Learning Integrated Work: inter-organisational collaborators reflect on provision of authentic virtual multimedia project experience

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This discussion paper outlines the experience of initiating and sustaining an authentic, team based, work integrated learning experience for advanced level, undergraduate students of collaborative multimedia design and production. It is a reflective account of how the needs of both organisations involved came to be addressed, creating a win-win-win outcome for the industry partner, the students and the university. Unusual aspects to do with the distance study mode of the students and the requirement for virtual collaboration are showcased. In the analysis, the difficulties experienced in initiating and sustaining such an inter-organisational relationship, especially where there is no direct vocational interdependency and so, no supportive administrative framework, are highlighted.

**Keywords**: authentic learning, vocational training, multimedia, teams, virtual collaboration, management

**Introduction**

It has been argued that, in the context of both undergraduate and post-graduate university education, work integrated learning opportunities, sometimes also known as cooperative learning or industry placements; do not typically fit a particular paradigm (Kelleher, Patil & Harreveld, 2011). Generally speaking, the primary objectives are to enhance students’ experience of a profession, to develop their work readiness, and to provide opportunities for interaction between the university and industry stakeholders with the aim of ensuring that the development of theoretical knowledge and skill is congruent with the needs of industries. A common form of work-integrated learning is that where, as part of study and assessment, an individual student is ‘seconded’ to take on a particular part-time or full-time position—sometimes paid, sometimes voluntary—within an organisation for a defined period. This paper outlines a work-integrated learning collaboration atypical to that norm. Two teams, one from Queensland Alumina Limited Business Improvement area and the other from Central Queensland University undergraduate multimedia degree capstone course, each in the pursuit of separate organisational objectives, commit to ‘client’ and ‘contractor’ roles and realise projects that achieve mutually satisfying outcomes.

This paper provides a reflective account co-written from the points of view of both organisations involved. On the one hand, there is a business improvement coach, working with a mature age maintenance crew trainee and senior engineers to capture tacit knowledge at risk of loss through retirement to incorporate this knowledge meaningfully with other work process documentation. On the other hand, there is an academic course coordinator who supervises members of student teams as they undertake a prescribed course of collaborative project engagement. Because of the regional footprint of the university the team members are widely geographically dispersed over vast distances and are studying in distance mode. Some team members do not meet each other, their supervisor, or their client face to face. They are charged with project planning and production using virtual communication modes. Interactive multimedia workplace training manuals are the tangible product resulting from this collaboration. The authors discuss the challenges involved in bridging dissimilar organisational cultures and geographical distances. They reflect that there are numerous benefits—tangible and intangible—for all parties involved, and that this type of project also poses organisational problems.

**The back-stories:**

1/ Queensland Alumina Limited: pump maintenance training at Gladstone
During the period 2004 to 2008 the culmination of numerous workplace initiatives within a particular section of the high-pressure alumina refinery of Queensland Alumina Limited (QAL) at Gladstone gave rise to imperatives for action. Routine hazard reduction audits, procedural reviews and the requirements of competency-based training for pump maintenance crews had identified potential risks in that QAL environment consistent with those foreshadowed in literature about hazardous environment risks in general (Nichol, 2001, 21). A major risk, common in mature industries and their ever more rapidly changing workplace environments, is that key technically experienced staff with long-term knowledge of plant design, operation and maintenance are, for a variety of reasons, unable to transfer vital plant specific and tacit knowledge at a pace that keeps up with their rate of attrition (Hislop, 2009, 132-135; Leonard & Swap, 2005). A need was identified for a unified compilation and synthesis of the various modes and formats of existing information into a multimedia manual useful for the purposes of training and ongoing reference whether on location in the plant, in the engineering workshop, or the training room.

2/ Central Queensland University: collaborative multimedia courses

Tertiary education providers in the constantly changing field of digital media production are challenged to equip graduates with skills relevant to industry needs. In one recent survey (Haukka, 2010) found that 36% of employers in Australia’s creative digital industries reported that it was difficult or very difficult to recruit aspiring creatives with the ‘right’ skills and attributes. Research on how creative production skills are typically applied throughout all sectors of industry raises questions about whether creative digital education providers should be concerned to identify fields with particular skill requirements to be satisfied, or rather be developing more generic, knowledge and technical skill-based graduate attributes that can readily be honed by employers to suit their particular needs. At Central Queensland University (CQU) multimedia program academics endeavour to strike a balance. It is considered that in a field where standards, protocols, technology and practices are rapidly evolving a fundamental error would be to bootstrap skill development to any one of them. Notwithstanding that creative and technical skills, aptitudes and practices specific to the discipline should fundamentally be developed, CQU data and experience concurs with the findings of Haukka: “Employers ranked team work skills, communication skills, motivation, problem-solving skills, and adaptability as the most important skills and attributes to their workplaces.” (6)

The MMST13015/18 courses constitute a compulsory capstone experience in the Bachelor of Multimedia Studies degree (BMmSt) at CQU. The objective is to provide students with an opportunity to apply knowledge, skills and experiences accumulated throughout the degree program, to a ‘real-life’ major project undertaken for an external ‘client’. Students work in teams that resemble those typically found in small to medium creative enterprises that offer digital and new media consultancy and production services in Australia (Barrett, 2001; Higgs, Cunningham & Pagan, 2007; Noacco, 1995). They are challenged to organise, initiate, plan, execute and evaluate a digital content project. They learn and practice requirements elicitation, technical specification, project design and development, management methodologies, and quality management processes and procedures. According to roles that each has negotiated through a team contract agreement they then contribute to the collaborative realisation of the project. The principle elements of engagement theory (Kearsley & Shneiderman, 1998) are operational in these courses.

The projects

In 2008 and 2009 two interactive training manual projects were undertaken for QAL in Gladstone. Pump Maintenance Crews are responsible for servicing heavy industrial equipment in the hazardous environment, with inherent procedural and occupational health and safety risks. The equipment is critical for the production of alumina. The existing documentation of the equipment and the site-specific maintenance practices had not been consolidated into a readily accessible format. In addition, the imminent retirement of experienced senior staff with accumulated technical know-how and tacit procedural knowledge was perceived as a risk. This risk required swift action to remedy. Knowledge specific to plant maintenance held by senior team members needed to be recorded and formalised to be compatible with QAL information systems. The projects also needed to comply with other corporate requirements such as OH&S, risk assessment, corporate style manuals, confidentiality, and with VET principles. It was envisaged that the project outcomes would be CD-ROM distributed manuals incorporating short, time-based audio-visual demonstrations, printable instructions incorporating text, diagrams and photo media elements, and accessed via an interactive interface.

Two projects ensued. The first, developed and produced during the period March to October 2008 concerned general safety induction, foundation training manuals and Pump Overhaul and Maintenance Procedures (POMP)
for the Elliot Turbine and Gearbox. The second, developed and produced during the period March to October 2009 documented procedures relating to assembly and overhaul of two slurry pumps:

- Worthington 12LN32
- Warman 8/6 FAN

The second training manual also incorporated quizzes to test knowledge transfer and comprehension.

**Keys roles in the inter-organisational collaboration**

Reflective analysis of the conduct of the two projects has identified four key instrumental roles:

- QAL project leader/translator
- QAL industry trainee and technical expert liaison
- CQU educational expert
- Student project teams

**QAL project leader/translator**

QAL regularly offers industry placement opportunities and traineeships for university students and graduates in a number of fields. However, the type of team-based collaboration described in this paper is unusual. There are no standard systems or practices instituted to accommodate the arrangements that transpired as there are with the more typical placement and traineeship arrangements. This person found herself in the position of blazing a trail through QAL systems to achieve what was required to get things going. It is significant that she had prior experience with both the industrial culture at QAL and the educational culture at CQU. Her knowledge of the systems and operations of both helped ensure that the needs of both organisations were satisfied – for example: the information systems and contractual and training requirements at QAL, and the semester timetable and the assessment routine at CQU. Her role involved liaising between the QAL parties who would need to be engaged in order to bring the project to fruition, such as:

- area supervisors, management and executives,
- technical experts and trainees,
- human resources,
- information systems,
- marketing and corporate image,
- contract and legal.

In some cases these persons were quite unused to dealing with ‘outsiders’, and in other cases what was asked of them was considered to be outside of the routine. For example, the ‘supply contract’ between the organisations involved no financial transaction. It is for these reasons that the role is referred to as ‘translator’. This person became the overseer of the whole project and the single point of contact for all parties with respect to forms, authorities, safety, funding and operations.

**QAL industry trainee and technical expert liaison**

This person is an experienced trade person employed in the pump maintenance section at QAL at Gladstone. At the time of the instigation of these projects he was a mature age trainee undertaking the Certificate IV in Competitive Manufacturing. It was he who, in a workshop with the Business Training Coach, suggested the possibility of involving an outside organisation to assist with resolving the training bottlenecks outlined above. He believed that video of suitably professional quality would provide a means of effectively recording demonstrations of technical procedures by key expert staff. Whilst the practice of audio visual recording of procedures for training purposes was becoming more common at QAL, the facilities and resourcing for post-production were almost non-existent. Internal roles attributed to him included liaison with plant maintenance engineers and process and resource owners to supply documents. He also provided expert advice to the student team during video capture and post-production, assisted with provision of voice-over talent, and participated in providing feedback on designs and testing of production prototypes.

At QAL the need to realise the production of training aids had not been an organisational priority. Together the project leader and the industry trainee succeeded in escalating the prioritisation of the proposed projects.

**CQU educational expert**

The course coordinator supervises and advises the teams, and is present as an observer during key presentations to the client and stakeholders. In all, over the two terms there are 19 items of team assessment to be submitted including two items of individual report and peer review. There is also a team appraisal mark provided by the
client and a tutor’s evaluation of individual performance. The final mark allocated to each individual is a combination of all of these team and individually awarded factors.

**Student project teams**

Guided by course instructions and resources, students organised themselves into roles and nominated a single point of contact for client and supervisor liaison. At the outset they negotiated a team agreement that included a conflict resolution strategy. Team members met regularly using virtual meeting technology including Skype. They were expected to keep meeting records, individual timesheets, and an intellectual property register that tracked all items they created and those that were received from the client. Weekly status reports were submitted to the client and to the supervisor. The activities of the first term were mainly concerned with project definition, concept development, design issues, project planning and the establishment of procedures for production management and quality control. In term two the teams swung into iterative production mode, presenting Alpha and Beta prototypes for evaluation and testing before presenting the final product for acceptance.

**Evaluation**

The products of the project teams met their acceptance criteria and are reported to be serving their purpose at QAL. No quantitative study has been conducted, but the authors are in reflective agreement that, in the instances described in this paper, the inter-organisational collaboration provided win-win-win outcomes for the key stakeholders. In a paper published in 2011, Holmes has characterised the outcomes as “reciprocal and complementary knowledge conversion” using Nonaka’s (1994) Socialisation, Externalisation, Combination and Internalisation (SECI) model of knowledge transfer. That paper also provides a review of academic literature on the efficacy of multimedia modes of training.

For QAL as a whole the benefits were: the building of knowledge, increased productivity, and improved safety. The mature workers passing on their knowledge felt they were leaving a tangible legacy and that their knowledge and skill was being recognised. For the trainees and other plant maintenance workers learning on the job, the product facilitates fast tracking of learning. The risk of learning ‘the hard way’ through lack of detailed practical tuition is lessened.

The multimedia students gained authentic experience of effective teamwork in a configuration similar to that which might exist in small to medium consulting firms or public service project teams. They had to overcome the communication barriers inherent in their geographical separation to achieve collaboration. Even the students who could not visit the site gained insights into the operations of an industry they would likely have not otherwise. Each team took ownership and creatively resolved their product in a unique way.

Both the QAL project leader and the CQU educational expert agree that their tasks in organising the inter-organisational collaboration could have been facilitated by systems designed to support this less usual kind of inter-organisational engagement. In many medium-to-large organisations there are systems and procedures in place for handling the more common work placement and traineeship arrangements. The tasks involved have been somewhat routinised and resources allocated. Similarly universities and faculties are accustomed to finding places for individual students where cooperatives and placements are instituted and in some cases required by accrediting bodies as part of a course or a program of study.

The QAL project leader/translator met with internal resistance when initiating each project. The potential benefits had to be ‘sold’ to the resource owners whose cooperation would be essential. Where there is constant organisational change and shifts in strategy little heed is paid to small-time projects where there has been scant or no financial investment to date.

In short, undertaking these projects required considerable commitment of those persons undertaking the key roles—beyond their position descriptions. The fact is that these types of roles are yet to appear in any job description! In order to validate gains and, for such initiatives to continue, the commitment required needs to be formally and systematically recognised within the organisations involved in the partnership. Without this step the innovation involved may fail to become an integral part of either business. The projects risk becoming stand-alone and the potential for further significant gains lost over time.

**Conclusion**

This paper has outlined collaborative education ventures atypical of work integrated learning norms. It involved teams of undergraduate students of multimedia working virtually for a ‘client’ from whom they were remotely
located. The projects’ outcomes were of significant benefit to all stakeholders. Yet this account by key personnel from both organisations involved highlights some of the significant internal and external hurdles to be overcome in maintaining the relationships required to initiate and sustain such engagements.

References


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