An exploration of the pedagogies employed to integrate knowledge in work-integrated learning in New Zealand higher education institutions

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Research aims and question

Work-integrated learning or cooperative education is an educational strategy in which students undergo conventional academic learning at a higher educational institution and combine this learning with some time spent in a workplace relevant to their program of study and career aims (Groenewald, 2004). A key aspect of work-integrated learning is the notion that it entails the *integration* of knowledge and skills gained in the higher education institution and in the workplace. This has two features - the student takes what he or she has learned on-campus into the workplace when going on a work placement, and likewise what they learn in the workplace becomes related to, or incorporated into, the next phase of academic learning when the student returns to study after completing a work-placement.

This TLRI project focused on learning and specifically in work integrated lerning programs in higher education, and we sought to investigate, *What pedagogical approaches are used in New Zealand work-integrated learning /cooperative education programs in terms of integration of student knowledge, and what impact do these have on student learning?*

Research design

This one year study employed a collective case study methodology across three important areas of higher education in New Zealand: *science and engineering*; *business and management*; and *sport*. Students, employers and work-integrated learning practitioners/facilitators from higher education institutions across all three sectors participated in semi-structured interviews, which involved discussion of current pedagogical strategies used to facilitate student learning on-campus and in the workplace, and the integration of on- and off-campus learning. Another important data source was document analysis of relevant documentation (e.g., paper/course outlines, student guidelines, etc.) which was used to triangulate the interview findings. In the final phase of the research, the work-integrated learning practitioners, advisers and the senior researchers met face-to-face to discuss the findings of the collective case studies, and synthesize general conclusions.

Research findings

An overview of the research findings across all three sectors points to some differences, but remarkable commonality across the sectors. There seems to be strong consensus across all three sectors and for each cohort of stakeholders that all three parties benefit from work integrated learning, with most benefit accruing to students, who are seen to gain important graduate competencies/skills and career enhancement. Students are thought to pick up a

repertoire of skills from work-integrated learning, mostly as a result of completing a placement, practicum or industry based learning project. On-campus pedagogies consist of lectures, tutorials and in the case of science and engineering, outdoor education and information systems students, practical work. The main purpose of such pedagogies is to provide basic content knowledge and theory, with practical, real world work anticipated from the off-campus work placements/practicum or project. Most programs irrespective of the WIL component see themselves as applied in nature, and some employ group work and other pedagogies to foster at least some skill development in the behavioral/soft skills area. However, the stakeholders think any real world experience comes mostly from the off-campus activities. The pedagogies employed off-campus tended to be more informal in nature than the on-campus pedagogies, and consisted of inductions and one-on-one mentoring. There is no consistent mechanism by which off-campus supervisors or mentors seek to employ or develop pedagogies to foster learning. Learning is thus by means of legitimate peripheral participation (Rogoff, 1995) with students off-campus, learning occurring alongside professionals in their area via an apprenticeship model of learning (Lave & Wenger, 1991; Rogoff, 1995). Skills gained in off-campus learning are mostly behavioral/soft 'people' skills such as communication, time management along with an understanding of workplace culture, treating others with respect, a good work ethic, and developing a sense of professionalism culminating in an appreciation of what it means to be a professional in their specialty area (Eames, 2003a, 2003b; Eames & Bell, 2005).

There seems to be clear recognition of *distributed cognition*, in that all stakeholders across all sectors consider that students learn in a variety of ways, from a variety of sources with knowledge resident in a variety of places across an organization (Perkins, 1997). Consistent with this observation, there also is evidence for Haigh's (2008) notion of *public general knowledge* (PGK), and *personal practical knowledge* (PPK) in the workplace, and it seems students from all three sectors access PGK via books and resources in their higher education institutions, and via documents and formal induction in the workplace. The students also access at least some of their mentors' PPK – derived from years of experience as professionals, via the apprentice model described above. This type of learning is particular to the specific education/learning context, be it the lecture hall or the workplace.

Wertsch (1991) also talks of *situated cognition* where the learning is specific to the setting (see also Lave & Wenger, 1991). For example, what the students report learning (supported by the views expressed by mentors and academics) here depends on the setting; they report learning factual material such as content on-campus, soft skills in their workplace, and so on. However, consistent with Eames's work (see Eames, 2003a, 2003b), the knowledge they learn in say a marketing firm, is specific to that industry and that firm – the way we do things around here, the acronyms we use and so on. Hence, the teachers (be they lecturers or workplace mentors) employ a variety of Vygotskian psychological tools (Vygostsky, 1978) such as *mediated action*, which involves, for example, the use of language specific to that educational setting and writing in a specific way (e.g., writing or speaking 'scientifically' or in a formal manner when preparing say tax audits).

There is no evidence of direct *explicit* attempts to integrate on- and off-campus learning, although all parties *expected* this would occur and agreed it *should* occur. However, integration is *implicitly*, or indirectly fostered by a variety of means – more so for some

sectors than others. This means the students may not develop the competency to learn. The principal means for fostering integration of on- and off-campus learning is by reflection and review, via, for example, reflective journals, and assignments/reports post-placement. This integration mostly consists of reflection-*on*-action (Schön, 1991), after the learning activities, and consists of reflection on personal growth, and incident/event deconstruction. In this sense it is similar to the activities of the teaching practicum, which strongly encourages reflection after the event (Allen & Peach, 2007).

Assessment Eames and Bell (2005) say should reflect the complexity of the dual and complementary nature of the learning environments. The assessment approaches employed in the programs studied here incorporate elements of reflection (e.g., assignments, reflective journals, etc.) along with more conventional modes of assessment. A portfolio model proposed by Hodges (2008) is sophisticated enough to address all learning outcomes revealed in this work. As Hodges notes, and as is strongly supported in this work, assessment of the workplace learning component in particular bedevils work integrated learning programs. Complex as it may be, it seems if we wish to address the complexity of the learning that occurs in the workplace, we may well need a model that is as sophisticated as that provided by Hodges. If we do not, then we can really only say we are assessing in a piecemeal fashion.

Implications for practice

It is evident from this project that despite coming under an umbrella term, *work-integrated learning*, most programs do relatively little to formally drive the integration of knowledge between the educational institution and workplace and vice versa. Whilst there is some logic in suggesting the student has ultimate responsibility for his or her own learning, work integrated learning practitioners argue they are *educators* or at least that they should be considered educators (see, e.g., Coll & Eames, 2000; Ricks et al., 1990), in which case we argue they must accept ultimate responsibility for the integration through work integrated learning. In doing so, they need to draw upon their training as educators, their personal experiences and research.

The recommendations arising from this project are that:

- Program leaders of work-integrated learning programs should formally state that their WIL programs *requires integration of knowledge*, and set this as an explicit learning objective;
- Program leaders of work-integrated learning programs need to develop specific pedagogies/activities that will foster and measure integration;
- In the latter stages of a program of study, the integration should become more explicit via reflection activities;
- Reflection activities should include reflection-*on*-action, reflection-*in*-action, and reflection-*before*-action.
- Program leaders of work-integrated learning programs should work with employers/workplace supervisors to develop more formal pedagogies for workplace learning.

- Program leaders of work-integrated learning programs should develop holistic assessment approaches that take cognizance of the dual, situated nature of learning that occurs in work integrated learning programs

Limitations of the Project

The nature of this study is that of an interpretive study, which means that the findings are not *directly* generalizable to other educational contexts. Instead the onus for interpretation shifts from the researcher to the reader. There is an assumption of honesty in participants' responses. There is a risk that we have a biased sample, which consists only of good students, or employers we have a good relationship with.

Partnerships

Partnerships were crucial to the success of this project. The project team consisted of senior researchers, working collaboratively with practitioner researchers. This produced a pleasing synergy in which the research design and methodology was filtered through the eyes of those at the 'coal-face' of work integrated lerning in New Zealand. A second benefit of the partnership development was the independence of the practitioner researchers, many of whom have gone on to independent projects of collaborated with other practitioners they met during this TLRI.

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