

# **The Tension Between Academic Marking and Practical Industry Evaluation: A Discussion of Current Practice**

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## **Abstract**

This paper discusses various strategies taken by a range of co-operative providers to balance academic assessment with practical evaluation of real-world skills demonstrated by students. This is set within the context of students undertaking industry projects within applied technical degrees, students involved in structured work placements and internships as well as work performed within trades training schemes. One of the focus points of this paper was to examine the factors that give good results for a student working within cooperative environments alongside the factors that achieve success for them within standard courses or units. Some of the quality industry indicators investigated include the quality time spent immersed in the workplace environment, the autonomy given to the student, the evidence of experimentation by the student, and the evidence of a strong relationship between process and product. This balance between academic and industry evaluation of tertiary students may reflect the natural tension between the academic world and corporate environment. Some examples of alternative evaluation are described and discussed together with implications for changes in emphasis on academic priorities. Examples of various cooperative assessment methods are outlined, and some predictions on student's success in building a career in industry are made on the basis of key indicators within their practical assessment.

## **Introduction**

A discussion of the various industry-based assessment methods was highlighted in this paper in an attempt to answer key questions on cooperative assessment. These questions included: What evaluation methods do employers and industry supervisors use to assess work and projects undertaken by students? The study attempted to set aside any academic, methodology or reflection-based assessment required by the University or Institute whilst focusing on the industry side of assessment. The other issue examined was to see whether the factors that give good assessment results for a student working within cooperative environments were different from the factors that normally achieve success for them within standard academic courses.

It is acknowledged that any assessment regime is imperfect, as Hodges, Rainsbury, Sutherland and Barrow (1997, p. 4) point out, "assessment is not a precise science. It relies on value judgments of one or more people. It is inherently subjective. Competencies being sought [in cooperative situations] in the student, such as the ability to apply knowledge in uncertain situations are the very competencies that require ongoing self-assessment by the student." However, because cooperative education seeks to immerse the student in real-life situations, then assessment within these realistic work situations may more closely reflect the student's ability and fore-shadow their career success.

## **Industry Assessment within Different Contexts**

Three main types of cooperative education were examined for their treatment of assessment from the industry side. Firstly, industry projects, particularly where students had built a technical product for a client as the main thread of this co-operative experience. In these cases the student had not necessarily spent significant time within the workplace but had created a real-world product for the client who had the opportunity to evaluate the finished product. The second type of cooperative experience discussed was the structured work placement where the student had spent a significant time immersed in the workplace and had been observed for assessment purposes by an industry mentor or supervisor. Thirdly, more traditional trades training was examined for examples of industry-based supervision with assessment embedded. This broad view of cooperative activities is

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acknowledged as valuable by Brewer and Gray (1999) who studied a range of faculties and subjects to investigate the links between industry and applied tertiary programs in many different categories.

So, in summary the three categories were:

1. Technical industry projects (e.g., IT software for client)
2. Structured work placement (e.g., student nurse in hospital ward), and
3. Trades training (e.g., apprentice with unit standards).

### **Project Assessment**

With external projects, industry requires an implemented solution with the emphasis on functionality, but the supervising institute needs to monitor the student's evidence of following an appropriate methodology. So there is a balance required between solution (industry) and methodology (institute). The other important issue for industry projects is the realism aspect where "the most critical aspect of the project (software engineering) is the use of real projects, with real customers" (Chamillard & Braun, 2002, p. 227). The industry sponsor is more likely to evaluate the project product through the 'realism filter' with judgments performed on technical complexity, size of project, feedback from the sponsor and the overall excellence of the final product: "The involvement in a 'real life' project is a valuable strategy that enhances student learning and prepares students for the demands that they may encounter in the workplace" (Fleming & Ferkins, 2005, p. 5). One example framework conceived for allowing a greater influence by industry on information technology (IT) project assessment is shown below in Figure 1. The framework allows more weighting in assessment for evidence such as proof that the client is using the product live, extra technical complexity, size of the organization and extra features within the product (Skelton & Albertyn, 2004).

Another instrument that industry clients can evaluate the student on with their project work is the industry feedback form. This type of survey can include the following questions:

1. The IT project was delivered satisfactorily
2. The student displayed technical expertise
3. Is the project running 'live' in production
4. Would you employ the student (if a position was available)?, and
5. The project met the requirements.

The industry replies to this type of questionnaire do need to be vetted and moderated by the academic supervisor to balance out any skewed results (such as a technically illiterate sponsor giving very positive replies for a student who normally struggles academically). Another example of industry-based evaluation for projects is the workplace visit. This is normally judged informally by the academic supervisor, but takes into account the intangibles and some tacit knowledge of the student. Some of the questions from the workplace visit would include:

1. Is the student able to facilitate the visit? (demonstrates maturity and working knowledge of workplace)
2. Perception of the relationship between staff and the student
3. Is the IT product able to be demonstrated 'live' at the site?
4. Students perception of the alignment of the project to the organization, and
5. Face to face interview with the industry supervisor helps the context of the feedback form.

These examples (Eastern Institute of Technology, 2006) provide evidence that students can be rewarded by industry for taking on more complex work on behalf of the client, and that the client is probably the best judge of the end product excellence.

### **Work Placement Assessment**

Assessment with internships or work placements may be easier in one respect in that the student is able to be observed on an hourly or daily basis. However, the measurement of the concrete output of the student may be more difficult than the industry project. Often industry assessors in work placements need to ask the question; would the student's work practice be acceptable in an unsupervised situation?

Multimedia	Website	IS/ Applications	Technical Development	IT Plan
Original elements	Database backend containing multiple tables with simple relationships	<u>Mandatory</u> Relational tables	Process Documented	Entire company overview
Some original creation e.g. Logo	Secure /customized administrative functions to modify table/page content	Minimum 5 tables - complexity	Research detailed. Physical site described	60 page report
Interactivity.	10+ pages, including table driven dynamic content.	Original Programming.	Technical diagrams developed	Company size 10+ employees.
Client intends production or to 'go live'. Capable of being updated in 1 <sup>st</sup> 12 months	Hosted site available via Internet  Significant original design /customized development	Client intends production or to 'go live'.  <u>Optional 1 Weighting 1.1</u>	Unique setup or product	Client intends to consider the report in its planning
Flash or Director / sophisticated features	Client is actually using live	Client is actually using live <u>Optional 2 Weighting 1.2</u>	Digital photos record process	Company testifies to live use of report
Large scale content	Proof of business development	Database or application networked	Specialist skills/tools used	5+ live interviews or 2 surveys

FIGURE 1  
Evaluation weighting for industry projects

As Duffy (2004, p. 7) asserts, “mentors must ensure that assessment of clinical skills does occur as required. Passing students who have failed or in the hope that they will improve later, puts patients at risk.” In the health faculties, training is given to industry supervisors (e.g., registered nurses) on assessment criteria.

Some characteristics of internship evaluation by an industry mentor would include:

1. Continuous assessment throughout the internship
2. formal and informal techniques
3. gathering evidence throughout, and
4. Initial, intermediate and final interviews with the student.

Some industry sectors are well setup for acknowledging and training the industry assessor: “A mentor is a nurse, midwife or specialist nurse who facilitates learning and supervises and assesses students in a practice setting” (Hopkins, 2005, p. 5).

In teacher training, the teacher mentor may perform observations and evaluation on classroom environments, teaching technique, learning facilitation, interviews, de-briefing, and then report to the teaching institute. Rowley (1999) outlines comprehensively what makes a good teacher trainee mentor and the assessment mechanisms that can be used effectively to support and monitor the teacher in training.

### **Trades Training Assessment**

Historically, some of the concepts of competency-based training have arisen from this sector. Smith and Keating (1997) reiterate that competency based training is primarily concerned about what the student will actually be able to demonstrate at the end of their training, and by implication less about the theoretical models and processes that helped them to that level of competency. Often assessment is by collection of output evidence, number of hours worked and these may be embedded with unit standards (in New Zealand unit standards are a national standards based collection of units for most subject areas). Trades supervision has less emphasis today on ‘time served’ than in previous apprenticeship eras. Industry supervisors assist apprentices gathering evidence in the form of time sheets, plans, drawings, and photographs. Industry supervisors also sign written attestations of students completing work to an industry standard. Other examples include logbooks with references to unit standards. Assessment may be performed by third-party trained industry assessors as well as workplace employers (Beaven, 2006).

### **Assessment Guides Career Path**

Given that according to Arthur, Hall and Lawrence (1989, p. 8) “a career is the evolving sequence of a persons work experiences over time,” the success of students within industry based assessment may be an early indicator of the students career success after graduation. A question may be asked whether the key indicators within the student’s cooperative industry evaluation or the normal internal academic success are the best indicators of career success. The cooperative experience itself, whether it be an internship, project or industry training, forms part of the student’s career experience. Particularly, feedback from the industry supervisor may help with self-knowledge on their vocational ‘fit’. Further to the cooperative assessment and experience adding to the student’s overall career, a positive assessment from a co-operative supervisor may influence a student’s confirmation or choice of career. As Spoonley, Dupuis and De Bruin (2004, p. 73) confirm “the assessment of people’s career aspirations, interests and abilities, and the process of helping them make the appropriate choices of employment, become the cornerstone of career counseling.”

### **Conclusions**

It is intended to take this initial discussion further and collate and synthesize the industry assessment examples and cases from the different types of cooperative education (as well as the different sectors,

e.g., health, IT, sports science, engineering, etc.) and propose a common framework for industry-based assessment.

This discussion of the impact and influence of cooperative assessment primarily influenced by industry sponsor, clients and employers balanced alongside academically based assessment probably has a parallel in the divide between industry and academia. The balance between academic and industry evaluation may reflect the natural tension between the processes and priorities of the academic world and the pragmatism and priorities of the corporate/industry environment. Jacob, Hellström, Adler and Norrgren (2000) broaden this concept beyond issues within cooperative education to long-term partnerships now necessary between academia and industry in the knowledge society.

This discussion of the current and ideal industry assessment methods may allow synergies and move towards a cooperative framework for ideal industry assessment techniques and priorities. This may lead to greater equity and fairness for the student as well as providing useful career indicators for students. Academic institutes may also benefit from such an overview of industry assessment techniques.

## References

- Arthur, M.B., Hall, D.T., & Lawrence, B.S. (Eds.). (1989). *Handbook of career theory*: Cambridge, UK: Cambridge University Press.
- Beaven, I. (2006). On-job training program (Interview with Trades Section Manager). Napier, New Zealand: Eastern Institute of Technology.
- Brewer, D.J., & Gray, M.J. (1999). Do faculties connect school to work? Evidence from community colleges. *Educational Evaluation and Policy Analysis*, 21(4), 405-416.
- Chamillard, A.T., & Braun, K.A. (2002, February-March). The software engineering capstone: Structure and tradeoffs. Paper presented at the 33rd SIGCSE technical symposium on computer science education. Cincinnati, KY.
- Duffy, K. (2004). Failing students report. Nursing and Midwifery Council, London. Retrieved April 2006 from [http://www.nmc-uk.org/\(ypdy1u55z0ygtbvfuelkax55\)/afamedisplay.aspx?documentid=625](http://www.nmc-uk.org/(ypdy1u55z0ygtbvfuelkax55)/afamedisplay.aspx?documentid=625)
- Eastern Institute of Technology. (2006). Projects sponsor assessment schedules: Napier, New Zealand: Eastern Institute of Technology.
- Fleming, J., & Ferkins, L. (2005). Enhancing student employability: A New Zealand case study of cooperative education in sport. Hospitality, Leisure, Sport and Tourism Network. Retrieved 06 June 2006 from [http://www.hlst.heacademy.ac.uk/projects/employ\\_fleming.pdf](http://www.hlst.heacademy.ac.uk/projects/employ_fleming.pdf)
- Hodges, D., Rainsbury, E., Sutherland, J., & Barrow, M. (1997). Student self assessment in work based cooperative projects. In K. Eastwood (Ed.), *New Zealand Association for Cooperative Education Miniconference* (pp. 2-7). Wellington, New Zealand.
- Hopkins, S. (2005). Guidance for mentors of student nurses and midwives. Retrieved April, 2006, from [www.rcn.org.uk/publications/pdf/guidance\\_for\\_mentors.pdf](http://www.rcn.org.uk/publications/pdf/guidance_for_mentors.pdf)
- Jacob, M., Hellström, T., Adler, N., & Norrgren, F. (2000). From sponsorship to partnership in academy-industry relations. *R&D Management*, 30(3), 255-260.
- Rowley, J.B. (1999). The good mentor. *Educational Leadership*, 56(8), 20-22.
- Skelton, D., & Albertyn, F. (2004). In C. Eames (Ed.), *Proceedings of the 5th Asia-Pacific Cooperative Education Conference*. Hamilton, New Zealand: New Zealand Association for Cooperative Education.
- Smith, E., & Keating, J. (1997). *Making sense of training reform and competency based training*. Wentworth Falls, Australia: Social Science Press.
- Spoonley, P., de Bruin, A., & Dupuis, A. (Eds.). (2004). *Work and working in twenty-first century New Zealand*. Palmerston North, New Zealand: Dunmore.