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TE RŪNANGA O AOTEAROA MŌ TE RANGAHAU I TE MĀTAURANGA

The integration of work and learning in New Zealand: A working paper

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Contents

Introduction 4

Moving away from the separation of work and learning 4

Learning spaces for integration 7

Work and learning in education institutions 10

Work-Integrated Learning (WIL) degree programmes in universities 10

Vocational education courses at Institutes of Technology and Polytechnics (ITPs) 12

Work-based and classroom-based learning in secondary schools 13

Learning in workplaces 15

Apprenticeships 17

Informal learning 21

Integration as knowledge flow: Future research 23

References 26

Introduction

This paper is an initial exploration of the integration of work and learning. It informs the New Zealand Council for Educational Research's (NZCER's) future work in the Learning at Work research programme. There are a number of different ways to approach this discussion. This paper's approach is to consider the major formal learning spaces and how they broadly map to models of integration with particular drivers for learning, theories of learning and favoured pedagogical approaches. The focus is on models of integration that operate in New Zealand, such as Modern Apprenticeships, industry training and Work-Integrated Learning (WIL). However, discussion on challenges associated with each model is located within wider, international issues and trends.

Moving away from the separation of work and learning

In a way, the "problem" that started this paper is the problem of learning's new significance in the world today. At first glance this does not sound like much of a problem. Surely this might mean a renewed legitimacy for education institutions, programmes and professionals? If learning is increasingly valued, won't the expertise of education professionals be similarly valued since they hold the knowledge on the appropriate management and subject content of education systems? And won't education institutions, which are dedicated to the project of learning, be recognised as best set up to foster it?

This is where it gets interesting. The way in which learning has become newly significant is creating a destabilising challenge to education professionals, institutions and programmes. This is because education expertise and knowledge has been predicated on a separation of learning from working. And that separation is precisely the one that individuals, governments, industry and education bodies around the world no longer see as desirable or applicable in the context of current and emerging post-industrial or knowledge societies.

The *separation* of work and learning has functioned—almost paradoxically—because of a *correspondence* between certain kinds of work and certain kinds of (formal) learning. Very briefly: since the advent of compulsory schooling, with its liberal and egalitarian origins, the academic (objective, theoretical, individualistic) curriculum privileged the abstract and cognitive over the practical and situated curriculum (hands-on participative, context-specific). The academic curriculum served those on a pathway to tertiary education (usually the upper classes) and high status professional job (Gilbert, 2005; Hall, 1986). Vocational education at the compulsory sector level developed as a more "relevant" curriculum for those intending to enter unskilled or technically skilled

occupations and served the working classes (Avis, 1991). Thus Bowles and Gintis (1976) developed their famous "correspondence theory" which undermined the credibility of the liberal project by showing how schools reproduce class society.

During this period, learning was understood to be formal education (mass schooling and, later, mass tertiary education), and it was distinct from the world of work. The conventional ordering to life was understood as being: schooling, optional tertiary education and work.[1] These were broadly consistent with other, fairly bounded stages of life: childhood, adulthood, marriage, house and mortgage, children and retirement. The correspondence of academic education with high status occupations, and practical education with low status occupations, supported a separation of the learning phase (formal education as preparation for life) from the working phase (a comparatively longer period—"life" or "the real world"—in which any learning was understood in terms of socialisation and picking up work-related know-how).

Today, the closest relationship between education and work typically occurs at the level of tertiary education. Tertiary education institutions are held largely responsible for the theory (codified knowledge) aspects of work education and training. Workplace-based education is therefore held responsible for practice (situated and tacit knowledge), as well as socialising people, inculcating them into work-related knowledge and skill and incorporating them into a community of practice. Although it has taken a while, there is now some acknowledgement of the role of the workplace in providing valuable learning opportunities, processes and outcomes, although these learning opportunities are generally perceived as being about where practice can be experienced, rather than as essential learning experiences in their own right or something that is integrated into a formal curriculum (Billett, 2008). In other words, if the workplace is acknowledged it is typically done as a way of enlivening a pre-existing curriculum in a learning programme.

Neither the correspondence of school pathways with forms of work, nor the separation of learning from the world of work, seem a good fit with today's context, work demands or people's life chances and trajectories. The period of huge social and economic growth that characterised the 20th century is now ending,[2] making the correspondence and separation framework less credible than ever.[3] The speed and nature of economic and social changes make it clear that school can no longer serve as the sole preparation for

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[1] These stages were gendered such that women were typically engaged in unpaid work (in the home) until the mid-20th century.

[2] Conventional ideas about economic growth, in particular those involving the finance industry, are increasingly revealed to be problematic and contributors to "wicked" problems facing the world, such as the global financial crisis, climate change, overpopulation, exhaustion of natural resources, worsening inequalities and poverty.

[3] This situation was of course never desirable for the groups in society that did not benefit from it. However, socioeconomic inequalities were not as dramatically pronounced as they are today (i.e., there were more opportunities for social and financial stability because of plentiful jobs for unskilled labour, the capacity to support a family on one income and more affordable housing).

work and life. Over the past three decades in particular there has been a substantial decrease in unskilled, manual and labouring jobs (including some office administration jobs) and a corresponding rise in technical, engineering, executive and service sector jobs. Moreover, the nature of these and other jobs is changing as the rapid development of technologies based on digital information and communication technological platforms, together with successful industrialisation in the "developing" economies of Asia and South America, have increased the uncertainty of competitive pressures on firms. Many countries also face labour market challenges because of dramatic demographic changes: ageing populations (and therefore fewer working age, tax producing people) in Europe, Japan, Australia and New Zealand; increasing youth populations in the Middle East and Africa; and growing middle classes (with consumption demands) in China and India. These challenges are helping drive a shift in thinking about work and learning.

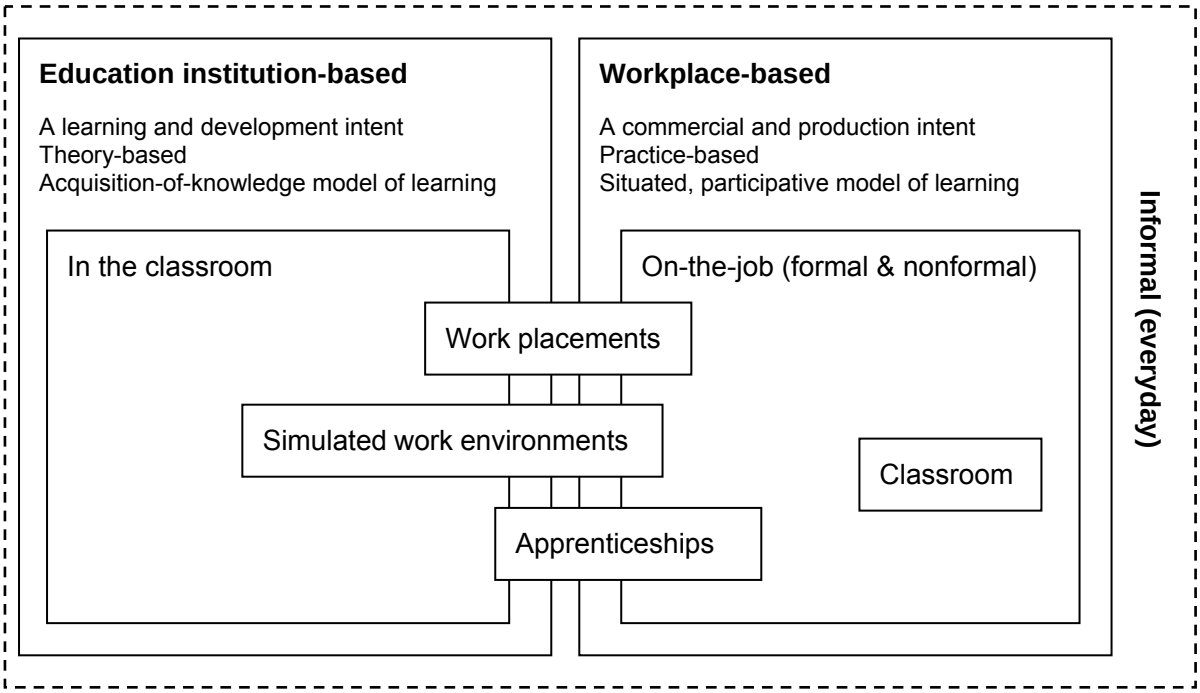
All of these changes have led to new demands for most workers in terms of their knowledge and their technical and behavioural skills, including demands for individual (and organisational) capability to continue changing to meet as-yet unknown, new demands. While simple production values may dominate in a business as usual scenario, those values tend to fail when a business has to respond to a new challenge. Not only is learning now recognised as a key driver of productivity (what enables better work), rather than a constraint on it, there is also some evidence that productivity gains are highest in workplaces that support learning through their organisational and pedagogical structures (Vaughan, 2008). Workplace-specific knowledge and skills cannot simply be learned in institutional settings. However, much of the knowledge and skills in workplaces today cannot be learned by just doing the job either. Some kind of formal education beyond compulsory schooling, and some kind of disposition to continue learning, becomes necessary for many workers, making them *learning workers*.

This situation means that lifelong learning has become the dominant paradigm and explicitly so in countries seeking to reposition the education system in relation to the world of work. Not only can the correspondence and separation paradigms no longer be sustained, but educational institutions can no longer be the sole sites of valuable learning. This immediately raises the prospect of learning in a wider range of contexts, including ones not typically or obviously regarded as "educational". These contexts include the workplace and everyday or community sites (including the home). The extent to which these are currently integrated with each other and with formal tertiary education is the subject of the rest of this paper.

Learning spaces for integration

Figure 1 shows the major learning spaces of educational institutions, workplaces and everyday life. Following the Organisation for Economic Co-operation and Development (OECD) definitions (Doyle, Simota, & Werquin, 2009), two of those learning spaces are formal and lead to nationally or internationally recognised qualifications: the education institution, including universities, institutes of technology and polytechnics (ITPs) and schools; and workplaces. Workplaces also encompass nonformal learning which involves structured programmes such as orientation or in-house learning but does not lead to accredited qualifications. Figure 1 also shows a third learning space: everyday life or informal learning.

Figure 1 **Learning spaces for work-learning integration**



The diagram shows the most likely type of physical space used for teaching and learning in each major site—the classroom for educational institutions; the specific job context for workplaces. As a learning context, workplaces vary far more than classrooms. However, some workplaces actually set up a classroom-style space for learners in order to cover and foster discussion of theoretical ideas, to improve learner confidence, provide a safe

practice area[4] and to convey a sense of gravitas about the learning project (Vaughan, O'Neil, & Cameron, 2011).

It is important to note that these learning spaces are more than physical spaces; they involve sets of shared meanings and behaviours. For example, formal education emphasises equal access to knowledge and the conventional classroom culture positions the teacher-as-knower and the students as "empty vessels" to be filled with that knowledge. Workplaces emphasise practical knowledge and often have hierarchies reinforced through everyday work practices and protocols that may limit access to knowledge.

Each learning space in turn links to theories about learning that correspond to Sfard's (1998) learning-as-acquisition and learning-as-participation metaphors of learning (note that she argues neither metaphor is adequate to fully explain learning). Educational institutions favour a learning-as-acquisition model, where knowledge is seen to exist "out there", independent of the knower, but which "the knower can acquire, internalise, own and exhibit" (Sfard, 1998, p. 5). Learning involves "a change in the contents of an individual mind" (Hager, 2004, p. 246) (famously critiqued by Freire,1972, as "banking education") and privileges thinking (what minds do) over action in the world (what bodies do) (Felstead, Gallie, & Green, 2004). Workplaces favour a learning-as-participation model, where learning is seen as social (with individual elements), situated and deriving from experiencing, and participating in, daily life—in this case, participating in the relations, content and context of work. Through such "legitimate peripheral participation", people move from novice to expert, becoming fully-fledged members of a "community of practice" (Lave & Wenger, 1991).

Each space—the education institution and the workplace—is also driven by different imperatives. Learning personal development is at the heart of educational institutions; the exigencies of production (and usually profit) lie at the heart of workplaces. These imperatives, alongside different models of learning, help shape the pedagogical approaches, as well as the learning opportunities and affordances for theoretical understanding, practice, action and development.

Figure 1 features three cross-over models of learning-work integration. *Work placements*, which include internships and practicum at the tertiary education level and scheduled workplace sessions at the secondary school level, are usually an adjunct to institution- and classroom-based learning options. Work placements offer students the opportunity to move from theory into practice in a time- and/or responsibility-limited way. *Simulated work environments* such as hairdressing salons, cafes and office administration support are most commonly set up in ITPs (and sometimes in secondary schools) and may be run as on-campus businesses. They offer a way for students to

[4] Many workplaces have health and safety requirements or situations affecting staff and/or clients/customers.

translate theory into practice, hone skills and interact with customers in an environment that provides support and supervision. *Apprenticeships* also straddle the workplace/educational institution divide. Some apprenticeships conduct the learning wholly on the job, while others are mainly on the job with brief interludes for ITP-run "block courses" to cover the theoretical components of the learning programme.

In all of these cases, the profound nature of the integration challenge should not be underestimated. Some of ways the challenges manifest are:

- persistently low completion rates in apprenticeships, where theory and practice are typically separated in resource material, or taught and learned separately, and the theory component is regarded as difficult and less relevant by apprentices and sometimes also their employers
- demands by employers for more industry-relevant tertiary education programmes
- tension between different interest groups (students, university, employers) in WIL programmes at tertiary education institutions
- industry training organisations struggling to create formatively-based assessment systems to recognise on-job learning, help trainees complete qualifications and foster a lifelong learning disposition in trainees
- government interest, but lack of proficiency, in recognising and validating the nonformal and informal learning that occurs outside of educational institutions and often with no learning intent, but which appear to be increasingly significant for building the capabilities of individuals and organisations.

Work and learning in education institutions

Work-Integrated Learning (WIL) degree programmes in universities

WIL, as it is commonly known in New Zealand and Australia, is also variously known around the world as a sandwich course or degree, co-operative education, practicum, internship and service learning (Coll et al., 2009; Cooper, Orrell, & Bowden, 2011). WIL is designed to give students both grounding in the theoretical knowledge of a field and access to settings for engagement with authentic instances of practice (Billett, 2009), leading to development of the sorts of skills (and experiences) that employers seek. WIL programmes are characterised by university and employer or industry partnerships which typically involve a combination of classroom-based lectures and workplace learning, limited-duration workplace internships or industry-based projects.

Although WIL is a recent term, forms of it have long been used in some fields. Teacher education or teacher training programmes are one of the most well-known examples of WIL, combining classroom-based learning on-campus (tertiary education institution such as a university or teachers college) with “practicum”—segments of bounded time and work content spent in schools. However, where WIL was once the preserve of professional degree programmes such as teaching, medicine and law, it is now spreading to other fields such as information technology, business studies, electronic engineering and media studies.

Broadly WIL can be understood as a university response to the challenge of remaining viable and relevant in a globalised knowledge society and labour market (Turajlić, 2010). While employers have tended to understand that universities provide a strong knowledge base to students, they have questioned whether students can readily use or apply that knowledge in workplace situations (Freudenberg, Brimble, & Vyvyan, 2010). Thus WIL is often seen as “bridging the gap” between universities and employers—two groups whose relationship has been distant and sometimes grudging, especially throughout the second half of the 20th century.

Much of the research about WIL outcomes focuses on stakeholder benefits. It suggests students have more chance for post-course employment as a result of meeting prospective employers and gaining workplace experience during the course (Dressler & Keeling, 2004), and that good employment matches are more likely when WIL programmes explicitly help students to develop career self-management skills (McIlveen et al., 2011). Other research shows having WIL courses helps universities to recruit students (Weisz & Chapman, 2004), enables cost-effective employee recruitment and reduced training costs for employers (Braunstein & Loken, 2004) and provides the

potential for academics to enhance their real-world credibility and cross-disciplinary collaborations (Brown, 2010).

The research focus on stakeholder benefits fuels questions about the role of WIL. On the one hand, it can be argued that universities have a major responsibility to understand the needs of workplaces and communities, and see them as collaborative partners in educational provision (Cooper et al., 2011). On the other hand, it can be argued that WIL compromises the broader purposes of university education, such as serving a public good beyond market or employer considerations, rather than being an investment for students devoid of transformation or emancipation (Johnson, 2011). These different positions may have to do with the explicit purpose of the work placement. Cooper et al. (2011) describe three WIL models where the actual work placement is designed to serve a specific purpose:

- professional work-integrated learning—where the workplace forms a critical part of the education for professions such as nursing, social work, law, surveying, physiotherapy, teaching and pharmacy, and there are regulatory requirements concerning student outcomes and registration from the various professional bodies
- service learning—where the focus is on civic engagement and students experience community activities and problems, building understanding through reflection and reconceptualisation
- co-operative learning—where classroom learning and workplace learning are alternated so that students gain a deeper understanding of the theoretical and practical, career development learning, and possibly also receive remuneration.

In New Zealand it is likely that the most common model is the first, professional work-integrated learning. However, some schools may undertake versions of the second, service learning. Some schools may also approximate the third model, co-operative learning, in the alternation of classroom-based and workplace-based learning. However, there is no remuneration and it is debatable how deep the learning is.

However, regardless of the different WIL models in universities (or versions of it in schools), little is known about whether, and how, the “I” in WIL actually functions. Coll et al.’s (2009) study found that there is little research on *what* students learn through WIL and *how* they learn it. While integration is an agreed outcome among employers, students and course organisers, it tends to be fostered implicitly, rather than explicitly, through reflection after a particular event or learning activity or lecture. Coll et al. found that, overall, learning while on placement seems very ad hoc.

Vocational education courses at Institutes of Technology and Polytechnics (ITPs)

ITP courses are explicitly "vocational" in nature and aim to respond to labour market demand. Most ITPs market themselves as having close ties with employers and tutors and teachers have up-to-date industry expertise. ITPs offer courses for qualifications from levels 1 through to 9, and therefore may overlap with universities at the Bachelors and Masters degree level. ITPs are the most likely institutional site (along with some schools) to provide simulated work environments, where students can practise skills and, sometimes, interact with real customers, in a "protected" space and with teachers on hand to advise if necessary. The most common simulated work environments are on-campus beauty salons and restaurants where students learning hairdressing, beauty therapy, bakery, cooking and coffee-making (barista) provide services as part of their learning programmes. ITPs also include "practicum" in some courses (e.g., nannying) and this is similar to WIL.

If this paper was divided into academic and vocational learning spaces, ITPs would not have been included within the same section as universities, and would have been discussed alongside workplace learning (in the next subsection) which falls into the vocational category. New Zealand is unusual in not operating a distinction between Further Education (FE) or Vocational Education and Higher Education (HE). Funding for community, vocational and academic forms of tertiary education is clustered under one centralised body, the Tertiary Education Commission (TEC), which invests in tertiary education on the government's behalf and manages the performance of providers.[5] Despite the apparent integration in New Zealand, there are underlying alignments with a VET/HE separation. ITPs are aligned with Vocational Education and Training (VET)—the current term around the world which is gaining more usage and currency in New Zealand for reference to education at ITPs and industry training.

While the educational provision of ITPs and universities is viewed quite differently, it is difficult to pin down exactly what is meant by VET. Karmel (2011) argues that defining VET as education for specific occupations is simplistic. On the one hand, a lot of university education is occupation-specific (e.g., medicine, engineering, accountancy) and, on the other hand, some VET (e.g., engineering) is generic enough that there's little match between course and occupation. He claims that equating higher education with professional-level qualifications and VET training with subprofessional qualification levels does not help either because qualifications keep changing (a good example would be nursing qualifications) and pathways have multiplied (in New Zealand, pathways and

[5] The well-known effects of such an approach included a "bums on seats" drive by providers as they competed for enrolments and per-student funding, and an unnecessary proliferation and duplication of courses.

qualifications have multiplied and been duplicated[6]) and each type of provider can offer some qualifications at the same levels. He claims the real difference lies with pedagogical traditions—the foregrounding of knowledge and understanding in universities and of concepts of competency, led by industry, for VET.

Work-based and classroom-based learning in secondary schools

Secondary schools may offer a range of programmes with work-based learning and work experience components. The Secondary Tertiary Alignment Resource (STAR) was established in 1996 and is deliberately flexible in enabling secondary schools to provide or purchase tertiary-level courses to meet students' needs as they see fit, including facilitating students' transition to the workplace or a tertiary education institution, motivating them to achieve at school or supporting them to explore career pathways and make informed future work and learning decisions. The Gateway programme established in 2002 is more tightly prescribed than STAR and focuses on the immediate transition to work through a learning programme that involves both classroom-based learning and workplace-based learning. The introduction of standards-based secondary school qualifications in New Zealand in 2002 also brought a great degree of flexibility to course content and the kind of learning that can be formally recognised. Many schools began offering courses leading to industry qualifications. A consortium of Industry Training Organisations (ITOs) and representatives from schools, tertiary providers and government agencies are currently redefining these as Vocational Pathways,[7] making explicit to students (and parents and teachers) the links between courses, qualifications and opportunities for career, further learning and work in particular industry areas. This is part of the Youth Guarantee umbrella initiative which provides funded places in learning programmes for 16- and 17-year-olds. So far the Youth Guarantee has resulted in a number of Trades Academies and Services Academies which run programmes that allow students to gain credits towards the National Certificates of Educational Achievement (NCEA). Trades Academies operate as partnerships between schools, tertiary providers and ITOs. Service academies are run by the Defence Forces within low-decile secondary schools.

Although school work-based learning programmes like STAR, Gateway and the Academies do not in themselves constitute career education, they are often conflated with it because of the conceptual and semantic confusion between "vocational guidance"

[6] Following concerns raised by employers, employees and unions about the clarity and relevance of (vocational) qualifications, the Targeted Review of Qualifications was launched to address issues of clarity, multiplication and duplication of qualifications (New Zealand Qualifications Authority, 2009).

[7] The five Vocational Pathways are Construction and Infrastructure; Manufacture and Technology; the Primary Industries; the Service Industries; and Social and Community Services.

and “vocational training” or between “career education” and “vocational education” (Watts, 2009). STAR and Gateway tend to be seen by teachers and parents as an intervention for less academically-able students (though in fact they can be used to extend able students). These courses are also frequently taught and co-ordinated by the school careers adviser. Moreover, STAR and Gateway are usually timetabled in ways that preclude students from combining these vocationally-oriented courses with other, traditionally academic ones (Hipkins & Vaughan, 2005) and can restrict students’ pathway options for tertiary education (Madjar, McKinley, Seini Jensen, & Van Der Merwe, 2009). They also usually involve only a small proportion of a school’s students, contributing to the sense that they are not as important as the core school subjects. So, despite opening up a wider range of pathways for students, schools continue to position academic- and classroom-based learning programmes as the core ones in the school, oriented towards university studies, and therefore more highly regarded. This positions STAR, Gateway and the Academies as the options for students who are heading directly to work or are (or would otherwise be) “early school leavers”.

Learning in workplaces

The defining features of learning in the workplace relate to its authenticity as a site of learning. Learners are dealing with real situations, real customers, real deadlines and real consequences. Research has shown that workplaces provide, not just rich learning contexts, but also deliberately constructed rich learning experiences. Through carefully combined and sequenced routine and nonroutine tasks and problem-solving challenges (Billett, 2001a), learners are able to move from peripheral to full participation (Lave & Wenger, 1991).

This participation is not limited to the workplace itself. Capability "to do the job" is just one of the ways that workers define themselves (Bryson & O'Neil, 2010). Other well-documented capabilities developed include "soft skills" in communication and negotiation, literacy and numeracy skills, increased confidence and motivation—all of which appear to spill over into participation in nonwork settings and interactions. It is also well known in education research that success in learning in one arena can lead to an interest in, and a growth in confidence for, further learning. There is plenty of research evidence that qualifications are no longer the culmination of learning but are instead passports for entry into a community of practitioners (e.g., builders, electricians, hairdressers) who will informally build and shape their knowledge and skills throughout their working lives (Vaughan & Cameron, 2009). Employees can value workplace learning as a chance to reach more of their potential (unrealised through school) and increase participation at work and that this is at least, if not more, important than the qualifications themselves (Bennett, Dunne, & Carré, 2000; Moses, 2010).

The authenticity of learning at work is also what makes it tricky to do well. The tension between the workplace as a site of learning and the workplace as a site of production may produce practices that sit at the restrictive, rather than expansive, end of Fuller and Unwin's (2003) workplace learning continuum. The dynamic interplay between organisational and pedagogical dimensions of workplace learning structures and practices means that, not only is the learning only as good as the opportunities to actively apply and develop competencies and participate in the workplace community, but the opportunities are only as good as their affordances—their possibility for realisation or action (Vaughan et al., 2011). These possibilities are mediated by organisational structure and conditions on learners/workers (Billett, 2002; Felstead, Fuller, Jewson, & Unwin, 2009; Fuller & Unwin, 2004), which in turn are mediated by workers' occupational status, positioning and relationships with each other, and the way in which they engage, disrupt and reconcile the organisation's plans and practices, (re)creating the conditions for individual engagement (Ashton, 2004). Thus Billett (2001b) argues that a key determinant of the quality of workplace learning lies with the

workplace's readiness to afford opportunities for learners to engage, and that how workplaces afford opportunity is central to understanding workplaces as learning environments.

That readiness to afford opportunities will always be tempered by the business model, regulatory context and wider economic climate. Just as schools and other educational institutions have been criticised for their "hidden curriculum", perpetuation of inequalities and failure to educate (at all or with fitness for purpose), workplaces can be criticised for workplace learning that is restrictive or meaningless to workers. In some cases the results are very negative. Workers may be disadvantaged by "improvements" that degrade working conditions and create staff disharmony (Jackson & Jordon, 2000) or that silence "empowered" workers who then speak up against organisational policies (Bratton, 2001; Spencer, 2002). Some kinds of organisational knowledge management (e.g., a focus on "what works" or how to generate "spin") may produce situations where workers choose not to act when in fact they should—as with the economists, bankers and stockbrokers who "knew" about the global financial crisis or the collusion between operators and regulators which contributed to the Fukushima nuclear disaster (Garrick, 2011).

The most structured provision of workplace learning in New Zealand operates through the industry training system, arranged and managed by ITOs, that are funded by the TEC and their industries. ITOs broker training arrangements with employers (who are actually the training providers). Industry training is therefore part of the tertiary education sector but distinctively involves learning that mainly occurs on the job.

In New Zealand there is a general paucity of research on industry training in comparison to research about other forms of tertiary education, especially in universities and ITPs. One of the reasons for this is the lesser esteem in which industry training is held, partly because it is focused on lower levels of qualifications on the New Zealand Qualifications Framework. Another reason is that workplace learning is often seen as just "doing the job" rather than learning. There is such a close association in people's minds between the word "learning" and classroom settings, that it is difficult to appreciate that learning might occur in other, often less formal, settings such as the workplace (Eraut, 2000).

However, there has been some research attention more recently. In New Zealand this includes qualitative studies of learner perspectives, focused on the industry training experience or on the development of worker-learner and vocational identities (Chan, 2011; Industry Training Federation, 2007; Moses, 2010; Piercy, 2009; Vaughan, 2010). There are also several studies on industry training as a system (Cochrane, Law, & Piercy, 2007; Nana et al., 2011; Piercy, 2003) and on how learning and assessment on the job is structured and supported (Vaughan & Cameron, 2010a, 2010b; Vaughan, Gardiner, & Kear, 2012). One recent study examined different models of workplace learning (through industry training) and the conditions, strategies and activities that led to

success in employee retention and motivation, qualification completion and workplace productivity (Vaughan et al., 2011). The Ministry of Education and Department of Labour have recently begun a series of statistically-based analyses of industry training outcomes (Crichton, 2009; Mahoney, 2009a, 2009b, 2010a, 2010b). There is also research into literacy and numeracy learning in the workplace (Cameron, Whatman, et al., 2011) where literacy development is integrated or "embedded" into some industry training programmes.

The future for industry training and, in particular, ITOs, is uncertain at this time. The industry training sector has been under review since last year and an announcement about the future of the sector is expected by early August. The review will almost certainly lead to major change and there appears to be a chance that ITOs will cease to exist as we know them.

Apprenticeships

The apprenticeship model of learning has been around for a long time. The traditional craft apprenticeship involves the apprentice as learner, the master or mentor as teacher and the trade or craft knowledge as generally fixed and unproblematic. The learning process is context-bound and informal, although the master/mentor generally sequences the demands of various tasks so the apprentice can learn and accumulate expertise through experience: observation, trial and error, assimilation and emulation. The significant difference between apprenticeship and other formal education lies with the foregrounding of learning-by-doing, rather than learning-by-transmission.

Today, governments around the world are showing renewed interest in apprenticeships as they look to strengthen their current and future workforce with new forms of apprenticeship that do some of what craft apprenticeships do/did but take into account modern economies, learning organisations and the idea of being lifelong learners (Guile & Young, 1998; Lanning, 2011). So, while apprenticeships are most closely associated with carpenters and plumbers, the broad model of learning-by-doing is also shared by medical doctors, teachers and lawyers in the final stages of their becoming expert. As they progress from the early stages of theory-based learning and guided practice, they move finally into on-the-job learning within a community of practice—a necessary (and often regulated as such) step towards expert status. Apprenticeships or similar models of learning are becoming known as advanced apprenticeships or higher apprenticeships. In such cases—including in the case of the PhD, long regarded as an apprenticeship—the apprentice is really an apprentice knowledge worker and the learning journey extends beyond the traditional point when the apprentice has been certified (Fuller & Unwin,

2010, p. 204).[8] Today, some employers of trades-based apprentices might argue a similar line, arguing that the completion of a qualification merely means the person is commercially competent and fit to join a community of practitioners, whereupon further development takes place (Vaughan et al., 2012).

In New Zealand, the Modern Apprenticeship system was introduced in 2001 and provides on-the-job training for 16- to 21-year-olds (and occasionally older career-changers) to undertake a National Certificate at levels 3 or 4 on the National Qualifications Framework.[9] Modern Apprenticeships are part of the overall industry training system but differ from standard or nontargeted industry training in that support (including brokering employment) is available to apprentices and employers through Modern Apprenticeship Coordinators and apprentices typically work towards 120 credits over a 4-year period (Mahoney, 2010a).[10] They must be employed and undertake both on-job learning and some off-job learning (either at their own pace, in their own time or under the auspices of an institution).

Attrition and noncompletion are key concerns in apprenticeships. Only about a third of learners have completed their qualification after 5 years, though completion rates are better in some industries than others—a variation that is likely due to different workplace attitudes towards learning and learner support systems and processes, interacting with learner completion predictors such as previous qualifications, age and ethnicity (Mahoney, 2009b).[11] There are similar concerns in Australia where the attrition rate in the first 12 months is around 30–33 percent, and the completion rate after 4 years is around 50 percent (National Centre for Vocational Education and Research, 2010). The reasons for apprentices not completing their qualification are generally job-related—such as employment churn (National Centre for Vocational Education and Research, 2010) and low pay rates (Misko, Nguyen, & Saunders, 2007)—rather than training-related, though studies in Australia (Smith, Walker, & Brennan Kemmis, 2011) and New Zealand (Chan, 2011) have found mismatched apprentice–employer expectations around training and responsibilities which can lead to noncompletion.

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[8] Smith (2012) argues that apprenticeships and higher education—which are part of separate systems in Australia and never linked in people's minds—share similar concerns about attraction, retention, completion and quality.

[9] Prior to 1992 most workplace learning occurred through apprenticeships. However, new industries found it difficult to enter the system and there was a lack of connection between on-job and off-job training. No formal apprenticeship system existed between 1992, when the industry training system was introduced, and 2001 (Ministry of Education, 2011).

[10] Industry training may be based around as few as 40 credits per learner, and spread over varying time periods, depending on the requirements of the participant and the workplace.

[11] The ITF and a number of ITOs have pointed out that the statistics are misleading as they are taken from individual–employer Training Agreements which do not follow the employee. If an employee changes jobs, the Training Agreement with their former employer is terminated and they contribute to noncompletion statistics, even if they complete the qualification with another employer and through another Training Agreement. The statistics may also be misleading in that they are unable to recognise learner motivations and that some learners set out to achieve credits and learning in certain areas but not an entire qualification.

Apprentices, particularly those in traditional trades areas (e.g., carpentry, plumbing), tend to struggle with a lack of curricular integration between the theoretical and practical aspects of their learning. One of the reasons for the disconnection lies with the way that many apprenticeships are structured: on-job learning in combination with "block courses" (2–3-week periods spent at polytechnics) or "night classes" (set periods with a weekly night-time class at a polytechnic) and self-paced learning through guides. The content of each component is typically divided into practice (normal daily work with the boss showing you what to do and why on the job) and theory (block courses, night classes and self-paced learning). Commonly, apprentices struggle to see the relevance of "the book-work" and, where apprentices attend block courses, employers struggle to remotivate them on their return to the workplace. The nature of the division also means that their workplace learning is seen as "doing the job" and "book learning" seems only vaguely relevant as it appears to be something to store away in case it is needed one day.[12]

Concerns about the segmentation of course content and the way it cuts across the development of expertise (Eraut, 2004), are driving interest in developing integrative pedagogies which could facilitate learners' ability to make connections across the various knowledges they learn (Griffiths & Guile, 2003; Veillard, in press). Research evidence suggests that different knowledges require different settings (Eraut, 2004; Young, 1999) but the significance of these may not be well understood by the actors. Butler and Brooker's (1998) study of metal fabrication apprentices taking technical college welding courses found that the settings balanced each other well because "situated learning means not only that the situation limits what can possibly be learnt but it also directly imprints on all of the knowledge and skills that are learnt" (p. 81). The technical college provided an opportunity for apprentices to practise in deliberately *un*familiar contexts, with teacher feedback and without the pressure of production, while the workplace provided real-world situations on why and how to use particular types of weld. However, the apprentices, workplace supervisors and technical college teachers had very different views about what was taking place.

Apprentices in this study appreciated opportunities to perfect techniques and experiment with settings and materials, and to learn about standards and judgement, with a teacher on hand and no pressure from a workplace supervisor. Supervisors interpreted their "freedom to learn" as a lack of apprentice discipline which could even erode the

[12] As the Plumbing, Gasfitting, Drainlaying and Roofing ITO's brochure for apprentices describes it, block courses provide an understanding of the theory behind the practice—"knowledge you might not need until much later in your career, but when you need it you will be pleased you learned it" (Getting Started on Your Plumbing and Gasfitting Career, p.12). In the Building and Construction ITO, apprentices' frustrations at the lack of explicit theory–practice connection have prompted improvements in the design of learning materials (Gilbert, 2008). This has become a key part of a significant change to the Building and Construction ITO's assessment system which now takes a holistic approach to on-job assessments and uses Training Advisors with assessor training to help apprentices to connect theory and practice (Vaughan et al., 2012).

workplace culture they valued of “getting it right first time” and always being productive. Since the college teachers did not address their specific workplace’s needs (for specific welds), the teachers seemed “out of touch with the industry”. The teachers, on the other hand, were deliberate in extending apprentices’ skills beyond the immediate ones demanded of their workplaces and deliberate in trying to develop apprentices’ internal locus of control (use of personal, intellectual and social resources to tackle tasks and solve problems) rather than letting them rely only on their external locus of control (ceding responsibility to others to tell them what to do and relying on their work being monitored by others).

In Veillard’s (in press) study of a course in industrial logistics and quality management, apprentices/students alternated fortnightly periods at university and in their workplace. The study focused on a teaching unit involving apprentices solving a long and complex open problem by using and articulating different knowledge already learned on the course. The analysis of video evidence of apprentices undertaking this task showed them struggling to use what teachers regarded as basic concepts but which had been taught to apprentices in different teaching units, contextualised in different ways and for a different purpose than the problem-solving task required. Veillard argues that the pedagogical organisation of the course simply did not help students deal with complex problems and they had no real situations (e.g., in the workplace) in which to learn the selection and combination of different concepts and methods. Instead of designing courses which assume—far too optimistically—that students can somehow take all the possible learning opportunities from different training environments and then integrate them to build complex and relevant competences, Veillard suggests a collaborative design approach that involves the entire pedagogical team (including workplace trainers) in connecting teaching units and activities.

Informal learning

The third major learning space of everyday life is familiar enough but not necessarily as a learning space. We know that people are, or have the potential to be, learning all the time and doing it in settings that may not be formally or explicitly organised for learning. As governments around the world reorient their education systems and workplace learning programmes with a lifelong learning perspective, they have also become more interested in a more diverse set of spaces for learning. It seems that the informal, everyday space is a significant one for building individual and organisational capabilities, and for promoting lifelong learning. This speaks directly to the notion of key competencies, developed by the OECD to describe the kinds of things that all people need for contemporary life. Unlike the emphasis in "skills" on possessing knowledge or the ability to do something, competencies emphasise performance and mobilisation of the skill or knowledge in specific contexts, including contexts that are currently unfamiliar (Rychen & Salganik, 2003). If competencies or capabilities are evident (and probably also only learnable) in context, it makes sense to consider everyday life where such competencies may be developed and revealed.

There is a lot of disagreement about how to distinguish between the categories of formal learning (structured, intentional and leading to nationally or internationally recognised qualifications), informal learning (everyday life) and nonformal learning (intentional, not leading to qualifications). The evidence suggests that they are nearly always overlapping to some extent and that any learner will be drawing on their informal (life) learning as part of any formal or nonformal learning they undertake (Colley, Hodkinson, & Malcolm, 2002).

The salient issue now is how to integrate informal and nonformal learning into the formal system in such a way as to benefit the individuals and national economies. It is not straightforward to make visible the competencies that are to be integrated into a broad knowledge strategy (Bjørnåvold, 2001). Nor is it easy to recognise, codify and attach value to the outcomes from such learning because it requires a very flexible education system and sophisticated assessment systems and processes (Werquin, 2010, p. 14). There can also be a lot of resistance from institutions with a vested interest in providing education and training programmes. Recognition of Prior Learning (RPL),[13] a closely related concept to the issue of utilising informal learning, typically encounters reluctance on the part of universities that privilege theory (in their textbooks and courses) over practice. However, as Childs and Wagner (2011) point out, universities routinely award

[13] This is sometimes known as Recognition of Current Competency (RCC).

honorary doctorates so there are clearly some circumstances in which exemplary practice may be recognised or interpreted.

Some learners may welcome the chance to gain recognition for skills acquired or learning undertaken outside of formal institutions. They may be able to fast-track through qualifications, saving time and money, and they may find it easier to participate in the formal system again—an equity benefit for groups disaffected or disadvantaged by the formal system earlier in life (Werquin, 2010). It is also possible that some learners may be deterred by these developments. Learners who have had previous negative experiences in the schooling system may have been motivated and successful in informal settings precisely because the learning is not structured or necessarily intentional, does not involve designated teachers or formal assessment, and because it is deeply integrated into their everyday lives. In the same way that communities of practice are based on collegial, not reporting, relationships and cannot be developed in the same way as formal organisational structures (Wenger, McDermott, & Snyder, 2002), integrating informal learning into the formal learning system is a work in progress.

Integration as knowledge flow: Future research

The learning-work spaces and integration models reflect a general trend of drawing together systems in VET and HE for the purposes of better recognising, fostering and mobilising learning. The increasing "zones of overlap" in the fields served by VET and HE signal the potential for further convergence and complementarity—something which would remove the current restriction for learners choosing education routes based on opportunities to progress their learning later (Dunkel & Le Mouillour, in co-operation with Teichler, 2009).

At first glance New Zealand appears well positioned for such convergence because it already has mechanisms that do not operate with a distinction between HE and VET. However, this arrangement largely reflects a government shift away from a deregulated, market-based system of provision[14] to one that recognises publicly funded tertiary education as a tool for national economic growth. The arrangement does not reflect people's everyday understandings about particular types of knowledge or the kinds of knowledge, skill and capabilities required for particular occupations. In the everyday or "real world", the generation population—and specifically teachers, students, parents and employers—perceive academically-focused and vocationally-focused forms of tertiary education, and specific knowledge and skill demands of different occupations, as having very different inherent worth and social value.

However, a lifelong learning paradigm brings the entire tertiary education system under its auspices and frames important learning as something that can take place in both educational institutions *and* workplaces (and possibly also in everyday life). This approach contains the important recognition that all occupations now require constant adaptation and knowledge development, and this is best undertaken through a thoughtful combination of theory and practice, expressed/developed in, and connected across, different settings. There are base-level activities in workplaces that involve an almost entirely situated knowledge, but progression to higher or deeper levels of work requires a mix of situated and disciplinary knowledge (Barnett, 2006). This mix underlines how necessary it is for people to develop the capacity to apply or relate theory appropriately to particular instances and different kinds of instances—something they cannot learn only in a classroom, not only in a workplace (Wheelahan, 2010). Thus vocational education and higher education may attempt to "face both ways" to the field of practice and to disciplinary knowledge (Barnett, 2006).

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[14] The well-known effects of this included provider competition for enrolments and per-student funding, and proliferation and duplication of courses.

This raises important questions about pedagogical strategy. Barnett (2006) suggests using the concept of "recontextualisation": the reorganisation of disciplinary knowledge for vocational purposes. He acknowledges that this involves hard questions—for example, "How does, or should, Biology for Nursing differ from Biology for Biologists, or Biology for Doctors?" (p. 155)—and makes greater demands on teachers, requiring them to become "boundary crossers" (aware of disciplinary discourses and workplace "realities"). However, recontextualisation provides a lens through which to view the features and inherent "logics" of different forms of knowledge, and how these play out in different ways according to context (Evans, Guile, Harris, & Allan, 2010). The gap between theory and practice is less about how learners "transfer" learning and more about how to create flows of knowledge between workplaces and disciplines (and not necessarily in one direction only).

Trying to understand how someone can take what they have learned in one context (e.g., an education institution) and use it in another (e.g., a workplace) is a longstanding and seemingly intractable challenge in the education world. There are many ways to conceptualise "transfer"—for example, Cameron, Hipkins, Lander and Whatman's (2011) literature review of learning transfer from literacy programmes to the workplace classifies models of transfer as low road and high road, near and far, positive and negative, lateral and vertical.[15] These conceptions are closely related to different types of learning, which can be conceptualized as, for example, cumulative, assimilative, accommodative and transformative (see Illeris, 2009). However, the important thing about transfer of learning here is that, without a focus on exactly *what* is being transferred (what kind of knowledge, to what ends), it is possible to continue with assumptions about transfer being a process with one direction—*from* theory (in the classroom) *to* practice (in the workplace).

As always, it is important not to confuse the structural constraints that make recontextualisation or forms of learning transfer difficult with individual shortcomings. If researchers only see these things as taking theory from formal education into the workplace, failure to do so looks like an individual failure, rather than a failure on the part of the institution or organisations involved to provide good learning opportunities (Guile & Young, 1998). For this reason there is plenty of scope for research on learning-work integration as lifelong learning *in practice*.

At different points in history, lifelong learning has been articulated to different agendas. While it was once a radical perspective distinguishing between mass schooling and education, and asserting the possibility of developing interests and abilities throughout life and through family, work and community relations, the dominant interpretation of lifelong learning is now linked to "employability" (Evans, 2006). This creates a new

[15] They also provide an analysis of workplace literacy programmes using Baldwin and Ford's (1988) model of factors in learning programmes that support the transfer of learning.

balance of responsibilities between individuals, employers and state (Edwards & Nicholls, 2004; Field, 2000), making the learner a stakeholder in the drive for economic growth (Lynch, 2008).

It might be useful, then, to consider learning-work integration in terms of the many integrations that could take place: these might include, for example, learner integration (which includes cognitive work, prior “learning careers”, identity formation and participation in communities of practice); curriculum integration and pedagogical integration; and labour market integration (how pathways are made visible and clear).

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