Are we on the move? projects versus internships

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Traditionally information technology (IT) qualifications at ITPs (Institutes of Technology and Polytechnics) have included an industry-based capstone project, with limited, if any, hands on work experience on site with the sponsor. Normally the student will interact on a limited basis with the sponsor, and then deliver a solution at the end of the project. With the rapid change of the IT sector and the desire for students to align themselves with potential employers when planning their projects, the need for more formally structured work placements or internships has arisen. Choosing the internship model over the project also allows for new skills and experiences to be obtained not offered by the ITP, as well as the benefits of industry mentoring on a day to day basis. The issue addressed in this paper focuses around the changing needs of students, ITPs and employers regarding student capstone projects and desire to move towards more traditional work placements or internships to fulfil stakeholder needs. This paper looks at current practices for final year project work at ITPs and how the Eastern Institute of Technology (EIT) is seeing a move towards work placements/internships from their students. It also looks at how the course outline was changed to meet the changes and reports on internships that have been completed in place of the traditional project (Asia-Pacific Journal of Cooperative Education, 8(2) 163-167).

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Initial feedback from students who have opted for the internship model at EIT has been positive and in all cases the students have been able to successfully immerse themselves in the organization and learn new skills and knowledge outside of the skill set they developed at the institution. Overall, the newly implemented internship option has been a positive co-operative education experience. As the idea of the internship model develops and as some students see the benefits of choosing this method over traditional project work, the demand for this could potentially exceed supply, and may put additional pressure on EIT and ITP resources. Also the internship model may not suit all students, and hence EIT may need to offer both options going forward.

INTERNSHIPS

In response to student demand and recognising that some students are actually working while completing their final project, EIT decided it was time to react and provide students with another option – the internship. This decision has been further supported by numerous authors including Carpenter (2003, p. 201), who outlines that internships or structured work placements form an important part of many programmes (IT and non-IT) by "providing on-the-job experiences to students prior to graduation." In the New Zealand Institute of Technology and Polytechnics (ITP) sector, industry projects have grown increasingly important particularly within applied bachelors degrees.

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Other academic areas outside of IT have utilized the concept of a formal structured work placement experience to enhance their students' work readiness and preparation for professional practice. For example, health studies and nursing students undergo a number of internships and structured work placement within a nursing degree. There are commercial considerations within any professional structured work placement because although the student may bring some value to the organization, there is considerable time and disruption experienced by the industry organization.

THE PRO'S AND CONS: PROJECT VS. INTERNSHIP

The benefits of introducing an internship may vary depending on the students themselves. However, as Schambach and Dirks (2002, p. 1) note "most students described the (IT) internship as a great experience that had a major impact on their learning and on their understanding of real world issues and environments." Both employers and students will perceive workplace experiences as more likely to enhance student work readiness and ability to gain permanent employment in the IT sector. Younger tertiary students can benefit from the disciplines of dressing appropriately, conforming to start times and durations, and the personal communications disciplines of a real IT work environment. Something they may well not achieve in a traditional project situation. The university or ITP can enhance their relationships with industry through the development of work experience courses and particularly supervising lecturers are able to visit IT work places and build communication channels to these organizations. This is increasingly important for New Zealand ITPs as the New Zealand Government increasingly requires evidence of local needs for IT graduates under the new Tertiary Education Commission (TEC) charter.

Structured work experience courses require more time to organize as, unlike a large district health board for nursing degree placements, the IT industry is scattered amongst many different corporate and non-profit organizations. These potential administration difficulties may be offset by delegating the 'coordinator' role to the students themselves and facilitating industry and student contacts through a well designed web-enabled database which is available to enrolled students.

Another barrier to work placements is cost to the ITP, as it is sometimes necessary to pay the employer for the supervision of the student. Given the fragmentation of the IT industry, with both vendors and internal IT departments, would there be enough willing participants in the work experience process? Additionally, there may be some general bureaucratic resistance within some ITPs that may make it difficult for industry participants to liaise flexibly and quickly with the ITP.

Carpenter (2003) discusses the issue of the internship experience, saying it can lose its distinction when IT students engage in part-time work or take part in work placement schemes. This can lead to a blurring of the lines between part-time work (for which the tertiary education provider has no influence) and the formal internship experience. As Bridgeman (2003, p. 211) asserts "the culmination of many information systems and information technology degrees is a capstone project" and this approach addresses "the need for students to be exposed to both industry and academic processes." Although there are many authentic learning experiences that ITP IT students experience from an industry project (some are weighty undertakings making up a substantial proportion of the degree/program), and some work in groups (Mann & Smith, 2004), there are still some limitations of these.

On the other hand, an IT project generally does not give the student experience in: taking specific instructions from an authority, experiencing the physical office environment of an IT company/department. Additionally, the student cannot record the project as actual 'industry experience'. Typical degree IT projects may entail a sole student meeting a client, recording analysis and design details, then working largely alone designing and building a product such as a website, application, IT plan, or technical product, subsequently delivering this to the client. Unless the student graduates and then works as an independent IT contractor, this project experience has not necessarily prepared the student for the rigour and team environment of the modern IT workplace.

Another disadvantage of the typical IT project is the lack of mentoring and technical knowledge passed from an actual IT professional working alongside the student in a master-apprentice fashion. A structured workplace course may provide more opportunity for mentoring both in a technical sense and in a business and political sense. Even the best of our IT students are limited in the professionalism of their finished IT product because of their isolation from professional peers, their limited experience and lack of access to corporate resources.

CHANGES AT THE EASTERN INSTITUTE OF TECHNOLOGY

Since the introduction of the BCS (Bachelor of Computing Systems) in 1998, EIT has run with the traditional IT project as the capstone to its degree. With the demand for internships, came the need to modify this course prescription to suite this type of assessment as opposed to the traditional project. Both learning outcomes and assessments needed to be modified to fit the requirements of the internship model. In the past, students who had no choice when it came to the capstone project followed the traditional information systems approach. This included a *Proposal*, *Front End Plan*, *Analysis*, *Design* and *Final Documentation* and *Delivery*. Typically the student would undertake an IT-based project and have several hand in points along the way for the documentation. The project was marked around this documentation and the actual delivery of the product, giving an overall mark for the project.

In response to the demand for work placements/internships, the course prescription needed to be modified to reflect the requirements of this method over the traditional project. Students are still required to formally present a proposal regarding their placement; however most of the requirements differ quite considerably from the project from this point on. Students need to complete a terms of reference, carry out a organizational analysis, have a work placement evaluation carry out by a academic supervisor, complete a activity and problem analysis log and complete a final presentation on their placement.

FEEDBACK

Student and industry feedback has so far been positive; two students who completed internships in 2006 have both been able to secure permanent employment with each organization. With employment being the ultimate in success, both students were also able to gain valuable experience and develop skills which would have not been able to be achieved if they had completed a traditional IT project: The"internship made this a reality and without it I doubt if I could have so easily found a job," and that "the internship therefore was my foot in the door."

As with any feedback, there were also issues which arose and given that this was one of the first times through the internship model for EIT and its students, it was important that these were passed back to us from a student's perspective. With the internship consuming significant time, students felt that the EIT documentation and the task of completing the internship itself were quite onerous: "I think future internships should most certainly be conducted, but the curriculum of what the student must do should be changed so that the employer will get more tangible benefits from the student." This feedback along with the idea that "only top students should be offered this opportunity, as there may only be a few organisations that are willing to offer these and the student is representing EIT and if they do a poor job then they may not be employed and this may reflect badly on other EIT students."

In some cases internships can be more taxing on an organization in terms of resource and time required to meet the demands of the intern. However, feedback from industry partners and mentors has also been very positive. One key aspect is that the student is on site and it is "easier to communicate and review ideas and monitor progress," rather than having to schedule specific meeting times which may not suit all parties. With regular contact being maintained it is also easier to "develop a 'feeling' for an individual and their capabilities and it is also easier when it comes to 'mentoring' and sharing of information/ideas with other staff."

However, in some cases it can be hard for an employer to transition a student into the internship because of the nature of their background: "EIT graduates are typically very 'technical' whilst our consulting work is more 'business oriented' with some technical aspects. Therefore, there are some challenges with integration and finding the right skill fit for a role."

CONCLUSIONS

Capstone projects have, and will always have, a place in IT-based degrees in the ITP sector in New Zealand. However, as both industry and students demands change, so will need the need for ITPs to become more flexible in the way they manage these projects. This flexibility to some degree has been forced on some ITPs as students are pushing for alternatives in this area. In the last 12 months EIT has responded to both student and employer requests to develop and deliver this new project equivalent of 'the internship'.

Internships are now providing students with a real alternative to the traditional capstone project and allow the student to explore new and 'unchartered waters' with the support of an industry based mentor. This in itself is proving to be draw card for students who might have found the traditional approach a little daunting. Employers are also finding real benefits from the internship model, and in some cases the internship has turned into fulltime work for the student. It is clear from student feedback this approach is not suited to everyone; in light of this EIT will need to continue offering both options.

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