin by trying to understand the effects that global flows have on regional Australia. First, we outline four features of contemporary global economies that we believe have a direct bearing on the ways knowledges and skills need to be understood in local communities. Second, we identify four characteristics of local communities that seemed important to us.

Context

Global Context

1. Knowledge and skill drive economies in ways that have not been so obvious before (Castells, 1996). While all economies are and have always been, knowledge-based, contemporary economies are understood to be different because it is often the demand for new knowledge that actually drives the economy. What then becomes critical is both the way that these new forms of knowledge are accessed and shared by a range of employees as well as the ways they are used as predictors of future demand.

2. New economies demand specialised skills for globalised niche markets, but those niche markets change rapidly and products and skills often date quickly. Knowledge and skills must be continuously maintained and adapted if they are to keep pace with the relentless innovation that the new economy demands. This rate of change may have an impact on the kinds of skill that people need to operate effectively in workplaces. While specialised, contextualised working knowledge remains critically important, many argue that it is increasingly mediated by the more tacit, harder to define skills associated with communication, problem solving and decision-making (Nonaka & Takeuchi, 1995; Davenport & Prusak, 1998; Blundell, Saunders et al., 1999; Farrell, 2001). In this context, also, workers are expected to engage in training throughout their working lives (Robinson & Arthy, 1998). Mulcahy and James (1998) argue that employees are not only expected to train throughout their lives, they are also expected to take responsibility for managing their own training. Indeed, not only are they expected to manage their own learning, but increasingly to access their own learning as employers become less willing to fund skill development for workers who are employed as contract or casual workers. When Davenport and Prusak argue that "[e]mployees who are willing and able to learn new things are vital to an adapting company" (1998, p. 65) they are articulating a widely held
view amongst academics and policy makers that “learning is the new form of labour” (Zuboff, 1988).

3. Workforces are increasingly mobile and contingent. This is partly because the development of digital communications technologies means that large corporations can and do locate different aspects of their operations in different parts of the country, or the world, and they shift them according to their own corporate logic. It is partly also because casual, part time and short term contract work is increasing in many parts of the world (Weber, 1993; Harrison, 1994; Hooguelt & Yuasa, 1994; Gee, Hull et al., 1996; Payne, 2001) including Australia (Marginson, 2000). A mobile and contingent workforce is not available for traditional delivery of formal training in the ways that a more stable workforce might be, and it is not immediately clear what training is appropriate. While employers need a trained workforce they might be less inclined to pay for the training when they believe they are unlikely to reap the benefits in the medium to long-term. Because workers are more mobile, employers are increasingly looking for employees who come with a range of generic skills that can value add to the company such as problem-solving and adaptability (that is attitudional and behavioural attributes).

4. The working groups in which novice workers were traditionally inducted into the practices of specific workplaces, often understood as “Communities of Practice” (Wenger, 1999; Hildreth & Kimble, 2000) are increasingly geographically and temporally dispersed. Companies employ fewer people and work groups or teams, are not necessarily located in the same physical location and they may be in a different time zone as well. As Gee (1997) argues, this means that there are fewer and fewer opportunities for people to engage in extended work practice with each other. This has implications for the development of specialised and contextualised skills because employees have traditionally developed their contextualised skills through “legitimate peripheral participation” (Wenger, 1999) by working alongside more experienced workers.

Knowledge and skill clearly matter, probably more than ever, but what knowledge, and which skills, for which individuals, enterprises, industries and nations? In these circumstances it is difficult to know how to identify and promote the highly contextualised, often tacit, knowledge and skills that local enterprises demand while at the same time ensuring that the skills people develop are durable in globalising labour markets which may find people working in a variety of sectors and a range of locations over their working lives.

Local Contexts

1. Local stakeholders sometimes seemed to inhabit parallel universes. We had predicted that stakeholders would have different priorities for training and different views about modes of delivery, content, et cetera. We had not predicted that they would view the fundamental “facts” of the community differently. In one case study, for instance, a teacher working for the largest provider in the region commented that “there’s virtually no seasonal work here”. An employment officer located in an office two doors down the road stated that “all our work’s seasonal, it’s all seasonal here”. Two providers operating in the same region had quite different understandings of the role of global agribusinesses in the region. Course coordinators with the largest provider in the region believed that we don’t have huge business conglomerates with the people actually owning the business don’t get their hands dirty. (Provider, Agriculture)

while another provider offered the view that Agriculture package ignored several groups of farmers in the region, including
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those farm managers employed by conglomerates:

there's been some disenfranchising ... it's gradually been undercut, but, it's true to say ... certainly employees in some cases were [disenfranchised]. (Provider, Agriculture)

2. Students were generally not visible as a stakeholder group, unless they were also employers (e.g., owner-operators). This is not say that students' needs were not taken into account — very often they were — but that students were not viewed as stakeholders who could make their own demands on education and training in terms of content or mode of delivery. This lack of visibility was also reflected in the comments made by students who, to a large extent, made little critical comment about courses or teachers. This could reflect their own perceived invisibility as stakeholders who therefore do not have the power to determine the course of their training.

3. The primary training connection was between individual local employers and providers. Providers clearly made significant efforts to provide the kind of highly contextualised, specific training that many, but not all, local employers required.

4. Teachers commented on the struggle to provide high quality education and training due to the restrictions imposed by the remoteness of the communities we looked at. This impacted on issues such as the ability to recruit and retain teachers, on access to PD and access to new materials.

Tensions

Dealing with the Students we Have, Versus Dealing with the Students we Don’t Have

When providers talked about students they generally had a “default” student in mind — the category of student who comprised their major client group. It might be people employed in Aged Care who did not yet have Certificate III, or male owner-operator farmers who were looking for recognition of their skills. In rural areas where efficiencies of scale were a problem, content was contextualised for these students and mode of delivery determined by their needs. This meant that some groups of potential students were ignored, either because the package itself tended to ignore them:

I mean the original packaging requirements for qualifications were problematic in that, for example, the higher level business qualification ... required you to still hold these core competencies related to use of chemicals and so on, right? So what happens is, anyway, you’ve got to, well, particularly a woman working the farm office, that has got all the administration, contributing to decision-making, all that kind of stuff, but never goes out and handles chemicals. But the qualification required that she had to have those competencies. (Provider, Agriculture)

or because limited resources meant that the needs of one group had to be met at the expense of the needs of others:

So we can offer some units flexibly, but we can’t offer a complete qualification that way. And also there is the issue of needing the workplace experience and assessments at the same time. So we are restricting our flexible delivery to people who are existing workers in most cases. (Provider, Aged Care)

In many rural areas it seems that it is difficult for unemployed people to get the kinds of training they can most effectively access. Employment officers drew attention to the impact of flexible delivery of courses on their clients. While this form of delivery was seen to suit employed students it was seen to be unsuitable for many of their clients because it required access to computers, a high level of literacy (and sometimes numeracy) and a high level of support from family, friends or work mates.
For many of their clients, who had left school at an early age because they were unhappy and/or unsuccessful, and before they developed a personal support network for study, this delivery option was seen as unfortunate at best and cruel at worst. They saw it as reinforcing feelings of failure and providing no realistic chance of employment. Paradoxically, providers attempts to customise delivery to suit current students may disenfranchise this category of potential students:

We used to have them [face to face classes] but the demand dropped down and we surveyed the students and they prefer to have it done by open learning. So therefore we expanded throughout the State. (Provider, Aged Care)

Employment officers expressed frustration that the needs of their clients seemed not to be considered. They pointed out that, while part-time study may suit employed students, unemployed students needed full time study to be eligible for Austudy payments. Indigenous students not involved in indigenous programs were also unlikely to fare well. Employment officers expressed the view that some industries (like retail and hospitality) would be very hard for an indigenous person to break in to.

Dealing with the Here and Now Versus Planning for the Future

One of the key issues raised by respondents was the need to reflect the changing role of education and training to meet the demands of the new workplace. Yet the ability to do this was limited by:

• Perceived lack of government support for new initiatives.
• Perceived lack of time available to come to grips with and plan for the future.
• A sometimes limited view of who constitutes the stakeholder groups, reflected in a lack of planning to develop programs which are inclusive of a range of needs. "But from a management perspective again, I mean, seasonal workers are a pain in the arse. I mean if you try to manage a team of people like I am and you've got targets to meet and that sort of stuff; the last thing you want to be doing is dealing — I want lecturers to have 20 plus people in front of them". (Provider, Agriculture)
• Limited opportunities for teachers to come to terms with the impact that global changes have on the design and delivery of education and training.

There were, however, people in local and rural communities who were acutely conscious of the need for training to attend to the future, and some of these were employers:

You just have to be careful you don't train just for the industry that is there and we are not really thinking about the industries that could be here in a few years.

And there were people who understood that, while industry may be local, markets are global, and international organisations should be seen as stakeholders in training along with local businesses:

But there also needs to be customising to be able to conform to international standards, particularly where market is not local. There are specific ... requirements of the customers of products from the industries that will require a certain level of expertise beyond what I would call basic or generic expertise. (ACC)

They recognised that this requires a shift in the way that the local community thinks about skill:

And people haven't been taught the skills to get skills. So that is the skill that is most important, you know the skills to deal with change and look a bit broader. (ACC)

Overall, however, the insistent demands of the "here and now", as they were articulated by local businesses, took up all the attention and energy most trainers had available. There were, however, small pockets of activity where the focus was
broader and where individuals and communities were consciously seeking ways to provide a more strategic and collaborative approach to training.

Ways of Managing
Where communities or providers were managing to attend simultaneously to the demands of immediate contexts and the demands of future planning, and where they were dealing with potential as well as existing students, they did so by committing significant resources to developing and sustaining relationships in communities. This was not an easy task.

Reconceptualising Skill to Have Both Generic and Specific Dimensions
One successful approach involved developing programs customised to the individual contexts of the participants, but with a view to challenging them to reconceptualise skill as having both specific and generic dimensions. One provider, who specialised in management and administration training over a range of packages, put considerable effort into finding out about the specific contexts of his clients, not so that he could replicate them but so that he could challenge them. His aim was to support a group in learning how to identify and contextualise generic skill:

I suppose, that one of the approaches that I take in working with small business owners is dispelling the myths and barriers that they create for themselves, either individually or as an Industry. You get entire industry sectors who create these falsehoods about the way that practices should be done and you know there’s no sort of basis except that that’s the way we’ve done it for 20 years and we’re not going to change. (Provider, Management and Administration Units)

Using Training Brokers to Develop Programs that Went Beyond Competing Needs
Results from this study support the findings from other studies (Falk et al., 2001; Djama & VET, 1998) that it is critically important for a process of collaboration be implemented to ensure that the needs of stakeholders are addressed.

Our research indicated that the most successful model in these situations involved the use of a broker who already had credibility within the community. The broker participated in initial discussions with individuals and groups, developing a shared understanding of what might be possible, then brought in an outsider whose initial credibility was determined through association with the broker. Of course, ongoing credibility would only be maintained by the teacher/trainer’s ability to engage with that community. Indigenous communities provided some very good examples of this practice:

[The Aboriginal Development Officer] works fairly closely with the Aboriginal communities to look at what economic development opportunities are there, then we work closely with him and also Aboriginal Elders on the communities to discuss what their projects are going to be and what level we set the certificate at, and also which units of competence we should include in the certificate that would be relevant to the community leaders ... I guess basically we take the clients, the people that are going to be our students, and we discuss with them what their needs are, and from there we build the package around that.

When talking to providers, it became clear that a critical factor in establishing and maintaining partnerships was the relationship between the individual teacher/trainer and the community. Potentially therefore there is a fragile and tenuous thread that could unravel when that individual is no longer involved in the program.

Partnerships that are based on inclusivity, consultation, negotiation and
responsiveness do not yet have an enduring character within the system. These partnerships, when they are established, exist briefly through the efforts of committed individuals and clients and not through the efforts of VET and adult education have tended to be the province of institutional mavericks. (Djama and VET, 1998, p. 38)

We found only one case in which this had been recognised and a process for succession planning thought through. In some communities there a level of cynicism has developed about the lack of ongoing commitment resulting in a reluctance to participate in training opportunities. Almost all providers identified the need to have a collaborative process, involving stakeholders, particularly employers, in the design of training. There were however a number of comments indicating that in many cases employers did not want to be involved believing that the training provider had the expertise to know what was required.

Industry, to be honest, aren’t that interested. They see it as our role rather than theirs ... You have to devote a lot of time getting to know the Training Package before you can really make comment on the content of it and how relevant it is. There aren’t many people in the industry who are prepared or able to do that. (Provider, Aged Care)

Conclusion

If local communities are to build local capacities they must take account of the effects of globalisation on local industries, workforces and work practices. This study suggests that this involves a strategic and systematic reconceptualisation of skill and of local community training relationships.

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Implications from Engeström’s Concept of Expansive Learning for Enriching Learning Cultures in VET

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In 1999 Yrjo Engeström gave a keynote address to this conference, elaborating his theory of Expansive Learning. This presentation will utilise Engeström’s work to interrogate social, cultural, historical, and political perspectives on learning cultures in VET. It will draw upon the author’s 2 decades of experience as a TAFE practitioner in vocational, industry, and community settings, as well as more recent experience as a researcher and educator of other VET and Adult Education practitioners. This address will critique the impact of neoliberal policies upon vocational education, utilising mathematics/numeracy as a case study in a sector where adult and vocational students arguably need the highest quality educational experiences in order to benefit national economies and to enable their democratic participation in a globalised world. Highlighting aspects of the multi-voicedness, historicity, and contradictions, it will suggest possibilities for expansive learning as a means of enriching learning cultures in VET.

Activity Theory
Yrjö Engeström (1999a) describes Activity Theory as providing a worthy unit of analysis for enabling a theoretical account of the constitutive elements of an object-oriented, collective, and culturally mediated activity system in all its complex interactions and relationships. The minimum elements of this system include the object, subject, mediating artifacts (signs and tools), rules, community, and division of labour (Figure 1).

Engeström (1999a, p. 9) continues that: “the internal tensions and contradictions of such a system are the motive force of change and development”. Following Engeström (1987), there are primary contradictions between exchange and use values at each corner, as well as secondary contradictions between the corners, as exemplified by the strict hierarchical division of labour lagging behind the introduction of new technologies in the workplace. There is a tertiary contradiction of the introduction of a culturally more advanced form of the central activity. Finally, there are also contradictions between the central activity and its neighbour activities, namely: object activities, instrument-producing activities, subject-producing

![Figure 1](https://example.com/figure1.png)

The basic mediational triangle expanded (after Engeström, 1987).
activities and rule-producing activities. In the VET sector these activities may be broadly categorised respectively (see Figure 2) as: (a) expansive learning through education (e.g., in the fields of paid or unpaid employment, social and individual development); (b) the total curriculum (intended, implemented, attained/embodied); (c) the learner (bearing in mind historicity, multi-voicedness, etc.); and (d) policy (intended and implemented). This paper will interrogate the various neighbour activities found in the Australian VET sector from the perspective of identifying their tensions and contradictions.

What is Understood by a Learning Culture?

Edwards, Ranson, and Strain (2002, pp. 532-533) recognise learning "as the transformation of understanding, identity and agency," and identify it "as involving a developing awareness, which results in a growing understanding of customary practice, leading to reflexive social and self-questioning and the transformation of 'habitus'." They continue that the development of reflexivity, and the capacity to develop critical awareness of the assumptions that underlie practices "should engender the potential for individuals and communities to (en)counter the trajectories of their lives and to enhance their capabilities; not simply to adapt to the (dis)locations of the contemporary condition, but also to engage with them".

Engeström (1987) distinguishes the original forms of human learning, where incidental learning consists of non-conscious learning operations, embedded in the daily participation in joint work, from the distinct, specialised forms that transmission of knowledge and experience brings about — conscious learning actions. He claims that the essence of learning activity is production of objectively, societally new activity structures (including new objects, instruments, etc.) out of actions manifesting the inner contradictions of the preceding form of the activity in question. Learning activity is mastery of expansion from actions to a new activity. Engeström (1999b, p. 383) notes that "the expansive cycle begins with individual subjects questioning the accepted practice, and it gradually expands into a collective movement or institution". It should be understood as the "construction and resolution of successively evolving tensions or contradictions in a complex system" (p. 384). The intention of this paper is to highlight the tensions and contradictions in VET in order to begin an expansive cycle.

Stenhouse (1967, cited in Bishop, 1988, p. 5) states: "Culture consists of a complex of shared understandings which serves as a medium through which individual human minds interact in communication with one another". Engeström and others would add that account needs to be taken of mediating artifacts in the form of tools and/or signs, as well as of the sociohistorical interactions of the broader community of practice. In the VET context, the term learning culture applies to the historically situated different forms and locations of post-compulsory education and training — for example, the neighbourhood setting, the TAFE classroom or workshop, the industry training room or worksite — and encompasses both face-to-
face and online learning. The question arises: How can vocational education and training become an enriching learning activity, especially in the face of historical traditions of transmission of a fixed body of knowledge and/or practice? This is notwithstanding frequent references towards theories of constructivism which regularly appear in ANTA and NCVER publications, yet which fail to acknowledge that critical perspectives are needed to address the reality of knowledge conflict (Skovsmose, 1994). How can learners become equipped to participate in expansive learning at work and elsewhere?

Curriculum: Instrument-producing Activities

As noted above, the mediating artifact here is taken to be curriculum. Even though this is no longer central in Australian VET policy and practice, it nevertheless exists by default in any planned learning situation. In traditional education, Popkewitz (1997) sees curriculum as a system of social regulation, and it could be argued that much of VET curriculum is concerned with social regulation even if the mechanisms of documentation are less visible than in school education. Engestrom (2001) sees learning in the workplace as a mechanism for creating shared meanings and curriculum as an ever-evolving solution to local crises. In other words, while school education is essentially about the reproduction of culture, vocational education — whether located in institutions or worksites — has the potential to foster creativity and competence in workplaces and other settings. But such creativity requires a broad knowledge base.

There are contradictions between the goals of the learners, the rhetoric of “best practice” in industry, and the education delivered by Australian VET curricula. For example, Anderson (2003) observes the discrepancy between the qualifications delivered by VET and many learners’ actual needs and/or employment outcomes. Inspection of training packages and recommended support materials reveals little if any attempt to foster creativity, let alone critique of existing work or broader social practices. By contrast, Kanes and Stephenson (2001), drawing on activity theory, identify an alternative mode of curriculum work which takes account of cultural-historical activity, is shaped by the motives and conflicting interests of its various rules and communities, and which addresses the tensions and contradictions of its given historical moment. Among other things, they propose increased visibility of current activity, and of the problems, difficulties, double binds, doubts, and aporias within current practice. One problematic issue is what kind of knowledges are called for in the 21st century?

New Forms of Knowledge Production

Gibbons et al. (1994) argue that the adequacy of traditional knowledge-producing institutions is being called into question. They assert that a transformation is taking place in the mode of knowledge production, heuristically contrasting what they call Mode 1 traditional knowledge with Mode 2 knowledge. In Mode 2, knowledge is produced in the context of application, addressing a much broader range of considerations than the norms of scientific research or commercial considerations. They describe it as transdisciplinary and identify four significant features:

- It develops an evolving framework to guide problem-solving, generated and sustained in the context of application
- It develops its own distinct theoretical structures, research methods and modes of practice
- The diffusion of results is accomplished initially in the process of production
- Its problem-solving capability is dynamic.

Importantly, they claim that Mode 2 supplements Mode 1 knowledge production, rather than supplants it. Gibbons et al. (1994) assert that whole process is
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permeated by social accountability and that participants are more reflexive because research issues extend beyond scientific and technical problems, reflecting on the values implied. Unlike the Mode 1 form of quality control, which they see as being defined “largely in terms of the criteria which reflect the intellectual interests and preoccupations of the discipline and its gatekeepers” (p. 8), other social, economic, or political interests may be included. How can vocational education curriculum address this new form of knowledge production in a meaningful way so as to enrich learning cultures?

In line with Engestrom’s concept of expansive learning, Griffiths and Guile (2003) propose that learners in work experience programs be supported to:

• Understand and use the potential of subjects as conceptual tools for seeing the relationship between their workplace experience and their program of study as part of a whole.

• Develop an intellectual basis for criticising existing work practices and taking responsibility for working with others to conceive, and implement where possible, alternatives.

• Develop the capability of resituating existing knowledge and skill in new contexts as well as being able to contribute to the development of new knowledge, new social practices and new intellectual debates.

• Become confident about crossing organisational boundaries or the boundaries between different, and often distributed, communities of practice.

• Connect their knowledge to the knowledge of other specialists, whether in educational institutions, workplaces or the wider community. (p. 59)

How might these be developed in institutional learning settings as well? Griffiths and Guile (p. 61) elaborate on one of the main characteristics of boundary crossing as involving a process of horizontal development. “Learners have to develop the capability to mediate between different forms of expertise and the demands of different contexts, rather than simply bringing their accumulated vertical knowledge and skill to bear on the new situation”. (See also Beach, 1999; Bernstein, 1996). As Kanes (1997a, 1997b) and others have shown, this is clearly the case with respect to mathematical knowledge, and that the transfer metaphor is inadequate. Following the work of Engestrom, Griffiths and Guile distinguish between different types of boundary crossing: (a) carrying out a known activity in a new context; (b) “individuals and groups using the problems which arise while undertaking a task as the basis for developing a new pattern of activity and new knowledge, polycontextual knowledge, in a new context” (p. 61). (See Engestrom, Engestrom, & Kärkkäinen, 1995, for further discussion of polycontextuality).

Mathematics in the Workplace

I wish to argue that in order for workers to participate meaningfully in the many and varied discourses of the workplace and in other social and civic problem-solving and decision-making processes, they need a strong foundation in certain forms of mathematical thinking in order to be able to communicate across boundaries. In the last decade, this has often been described as numeracy, a concept which extends far beyond the popular notion of rote-learned number facts and skills (see Kanes, 2003), and which is rarely to be found in most senior school curricula — even for those who would gain most in their preparation for working at the lower AQTF levels (Teese, 2000) or for participation in civic and social life generally. The shift towards transdisciplinarity and heterogeneity in the academy and the workplace should be expected to inform vocational mathematics curriculum and teaching, even when it is subsumed under the title of numeracy into other modules. Yet, in the recent information kit for literacy and numeracy
practitioners (ANTA, 2000), there is scarcely a hint of the power of mathematical thinking or the need for mathematical communication in the exemplary materials. Mostly numeracy is present in name only — as an appendage of "literacy".

Van Oers (2002, p. 25) notes that "mathematics is predominantly seen as the area of human thinking that provides the human being with a set of powerful symbolic tools for the reflective organization of reality". Drawing on the genetic domains of Wertsch, he argues that mathematical modelling could be conceived of within at least four levels: the phylogenetic, the sociogenetic, the ontogenetic, and the microgenetic. Rather than being found only in the upper echelons of school and TAFE mathematics curricula (pre-CBT), he illustrates how representational practices are derived from and contribute to cultural practices at all levels, and are engaged in from an early age.

Cherns (1980, cited in Engeström, 1987) observes that in contemporary workplaces "treatment becomes routine, diagnosis becomes the key". These sentiments are echoed by NBEET/ESC (1996) who recognised the requirement for systems thinking as an integral part of information literacy in the recent trends towards cross-disciplinarity and teamwork. Drawing on the work of Salner (1986, cited in NBEET/ESC, 1996), it is context-oriented and context-dependent, and involves the following competencies:

- the ability to see parts/wholes in relationship to each other and to work dialectically with the relationship to clarify both similarities and differences. In effect, this means the ability to balance the processes of both analysis and synthesis.
- the ability to abstract complexity so that organising structures (visual, mathematical, conceptual) are revealed rather than imposed.
- the ability to balance flexibility and real world change against the conceptual need for stable system boundaries and parameters.
- command of multiple methods for problem solving as opposed to employing a limited range of algorithms to the widest variety of situations.
- awareness that the map is not the territory, and the ability to act accordingly in the use of systems models. (pp. 75–76)

These competencies can be readily identified with the projects of the institution of mathematics (FitzSimons, 2002). The knowledge economy, widely accepted as the successor to the industrial economy, will demand a competency that links information literacy, systems thinking, and learning skills, according to NBEET/ESC. These will require, *inter alia*, "the ability to decode information in a variety of forms — written, statistical, graphic" (p. 77), together with critical evaluation of that information; Gibbons et al. (1994) even suggest that the notion of competence, in dealing with (re)arranging and connecting a plentiful supply of information, may come to define the meaning of "imaginative". How might these be developed in a non-trivial manner — along with the sense of personal agency and repertoire of learning skills outlined above?

**Learners: Subject-producing Activities**

Apart from macro-level data on students enrolled in the Australian VET sector, very little has been published about their personal needs and interests. The work of Damon Anderson is perhaps the best known for his championing of student rights, and his insightful analyses of policies that impinge directly upon students (see also Butler & Ferrier, 2000). Clearly learning cultures comprise more than enrolled students and their teachers or trainers, especially in the workplace where co-workers are an important component of any learning situation, whether formalised or not. In other settings, family, friends,
and co-learners may well be influential — although not necessarily in the most helpful or positive ways (as for co-workers and managers). Based upon my own professional teaching experience in community, TAFE and industry settings, it appears that many students have suffered poor quality teaching at some time in their school careers, and/or lack of opportunity to pursue their educational goals for reasons outside of their control (see FitzSimons & Godden, 2000). Accordingly, the decision to enrol in a formal VET or ACFE course may present some degree of risk to personal identity and integrity — particularly if many years have passed since the last encounter with the institution of education; the situation is exacerbated if there is some degree of compulsion from government or employers. This is in addition to the opportunity cost of time and money foregone in the pursuit of "lifelong learning" (see below).

**Multi-voicedness of Students**
No-one is "just a student". Teaching women returning to study in the ACFE sector, it was common to hear the ostensible reason of "being able to help my children" as their main reason for involvement, in mathematics courses at least. However, these women soon became engaged in the learning of mathematics for themselves. Others were explicit about making up for what was missed at an earlier stage in their lives.

Now that I am 20 years old I really do regret never trying to do maths. I am so scared of maths mainly because everyone makes it sound so hard. So I have come back to school to prove to myself that maths is not hard and no matter how old or young you are you will always need some sort of mathematics knowledge; also I want to improve myself and my mind. (FitzSimons, 1994, p. 17)

In this quotation, learning mathematics is seen as a personal challenge, a means of improving one's self, and of gaining a form of cultural capital (or legitimate knowledge; Bourdieu, 1991). However, it is well recognised that adult learners have many other interests and responsibilities in the social, civic, and economic roles they adopt, such as helping with the family business, caring for family members of all ages, membership of social and political groups, or voluntary work. When students miss a class or drop out there are often compelling reasons related to these other roles; sometimes it is a question of economic necessity for people employed on a casual basis, when the roster must take precedence or, for others, when a professional deadline must be met. For some the totality of non-study responsibilities simply becomes overwhelming.

**Historicity of Students**
Adult and vocational education students in industrialised countries generally have a well-established history of education which has often seen them relegated to lower ranks of achievement than others in their school cohort. Apart from the myriad of possibilities which conspire to deny individuals or groups the opportunity to fully participate in optimal subject choices, it should also be considered that students may need additional support with developing strategies for effective learning. In other words, they need the highest quality of teaching to overcome the negative effects of previous learning experiences and to rebuild a sense of agency in any educational setting. Particularly (but not only) in the case of mathematics, attention must be paid to both cognitive and affective domains, to address issues such as mathematics anxiety and the ubiquitous tendency towards rote learning involving attempted rule memorisation (often with faulty recall) and the suspension of commonsense when interpreting calculator/computer generated data, not to mention blissful ignorance of graphical presentations — even if these are of direct personal relevance when used as a technology of management (e.g., Wedege, 2000).
Contradictions

Our students are likely to have agency and responsibility in various other arenas — as workers, parents, members of the community, and so forth. But, on entering adult and vocational education it is possible that they become (once again) positioned as relative inferiors. Wedge (1999) studied the blocks and resistance of adults to the study of mathematics, and found that the habitus of adults who perceive themselves competent in life without the formal study of mathematics is likely to cause them to resist learning. Mathematics has not been perceived as relevant to their life project. In FitzSimons (2002) I illustrate the positioning of pharmaceutical manufacturing workers as educational infants through both content and pedagogy in recommended numeracy support materials in the food industry training package. I have not yet seen any numeracy materials which adopt a critical perspective on actual practices which leave workers disempowered in terms of dealing with, for example, incompetent management practices including the lack of proper and timely maintenance of essential equipment and the (at times) superficial regard for the occupational health and safety of workers. There is a distinct fairy-tale quality to many pseudo-contextualised numeracy resource materials which leave workers under-prepared to participate in expansive learning cultures in contemporary workplaces and elsewhere.

In summary, students in adult and vocational education need to be respected for their diversity of life experience as well as for the constraints that this complexity of experience might bring. In the past they have been constructed as apprentices to a “master” or as disciples of specialist teachers, practical or theoretical, even as infants — all imply a one-way flow of knowledge. Yet, it is argued that the flow needs to be two-way. However, the expansive learning possibilities for learning cultures are constrained by many, often contradictory, policies which affect all participants to some extent. One example might be the negotiation of curriculum content by a worker and an employer who are clearly in an unequal power relation; another is the intended links to university courses from a basis of ungraded competency-based qualifications (see ANTA, 2003).

Policy: Rule-producing Activities

In an article based on her 1998 keynote address to this conference, Elaine Butler (2000) describes politically constructed “norms” setting the parameters and blueprints for organisational governance in and through the Australian VET sector.

Institutional design in VET is based on a rational actor model, which privileges neo-liberal concepts of free markets and a small state; disembodied gender-neutral actors (industry, labour, worker/students and teachers/trainers and the technologies employed in pedagogical practices) within a fixed paradigm of personhood (productive economic contributors and willing/docile worker-learner-citizens), who, by choice, will respond according to the rules or hardware of the institutional requirements of VET. (p. 329)

Under these conditions policies are formulated and implemented, and sometimes evaluated. However, it is widely recognised that this process is neither linear nor rational, and that unintended consequences are also a reality. In FitzSimons (2002), drawing upon the theoretical foundation of the work of Basil Bernstein (1996), I outline the dramatic changes that have arisen in the sector over the last decade or so, at all levels — from micro- through meso- to macro-levels. I illustrate these through examples of recontextualising texts, the recontextualising field, and knowledge production and distribution, respectively. Clearly the introduction of competency-based training and, later, training packages, have had a major influence on learning cultures, along with massive changes to teachers’ working conditions.
and their overall sense of professionality. Technologies of management, including the introduction of an Open Training Market and User Choice, along with the deinstitutionalisation of education (with content reduced to that which is classed as "useful" and "just-in-time") and the closely prescribed "useful" policy-related research agendas have contributed to major untested and largely untheorised shifts in what counts as vocational education. Several authors have highlighted the emphasis on performativity in learners, teachers, and researchers. The critical issue, from my perspective, is that policy documents and funded research rarely if ever get close to addressing the issues of what actually happens in the classroom or other learning cultures — between real learners and real teachers. The questions may be posed: "Where is the evidence that the reforms of the last decade have actually improved educational outcomes in VET?" and "Who is the client?" (Anderson, 1999).

In terms of lifelong learning, Bagnall (2000) highlights the nexus between the current discourse and economic determinism. He outlines three progressive sentiments expressing a central programmatic purpose for educational reform (individual, democratic and adaptive), and argues that the progressive, ethical, and liberatory nature of each is marginalised or excluded from the discourse. This article resonates with my own personal experience of 20 years teaching in different types of learning cultures in adult and vocational education in Australia. I have experienced the contradictions between rhetoric and practice which have had the effect of: (a) deskilling and disempowering students and teachers through a combination of reduced hours and jejune mathematics and statistics curricula, (b) reinforcing the counter-critical nature of the new vocationalism, and (c) focusing on the preparation of workers (potential or actual) to adapt to the cultural realities and ideologies of contemporary workplaces — to the exclusion of their other social and civic needs (see FitzSimons, 2002).

Edwards and Usher (2001) and Edwards, Ranson, and Strain (2002) echo the thoughts of Bagnall (2000). In particular, Edwards and Usher identify the boundlessness of lifelong learning that, in theory, can never reach completion (see also Butler, 2000). Edwards, Ranson, and Strain point out that the focus on learning rather than education or training cannot provide a basis for policy development as, unlike public educational institutions, neither the consumer nor the market are readily amenable to policy implementation. Thus, there are tensions and contradictions between policies and learners' interests, policies and teachers' professional interests, and between policies themselves.

The trend towards the deinstitutionalisation of academic knowledge with the expansion in the potential supply of knowledge producers has serious implications for vocational education. ANTA documents suggest that it is possible to complete an award without ever setting foot in an educational institution. On the other hand, in-house industry training is often regarded as a potential cost; many reports from workplace trainers suggest that the economist prevails over the training manager. Possible consequences include unreasonably short start-up times for trainers and reduced or spasmodic time off-the-job for learners. Contradictions in workplace-based education arise between the economic requirements of task completion and the needs of the learner/workers. Another source of tensions and contradictions is to be found in policies which have marginalised teachers but expect them to take a leading role in implementing changes which have not been adequately justified on educational grounds.

**Community Members: Teachers as Professionals**

As Lassnigg (2002) observes, reforms in VET have often attributed a passive role to
educators, but nevertheless they have been at the centre of contemporary reforms which themselves are strongly influenced by external interests. Teachers have been seen as a major obstacle to reform, and the weakening of their position has been a core element of neoliberal policy proposals — not only in Australia.

The Senate Standing Committee on Employment, Education and Training References Committee (1998) inquiry into the status of the Australian teaching profession asserts that characteristics of the concept of professionalism include:

- a strong motivation or calling
- the possession of a specialised body of knowledge and skills acquired during a long period of education and training
- control of standards, admission, career paths and disciplinary issues
- autonomy in organising and carrying out their work
- the need for ongoing exercise of professional judgement
- members accept and apply a professional code of practice. (p. 23)

In the Australian VET sector, apart from the possibility of the first, the others have all but disappeared or been severely curtailed, as has the recognition of need for exercise of professional judgement. Not only have control of entry through tertiary educational qualification and registration been removed or replaced by Certificate IV, but the status of VET teachers is uncertain in terms of: (a) public recognition and status (e.g., the tendency towards peripheral rather than core positioning in the workforce), (b) the lack of autonomy and workplace control, and (c) the tendency for sections of the business community to hold them (and their worker/students) simultaneously responsible for creating and for providing the solution to problems of economic malaise. In a recent draft of the national strategy for VET 2004–2010 (ANTA, 2003) there is no mention of teachers (only the VET workforce) and just one reference to the quality of teaching and assessment — as a possible measure of performance. How could the crucial role of teachers in their collective contribution to an enriching learning culture be ignored?

One of the implications of Mode 2 knowledge production is that of quality control within the educational institution; this issue is particularly pertinent to vocational education in Australia, where quality accreditation issues are assuming increasing importance, impacting upon the daily work of teachers. In my experience, TAFE institutes operate within environments where they are “rewarded for establishing correct procedures and processes, not for the quantity and quality of their outputs” (Scott, 1987, cited in Hommen, 2002, p. 62). In other words the slavish adherence of many institutes to the ISO model designed for quality control in production is totally inappropriate to the kinds of educational operation found in TAFE. For example, there is a contradiction between flexibility of delivery to meet students' needs and having to submit a weekly schedule of content prior to even meeting them — in order to conform with ISO requirements. Yet students' complaints about outdated printers appear to go unheeded.

Expansive Learning

As noted earlier, in the relatively long cycles of expansive learning, qualitative transformations, questioning and deviation from established norms sometimes escalate into a deliberate collective change effort. According to Engeström (2001, p. 137) "a full cycle of expansive transformation may be understood as a collaborative journey through zone of proximal development [ZPD] of the activity". Or, as expressed in Ros Brennan's (2000) insightful analysis of the tensions and contradictions in online learning, expansion from isolation to collaboration; learning from conversations and research.
How might alternative models of adult and vocational education be generated and enhanced to encourage the uptake of lifelong education in ways that benefit all stakeholders? Is it possible to value both cognitive and affective development? How might alternative, research-based, curricular and pedagogical practices be incorporated into curriculum and pedagogy (including online)? In the case of numeracy, or *mathemacy* (Skovsmose, 1994), is it possible that *Critical Mathematics* may be a serious part of the intended and implemented curriculum? More broadly, is it or might it be possible to involve some or all of the stakeholder groups in a collective change effort based on critique, including judgement of what is to be learned, to serve their mutual needs? I believe that an expansive cycle, as described by Engeström, is a necessary component. That is, there needs to be open, respectful dialogue and boundary crossing between all activity groups, including policy makers, researchers, learners, and teachers.

Engeström’s model of expansive learning allows for creativity and interaction arising from tensions and contradictions within and between activity systems. The ideal would be expansion from isolation to collaboration in the design and implementation of curriculum (taken in its broadest sense) and engagement by all stakeholders with this curriculum — not forgetting the importance of members of each group being able to operate within their individual ZPDs. Expansive Learning would emanate from conversations, analyses, and genuinely open research; and by all stakeholders, collaboratively reflecting on alternative shared models of planning and implementation. In this way, the entire VET learning community would be enriched.

**References**


Enriching Learning Cultures Through Action Learning

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In this presentation, the authors share a model of professional development applying action learning, building theories of action into action theories of change. Communal professional development experiences that are actioned on site and evaluated over time offer ways to transform learning cultures through activity and reflection. Drawing on comparative case research methods, the authors will use two illustrative examples to demonstrate how action learning offers members of a learning culture ways to make sense of change in the light of their own experience and professional needs. Discussion will center on managing change demands from institutions, learning communities and individuals where communally understood ways of action enrich an evolving learning culture. Application to other learning cultures and possibilities for professional development will be explored.

The authors share a model of professional development grounded in work experiences shared with practitioners in education. They present a view of professional learning that is embedded in interactions between cognitive and social experiences of two teaching communities (Valsiner & van de Veer, 2000) where action learning methods bring together practical knowledge and pedagogy. Drawing on the work of Connelly and Clandinin (2000), we have defined practical knowledge as the personal knowledge that teachers apply to their professional practice when drawing on past and present experiences to guide future plans. While personal, practical knowledge is the informing basis for teacher goal setting and pedagogy, recent professional development initiatives promoted by Education Queensland emphasise the need for collective reform at a whole school or community level (see Education Queensland, 2000a, 2000b).

This paper accounts for our exploration of this nexus in two projects.

**Background: Researching Professional Development as Theories of Action**

Factors that contribute to the development of teacher knowledge and change in teacher practice reported in the professional development literature include the:

- importance of the self-actualisation of teachers as researchers and teachers taking control of their learning needs (Sachs, 1997)
- potency of critical reflection in practice (Freese, 1999)
- need for multiple opportunities to engage with theory and practice of reflection within the context of one's own work environment (Billett, 2001; Eraut, 1985; Greeno, 1997)
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- social basis of learning and the role of community in supporting that learning (Cochran-Smith & Lyttle, 1999)
- utility of approaches to action-based research as a form of inquiry (Johnson, & Scull, 1999).

The professional learning model that we propose is based on the work of Fletcher (2002, 2003) and integrates these factors through incorporating a “situated” view of knowledge construction (Greeno, 1997). Our model describes growth that happens on site, and for all participants. It is co-constructive (Valsiner, 1994); teachers and university staff build the features of the change environment collaboratively, and mutually inform and benefit from the constructing. Hence, the model includes reciprocity as a key feature (Fletcher, 2002, 2003).

It also views professional development as more than a set of dependency-type learning experiences constructed against a sense of participants’ deficits. Rather, it is conceptualised against a “difference” view of knowledge growth, one in which participants are considered to have different rather than deficient knowledge bases. It also assumes notions of individual and collective strengths, and of strategic predispositions to collaborative learning. We include self-regulated and interdependent approaches to learning (Bartlett, 2002; Sachs, 1997) about and through collectively establishing goals and engaging in work-based issues (Bartlett & Fletcher, 2003). In essence, the model is people-dense, process-oriented and activity-based.

Method
A comparative case method (Eisenhardt, 1989; Stake, 1995) was used to research ways teachers made sense of change in the light of their own experiences and professional needs. The authors were participant-observers collaborating with teachers in two projects designed to facilitate change at two sites.

Their participant roles involved working dynamically as critical friends, facilitators and learners with teachers engaged in professional development. Their observation roles provided data that informed the research process and grounded findings in the reported experiences of participants. Observations formed the basis for reflection and theorising of change as evidenced in teacher talk, survey data and artefacts collected during the project. These multiple sources of data were used to triangulate findings (Lincoln & Guba, 1985) and increase credibility (Patton, 1990) of data interpretation. A comparative case method provided opportunities for the researchers to validate the efficacy of the model as tested across sites.

Each project followed iterative processes during repeated meetings over time. Meanings that were made through “talk” offered insights into characteristic and idiosyncratic ways through which teachers engaged with new knowledge and understandings. They also illuminated ways that they transformed this knowledge into practice. Thus, it was possible to compare the co-construction of knowledge across sites applying the inductive analytic process described by Yin (1984, 1989) as “pattern-matching”. Data were compared systematically to establish converging or diverging evidence from the various sources. Pattern-matching identified chains of evidence in the data that revealed consistent and repeated themes (Miles & Huberman, 1994). These enabled the authors to compare common and shared learning experiences of teachers building theories of action into action theories of change. As participants they shared these experiences from an “emic” perspective. This further informed the theorising of the process.

Understanding Professional Development as Learning Through Action
Our attempts to understand the processes associated with professional learning in a
professional development context involved researching why and how members of professional communities managed the co-construction of knowledge. Questions guiding this research were:

- What is happening here?
- Why is it happening?
- How is it happening?

Three phases of inquiry have informed this work in progress. First, an exploration of the “what” of professional partnerships undertaken by Fletcher (2002) resulted in an understanding of the role reciprocity played in the formation of professional relationships within a collective. The genesis of these understandings emerged through participatory action research reflecting on the work of an Education Alliance consisting of 10 schools and a university.

While professional partnerships are formed because of common needs, interest and goals, their work is actioned through the relationships that form. These relationships are mutually beneficial when they facilitate and motivate to ensure productivity. During this phase the notion of reciprocity in relationships as a feature of professional partnerships was reported.

Second, within this Alliance a member school successfully applied for a Learning Innovation Proposal to the Quality Teacher Project titled, Sustained Learning Through Improved Assessment, Planning and Pedagogy. It aimed to action:

- Pedagogical change and improved student outcomes through teachers being engaged in Professional Action Learning that will focus on the development of a repertoire of assessment practices and skills supported by professional development, collaboration, substantive dialogues, productive challenges and systematic reflection. (Marsden State School, 2002)

Data collected at this site informed an initial pass at theorising a model of professional development that built on understandings developed during Phase 1. The emerging model attempted to account for individual changed practice in ways that explained whole school professional development as collectively transformative (see Fletcher, 2003). Drawing on action research methods, action learning as a transformative process was the subject of inquiry. While descriptions of action learning consistently include cycles of planning, action and reflection variations of this process are reported in the literature. For example, Zuber-Skerritt (2002) added “observing” to her cycle in describing action learning (planning, acting, observing and reflecting) and Dick (1999) included “review” as a form of reflection (action, review, planning, action). While the process remains inherently the same, these cycles do not attempt to explain those factors the initiate or maintain the learning cycle.

Phase 3 of this research was the result of a second Learning Innovation Proposal submitted by a school across the river, in the western suburbs of Brisbane. This project aimed to achieve the following outcome:

By the end Semester One 2003, the teaching staff at Hendra Secondary College will confidently be implementing outcomes based methodology of pedagogy and assessment and integrating across departmental lines. To do this, teachers must be holding meaningful professional conversations using a common language of pedagogy and assessment. (Hendra Secondary College, 2002)

This second project provided an opportunity to test the explanatory power of the model against the action learning processes encountered in a new professional learning context.

Processes, practices and products were documented as a group of teachers at Hendra College discussed how much more effective they might be as educators if only they shared the same language about several new literacy policies. Talk stimulated action as they spoke with colleagues within and across the substantive teaching areas that had separated them for years and found much the same sentiment. Generally, the teachers wanted to teach well. They wanted
to understand new policy and specific language that many found confusing or incomprehensible in relation to guiding practice in the teaching of their subjects, and they wanted to harness these needs as the core component of professional development over the next 12 months. Their achievement is documented in Smith and Milinovich (in press) and Milinovich and Smith (in press).

In terms of the model outlined below, the teachers had established their own conditions for change. They were motivated, and had found mutual interest in bringing difficult policy and language to the test of practicality. In considering how to do this, they were sharing and focussed. They set learning and action goals. They explored cognitive and metacognitive elements of mindsets that had briddled against robotic implementation of new policy. They asked experts to help them plumb the intentions and language of the policy — then made up their own minds on what terms such as “literate futures”, “productive pedagogies” and “top-level structuring” would mean for them individually and as a collective. They framed a whole-of-school activity to do an action research of their developing understanding, and met on several occasions to engage those same experts with vigorous debate on the “how to” of teaching to policy. The following model illustrates a theorised view of the “what”, “why” and “how” of action as evidenced in the learning documented during each project.

Why Professional Development: Force Factors for Change

In understanding what is happening when professionals engage in professional development, it is important first to understand why there was a professional development initiative in the first place.

Many teachers find themselves attending various forms of professional developments such as in-service programs, workshop sessions and professional development presentations for reasons that may be tacit. We believe participants need to be consciously aware of those factors that have caused a need for change and initiated their participation in a professional development course. Knowledge is socially constructed. This knowledge explicates the why of professional development by recognising those factors that have created a need for change. Importantly it helps justify the time, energy and cost invested by teachers in attending professional development programs.

In this model, force factors are explained in ways that account for the need for change. Force factors may be external or internal. Eternal factors may be official policy documents, curriculum initiatives, restructuring that reflect changing paradigms and initiate reform. They may be driven by economic, political, social, cultural ethnic agendas or a combination of these, depending on the context for change. Internal force factors reside with the individual. These factors may also be the result of similar agendas. However, internal force factors are always personal. These factors may overlap. For example, an individual’s need to change practice to improve students’ learning outcomes may be aligned with institutional reform policy on assessment. Nevertheless, force factors account for why individuals or members of a group initially participate in professional development activity. This is represented as an activation point in the model in Figure 1.

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Change Conditions
When individuals come together in an effort to make sense of change in the light of experience and professional need, a set of enabling conditions must be in place if personal learning is to become communal practice. These conditions are represented in the model under the headings personal, social, physical and cognitive. For example, personal conditions center on affective influences that will effect how an individual will respond to a professional learning encounter. They include such things as good will, motivation, emotion and response. Social conditions include participation, collaboration and interaction. Physical conditions relate to time and space of a working environment. Finally the cognitive identifies the declarative, procedural and conditional thinking processes required to engage in critical reflection. All of these conditions impact on the professional outcomes to be achieved using an action learning approach. The contributing attributes described here are not exhaustive and may not always be represented, but certain enabling conditions must be in place if participants are to collude with force factors and commit to learning through action. If conditions are not in place, participants’ responses will result in collision with force factors resulting in unpredictable learning outcomes as described in Figure 2.

Critical Events Chain Facilitating Action Learning
Once conditions have established an environment facilitating learning, a chain of events is set in motion. These events are multiple and critical in maintaining collusion among participants where individual knowledge is transformed into collusion among participants where individual knowledge is transformed into collective action through reciprocity in learning. Critical events maintain a momentum for change (Fletcher, 2003). They link individual learning experiences into chains of evolving, shared understandings that incorporate action learning processes of planning, acting, observing and reflecting. Critical events occur throughout the learning cycle. They are memorable moments that have the

![Figure 2](image-url)

Figure 2
Force factors and change conditions facilitating action learning.
potential to: transform knowledge into new ways of thinking; transfer existing practices into new ways of doing; or, create new practices and innovations. Critical events may be conversations, problems, outcomes, professional readings, experiences that act as triggers to stimulate another cycle of action. They focus and direct action. They enrich the evolving learning culture as relationships are formed and learning actioned as illustrated in Figure 3.

Conclusion: Why a Professional Development Model?
The value of a professional development model resides in its explanatory power in accounting for change. This model maps a process that explicates the social construction of knowledge. It accounts for the what, why and how questions related to professional learning. It also has individual application, offering participants a means of insight into factors and events that have enabled their learning outcomes. It can be used as part of an action learning process in ways that empower participants to consciously recognise, act on and talk about external and internal factors that have shaped their learning.

When teachers participate in professional development programs unaware of the external or internal agendas that frame learning or potential for learning, their ability to evaluate outcomes critically is limited. The model provides a framework to provide such awareness and has application beyond the education system. For example, middle-managers for Queensland Rail concerned for workers whose jobs and safety were threatened by poor communication performances became more secure by developing a kit on better management through insights found and shared about how literacy worked when it worked well (Bartlett, O’Rourke, & Roberts, 1996). They learned how to talk and work with their track staff about more effective and efficient collection of information about train times, of setting appropriate health and safety practices and of acting on appropriate mind sets about accessing and
providing information. Safety improved, and so did managers' satisfaction with handling the aspects of their responsibility critical to workers getting and delivering conditions for safer work.

However, it was not only the track workers who avoided “collisions” better as a consequence of this action learning. Their managers had done so, too — perhaps as a cause. In both cases, security came with progression along the chain of events that led away from resistance and counter-positioning to collusion and positive change.

For the authors the cases and applications are critical events in a chain of learning. Our imagining of practice at the various sites discussed here has been part of a reimagining that participants used to stimulate and provoke change. In turn, teachers, managers and rail workers who have opened iterations in our imagining by sharing theirs have learned about change and of their roles in enhancing or resisting it. They have learned about an informed way to proceed in monitoring and researching change. It is a mutual system worthy of ongoing exploration.

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Using the DATA-DATA Model with a Regional Collaborative Board

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This paper assesses implementation of the reflective practice component of the DATA-DATA action research model (Peters, 1991, 2002) by a group of facilitators working with a regional multi-agency Board of Directors for children's services in western North Carolina, USA. The facilitators assisted Board members as they reflected on their practices, explored the implications of changes in their environments, and planned for the long-term sustainability of their agency's work. Facilitators used DATA at three levels: (1) planning their own work for the agency; (2) planning a working retreat with the interagency committee; and (3) conducting the 2-day workshop with members of the Board. These three uses of the model generated co-constructed responses to the four stages of DATA by all participants at the three levels of its use. These responses were subjected to a thematic analysis, and the resulting themes were examined for what they suggested about the model's utility as a planning and development framework. Specifically, participant responses were analysed to determine the effectiveness of facilitators' actions in terms of congruence with the goals of the workshop and the approaches chosen to meet those goals. Findings indicate that for the majority of participants the DATA model and the approaches chosen to facilitate it were successful in fostering relationship building and the articulation of a common vision but less successful in creating specific action plans. Implications for similar joint efforts between university teams and community groups are explored.

ONE System of Care (ONE-SOC) is a 6-year federally funded grant using a best practice model to meet the needs of children with serious behavioral and emotional disorders, along with the needs of their families. A critical tenet of System of Care involves a high level of commitment and collaboration among all child-serving agencies. This level of commitment is believed to reduce barriers to services for children and families, maximise the use of limited resources, and create a common language. The regional board for System of Care serves the seven western-most counties of North Carolina nestled in the Blue Ridge and Great Smoky Mountains. The members of the regional board include state-mandated agencies such as the departments of social services and health, school systems, juvenile justice, mental health, and non-profit agencies, as well as the consumers of those services. Since ONE-SOC is in the fourth year of the six-year grant, Board and staff members are aware of serious issues confronting the agency: sustaining the work for children and families, maintaining and fostering relationships among board members, and increasing the amount and scope of project collaboration and resource sharing. Representatives of ONE-SOC contracted with members of the Townsend Institute and the University of Tennessee to help plan and facilitate a 2-day retreat to explore and address these issues. Members of the Townsend Institute who served as facilitators are co-authors of this paper. Denise Gaskin, the other co-author, is the Director of ONE-SOC and was
involved in planning and evaluating the retreat experience.

Townsend’s Approach

The Townsend Institute is guided by several key concepts of collaborative learning, communication and planning developed by the Institute and tested in both public and private settings. These concepts include types of communication, an innovation process, and a planning/decision-making process. Townsend provides participants an opportunity to engage in a hands-on collaborative activity in which they work together, learn from their mistakes, build on their successes, create new ways of doing their joint work, and develop a sense of ownership of the outcomes.

In most organisations the collective experiences and knowledge of people hold the potential for addressing their own problems. Facilitated dialogue helps them become aware of their ability to create solutions to such problems. Applying collaborative processes also enhances working relationships, thereby enabling organisations to operate more effectively on many levels. Application of these principles and processes within organisations not only promotes positive change, but also establishes a culture in which future improvement is intrinsically sustained, an element missing in many organisational change processes. What results from this approach is a new, more effective way of performing that becomes part of and indistinguishable from daily activities. However, such activities are more focused, are conducted with purpose, and foster an atmosphere of mutual trust and respect.

By drawing upon existing internal resources, the client organisation discovers innovative solutions to problems that would not have been likely otherwise. Also, implementing a collaborative approach within day-to-day operations allows members of an organisation to experience a difference in communication, recognise the value that it brings, and adapt to a new way of relating to peers and others.

DATA-DATA

Townsend Institute facilitators determined to use the reflective practice component of DATA-DATA, Peters’ (1991, 2002) action research model which provides for a two-stage inquiry into practice. This model is suited to first, second and third person research (Torbert, 2001), and has been tested in a variety of practice settings by more than a dozen action researchers. The first DATA describes a particular kind of reflective practice, which “involves identifying one’s assumptions and feelings associated with practice, theorizing about how these assumptions and feelings are functionally or dysfunctionally associated with practice, and acting on the basis of the resulting theory of practice” (Peters, 1991, p. 89). What is assumed and not often articulated in more traditional research initiatives, the stimulus to research or the “itch” that prompts the researcher to take action, can be surfaced in the various phases of DATA. The acronym DATA stands for Describe, Analyze, Theorize, and Act; stages and relevant questions are outlined below:

**D = Describe**

In this phase, participants explore the area in which they seek a change in their practices and the situation in which their practices occur. The essential question to be asked in this phase is a What? question; i.e., “What is my experience with my practice in the situation in which I practice?” No attempt is made to judge the experience or the situation or to reason why either exists in its current form. The goal of this phase is to obtain a rich description of the practice situation and to use this description as background for the phases to follow. Ironically, simply describing one’s practice without analysing, theorising, or jumping to solutions proves quite difficult for most participants.
A = Analyze
In this phase, participants examine their assumptions about the situation and reasons they attach to the way they practice in the situation. The essential question is a Why? question; for example, “Why am I experiencing my practice in this manner?”, or “Why is the situation as I am experiencing it?” The why question provides an opportunity to more fully explore their practices, their concerns, doubts, interests, ideas and feelings about the practices and thus lay the groundwork for how they will seek to change it, if they decide to do so. It is in this phase that participants are able to tentatively identify the problem, issue, or initiative that will serve as the focus of their change effort. This is also the stage where practical questions arise.

T = Theorize
Here participants lay out the approach they will take to make a change in their practices. This is an expression of their practical theories of aspects of the practices they wish to change, and their theories might be augmented by consideration of formal theories. The essential questions to ask here are both What? and Why? questions; i.e., “What am I going to do (about the problem or issue, or to take the particular initiative identified above)”, and “Why this way and not other possibilities?”

A = Act
This is the phase in which participants identify what they wish to know about their theories. The essential question is a What? question: “What do I wish to find out about what I plan to do?” The answer to this question will identify some aspects of the theories and not others, for practical reasons and in terms of what the researchers are most interested in finding out.

Three Implementations of DATA
Townsend facilitators implemented the DATA process at three different levels: in planning facilitation for the 2-day retreat, in working with a ONE-SOC planning committee, and in conducting the 2-day retreat with the full Board of Directors.

Planning Facilitation
For Townsend Institute facilitators, planning facilitation occurred in a series of meetings, each of which was organised by the DATA model. For brevity's sake these meetings will be summarised as if they were one continuous process. Facilitators made use of all information available, from the formal ONE-SOC request for proposals, telephone conversations with agency representatives, input from Denise Gaskin, Director of ONE-SOC, and later from the meeting with the ONE-SOC planning committee in order to describe in great detail the situation as we saw it and our relational responsibility (McNamee & Gergen, 1999) to the client organisation.

Features that stood out for us were the expressions of a need for a vision, the importance of a sustainability plan, and the emphasis on relationships between and among individuals and agencies. As facilitators we described our own role as that of working with clients to create solutions from within the client agency. Denise had an additional concern, which was that the Board of Directors had become dependent on her to take actions and follow-through; since her position was funded by the grant, this dependence posed an additional problem for sustainability.

We then examined this data in terms of common themes, seeking a deeper understanding of the retreat participants' situation, as we considered possible approaches (Analyze) to meet their needs. Having described both the situation that obtained in the client situation and our own as facilitators for the client organisation, we then began to examine our assumptions. Since we were practitioners of collaborative learning grounded in social constructionism (Gergen, 1999), our practical theory included the assumption that if people are given an opportunity to communicate through
dialogue and to learn from their own experiences, they can create not only solutions but new and more effective ways of “going on” together (Wittgenstein, 1953).

A number of practical questions arose as we considered actions appropriate to our understanding of the situation: How could we assure optimal opportunities for all participants to enter dialogue? How could we implement necessary conditions for effective dialogue? What would be the “ground rules” or understandings that would guide us in our interactions? What would be the most effective way of beginning the retreat? How could we as facilitators keep “on the same page” and yet not direct the dialogue? In what terms might we see and understand participant responses?

As we began to theorize about what might work, we re-examined assumptions entailed in our practical theory. Since the retreat attendance was expected to be around 50 (though final participation was around 35), we felt that work with a facilitator in small groups of 10 to 12 would be essential in order for everyone to participate in dialogue. However, since relationships between agencies and individuals were also critical to the sustainability of service delivery, work in a large group would also be essential. Therefore, we determined that a back-and-forth movement between small groups and the large group would be the optimal pattern for productive interactions. It seemed clear that we would need a framework to “keep us on the same page” as we worked in small groups and then came back together to report on our dialogue. We elected to use the DATA (Peters, 2002) model because of its clear articulation of four phases and because the structure would provide a framework for reflection.

We further theorised that by spending the majority of the first day of the retreat in the Describe and Analyze phases and mostly in small groups, the participants would be able to articulate facets of their situation which, even though they represented a variety of agencies and agendas, were held in common. Doubtless there were success stories that might serve as reminders of their commitment to the idea of “One System of Care”, stories that might prompt others to share their own beliefs. Due to the relatively short timeframe and the complexity of the problem, it seemed clear to us that the key element was the importance of relationships generated between workshop participants. Rather than spend the bulk of retreat time in problem-solving, we chose an approach that would foster the development of participants’ perception of themselves as a “community of resources” (Katz & Shotter, 1996). We theorised that an experience which strengthened the commitment of participants to a jointly constructed vision would enable them to go on to construct the practical solutions to problems they faced in continuing to meet the needs of families in the region. In order to articulate that jointly constructed vision, we planned to ask participants in small groups to draw together a picture of how ONE-SOC would look at some future point if it were meeting the needs of children and families. These small group pictures would then be shared with the larger group for explanation and dialogue.

Consideration of these matters led us back through earlier stages of DATA as we developed a deeper understanding of the situation of the client agency and of our own assumptions. We then developed a plan (Act) that called for us to begin the 2-day retreat by raising the question: What do you want to get out of these 2 days? in order to surface the “itch” that brought us together. We would then spend the first day meeting in small groups of 10 to 12 people with different affiliations and viewpoints in order to foster perceptions of that common vision through examination of the history and present status of ONE SOC (Describe) and explanation of how the organisation came to be in its current form (Analyze). Only after such important groundwork was laid, could an articulation of a common vision and a perception of themselves as resources for
achieving that vision be possible. For, "the belief that this or that future, either desired or feared, is possible, probable or inevitable can, in some historical conditions, mobilize a group around it and so help to favour or prevent the coming of that future" (Bourdieu, 2000, p. 235).

### The Planning Committee

In July 2003, the planning committee met with the facilitators to discuss expectations for the 2-day retreat. This group was representative of the larger group that met during the 2-day retreat and included key community stakeholders such as juvenile justice, mental health, parent advocates, private providers, and System of Care staff. The facilitators and planning committee also used the first phase of the DATA-DATA model as a tool for planning for the retreat. The following questions were explored: Where are we now? How did we get here? Why is this happening? What do we think would help? and What do we want to do about it?

As a result of reflection on these questions, the planning committee described a sense from the group of having achieved good working relationships across agencies and county lines; however, there is a need for a deeper level of collaboration. Of particular concern is that there still exists a sense of "us" versus "them" between advocates versus professionals. The most pressing concern is a sustainable future that supports all efforts to meet the needs of the most vulnerable populations.

In analyzing the situation, the committee reflected that action, unity and the creation of a common goal had been critical in arriving at this point with ONE-SOC. On the other hand, what has also developed is tension between groups of individuals (us versus them), people seeing themselves as victims, tension among members and an undertow of mistrust or the existence of hidden agendas. In theorizing about what would work, the group felt that creating a common vision and establishing a clear action plan would be key next steps. Also important would be seeking to enrich relationships, attending to the outcomes and continuing to look beyond the grant. The planning committee decided to act by using the same process of working through the steps of the first DATA with the full board at the retreat.

### Board Retreat August 18th and 19th

The retreat was held in a beautiful setting in the North Carolina mountains. Participants and facilitators were housed in refurbished antique cabins situated on the banks of a lake, and the meeting sites evoked camping experiences from childhood. The sense of isolation from the pressures of daily schedules was both symbolised and enhanced by the lack of a cell phone signal. As planned we began the first session with a question designed to elicit the impetus (stimulus or "itch") for participants to engage in this experience. Themes that emerged from the initial dialogue were the commitment felt by board members to each other and to the philosophy of ONE-SOC, anticipation tempered with skepticism, the need for a concrete map for the future, the focus on the need to serve children, and the belief that all members advocate for children. These themes were roughly congruent with facilitator expectations, although they also pointed to areas for attention during group processes. Additional time was devoted to crafting a "Comfort Agreement" which laid out the assumptions of the facilitators about the practice of dialogue, the process of joint construction (Peters & Armstrong, 1998), and the expectations for participation. The symbolism of chairs arranged in a circle with a lit candle in the middle was explained.

The large group was divided into four smaller sub-groups roughly representative of the board membership and facilitated by a member of Townsend Institute. These groups would continue to work together throughout the retreat. In the first small group session retreat members were asked to describe their own experience and
practice as it relates to children, families and System of Care. The small groups used large butcher-block paper to record their responses to this question and then reconvened to share with one another in the large group their responses to the question: What is happening now? Revealed through this discovery process were six characteristics of the current situation as experienced by board members:

1. **System changes**, including mental health reform, changing roles and positions by those who work for child serving agencies, privatisation of all mental health services (from community model to private practice model), decline in funding and loss of relationships.

2. **Involvement** and investment by board members, families and community, indicating a need for increasing involvement especially by schools.

3. **Need for Collaboration** due to lack of consistent vision, recognising a decrease in involvement, uncoordinated regional efforts, and a sense that we are at a “breaking point” with buy-in to this process.

4. **Training/Technical assistance**, including recognition that the skill level of case managers has increased while referrals to the grant and attendance at training have decreased.

5. **Family advocate involvement**, especially empowering and helping families understand the changing and confusing world of mental health reform.

6. **Culture**, recognising we have local and immigrant cultures and Raleigh versus Mountains.

After sharing these perceptions of the current situation, the small groups reconvened and asked the question Why is this happening? Once each small group recorded their responses to this question, the large group met again to share responses categorised below:

1. **System of Care Works** in challenging the traditional medical model of service delivery, provided training and increased communication.

2. **Global Changes** include doing more with less resources, focus on best practice models, control of how money is spent, and dismantling of public providers.

3. **Privatisation** has lead to mental health reform. There is no financial incentive in place now for private providers to participate with the System of Care model (private providers do not get paid to attend meetings).

4. **Advocacy** by consumers demanded change in service delivery. Parent advocates have served as a bridge between agencies. Families have been frustrated by many different treatment plans and feel punished by the system and overloaded and stressed by agency expectations.

5. **Relationships** continue to be an important factor, as people who work for agencies still care even in the face of “burn out”. The strong history of collaboration has helped us in this time of transition.

6. **Collaboration/Communication** has made us more aware of the needs of our consumers and one another. Agencies have demonstrated that we can co-create, pool money, and let go thereby creating something that none of us could have accomplished alone. We have a window of opportunity at this moment and we need to act quickly before it closes. We do not have enough community ownership and this is still too much a “mental health” project instead of being about the whole child and family.

7. **Mental Health Design/Medical Model/The Grant** versus the strength-based, community resource model of System of Care. This is still very much a grant based design and not fully integrated into the infrastructure at each agency.
Following large group sharing of What is the situation? (Describe) and How did it come to be this way? (Analyze), the small groups were asked: What should this look like? (Theorize).

Small groups drew a picture or pictures of an agency that functioned to meet the needs of children and their families. Images that stood out were depictions of trees that were both grounded in the soil and the culture of western North Carolina and simultaneously reached to the sky. Another image was one central hub that functioned to channel clients to the various agencies and community programs that could meet their needs. A third image portrayed ONE-SOC as a red pickup truck, a particularly fitting icon for the local culture, that delivered services to outlying regions. One group drew a fabric held taut by service providers and community agencies; because they both worked together and maintained creative tension between them, the fabric functions like a trampoline and supports the child in the middle. Some of the drawings contained hearts; others showed amoeba-like figures that indicated the ability to change and meet the demands of differing circumstances.

In our final session we focused on practical actions that could be undertaken in the next 6 months. Four general categories emerged from all the data in this area including:

1. Increase collaboration, including combining meetings into one functional, multi-agency task force for each county. Also suggested was to increase community involvement, collaboration and trust across all levels.

2. Simplify processes/create more efficiency through smarter involvement of board members and streamlining the processes including paperwork and meetings.

3. Change resource distribution and increase education to increase independence from formal agencies and services by relying more on community resources and natural supports. Develop an awareness campaign and advertise services and supports through shared resource directories.

4. Intentional personal responsibility for the successes and failures of our work together. This includes self-reflection and action.

Because of time constraints, it was decided that these tasks would be undertaken and followed through on by the small groups which had worked together throughout the retreat.

Participant Feedback

Immediately following the retreat, participants were asked to complete an evaluation which asked for both ratings on a scale and short responses, as well as providing for comments. Participants were asked to note the degree of their agreement or disagreement with the following statements:

1. I see myself learning from this experience. (82%)

2. The things I have learned in this workshop will be helpful to me when I return to my workplace, as well as in my membership on the board. (71%)

3. I feel comfortable in my understanding of the DATA process. (61%)

4. I can see applications of this experience to other areas. (79%)

5. Given this experience, I feel more hopeful about our ability to jointly construct solutions. (75%)

The numbers in parentheses represent the percentages of respondents who marked either agree or strongly agree.

Participants were also asked to provide short answers to the stem prompts. In answer to The most useful thing I learned in this retreat was ____, 10 respondents answered in terms of affirmations of working with others in this situation; eight specified a common vision; four mentioned hope; three mentioned reflection. There were two negative reactions. In responding to The retreat would have been more helpful...
to me if ___, six respondents indicated more time spent on action steps; five indicated a wish for more group activities; four indicated that the pace had not met their needs; others wished for more time or changes to accommodations. In response to *I wish we could have spent more time on ___*, 12 participants noted action plans, five indicated a wish for more time in reflections and dialogue; the remainder wished for more time for both action plans and reflection, though one noted that "2 days were exhausting!" The prompt *The thing that stands out for me is ___* elicited a majority of responses (14) about the level and strength of commitment evident in the group; three responses mentioned symbols (two mentioned candles and one recalled the red truck); other items indicated were “the enormity of the task”and the need for personal responsibility. Two participants mentioned their preference for small group activities, and two others noted “personal agendas”. In the open-ended *Comments* section, participants commented on the facilitation of the retreat. Though the majority found the facilitation helpful in moving the group toward their goals, the issue of pacing and getting to the action stage more quickly was mentioned by three participants. Twenty-eight participants completed evaluation forms.

**Conclusions**

The facilitators examined data generated at each stage of the DATA process as well as participant evaluations in order to determine the utility of the DATA model and the effectiveness of facilitator actions undertaken to implement the model in the 2-day retreat. The goals of the retreat, summarised from the RFP (request for proposal), the planning committee meeting, meetings with Denise, and the impetus to action articulated at the beginning of the retreat itself were these: to enhance existing and create new relationships, to work toward a common vision, and to arrive at a clear action plan for sustainability. From participant responses before, during, and in evaluations following the retreat, it appears that the DATA process was useful in providing a framework for reflection. Further, it appears that significant progress was made toward two of the three expressed goals of the retreat — relationships and a common vision. However, many participants indicated that, in their perception, pacing provided by facilitators was an issue in their not achieving the clarity and specificity of action planning.

As facilitators facing an enormous undertaking in a 2-day period, we described, analysed, theorised, and acted into a situation in which we privileged the fostering of relationships and a common vision over the crafting of details of an action plan for sustainability. We did so in the belief that people who come to see themselves as a “community of resources” united by a common vision can go on together to create those action plans to sustain themselves and their communities. And yet we find ourselves engaged in reflection over what all of this might mean, both for our client agency and for ourselves.

We have been pleased to learn that, following the retreat in August, each one of the four small groups has met and developed specific plans to implement the four practical actions developed in our last session. These are steps in creating the action plan requested by the board for project sustainability and future work together. Since August a number of strategic planning meetings have occurred and each subgroup is to present goals, strategies, and objectives for their primary subject area to the full Board of Directors on October 17, 2003, for discussion and approval. This work, directly resulting from the relationships established during the board retreat, has led to continued efforts beyond those 2 days and to the development of a real strategic plan — one that encompasses the visions, dreams, and goals of all members of the board.
As the authors look back over this experience, what stands out is the sense of a group of people united by a common commitment to children. In the face of numerous challenges, they came together to create a plan for sustaining their joint efforts that was grounded in community, collaborative and flexible enough to meet demands in a changing environment. This effort points to the viability of other joint projects between university-based teams and community groups.

References


This paper examines the impact of the Department for Education and Skills/Further Education National Training Organisation's subject specifications for basic skills teachers upon initial teacher trainees studying on a 1-year, full-time Postgraduate Course in Education in a higher education institute in the north-west of England. These specifications form part of the Government's national strategy for improving adult literacy and numeracy skills, Skills for Life, published in 2001. Skills for Life was the response to the Moser Report into adult basic skills, published in 1999. Moser alerted the Government to the findings that around seven million adults were experiencing difficulties with basic skills. Skills for Life, therefore, aims to raise standards and learner achievement through, amongst other measures, improvements in teacher training. In response, FENTO produced a set of specialist Level 4 Subject Specifications for Teachers of Adult Literacy and Numeracy. The implications and effects of these specifications on PGCE (Further Education) student teachers are discussed in relation to the taught element of the course and on teaching practice. The paper provides a brief historical overview to the development of the Basic Skills specifications and their role in government educational policy; describes the process of their integration into a PGCE curriculum; and analyses qualitative data gained from group interviews and quantitative data from questionnaires completed by PGCE students both at the beginning and end of the course.

Background

Skills for Life was the response to the Moser Report into adult basic skills, published in 1999. The Basic Skills Agency's definition of basic skills is "the ability to read, write, and speak in English (or Welsh), and to use mathematics at a level necessary to function at work and in society in general" (Basic Skills Agency, 2003). Moser alerted the Government to the findings that around seven million adults were experiencing difficulties with basic skills and therefore were not functioning at a "necessary level". Skills for Life, therefore, aims to raise
standards and learner achievement through, amongst other measures, improvements in teacher training. These improvements are guided by the Government's commitment to "a new teaching and learning infrastructure" (DfES, 2002, p. 38) which includes the development of new literacy, numeracy and ESOL teaching qualifications and the introduction of a range of measures to "improve the status of teachers of adult literacy, numeracy, ESOL and learners with disabilities and/or difficulties" (DfES, 2002, p. 38)

Qualifications for Basic Skills Teachers

The effect of these measures on a large-scale provider of initial teacher training proved considerable. FENTO produced a set of specialist Level 4 Subject Specifications for Teachers of Adult Literacy and Numeracy which became available to Initial Teacher Training (ITT) providers in the late spring of 2002, and for ESOL in the autumn of 2002. We learned that any new teacher wishing to teach adult basic skills would be required to complete a PGCE or Certificate in Education which met the FENTO Teaching and Learning Standards and which also incorporated the Level 4 specifications. We also learned that this had to take immediate effect: "We expect that by September 2002, awarding bodies and higher education institutions will have started to introduce programmes for new teachers of adult literacy and numeracy that take account of the subject specifications" (DfES/FENTO, 2002, p. 1).

We already run a "generic" FENTO- endorsed PGCE/Cert.Ed., within which students are taught not only in "educational studies" groups but also in subject specialist areas, including an adult basic education specialism. Formerly, the ABE students had been able to work towards a City & Guilds 9281 as part of their teaching practice. This Level 2 qualification was originally designed for a wide range of basic skills tutors in further and adult education, including volunteers with no formal teaching qualifications. The new Level 4 requirements now rendered this route unviable: we needed to integrate the specifications into our full-time ITT program with the aim of starting new students on the basic skills PGCE/Cert.Ed. in the new academic year.

Developing the Basic Skills PGCE/Cert.Ed. Curriculum

We decided to offer a mixture of three "generic" and three "specialist" modules: the former based on our existing program, and the latter to cover the two interrelated areas prescribed by FENTO in the subject specifications for literacy, numeracy and ESOL ("the knowledge, skills, understanding and the ability to apply the skill itself; the knowledge and understanding of the consequences for the learners of specific skill definitions"); (DfES/FENTO, 2002, p. 43). Accordingly, the content of the specifications was structured into three specialist modules for each of the three pathways (literacy, numeracy and ESOL), thus giving nine modules in total. (These modules would also form the basis of the future continuing professional development program for existing basic skills teachers). Teaching specialist modules would not pose any difficulties; as explained above, we already teach students in specialist curriculum groups.

We were anxious, however, to ensure that the students would make the connection between the specialist theory and the practice of their work-based experience in the post-16 sector, and used the assessment for each module to realise this. For instance, the first literacy module studies the theoretical frameworks of the English language. The assignment asks students to produce a case study of an individual with whom they are working, in order to use the theories studied to identify and analyse the learner's specific literacy needs. Assignments submitted throughout the academic year were, in the main, encouraging and indicated that students were
making the connections between theory and practice.

Finally, we consulted with our partnership colleges to decide on the best structure for work-based experience, which resulted in a "parallel" timetable for the basic skills PGCE. Students study for half the week at the higher education institution, and undertake work-based experience for the other half, rather than attend both for "block" periods. The nature of basic skills teaching and learning offers particular opportunities for student teachers and their learners to develop continuing relationships, which, it was hoped, could be better sustained through a parallel approach.

Research Methods
As the aim of the study was to evaluate the impact and effects of the subject specifications on basic skills student teachers, the case group was the PGCE intake for the academic year 2002–03. Three groups of adult literacy student teachers (54) were enrolled, and one group of 23 for numeracy: 81 students in total.

The two methods selected were semi-structured group interview and questionnaire, both staged at different times throughout the academic year. The questionnaire was presented as 10 "structured factual questions" (Scott & Usher, 1999, p. 68) offering three responses ("to a great extent; to some extent; not at all") and centred mainly on the usefulness and relevance of the content of the ITT modules (generic and subject specific) to the student teacher's work-based experience. The questionnaire was administered to the students teaching literacy at the beginning and end of the course, using the same declarative statements, but changing the tense. Data was treated quantitatively in order to make comparisons about students' perceptions of the modules before they began teaching "in earnest" and after they had completed their work-based experience.

A small group of adult literacy student teachers were asked to participate in semi-structured group interviews which were conducted towards the beginning and end of the course. Data was treated qualitatively, again with the aim of comparing students' experiences and perceptions as the course progressed.

Data Analysis
Questionnaire, November 2002
Student teachers of adult literacy formed the majority of the PGCE cohort (detailed above) and were selected to complete the questionnaire. This ensured that students studying the same specialist modules only were surveyed. There were 38 respondents to the questionnaire. Questions 4 and 5 were answered by 37 respondents, and Question 9 by 36. See Table 1 for questionnaire, November 2002, responses.

The curriculum for semester one comprises one specialist module and two generic. The latter modules aim to give students the "tools of the trade": how to plan, assess and implement; and theories on learners, learning and tutoring. The specialist module "... build(s) on an understanding of the concepts and theoretical frameworks underpinning the study of English language" (DfES/FENTO, 2002, p. 2).

The main findings centre on the students' perceptions that, at the beginning of the PGCE course, the generic modules rather than the specialist will be more useful to them on work-based experience. Only 3% of respondents thought that they would not make practical use of the generic modules in their teaching, whilst 13% felt they would not make use of the specialist modules. Similarly, the content of the generic modules was considered more valuable: 13% felt that their knowledge of teaching had not been added to at all through study of the generic modules, whilst 21% felt they had not gained any specialist knowledge of literacy teaching at all through study of the specialist modules. It appears that at this stage of the course, students are more concerned with how to teach rather than what to teach. In my
Table 1
Responses to Questionnaire, November 2002

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>TO A GREAT EXTENT</th>
<th>TO SOME EXTENT</th>
<th>NOT AT ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I had clear expectations about what the course involved before I began</td>
<td>2</td>
<td>31</td>
<td>5</td>
</tr>
<tr>
<td>2. The content of the generic modules has added to my previous knowledge of teaching</td>
<td>12</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>3. I expect to make practical use of what I have learned from the generic modules in my work-based experience</td>
<td>16</td>
<td>21</td>
<td>1</td>
</tr>
<tr>
<td>4. The content of the specialist modules has added to my previous knowledge of literacy teaching</td>
<td>8</td>
<td>21</td>
<td>8</td>
</tr>
<tr>
<td>5. I expect to make practical use of what I have learned from the specialist modules in my work-based experience</td>
<td>15</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>6. I had experience of teaching adult basic skills before I began the course</td>
<td>2</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td>7. I had specialist literacy knowledge before I began the course</td>
<td>2</td>
<td>8</td>
<td>28</td>
</tr>
<tr>
<td>8. I am aware of current government initiatives on adult basic skills</td>
<td>12</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>9. The content of the specialist modules reflects current government initiatives</td>
<td>8</td>
<td>27</td>
<td>1</td>
</tr>
<tr>
<td>10. I feel the course has prepared me for WBE</td>
<td>1</td>
<td>32</td>
<td>5</td>
</tr>
</tbody>
</table>
experience as a teacher educator, this seems to be the common experience of most pre-service student teachers before they begin work-based experience, whether they are studying on a specialist or non-specialist PGCE/Cert.Ed. course. They are more apprehensive about the process of teaching than the content they will teach. These perceptions are also supported by the comments made in the first group interview, discussed later. The respondents in this study, therefore, identify the generic modules as the ones which will support them most at this stage of the course. Another simple point could be made that students were studying two generic but only one specialist module: perhaps sheer volume made an impact!

Thirty-nine per cent of respondents indicated that they had some previous experience of teaching adult basic skills (only 5% “to a great extent”) and 26% stated they had specialist literacy knowledge (again 5% — perhaps the same 5%?) before they began the course. This shows, at least in this study, that non-specialists have been teaching basic skills and supports the DfES view that “Many teachers and support staff remain without specialist qualifications ...” (DfES, 2002, p. 42).

Finally, respondents were well informed about Government initiatives on basic skills, as 100% agreed that they were aware of initiatives to a great or some extent, although the question does not ask whether they have gained this knowledge from the course or elsewhere. Only 3% felt that these initiatives were not reflected at all in the specialist modules, which is positive feedback for the creators of the specifications, as, for the lecturers on the PGCE course, is the figure of 87% who felt that they had been prepared to a great or some extent for their work-based experience.

_Group Interviews, December 2002 and April 2003_

A group of 12 adult literacy student teachers participated in the semi-structured group interviews. The focus of the questions centred on the relationship between the theory of the modules studied and students’ teaching practice, and general perceptions of basic skills teaching. The latter played a more minor role in the first interview, as in December some students had only just begun their work in post-16 institutions.

The findings from the first interview substantiate the points made above about the concerns of students regarding work-based experience. A common perception was that students were unclear as to “… what’s expected of me”. They found that they were not being “… told what to do …” nor what they needed to produce for each teaching and learning session. In a group of mixed ability learners, should an individual plan be written for each learner? The student teachers agreed that this was an issue peculiar to basic skills teaching, in that “one size doesn’t fit all” in a lesson plan, as is mostly the case in “mainstream” whole class teaching. On the course, they asked for “… more techniques for teaching ... how to teach ...” and one participant commented that, when on work-based experience, “... everything you do here (i.e., on the course) goes out the window”. However, a response to this was “… when you bed it (theory) in it will make sense”.

The researcher began the second interview in April 2003 with this quotation, to see if perceptions had changed over the 4-month period. Overall, the theory had begun to make more sense, and participants felt also that the course’s parallel structure worked better for basic skills teaching. They had made use of the specialist subject knowledge: “… you can plan for as long as you like but if you don’t have the knowledge when you’re asked specific questions, it’s difficult”. One participant also commented on the relevance of studying the module on “… social factors influencing language and literacy learning and development” (DfES/FENTO, 2002, p. 2) and another felt that “… you could’ve done
it [literacy teaching] but you wouldn’t have had as much understanding”. Another comment was that teachers in other curriculum areas often have a degree in their subject and therefore have subject knowledge: existing basic skills teachers might not. This led to a discussion concerning the status of basic skills teachers. In general, participants felt that in their work-based institutions, the status of basic skills teachers was not as high as that of those in other subjects, and that perhaps the Level 4 qualification might help to redress this balance. This also accords with one of the aims of the Skills for Life strategy: “These subject specifications are the first step towards recognising that teachers of adult literacy and numeracy have a challenging and professional role with the same curriculum status as other curriculum areas” (DfES/FENTO, 2002, p. 1).

**Questionnaire, June 2003**

Six of the questions asked were the same as those on the November survey and concern the content and usefulness of the generic and specialist modules. A comparison of the results shows a positive increase in responses to all six questions. There was a 13% increase acknowledging the value of the generic content, compared to a 19% increase for the specialist content. Only 3% more acknowledged the practical use of the generic modules, compared to a 16% increase for the specialist ones. By the end of the course, therefore, the specialist modules were those which had increased in value and importance to the student teachers. No one felt that they would have been able to teach literacy without studying the specialist modules. The most encouraging result for the ITT curriculum designers of this basic skills PGCE was that 95% of respondents agreed “to a great or some extent” that a Level 4 specialist qualification should be mandatory for all basic skills teachers. See Table 2 for questionnaire, June 2003, responses.

Interestingly, the students’ perceptions of the status of the “basic skills teacher” had changed when compared to their discussions in the second group interview: only 5% felt uncomfortable when described as a basic skills teacher, and only 9% felt that basic skills teachers did not have the same status as teachers of other subjects in their WBE institutions. Respondents in the April group interview had felt that, generally, basic skills teachers had lower status.

**Conclusions**

Overall the results showed a positive shift in attitude towards the Level 4 specifications. As students grew more confident in their roles as teachers, their perceptions of the specialist modules changed. The first questionnaire highlighted apprehensions about the process of teaching: how to teach was of greater concern than what to teach. The generic modules became less important as students’ teaching skills developed and as they concentrated on their subject specialism. Developing confidence also appears to have caused a shift in student teachers’ perceptions of the status of the basic skills teacher: if one of the aims of Skills for Life is to “improve the status of teachers of adult literacy …” (DfES, 2002, p. 38) then this seems to be reflected in students’ attitudes by the end of their course.

On a final note, Susan Pember, director of the Adult Basic Skills Strategy Unit, states in a letter to the *Times Educational Supplement* (October 10, 2003) that basic skills teachers “…. have responded to changes brought about by the new standards and curricula and have welcomed training and support”. This statement seems to be borne out by the 81% of student teachers who agree to a great extent that a Level 4 specialist qualification should be mandatory for all basic skills teachers. *Skills for Life*, in this study at least, seems to be achieving success in teacher training.
<table>
<thead>
<tr>
<th>QUESTION</th>
<th>TO A GREAT EXTENT</th>
<th>TO SOME EXTENT</th>
<th>NOT AT ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The expectations I had of the course before it began have been met</td>
<td>2 10</td>
<td>18 86</td>
<td>1 5</td>
</tr>
<tr>
<td>2. The content of the generic modules added to my previous knowledge of teaching</td>
<td>5 24</td>
<td>16 76</td>
<td>0 0</td>
</tr>
<tr>
<td>3. I made practical use of what I learned from the generic modules in my work-based experience</td>
<td>7 33</td>
<td>14 67</td>
<td>0 0</td>
</tr>
<tr>
<td>4. The content of the specialist modules added to my previous knowledge of literacy teaching</td>
<td>8 38</td>
<td>12 57</td>
<td>1 5</td>
</tr>
<tr>
<td>5. I made practical use of what I learned from the specialist modules in my work-based experience</td>
<td>6 29</td>
<td>15 71</td>
<td>0 0</td>
</tr>
<tr>
<td>6. I would have been able to teach literacy without studying the specialist modules</td>
<td>0 0</td>
<td>16 76</td>
<td>5 24</td>
</tr>
<tr>
<td>7. I feel comfortable when described as a basic skills teacher</td>
<td>6 29</td>
<td>14 67</td>
<td>1 5</td>
</tr>
<tr>
<td>8. Basic skills teachers have the same status as teachers of other subjects in my WBE institution</td>
<td>8 39</td>
<td>11 52</td>
<td>2 9</td>
</tr>
<tr>
<td>9. I agree that a Level 4 specialist qualification should be mandatory for all basic skills teachers</td>
<td>17 81</td>
<td>3 14</td>
<td>1 5</td>
</tr>
<tr>
<td>10. I feel the course has prepared me for a career in basic skills teaching</td>
<td>5 24</td>
<td>15 71</td>
<td>1 5</td>
</tr>
</tbody>
</table>
Endnotes
1 There were 4 ESOL student teachers within this total: as the ESOL specifications were not available in final form until the autumn of 2002, students were not actively recruited for this pathway. They were taught together with the literacy students, as two of the three modules are very similar, and receive specialist teaching for the third module.

2 For instance, Q. 5 “I expect to make practical use of what I have learned from the specialist modules in my work-based experience” will become “I have made practical use...” etc. The intention is to keep the questions as similar as possible to ensure like comparisons.

References
Learning Not to Learn: Investigation of a Disempowering Discourse

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*Christchurch College of Education*

Maureen Doherty  
*Christchurch College of Education*

The current culture of technical accountability, buoyed by knowledge of practice generated from the traditional science-based research methods, is leading to a workplace culture in which learning communities can learn not to learn (Wenger, 2000). This paper explores how the categorisation of workplace competencies into “hard” (technical) versus “soft” (intra/interpersonal) skills, (Birkett, 1993) values technical competency over individual agency in terms of framing and solving the problems of practice, and how this functions to impoverish rather than enrich learning about practice. While the emphasis on hard skills may be appropriate at some levels of industrial, production-oriented organisations, it contributes to a disempowering discourse in people-oriented organisations, and can be misleading at leadership or decision making levels of any organisation. Using a Critical Discourse Analysis framework (Fairclough, 2001) we demonstrate the political implications of accepting this discourse and expose how covert, embedded, cultural mechanisms can conspire to obscure new learning about practice.

In a previous paper, Grainger, Coll, and Zegwaard (2003) suggest that there is a dominant emphasis on technical skills in many areas of post-compulsory education and training where work-based learning is an integral component. They explore how this emphasis is developed and maintained through organisational culture and how it impacts on the prioritising of teaching and learning. In this paper, the authors build on the work of the earlier study to demonstrate how the institutionalised discourse of work-based learning can lead to an inappropriately focused culture of technical rational accountability which can result in organisations learning not to learn (Wenger, 2000).

**Review of the Literature**

The technical rational view of workplace skills is embedded within a positivist view of what knowledge actually is. A positivist view positions knowledge as a unified commodity which can be developed, possessed and traded in stable, measurable ways. This view of knowledge is circulated in a discourse of technical rationality, (Fish, 1991, 1995) in which workplace competencies are positioned as a set of decontextualised capabilities which can be learned and (re)applied ad infinitum by different people in different settings. This discourse of technical rationality sidelines the importance of context and individual agency.

The importance of challenging the notion of knowledge as a decontextualised technical commodity resonates through the literature on the social construction of knowledge. McCarty (1995) for example, emphasises the significant impact of the individual on knowledge, “knowledge must
have a bearer" (p. 37) and "the body is a cog in cognition" (p. 40). This assertion is central to the debate about whether workplace expertise is underpinned by technical competence or professional artistry (Schön, 1983, 1987, 1995; Fish, 1991, 1995). Technical competence being the application of a range of learned skills to well-defined, recurrent problems and professional artistry involving a high degree of individual agency/creativity in interpreting and framing the infinitely variable problems of practice.

The Grainger et al. (2003) study explored the categorisation of workplace competence into "hard" (technical) and "soft" (inter and intra personal) skills and how this categorisation, which circulates in the discourse, may present barriers to organisations acquiring fresh insights into the nature of their work, and what is really important to them.

In Birkett's (1993) taxonomy of workplace competencies, all the soft skills are inter and intra individual behavioural skills; "behavioural skills are built up from personal characteristics such as principles, attitudes, values and motives, which are a function of an individual's personality" (Birkett, 1993, cited in Coll, Zegwaard, & Hodges, 2002, p. 4). This classification has a far from neutral effect on the discourse as it positions soft skills in a standard relational or oppositional pair with hard skills and becomes the norm by which practitioners "organise their knowledge" (Sacks, 1996, p. 41). An important aspect of this last point is that it categorises skills into a "two set class" (Sacks, 1996, p. 47) of technical skills versus behavioural skills, taught skills versus what Birkett (1993) seems to classify as naturally acquired skills, and implies that if a skill is categorised in one way it cannot be categorised in the other. This paper will argue that this classification is one way that organisations learn not to learn, as to classify these skills as opposite or opposing, ignores how they are embedded in the individual's response to individual contexts, and therefore obscures the way that hard and soft skills are inextricably linked and integrated in the workplace.

This hard versus soft classification has implications in terms of the hierarchical ordering of the skills and leads to one set of skills becoming dominant in the discourse. Once the dominance is established and becomes hegemonic the discourse functions to classify anything that is not easily recognisable as a hard/technical skill as a soft, and therefore less important, skill. By separating workplace competencies into soft and hard skills and discounting the soft in favour of the hard, organisations are in danger of learning not to learn (Wenger, 2000). This paper contends that the application of technical or so called hard skills in the workplace, is intricately connected to the personal theories, individual agency and experiential wisdom — the soft skills — of the worker who applies them. In short, the hard/soft dichotomy is a spurious one which cannot accurately differentiate work competencies in real life contexts.

The participating employers in the Coll et al. (2002) study ranked the top competencies required for science and technology graduates as the ability and willingness to learn; teamwork and cooperation; and initiative. These are all soft skills, yet the fuller commentary of the 2002 study states that although science and technology employers ranked both hard skills and soft skills, as categorised in Birkett's (1993) taxonomy as important, and although the three most highly ranked competencies were soft skills, hard skills were still ranked overall as more important than soft skills. Another way to interpret these results is to reflect on how the hard versus soft dichotomy is becoming embedded in the discourse, (Grainger et al., 2003) which can encourage organisations to learn not to learn (Wenger, 2000).

Sacks (1996) explains how dichotomies, or "the two set class" can have this effect, "two set classes would seem to have certain kinds of attractions. For example, they're tremendously easy to compare. With a two set class you can apparently make an observation of comparative lack much more easily than otherwise" (p. 47). Wherever the
dichotomy is reinforced in the discourse the integration of technical skill and individual agency is obscured and discounted. In order to see how this impacts on workplace learning researchers need to use more than a common sense approach to the analysis of language data from studies of workplace learning, and this is what the writers of the current paper demonstrate below.

Research Method Overview
Rather than using a research method to generate new data, this study uses a different analytical framework to provide a new interpretation of existing data.

Framework for Analysis
This study uses a Critical Discourse Analysis (CDA) framework (Fairclough, 2001) to explore how the discourse of workplace learning can impact on organisational learning. Informed by cautions against the acceptance of the language of interviews and surveys at face value, that is as representative of the cognition or inner state of mind of interviewees (Freeman, 1994; Baker & Johnson, 1998) the authors apply the more rigorous tools of Membership Categorisation Analysis (MCA) (Sacks, 1996; Baker, 1997) to interrogate employers' stated views of desirable workplace competencies. MCA was used as "these are the categories which lock the discourse into place, and possibly the practices which flow from them" (Baker, 2000, p. 112). This allowed the sense making of employers to be explicated in terms of "the vast amounts of stuff" (Sacks, 1996, p.41) they were handling when making practical decisions.

Fairclough (2001) outlines four stages of a framework for CDA, in which the first stage involves focussing on a social problem which has a semiotic aspect. Semiosis is the way that signs, symbols and accepted cultural practices, including the non lexical aspects of language, convey meaning in every day life. "Beginning with a social problem rather than the more conventional 'research question' accords with the critical intent of this approach: namely to produce knowledge which can lead to emancipatory change" (Fairclough, 2001, p. 30).

Stage two involves identifying barriers to the problem being solved in normal social life; stage three involves identifying ways in which social life could be said to need the problem and stage four involves suggesting ways around the barriers.

The social problem identified by the authors, is how the classification of workplace learning into a two set class (Sacks, 1996) of hard versus soft skills encourages a dominant emphasis on the separation of technical and inter and intra personal skills in workplace learning, leading to the representation of competency in a discourse of technical rationality. A discourse of technical rationality obscures the complex inter relationship of worker, work context and work skills and diminishes the importance of individual agency, suggesting that professionals are "not to be trusted with more than the technical aspects of the job" (Fish, 1991, p. 31). The semiotic aspect of this identified problem is how features of the discourse which underpin workplace learning, including positivist research traditions, and the analysis and reporting of data, contribute to the entrenchment of competency in a discourse of technical rationality presenting barriers to change, and contributing to organisations learning not to learn (Wenger, 2000).

Discussion
Stage One: Focus on the Problem
Table 1 summarises the preferred competencies listed by the 13 employers selected in the Grainger et al. (2003) study. It can be quickly seen that many of these competencies could be classified as soft skills using the discursive dichotomy discussed above.

Stage Two: Barriers to Problem Resolution
As reported in the Grainger et al. (2003) study, one employer, referring to "competent
science and technology graduates”, describes competence in terms of an oppositional pair: personal skills versus technical experience, with personal skills being the higher ordered competence, a different ordering from that which dominates the official or institutional discourse.

The dominant or institutionalised discourse, is driven by a different priority from the employers’ discourse. The discourse of the employers has as its purpose the sharing of knowledge about what qualities are desirable in employees. The institutionalised discourse has an additional, and possibly conflicting purpose, the need for skills to be represented in observable, measurable ways to meet the assessment and accountability demands of educational institutions. So when an employer says “in many cases I believe employers are seeking science graduates with greater personal skills rather than necessarily technical experience” (Grainger et al., 2003, p. 4) he is less likely to be heard and reported in the dominant discourse.

The employer goes on to describe the category-bound activities (CBAs) of competent graduates as adaptable, flexible and resourceful. He further classifies and organises his knowledge, stating that graduates are likely to need to be more adaptable, flexible and resourceful as the workplace environment changes. In doing so he demonstrates the phenomena noted by Sacks (1996) in which members of a social group “organise their knowledge” (Sacks, 1996, p. 41) and generate their own measuring categories in terms of “odd” versus “normal” events, without reference to any “mathematicalizable” (Sacks, 1996, p. 59) basis for measurement. There is a tacit expectation that other members will understand the classification “more flexible” and its relationship to the categorisation of competency. The difficulty in measuring so called soft skills and the difficulty of demonstrating a link between them and desired work outcomes has been noted (Arnold & Davey, 1994; Georges, 1996; Mullen, 1997). The authors use this analysis to suggest that the emphasis on observable, measurable technical skills in the educational institutions is a barrier to them developing training programs which address the real needs and desired competencies of employers.

Table 1
Competencies Preferred by Employers in Sample

<table>
<thead>
<tr>
<th>SOFT SKILLS</th>
<th>HARD SKILLS</th>
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<tbody>
<tr>
<td>Personal skills rather than technical experience</td>
<td>Leadership skills</td>
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<tr>
<td>Well balanced</td>
<td>Motivation</td>
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<tr>
<td>Adaptable</td>
<td>Cooperation</td>
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<tr>
<td>Flexible</td>
<td>Promptness</td>
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<td>Resourceful</td>
<td>Self motivated</td>
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<td>Independent</td>
<td>Emotional awareness</td>
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<tr>
<td>An enquiring mind</td>
<td>Behavioural skills</td>
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<tr>
<td>Interest in the industry</td>
<td>Self management</td>
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<tr>
<td>Personal skills</td>
<td>Initiative</td>
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<tr>
<td>Confidence</td>
<td>Self-discipline</td>
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<tr>
<td>Eager to learn</td>
<td>People management skills</td>
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<tr>
<td>Foresight</td>
<td>Inspirational skills</td>
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<tr>
<td>Ability to work in teams</td>
<td>Ability to add value</td>
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<tr>
<td>Self awareness</td>
<td>Able to quickly build</td>
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<tr>
<td>Interpersonal skills</td>
<td>synergistic relationships</td>
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<tr>
<td>Attention to detail</td>
<td>Able to multi task and</td>
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<td></td>
<td>work cross sector</td>
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</table>

Good written communication skills
Background knowledge of industry
Investigative skills
Computer literacy
Big picture knowledge
Previous experience in the workplace
Technical skills
High quality work
Goal setting skills
Stage Three: The Need for the Problem
As stated earlier, in Birkett’s 1993 taxonomy all the soft skills are behavioural based on personal characteristics such as principles, attitudes, values and motives, which are a function of an individual’s personality (Birkett, 1993, cited in Coll et al., 2002). These are the sorts of skills which figure in the employers’ accounts of competent graduate employees, for example emotional awareness, self discipline, self control and initiative. The problem with this classification is that it places these skills in a “born not made” discourse, which aligns them with notions of talent, wisdom and intuition. Schön (1983, 1987, 1995) has explained how these qualities have been discredited as nebulous and insubstantial in the technical rational discourse of knowledge. This positioning sidelines them as beyond the educative process, because they are personal attributes rather than competencies which can be learned. Although “principles, attitudes and motives” are central to the sort of ethical decision making of competent employees, this positioning of them in a “born not made” discourse offers no insights into how to improve the processes by which people acquire them. Rather, this discourse functions as a barrier to new learning about how such qualities are developed and applied in practice, leading to ways in which organisations learn not to learn (Wenger, 2000). In this respect, the social life of workplace learning needs the identified problem i.e., the dichotomy of hard and soft skills. If the most significant workplace competencies are “born not made” the education industry which purports to teach them becomes redundant.

Stage Four: Ways Around the Barriers
The authors suggest that one way around the problem of a dominant technicist discourse in workplace learning is to interro­gate language data from research into practice more rigorously using the tools of MCA discussed above. This allows the mutant nature of the “born not made” discourse to be exposed. For example Grainger (2003) found that student teachers were apt to describe their professional artistry in the discourse of the “born teacher”, initially mentioning qualities such as creativity, flair and personality as accounting for their skills. However when they watched videos of themselves in action they were able to describe their practice more holistically, explaining the purposes of their actions. In this way the underlying expertise involved in knowing how/when/where/why to apply their skills or knowledge, became clear, and they were able to account for their expertise as an integration of “hard” and “soft” skills, an integration which is not available in the technicist discourse which categorises these skills as opposing each other. This is demonstrated in the following extract in which a student teacher is describing a technical skill of teaching, the use of “wait time”:

ST And there just by giving a bit of wait time to (:) to see
if the child noticed what everybody else was doing and
followed and therefore when he didn’t give him just (:) give
him a little gentle reminder that we are doing something else at
the moment.
(Grainger, 2003, transcript 4, lines 88-92)

The attributes of wait time as described in the above extract are that it is quantifiable, ST uses “a bit” (88) not a lot of it; it is used for a specific purpose, to check on a single child; although called wait time it is an active rather than a passive skill with the teacher using the time to observe (88-9); it is a child centred skill as it allows an opportunity for the child to correct his/her own behaviour (89); in applying the skill the teacher needs to be aware of the individual and the rest of the class; it is not a stand alone skill but networked to other practices such as giving “gentle little” reminders. So we see how our understanding about the
technical skill of wait time can be greatly enhanced by using discourse analysis to show how hard and soft skills are integrated in practice.

Similarly, Doherty (2002) using concept maps and narratives found in her study of five women principals how they talked about an inner core of values, beliefs and attitudes which was at the heart of how they carried out their practice as leaders. At the same time however, each woman articulated a commitment to ensuring their schools are well managed. The soft skills inherent in leadership and the hard skills inherent in management are not viewed as discrete opposites but rather integral parts of a whole.

Conclusions
This study suggests that one barrier to the problem of the dominant emphasis on technical skills in work-based learning being solved naturally lies in the discursive dichotomy of hard versus soft skills. This dichotomy decontextualises and depersonalises the competencies of practice and therefore obscures their complexity by reducing them to a finite range of learned skills which can be easily replicated by different people in a range of contexts.

The whole system of workplace learning is largely geared to sustaining the dichotomy and its technical emphasis as evidenced in the learning outcomes of training programs and the networked practices of recruitment, retention and reward which are geared to specific technical criteria being taught in the institutions and met by graduating students. In this respect the system needs the problem.

Ways around the problem need to focus on accessing the complexity of work based practice and describing it in ways which reflect the integration of hard and soft skills. Studies such as this one which demonstrates how “language and/or semiosis feature in unequal relations of power, in processes of exploitation and domination of some people by others” (Fairclough, 2001, p. 25) are a good first step in generating new knowledge about practice so that learning communities can continue to learn.

References


## Conference Attendees

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Enriching Learning Cultures

In certain contemporary discourses learning is viewed as central to the motives of education and training, in others, as merely one among a number of competing elements (such as teaching and instruction, credentials, competency, outcomes) each claiming higher priority or equal status. One way to assess these alternative views is to examine the different implications of each for relationships among learning and the social contexts in which it arises and is made significant. Some see learning as added to culture; others see learning as an integral component of what a culture is like. These alternative views have important implications for the way professionals within the education and training community go about their work and how they conceptualise their practice.

Enriching Learning Cultures facilitates the growth in research and critical understanding around the concept of learning in post-compulsory education and training. The chapters draw together a wide range of disciplines, content material, and theoretical perspectives from researchers, practitioners and policy-makers from Australia and overseas.