Preface

This text provides a snapshot of a global perspective of the diversity of practices adopted to successfully develop, implement, deliver and re-invigorate undergraduate and postgraduate Work Integrated Learning (WIL) focussed programs in Engineering and the Built Environment and Information Technology. The initial chapters serve to explore definitive features of the work and learning interface by categorising WIL as a series of nine models, highlighting the importance of continuous professional development and by demonstrating an innovative mechanism by which to monitor the learning being undertaken, in situ, during the time that new knowledge is being acquired.

Work Integrated Learning manifests in many guises including as Work Based Learning, Workplace Learning or Practice Based Learning. The learning occurs within a real-life, work or ‘work-like’ context, simulated work conditions and location or an actual workplace or a combination of these. The mechanisms (training, fieldwork, practicum, immersion, placement, or sandwich programs) used to implement it are married to the delivery mode (face-to-face, blended learning) used to impart the knowledge and skills being developed with an emphasis upon the practices (authentic learning, reflective practice, mentoring) to gauge or assess the acquisition of the skills, knowledge and experiences, and the level of self-awareness or self-development overseen by internal (university committees and processes) and external (professional bodies, stakeholder advisory committees) quality assurance processes.


While proponents of WIL, and its many guises, highlight and nominate focus upon specific theoretical frameworks or approaches, there is no uniformly or centrally focussed or recognised theoretical body that encapsulates the field of Work Integrated Learning. This is not to suggest a ‘unified field theory’ of Work Integrated Learning is emerging or indeed, necessary. Instead, it emphasises the diversity of theoretical practice, the purpose or reason for its specific adoption over any other and that the implementation of opportunities for Work Integrated Learning are more likely to be driven by pragmatic or practical considerations. Consequently, the enrichment associated by the diversity is more purposeful than any uniformly ‘beige’ theoretical or implementation approach and so one is wise to embrace the notion of viva la difference!
In its broadest sense, WIL is most often described as an attempt to provide support for the employability of employees by initial skill development and knowledge acquisition (paradigm: ‘school-to-work’, ‘work ready’) or by upskilling or retraining them (paradigm: continuing professional development, ‘lifelong learning’). What seems to be evident is that a pragmatism or practicality arises from a complex dynamic between the needs of the niche market or specific client (industry, commercial, government), the adopted educational practices (theoretical approach and delivery mode), the quality assurer (university, stakeholder, professional body), policy initiatives (government, professional bodies) and the learners’ needs. The interactions are not inclusive of all aspects or players. As Calway and Murphy, from Australia, in Chapter 1, highlight in their chapter, ‘in some cases the employer is a key stakeholder of the processes and in others the employer may be incidental or irrelevant.’ At other times, some programs are not accredited by a professional body, while for others it is imperative for graduates to achieve professional recognition.

All authors highlight WIL provides a successful framework for contextual learning and the effective transfer of learning to undertake practice and operate as a competent practitioner. Although, in Chapter 2, Murphy and Calway, from Australia, contend that ‘practice alone is generally insufficient to ensure knowledge is effective and up to date’ and is a mechanism by which practitioners are able to be accredited, meet compliance requirements, support deeper learning, and enhance transference of learning. They emphasise the importance of continuing professional development in acquiring revised, new, or deeper knowledge and in ensuring currency and relevancy or in establishing a specialisation. Interestingly, most of the programs described by the authors fit into Models 7 and 8 as categorised by Calway and Murphy. The transferability of skills is highlighted by most authors and in particular there appears to be an emphasis, whether stated explicitly or inferred implicitly, upon communication, problem solving and team work.

Operating within a WIL context is all very well but how does one monitor what is being learnt? In Chapter 3, Lindstaedt and Christl, from Austria, demonstrate an innovative domain-independent computational environment which supports WIL at the professional workplace. They outline how their Advanced Process-Orientated self-Directed Learning Environment (APOSITLE) is designed as a learning support mechanism so people can learn during the execution of the work task as opposed to learning first and then applying the newly acquired knowledge. Their mechanism shows that they have ‘enabled relatively inexperienced knowledge workers to efficiently improve their knowledge in various ways.’

In Chapter 4, Dominguez and Magdaleno, from Spain, deal with the state of industrial training in undergraduate engineering in Spain and highlight the impacts of introducing European Higher Education Area requirements. They go on to review the structure of the new degrees and how industrial training is considered in them and some proposals are discussed on the methods to improve the evaluation of students and the outcomes of WIL experiences, with special focus upon mechanical engineering degrees in Spain.

Chapter 5 sees Nuninger and Chatlelet, from France, discuss the curriculum and training processes adopted to upskilling graduates from vocational and continuing vocational education and training programs. They nominate the opportunities their programs provide in offering degrees, to Master’s level, for students studying in the field of production with the benefit of the integration of a real informative work situation in industry.

Akins and Gulick, from the USA, in Chapter 6, highlight the extension of their institutions long running co-operative program to include a work abroad program. This program serves to focus upon students undertaking international experiential education, developing graduates with a global competence. Students elect to study, research, or work abroad.
In Chapter 7, Ku and Thonglek, from Thailand, highlight the successes that are evident from having conducted, for the past 14 years, a premier Master’s program aimed at graduate chemical engineers. Their practice school approach has been adapted from the Massachusetts Institute of Technology (MIT) model to meet Thai industry requirements. It has been through the industry-government-university nexus engagement and commitment that they have been able to ensure students are provided with a meaningful learning experience. Their success has inspired many spin-off programs, both internal and external to King Mongkut’s University of Technology, and have aided in changing the face of work contextualised learning in Thailand.

A contribution from China by Siu, in Chapter 8, outlines the challenges and successes encountered in providing postgraduate research students in Industrial and Product Design and Product Engineering access to industry to undertake research projects. Siu highlights how regional collaboration between mainland China and Hong Kong, supported by a university-industry partnership, provides WIL experiences to ensure students conduct research that has a stronger connection to industry. The mechanism has helped to build research networks between universities and also has been used as a barometer for establishing a larger scale and more in-depth collaboration between participating organisations.

In Chapter 9, Keleher, Patil, and Chattopadhyay, from Australia, outline the successful industry-university nexus that has developed a suite of postgraduate programs in Maintenance Management. A blended learning model is adopted with the majority of lecturers delivering the courses being experienced practitioners currently working in the field of Asset or Maintenance Management. Learning experiences and their assessment follows an authentic learning philosophy.

Chapter 8, 9 and 11 highlight the adoption of WIL aspects in terms of a research experience. With the creation of new knowledge, this demonstrates the emergence of what could be legitimately be termed Work Integrated Research (WIR) grounded in or arising from a WIL philosophy or context. The authors of these chapters highlight how their programs provide the basis for knowledge creation and the development of new business ideas, initiatives innovations and efficiencies (financial, temporal, human resources, physical resources). The Waterford Institute of Technology and BAM Construction have approved their first cohort of research projects in December 2009. CQUniversity has been conducting the Master’s in Maintenance Management since 1998 and has over 30 graduates since its inception. The Hong Kong Polytechnic University’s program had its inception in 2003 and has provided the opportunity for research design students to engage in industry based research in a Work Integrated Learning context. Stewart and Chen (2009) discuss developing a framework for Work Integrated Research Higher Degrees exploring and reporting on this approach in the context of three case studies that are of a Doctor of Philosophy context and not in a WIL context as is the philosophy adopted by CQUniversity, The Hong Kong Polytechnic University, and Waterford Institute of Technology.

Clark, from Australia, in Chapter 10, describes a suite of undergraduate Built Environment Programs (Construction Management, Building Design, and Building Surveying and Certification) delivered by flexible mode. The model provides a learning experience where more than half of the courses are taught by external professions working full time in the construction industry with the course co-ordination overseen by university academics. The active presence of professions working with academics to deliver these courses is seen as an integral part of the strength of providing students with an authentic learning experience.

Thomas, Wall, Graham, Troy, Crowe and O’Connell, from Ireland, in Chapter 11, describe the valuable experiences gained from the industry-academia partnership which collaborated in designing and establishing the delivery of a two year, part-time postgraduate Master’s in Construction Project Manage-
ment. The major challenges facing the Irish construction industry has been the ramping up of the National Qualifications Framework focus upon ‘learning outcomes,’ the impact of European Union’s greater emphasis upon lifelong learning and the establishment of the European Qualifications Framework. They demonstrate how aligning learning outcomes with the business objectives of their partner organisation, BAM contractors, a subsidiary of the Royal BAM Group of the Netherlands, that they have been able to successfully establish a blended learning model for educating innovative construction executives.

With a German perspective, Reinhard and Singh, in Chapter 12, discuss their undergraduate Information Technology program. Their program serves to address the issues faced by the Europeanisation of Germany and neighbouring countries in providing students with learning experiences that empower them as graduates as proactive contributors to their internationally orientated employer organisations.

The authors in this text provide a diverse perspective on the manner in which the WIL philosophy can be adopted and adapted to meet the requirements of undergraduate and postgraduate modes of study. They emphasise a learning environment which creates or supports meaningful learning through a contextual lens. Mirvis and Hall (1996) succinctly and pertinently observe that workers need to learn a living rather than earn a living and this is borne out by the diversity of practice practiced by these contributors.

Patrick Keleher
Lead Editor

REFERENCES


