Keeping up with the Jones': updating of professionals in knowledge-leading organisations

Berwyn Clayton, Victoria University

Abstract

This paper reports on one part of a two-part study examining industry views on the management and maintenance of industry currency of VET practitioners. While they play a critical role in up-skilling the broader Australian workforce, research suggests that currency gaps exist amongst the VET workforce (Toze & Tierney 2010). In light of this, currency has become a concern for industry, training providers and practitioners alike (Precision Consulting 2008). Rather than taking a strictly VET view of the issue, this qualitative study gathered insights into the way nine knowledge-leading organisations in the fields of science, health, engineering and human resources dealt with the updating of their professional workforce. Findings indicate that effective updating was not only dependent upon a healthy organisational climate that sent the message that keeping current was an expected activity, it needed to be strategically planned, collaboratively undertaken, monitored and regularly reviewed. Additionally, by building greater flexibility in the way daily work was done, space was made for 'just-in-time', project-based learning specifically directed at the development of new knowledge and skills as demands for these emerged. For VET, similar strategies and innovative thinking about how best practitioner updating might occur would seem to be an imperative.

Introduction

In recent times, the capability of Australia's VET practitioners has received the attention of policy-makers, industry bodies and researchers. Much of this discussion has centred on the pedagogical skills required to be an effective VET practitioner. In addition, the industry currency needed to ensure learners are job-ready on completion of their training has become another significant focus of attention. Research has highlighted the currency of practitioners' industry knowledge and skills as an issue and one that potentially places the quality of the training delivered and the credibility of the qualifications gained in significant jeopardy if currency is lacking. Given the requirement to provide evidence of industry currency under the Standards for NVR Registered Training Organisations SNR 4.4/SNR 15.4 it would seem imperative that effective ways be found to keep teachers and trainers abreast of industry changes. As all industries are impacted in some way by technological and regulatory change, innovations in work practices and shifting customer demands, how might other sectors and organisations address this problem? What, for example, do professionals do to maintain their professional knowledge and skills?

This qualitative study examined strategies for managing skills obsolescence and updating of the professional workforce in nine knowledge-leading organisations in the fields of science, health, engineering and human resources. Analysis of the interviews undertaken with

Learning and Development managers revealed six elements which framed the successful maintenance of industry currency in each of the organisations. When operating in combination, they provide powerful tools to maintain currency. After reviewing relevant literature, this paper focuses on key strategies by which organisations and individual professionals avoid obsolescence in their skills and knowledge. The lessons for VET providers are clear.

Literature review

Without ongoing development, technical skills and knowledge of workers in any occupation can become outdated. Advancing technology and changing customer preferences inevitably demand the generation and application of new knowledge, new skills and innovative ways of working. VET practitioners have an important role to play in this process of knowledge and skills renewal (Skills Australia 2010; Dalitz, Toner & Turpin, 2011). As jobs and skills change, so too must training. This requires teachers and trainers to refresh their own technical skills and occupational knowledge whilst developing those of their learners (Dalitz, Toner & Turpin, 2011). Within VET, skills obsolescence is an ever-present challenge. It is an issue that is regularly raised in relation to the industry currency of the sector's practitioners (Toze & Tierney 2010; Precision Consulting 2008).

Chauhan and Chauhan (2009) define this condition of obsolescence as one which occurs when an individual's skills and knowledge no longer match the performance standards required in the workplace. It can be an outcome of previously learned skills and knowledge fading, and / or new knowledge and skills not being taken up as they emerge (Kaufman 1974; Fossum, Arvey, Paradise & Robbins 1986). Much of the blame for the problem lies with what Tushman and Anderson (1986 p.440) call 'never-ending competence-destroying innovation', that is, rapidly changing technology.

A good deal of the research on the topic emanating from fields such as engineering, ICT, science, psychology and management examines the causes of the obsolescence and discusses a range of strategies for countering it. Within this body of work, there is general agreement that the first step is to determine what skills have been lost and what critical new knowledge and skills need to be acquired to maintain productivity within an organisation (Chauhan & Chauhan 2009; Kreiner 2006). A strategic evaluation of organisational capability, particularly in relation to those who are most likely to be impacted by the rapid emergence of new technology and techniques, is seen to provide the essential baseline for further action (Pazy, 1994). A supportive organisational climate that encourages collaborative learning, active knowledge sharing and access to knowledgeable colleagues is also highlighted as essential if updating activities are to be effective (Kreiner 2006; Chauhan & Chauhan 2009).

Learning in the workplace is also widely acknowledged in the literature as the most powerful mechanism for keeping work-critical knowledge and skills current (Chauhan & Chauhan, 2009; Kreiner 2006). Moreover, research affirms that the nature of work itself can be the major motivation for individuals to continue to build expertise or not (Chauhan & Chauhan, 2009). Where day-to-day work provides a degree of challenge and extends a person beyond

their normal role, then in all likelihood they will seek to actively keep abreast of new knowledge and ways of working. By embedding learning 'in the rhythms of daily work' (Knight 1998, p.254), up-skilling activities can occur in situ, be appropriately contextualised and happen in a collaborative way. Additionally, where learning is tailored to meet current job roles and existing projects and is capable of immediate application in the workplace, then individual motivations and outcomes from the learning are likely to be more positive than events-based, generic learning (Pazy, 1996). If this is the case, continuing professional development activities designed to counter obsolescence need to be strategic, highly practical and relevant, and designed to meet job-specific short-term objectives addressing the here and now.

Method

Examining how professionals outside VET maintain critical occupational skills and knowledge in the face of technological change and innovative practice was the main aim of this study. Of particular interest was the way in which knowledge-based enterprises manage obsolescence and up-skilling to preserve their organisational 'knowledge-based and 'leading edge' status. The concrete approaches and insights gathered from these organisations were then assessed for possible application to training providers and individual practitioners working to maintain industry currency in VET.

Invitations were extended to the nine organisations participating in the study after a review of websites revealed they closely matched Zack's description of knowledge-based or knowledge-leading organisations in that each held:

> …a knowledge-oriented image of itself…[and] uses knowledge and learning as its primary criteria for evaluating how it organizes, what it makes, where it locates, who it hires, how it relates to customers, the images it projects, and the nature of its competition (Zack 2003, p.4).

Businesses were drawn from the science, engineering, human resources and health sectors where significant technological change was a key and constant factor. Both of the science-based organisations are concerned with conducting world-leading research in a variety of field and the provision of advice to industry and governments. One of the engineering companies is concerned innovative product development in the field of scientific instrumentation, while the other is engaged in civil construction as well as asset management for other engineering companies. The human resources company provides consulting services in business transformation and both people and change management. The four health providers cover a range of health related services such as running hospitals, emergency and rehabilitation services, aged and primary health care facilities. Both public and private enterprises participated in the research and they ranged in size from 80 staff through to in excess of 70,000. Some are global in their operations, and all are at the cutting edge in their respective fields. All employ a significant number of professionals including scientists, engineers; professionals in financial, risk and change management; nurses and allied health professionals. To ensure anonymity, the nine organisations were allocated pseudonyms which

reflected the industries from which they were drawn. These pseudonyms are used throughout this paper.

A two-step approach was used to elicit information. Initial data were gathered from Learning and Development managers using a 25-item Likert questionnaire in which responses were sought to statements about organisational updating climate, information exchange, reward policy and organisational support for updating. Statements under each of these headings mirrored those used previously by Trimmer, Blanton and Schambach (1998) in a survey of ICT professionals. With analysed questionnaire data as a base, semi-structured interviews were conducted with the Learning and Development managers. These focused on gathering information about the organisational drivers for keeping personnel current, the organisational implications of erosion of technical and discipline knowledge of staff and the types of approaches used to ensure the professional workforce remained abreast of discipline-based innovations and evolving industry practice.

Transcribed interviews were verified by informants and coded and analysed by hand.

Findings

From both questionnaire data and interviews it was evident that all of the organisations in the study were engaged in highly innovative and even leading-edge practices in various areas of industry specialisation. Each considered the constant generation, testing and application of new knowledge and skills were core business and crucial to business survival. In light of this, it was unsurprising that they all made a significant commitment to the ongoing development of their workforce.

Maintaining currency: the drivers

Key drivers for up-skilling in all cases were changing technology, addressing client demands and regulation. Technological innovation, however, was nominated as *the* prime motivator. For the science-based Professional Research Services and the Energy and Resources Agency, it was matter of keeping abreast of world-wide advances in specialist areas in order to generate new and useful knowledge, provide high-quality data and advice to end-users and encourage uptake and application of the innovations they were developing. Similarly, for EngineeringCo, Innovative Engineering Solutions and the human resources company CM Consulting, staying up to speed with technological change meant personnel were able to provide a range of options, novel solutions and quality services tailored to meet individual client needs.

While updating in State-wide Health Services, Alma Health, Global Health Care and ERC Health was also directed at addressing the constant advances in technology, additional drivers were the complex regulatory requirements demanded of the sector together with the imperative to provide improved patient care.

The criticality of being current

The importance that each organisation placed upon the maintenance of currency cannot be understated. All Learning and Development managers emphasised that the presence of people with obsolete knowledge and skills had the potential to impact upon productivity, the organisations' reputations and the quality of products as well as the organisational 'bottom line'. This latter point was well evidenced by the comment 'safe care leads to lower insurance premiums and ultimately higher profits' (Global Health). Placing great store in the technical currency of their workforce, every organisation played some part in ensuring that appropriate learning activities could occur and accepted that it was a responsibility to be shared between the organisation and the individual. While all did not necessarily apportion this responsibility equally, there was total agreement that it required both parties to work closely together to achieve the currency and competency levels demanded as high-performing organisations.

> There's no way that an organisation could not fulfil that responsibility...[but] it's much
> more effective when there's an internal driver, when the person feels the responsibility
> for that primarily as opposed to 'this organisation owes me' (Alma Health)

Addressing updating strategically

Each organisation analysed workforce capability in a highly planned and strategic manner. Skill profiles were assessed regularly and individual performance appraised annually. From these processes, learning plans were negotiated in most organisations and opportunities for both formal and informal learning were determined in every case. Directed at building individual as well as project team expertise, mentoring, in-house and external training programs were designed specifically to keep people's skills aligned to current and emerging business imperatives. In the two science organisations, for example, broad direction-setting identified key areas of focus and employee skill profiles were examined to ascertain the implications of any shifts in direction. Where these occurred staff were either retrained or re-deployed. The much smaller ERC Health, on the other hand, formally benchmarked their professional practice and used the outcomes of that process to set short-term, but highly strategic training objectives.

Generating a supportive climate

Analysis of responses to questions about organisational support confirmed opinions expressed in the literature about the importance of organisational climate in encouraging skilled workers to keep current (Chauhan & Chauhan, 2009). All but one of the Learning and Development managers gave a 'strongly agree' response to the statement 'My organisation openly exhibits an encouraging attitude toward technological innovation' and all strongly agreed that 'Innovation is enthusiastically received within this organisation'. Thus, it was unsurprising that incentives and rewards for updating included bonuses, annual award ceremonies, payment of educational expenses, conferences and overseas visits were available in all but ERC Health. This company used promotion as the major incentive as other options were not financially possible in such a small organisation.

Beyond concrete rewards, managers consistently spoke of the self-initiated drive of many personnel to keep abreast of innovations in their fields. Emphasising this point, the Energy and Resources Agency manager commented that many employees understood they were making a difference with the work that they did and wanted to continue to do so. Furthermore, the challenging nature of the work being done across all organisations was viewed as one of the greatest motivators for constant updating.

Significantly, management at all levels was perceived to play a crucial role in ensuring the climate and the organisational culture were supportive of skill building in whatever form it took. For example, in the Energy and Resources Agency the Chief Executive Office attended the Wednesday morning session at which researchers presented the findings of their work – 'it is one way for him to keep on top of what we are doing and it also makes very clear just how important this process is for the organisation's health'. There were also other examples of carefully orchestrated opportunities for knowledge sharing, knowledge testing, reflection, peer review and systematic feedback evident in some of the other organisations. In Professional Research Services, the Energy and Resources Agency, Innovative Engineering Solutions, CM Consulting and Global Health Care, for example, the exchange of knowledge often extended beyond work teams and dissemination of new ideas and initiatives extended to other parts of the business. Mentoring, coaching and shadowing, together with job-exchanges, were common in most organisations, emphasising the importance placed on staff being able to rub shoulders with internal or external experts who were 'truly immersed in their practice' (Kreiner 2006, p. 228). Interestingly, the internal experts within EngineeringCo were often professionals in the later stages of their career and mentoring was seen as having a dual purpose. Firstly, the less experienced engineer gained from the wisdom of the older and more experienced engineer. Secondly, being required to fulfil the role of a mentor and pass on "tribal knowledge", the older engineers 'became conscious of the need to keep up with all the current approaches being initiated in the projects EngineeringCo is managing'.

Learning while working, learning for now

The majority of work undertaken by the science, engineering and human resources organisations was project based and provided fertile ground for collaborative learning. Generally this was informal in nature occurring during project work. However, some learning was more structured non-formal learning where project teams were allocated time to develop new skill sets for particular projects. As knowledge-leading organisations, this 'just-in-time' approach was seen to be critical, particularly in addressing emergent technological innovations or a specific client demand not previously encountered in other projects. As the Innovative Engineering Solutions manager stated: 'When we are faced with projects that are first of a kind, our team need to demonstrate to our clients that they can quickly come up to speed to be an expert in the field'. Learning for 'here and now' projects, therefore, tended to hold sway over more generic and organisation-wide professional developmental activities. For CM Consulting and the organisations operating in the health sector, 'just-in-time' updating activities tended to be more structured and initiated to address changes in regulatory requirements or the introduction of new techniques, treatment regimes or equipment.

Despite some minor variations in approach, all organisations in the study acknowledged that they were implementing a 70:20:10 training and development model (McCall, Lombardo & Morrison, 1988) with 70 percent of learning happening informally on-the-job, 20 percent through mentoring and working with experts, and the final 10 percent being through structured programs.

Discussion

With a focus on innovation, efficiency and client satisfaction, technical excellence appeared to be embedded in all organisations participating in this study. The threat of obsolescence was acknowledged by organisations and individuals alike and up-skilling activities were specifically directed at addressing changing technology, techniques, regulation and shifts in client demands. Strategies set in place to keep people current closely align to those set out by key authors in the area (Pazy, 1996; Chauhan & Chauhan, 2009) and the majority have some relevance for training providers and VET practitioners. In combination, the insights gleaned from these knowledge-leading organisations also provide elements that form a framework for addressing industry currency amongst the VET sector's practitioners.

The first element is the development of an organisational climate that endorses, supports and rewards updating so that revitalisation of critical technical knowledge and skills becomes the norm amongst practitioners. Given the rapidity with which change occurs in industry, updating needs to become an organisational expectation, not something that might be done.

The second element is the regular monitoring of the skill profile of practitioners through the performance management process to ascertain any areas where skills and knowledge have eroded or where new skills and knowledge need to be acquired. Having ascertained the information, a meaningful and achievable learning plan then needs to be developed, implemented and monitored. Plans may be designed for an individual or, where appropriate, address the learning requirements of a teaching or project team.

The third element is the adoption of a proactive approach to the maintenance of industry currency, particularly where technology and its associated knowledge are constantly being superseded. As skill requirements change, practitioners who have responsibility for take-up of the innovations will require tailored training to keep them current. This requires a constant scan of the industry environment and connection with key industry informants to ensure significant shifts in skills and practice are not missed.

The fourth element is actively supporting learning in the workplace (both on- and off-job) that not only offers formal and structured training but also opens up more opportunities for incidental learning during the conduct of day-to-day work. Given the importance of context, learning that takes place in situ and which is 'just-for-now' has the potential to be more effective than events-based approaches to up-skilling which sometimes tend to be more generic in nature. Increasing opportunities for informal learning does, however, require re-consideration of how jobs are designed and how work might be done.

The fifth element is placing emphasis upon collaborative learning, whereby sharing of new knowledge and skills through simple interactions with colleagues or mentoring, coaching and shadowing is an accepted way of updating. A critical aspect of this approach is the identification of potential internal and external industry experts who are willing to share their critical know-how and have the time and space to do so.

The final element in the framework is the ready acceptance that keeping up-to-date with changing technology, trends and industry practices is a shared responsibility. Maintenance of currency not only requires organisational planning, resources and commitment it also demands that individuals take personal responsibility for ensuring they are professionally competent and current. For the organisation, ongoing updating makes sound business sense. For the individual, it is about being 'a professional'.

Conclusion

For Australia's training providers, keeping the industry skills and knowledge of their workforce up-to-date in an environment of constant change and tight budgets is a significant challenge. This challenge is one that is shared by organisations and skilled workers across all industries. Research on professionals in the fields of ICT, engineering and management amongst others, for example, has identified skills obsolescence as an ever-present threat. This condition involves skills and knowledge previously mastered ceasing to be useful. It also occurs when an individual fails to keep up with industry changes that require new skills and knowledge to be learned. For VET's practitioners, this problem is made much more complex because industry expects that they are not only up to speed with innovations in occupational practices, but they are also able to develop innovative practices and new knowledge in others. Research on the sector suggests, however, that currency gaps exist in the VET workforce – a factor that has become a major concern for industry, training providers and practitioners alike.

Rather than adopting a purely VET focus, the part of the study on industry currency reported in this paper sought to examine how nine knowledge-based organisations in the fields of science, health, engineering or human resources dealt with skills obsolescence in their professional workforce. Looking at the issue through a different lens provided an opportunity to reflect on the approaches adopted by others beyond the sector and to assess their potential application to the VET sector.

Unsurprisingly, technological innovation, regulatory change and/or shifts in industry trends provided the impetus for ongoing revitalisation of previously learned knowledge and skills as well as new skill set development in all nine organisations. Learning and Development managers clearly understood the organisational implications of skills obsolescence and viewed updating as critical to the maintenance of their business edge. As high-performing, knowledge-leading organisations, all were concerned with the generation and uptake of new knowledge, the production of quality products and services and importantly, client satisfaction. In light of this, updating was strategically planned, closely managed, regularly monitored, actively encouraged and openly rewarded. Considerable emphasis was placed on

keeping ongoing skills development in the mind's eye of all employees and the majority of organisations made great use of the workplace as a place of learning, with project- and problem-based learning approaches being the norm. In most instances, employees had access to mentors and 'experts' and learned collaboratively - challenging old ways of working, testing new ideas and sharing the knowledge gained with others either informally or more formally planned knowledge exchange. Supported as they were by an organisational climate and learning approaches that were very much about meeting the demands of current work roles and projects, the new skills and knowledge that they acquired could be immediately applied in a highly meaningful way. Importantly, within each of the organisations in this study, employees accepted that ongoing learning was a crtical part of their job role.

The key messages for training providers in these findings are confirmation of the importance of organisations addressing industry currency strategically; generating a culture and a climate that supports practitioner engagement in updating activities, and, importantly providing opportunities in the day-to-day work of practitioners for the collaborative learning required so that they might demonstrate they are up to the mark with the skills, knowledge and occupational practices currently required by industry.

Acknowledgements

References

Chauhan, S & Chauhan, D 2009, 'Are you on the verge of obsolescence?', *Indian Journal of Industrial Relations*, vol.44, no.4, pp.646-59.

Dalitz, R, Toner, P & Turpin, T 2011, *VET and the diffusion and implementation of innovation in the mining, solar energy and computer games sectors,* NCVER, Adelaide.

Fossum, J, Arvey, R, Paradise, C & Robbins, N 1986, 'Modeling the skills obsolescence process: A psychological/economic integration', *Academy of Management Review*, no. 11, 362-374.

Kaufman, H 1974, *Obsolescence and professional career development*, AMACON, New York.

Knight, P 1998, 'Professional obsolescence and continuing professional development in higher education', *Innovations in Education and Teaching International*, vol.35, no.3, pp.248—56.

Kreiner, J 2006, 'Combating obsolescence — redefining the ever-evolving engineering profession', *FME Transactions*, vol.34, pp.227-30.

McCall, M, Lombardo, M & Morrison, A 1988, *The lessons of experience*, Lexington Books, Lexington.

Pazy, A 1994, 'Cognitive schemata of professional obsolescence', *Human Relations*, vol.47, 1167-1199.

Pazy, A 1996, 'Concept and career-stage differentiation in obsolescence research', *Journal of Organizational Behavior*, vol.17, no.1, pp.59-78.

Precision Consulting 2008, *Investigation into industry expectations of vocational education and training assessment: Final Report*, National Quality Council, http://www.nssc.natese.gov.au/nqc_archive/nqc_publications/publications/assessment/vet_ass essment_report, viewed 29 January 2013.

Service Skills Australia 2009, *The new deal: Workforce development for service industries VET practitioners*, Service Skills Australia, Sydney.

Skills Australia 2010, *Australian workforce futures: a national workforce development strategy*, Skills Australia, Sydney.

Toze, M & Tierney, S 2010, *Keeping it real: Industry Currency of Trainers in Queensland.* Department of Education and Training, Brisbane.

Trimmer, K, Blanton, J & Schambach, T 1998, 'An evaluation of factors affecting professional obsolescence of information technology professionals', *Thirty-first Hawaii International Conference on System Sciences*, vol.6, pp.406-14.

Tushman, M & Anderson, P 1986, 'Technological discontinuities and organizational environments', *Administrative Science Quarterly*, vol.31, pp.439-65.

Zack, M 2003, 'Rethinking the knowledge-based organization', *Sloan Management Review,* vol.44, no.4, pp.67-71.