

E=MC² (Education = meaningful constructivist collaboration)

Bio

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Abstract

The rush is on for increasingly faster training and education for project managers. As educators, we are told that we need more practitioners with industry training, professional certification and university degrees. No longer a career extension catered for with a diploma from the local TAFE, we now need project managers with master's degrees, doctorates (to replace the ageing baby boomers that occupy the cloisters) and more recently, undergraduate Bachelor's degrees before they have ever set foot outside the confines of a university to get a taste of the real world. And we have to do it while project managers travel to remote sites with little or no communications, and please fit it in around other commitments. Make it smaller – chunk it. Make it easier – more transportable. Be more flexible. Make it more easily digestible for a vocation that is impatient to be seen as a true profession. In this paper, the author explores the implications of project management education at the speed of light in an increasingly hectic world.

Key words: training, education, technology, distance education, profession.

Introduction

In this paper, the author examines education and training for the project management profession and the implications for what is argued by many to be an emerging profession. The context of this discussion is illustrated by the results of recent surveys carried out as detailed below. The professional bodies representing project managers are examined, as are the roles of the vocational education and training (VET) sector, the Australian government and industry in producing the future generations of project managers. Consideration is given to the likely influence of the Bradley Report (Bradley, Noonan, Nugent, & Scales, 2008) into higher education, the imminent release of the new Australian Qualifications Framework (AQF) and how all this plays out for industry which is clamouring for competent project managers – now! Project management education in universities is also considered and how they might better develop project managers with the appropriate competencies. The paper concludes with recommendations on how future prospects of the profession can be improved through a more collaborative approach to education, training and professional certification.

Setting the scene - surveys on education and professional certification

Two paper-based surveys were carried out in 2010 to gain the views of practitioners on issues related to education and professional recognition. The first survey was carried out with delegates at the PMOZ Conference in Brisbane where 34 responses were obtained (40% of the total responses received). A similar survey using the same instrument was carried out with delegates at the Australian Institute of Project Management (AIPM) Queensland branch mini-conference in Brisbane, where 52 responses (60%) were obtained. Respondents provided information anonymously on their professional or academic backgrounds, their views on education, training, professional membership, professional certification, and academic qualifications in the area of project management. Where quantitative data was sought, delegates indicated their responses on a Likert scale, and these were subsequently allocated numerical values and inferential analysis was carried out using Microsoft Excel.

Opportunities were provided to respondents to provide additional comments on the respective topics and some of these are included as anonymous quotations within this paper. A summary of the key results highlighting the contrasting views of the respective delegates is provided in Appendix 1, particularly in relation to the following:

- PMOZ delegates were significantly more strongly opposed to the provision of Bachelor degrees in project management by universities,
- Twice as many PMOZ delegates held postgraduate academic qualifications
- PMOZ delegates were significantly more opposed to a Bachelor's degree in project management being a prerequisite for full membership of the professional bodies
- PMOZ delegates were more strongly inclined to having a professional certification level aligned with a Master's degree.

Project management competency and education – a very brief history

Principles of project management have been incorporated in undergraduate engineering degrees for decades, but these have historically regarded project management as a predominantly tool-based activity with a focus on managing time, cost and scope (or other simplistic 'iron triangles') [1]. This view is rapidly changing and more project

management academic programs are now being delivered through schools of business and management such as those offered through the University of Southern Queensland (USQ), (<http://www.usq.edu.au/handbook/current/buslaw/MPRM.html#showall>).

In the 1980s, the AIPM sponsored the development of competency standards for project management which subsequently became the National Competency Standards for Project Management (NCSPM) [2]. This catapulted project management education into the vocational sector with an influx of diplomas and advanced diplomas offered by the TAFE sector and private registered training organisations (RTOs). Also, in the 1980s, the USA-based Project Management Institute (PMI) developed the Guide to the PMBOK, which was not seen as a set of competency standards, but guidelines for better management of projects. The PMBOK is now up to its fourth edition and is recognised in the US as a set of standards for managing projects [3]. It has become a de facto reference for managing projects in most parts of the world apart from Europe, but is quite different in nature to what is commonly developed by Standards Australia.

Generally, the university sector stayed well away from competency-based project management education apart from one or two who developed a for-profit entity, e.g. UNE Partnerships, to compete in this sector. The university sector focused on postgraduate educational programs as majors in engineering or science Master's degrees, or developed a stand-alone Master of Project Management program such as that offered by QUT. However, project management was not seen as a mainstream business skill set and such programs remained in faculties of engineering, construction, architecture and sciences. There are significant differences in the structure, content, assessment, duration, entry requirements and exemption policies across the universities. There is no national curriculum coordinated by a national body such as that formulated by Engineers Australia (http://www.engineersaustralia.org.au/about-us/program-accreditation/program-accreditation_home.cfm#AP2) and equivalent medical and dental bodies.

There are also independent bodies such as the Global Alliance for Project Performance Standards (GAPPS), which is an 'alliance of government, private industry, professional associations and training/academic institutes working together to develop globally applicable project management competency based standards, frameworks and mappings' (http://www.globalpmstandards.org/main/page_abo

[ut_us.html](#)). GAPPS is currently working on the fringes of the profession to develop additional competency frameworks from first principles, but these have been largely ignored to date by the professional bodies, educational institutions and industry.

Certification by professional project management bodies

Using the national competency standards, professional bodies developed professional certification frameworks to formally recognise competent project managers as an aid to industry. This resulted in the AIPM's creation of the RegPM program. Unfortunately it was restricted to a classification structured around certificate, diploma and advanced diploma level (levels 4 to 6 of a 10-level scale) in an earlier version of the Australian Qualifications Framework (AQF). This failed to reflect the actual capabilities of many of the practising project managers who had considerable formal and informal learning well above level 6. Subsequent attempts to develop certification at higher levels in the AQF have been difficult to achieve and the AIPM has now moved away from the national competency standards that it developed.

The PMI also developed the Project Management Professional (PMP) certification as recognition of project managers who are deemed to be 'professional'. Assessment for the PMP did not relate to competencies but to knowledge areas of the PMBOK and was carried out using multiple choice questionnaires, the validity of which for professional recognition has been questioned. The PMI has also developed other project management guidelines related to organisational maturity and project management competencies, as well as additional levels of certification above and below the PMP. However, these provide little in the way of meaningful guidelines for an educational curriculum for project managers.

As an academic, I receive frequent requests from people working within industry as to whether they should seek PMP certification, RegPM certification or complete university studies. Where feasible, I suggest that they obtain all three, but I always recommend inclusion of academic study to provide the underpinning knowledge and the research skills, both of which are critical for sound practice. As indicated by a survey respondent at a previous conference, "I strongly agree with your opinions regarding the need for university qualifications. I have a bachelor's degree in business and would have jumped at the chance for further project management learning."

Project management competency and education – the future

Project management qualifications at bachelor degree level are now appearing in a number of universities. However, there is no consensus on what the appropriate competencies should be for the various levels of project managers in practice across the full range of the AQF from levels 1 to 10. An endeavour to develop competencies for 'complex' project management by the International College of Complex Project Managers (http://www.bus.qut.edu.au/corporate-education/open-programs/documents/Complex_PM_v2.0.pdf) met with little support from professional bodies, practitioners nor educational institutions. There is little evidence that any meaningful mapping of curricula to those competencies has taken place, including in the Executive MBA in Project Management offered by QUT which professes to use those competencies. The support of the Defence Materiel Organisation and the International Association for Complex Project Management has done little to gain acceptance for these competencies in mainstream project management.

Unlike other recognised professions, there is no major professional body in Australia coordinating the development of the future educational framework for the project management profession. Based on the Bradley Report [4], the Australian government is encouraging and directing universities and the vocational sector to work together more closely, and to achieve improved pathways into and across higher education programs in the vocational and university sectors. This has seen the expansion of formal articulation pathways from VET qualifications such as diplomas to university degrees. Universities such as USQ now provide credit for one year of a Bachelor of Business degree for a Diploma of Project Management gained at a TAFE or an approved RTO. To date, universities have limited the provision of exemptions into postgraduate programs based on undergraduate studies, and with the advent of the Tertiary Education Quality and Standards Authority (TEQSA) in 2012, that is unlikely to change under the new AQF.

Changes looming in the higher education sector

In some instances, universities and TAFEs are joining together to become dual sector institutions [5] which 'could redefine the tertiary education sector in regional Victoria' [6]. Existing dual-sector institutions include University of Ballarat, Swinburne University of Technology, Royal Melbourne Institute of Technology, Victoria

University and Charles Darwin University [7]. Central Queensland University and the Central Queensland Institute of TAFE have also announced plans to amalgamate into a dual-sector institution. The integration of universities and VET-sector institutions will help to break down the barriers between competency-based educational and certification programs and the higher education programs offered through universities, and provide better integration as project management studies appear as degree programs.

Created as a recommendation of the Bradley report TEQSA will commence in 2012 (<http://www.deewr.gov.au/HigherEducation/Policy/teqsa/Pages/Overview.aspx>) and will work towards ensuring tertiary institutions' compliance with the AQF. Hopefully, this will provide some consistency in the structure of postgraduate project management programs in terms of entry requirements, structure, volume of learning, pathways, recognition of prior informal and non-formal learning (including workplace learning), articulation and assurance of learning outcomes. Some postgraduate project management programs will become longer, up to 2 years, depending on the interpretation of the AQF and pathways policies by the educational industry and TEQSA.

Recognition of prior informal and non-formal learning will be a contentious issue that is open to broad interpretation. This should lead to more appropriate recognition of informal workplace-based learning during the transition stage in which few practitioners have formal academic qualifications in project management. This is reinforced by the comments of a survey respondent who indicated that "most of what I have learned to perform my role has been on the job - highly undervalued I suspect." Any argument that on-the-job training is sufficient for professional development prolongs a denial mentality that professionalism does not require academic qualifications. This is reinforced by the comment of a survey respondent who suggests that "the big issue today is that most existing project managers come in after specialising for years in other fields, and so rightly or wrongly, feel that they have earned the right to be recognised project managers through this baptism of fire."

Research and doctoral studies

Research is critical for the development of any profession [8], but industry is reluctant to provide funding for project management-related research into practice. This is evident in the quality of project management research, the number of Australian Research Council (ARC) and equivalent research grants in the discipline, the standard of journals and conferences in Australia, and their

ranking up to June 2011 (at which time rankings were no longer considered) by the Excellence in Research Australia (ERA) - whose mission is to 'to deliver policy and programs that advance Australian research and innovation globally and benefit the community' (<http://www.arc.gov.au/default.htm>). Apart from PMOZ, which had a 'B' ranking (in a scale from C to A+), few project management conferences in Australia had a high ranking with ERA. Australian journals had low or no ranking with ERA so research has been driven to publications in other countries which demand research into topics of interest to their audience, not necessarily to those of value to Australian project managers. This has been highlighted by the changes to the ERA rankings to protect Australian-based research of national interest 'that was in danger of being lost as researchers were forced to aim for A* and A journals, often based internationally' [9].

The necessity for formal research components in postgraduate programs is an ongoing concern with anecdotal evidence of a high proportion of students failing to complete the research component of such programs. Conflicts between research-based and coursework programs also lead to confusion in relation to pathways to doctoral programs from coursework Master's programs. As a result, there is only a small number of students undertaking research into project management practice, which does not raise industry's regard for academic graduates, as illustrated by the views of a survey respondent who suggests that there is a "need to be mindful of academia taking a hold on the profession. Some of the best project managements I have worked for did not have a bachelor degree."

The cost of doctoral studies is a considerable deterrent for most graduates of Masters' programs, who are encouraged by universities to undertake professional doctorates which are fee-paying and quite expensive – almost up to a year's salary in addition to the opportunity costs of the time required (up to six years part-time). In contrast, PhD programs can be government funded through Research Training Scholarships (RTS). PhD graduates can also compete in the academic workplace whereas graduates from professional doctoral programs, who focus on workplace-related problems, are excluded by most universities from academic positions. PhD research provides a valuable contribution to the body of knowledge and the development of theory, but rarely helps industry directly so funding is difficult to attract.

Professional recognition of academic programs

The PMI has a Registered Education Provider (REP) program (<http://www.pmi.org/Professional-Development/REP-What-is-a-Registered-Education-Provider.aspx>) to register private, public and institutional providers who deliver programs that conform to the PMBOK structure but there is no recognised curriculum framework to provide guidelines. For the PMI, the criteria relate more to ensuring a rigid focus on the PMBOK and it is reluctant to recognise broader bodies of knowledge that would be more appropriate for senior project managers who have a greater need for generic skills such as leadership, decision-making, problem solving, communication and critical analysis.

PMI has also established the Project Management Institute Global Accreditation Center for Project Management Education Programs (GAC) which 'accredits degree programs at the bachelors, master's and doctorate levels in the field of project management which are offered within accredited institutions of higher education worldwide'. Hopefully this will also help to improve the consistency of university providers of project management programs across all levels of the AQF.

The AIPM also has a program to endorse project management programs in Australia but the guidelines are relatively limited and again, conformity with the PMBOK is seen as an acceptable criterion, rather than skill-sets that would be expected of managers operating in senior levels of organisations.

Who's training the trainer?

Surprisingly, few project management academics in universities appear to have formal qualifications in project management and few have managed a major or even significant project in the workplace. Few academic staff have doctoral qualifications, and if so, rarely in project management. This contributes to the perception in industry of the questionable value of academic qualifications for prospective employees in contrast to the perceived value of professional certification. This probably flows from the convention that for membership of most professional bodies, the expectation is that members will have formal academic qualifications in that discipline, such as engineering, architecture, medicine, dentistry, valuation, town planning and others. There are changing views on this issue as indicated in Appendix 1.

Academic staff who deliver project management programs have come from a wide range of allied industries such as engineering, construction, information systems and science, and many are baby-boomers who are approaching retirement. This adds to the challenges of developing highly-

qualified academic staff who can lead meaningful research into project management fields and achieve the respect from industry that is required for academic qualifications to become the expected norm for a maturing industry, rather than the disputed and irrelevant exercise that is so common in the field today. Those views are illustrated in Appendix 1. As a result, there are limited efforts to encourage experienced practitioners into academe to lift project management education to its next level of professionalism. This is in contrast to a view of a survey respondent who believes that “The highest level of membership on any professional organization should include a requirement to give back to the profession.”

Project management in the workplace

There is considerable anecdotal evidence from job advertisements to show that industry is seeking workers with project management skills across all ranges of job types and levels, from the factory shop floor to the boardrooms of large institutions. However, industry does not know what the essential skill sets are nor where they are developed. It tends to work with professional bodies and professional certification programs rather than with universities whose role in society is to develop professions with an appropriate underpinning knowledge based on research and development of theory. The problem with the first approach is that certification programs are reactive and retrospective, recognising or rewarding what has been achieved in some unknown and ad hoc fashion, often against the odds, rather than promoting the proactive development of predefined competencies in a structured and proven fashion. The need to reconsider the nature and structure of certification programs is illustrated by the views in Appendix 1 which reveals a growing expectation that certification levels will reflect higher academic levels of education.

Through private, public and educational organisations, project management training and education is offered to individuals and industry as award and non-award programs. However, some are of dubious value to the profession as some providers fail to meet acceptable standards and the private VET sector in particular has been advised to clean up its own house before TEQSA and any VET-sector regulatory body commence operation [10]. There are numerous anecdotal and confirmed instances of RTOs providing qualifications in time frames that undermine the credibility of VET sector programs including where ‘accredited diplomas of management can be gained in four days’ and ‘the advertising of such “fast track” courses suggested the area was potentially open to roting’ [10].

To accentuate the difficulties in obtaining relevant training and education, project managers are often working from remote locations both nationally and internationally with limited or inadequate communication facilities. In such situations, access to technology is critical if project managers wish to undertake any form of professional development through formal training or education. Few institutions are structured and resourced in a way that students’ needs can be met to ensure that learning outcomes are meaningful. This need for flexible access to learning is illustrated by the increasing numbers of aspiring project managers studying through distance education at USQ where hundreds of students are enrolled at any time.

There is little consistency across or within industry sectors on how projects are managed and there is little consistency in the use of terminology nor definitions. Project management methodologies are developed in-house by each organisation so transferring practices is difficult and staff require greater learning curves when moving from organisation to organisation. Generic project management methodologies such as Prince2 (<http://www.prince2.com/>) are often imposed on organisations that are unsuited to such-methodologies, such as seen in the Queensland State Government where a whole-of government move to adopt Prince2 has placed questionable demands on project managers who have little or no need for heavy-weight methodologies when the majority of projects are of minor scale or complexity.

Because of their global focus, international organisations appear to favour PMI certification and PMBOK-focused practices, whereas Australian-focused organisations tended to support AIPM RegPM certification and the NCSPM. Anecdotally, it seems that PMI certification is favoured in some industries such as information systems because of the US derivation of such companies, whereas AIPM certification is favoured in other industries such as Defence, where the Defence Materiel Organisation (DMO) has developed a Project Management Certification Framework around the NCSPM and the RegPM certification levels.

Project management at the speed of light?

In reality, it simply won’t happen in the field of education and training for project managers. There are too many divided views on what is best for the profession, as in most cases it detracts from what is best for the individual. RTOs are unlikely to recommend university education as the foundational basis for developing truly competent project managers. Professional bodies are unlikely

to give up revenue derived from professional certification as their recommended badge of professionalism. Individuals with years of experience are unlikely to bow down to younger project managers who have university qualifications but little in the way of lessons learned in the school of hard knocks or 'baptism of fire'. Universities are unlikely to change their ways of delivering education and evaluating learning outcomes, with little or no practical element incorporated into educational programs. Industry is unlikely to differentiate where their project managers come from, as long as project objectives are met. They will be content to let the other stakeholders battle out for supremacy in the turf wars on professionalism.

Recommendations for change

For the project management discipline to take positive steps towards the future, the existing professional bodies, the broader community of practitioners, education and training bodies and universities must work together to implement longer-term strategies to align their common interests, including:

- Identifying holistic, meaningful and practical educational and training frameworks that foster the development of truly professional project managers,
- Working collaboratively to define and endorse a curriculum, assessment models and graduate attributes that reflect true professional capabilities at the respective stages of project management careers,
- Recognition that formal undergraduate and postgraduate qualifications in project management should eventually form the basis of full membership of the professional bodies, with an option for alternative experience-based evaluation models administered by an independent body. This recommendation is in line with the view of a survey respondent who suggests that "...for project management profession to becoming recognized, formal qualifications must be part of the requirement."
- Better articulation between programs delivered by RTOs, TAFEs and universities and sound guidelines for recognition of prior learning, to eliminate unnecessary overlap between educational pathways,
- Encouraging greater uniformity between the programs offered by RTOs and TAFEs to ensure that learning outcomes are similar and of an appropriate standard,
- Helping universities to develop undergraduate programs in project management through greater recognition of the value of tertiary education,

- Formation of an industry body to encourage development of a uniform curriculum framework that can be openly shared across all universities and training bodies,
- Improving processes and criteria for recognition and endorsement of educational and training programs by all providers to ensure that they are of a professional standard,
- Re-structuring of professional certification models to align with a greater range of levels within the new Australian Qualifications Framework, and
- Encouraging universities to capture the knowledge and expertise of experienced practitioners through full-time and part-time careers in academe that are recognised and highly respected within the project management community.

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Appendix 1: Summary of results from survey of PMOZ and AIPM conferences

Survey question	PMOZ (%)	AIPM (Qld) (%)
Delegates who were members of PMI	52.9	13.5
Delegates who were members of AIPM	29.4	73.0
Members of both bodies	11.8	13.5
Members of another professional body	14.7	7.7
Delegates who held PMI certification	32.4	7.7
Delegates who held AIPM certification	20.6	51.9
Delegates who held PM qualifications from Cert IV to Diploma	47.1	63.5
Delegates who held Bachelor's degree related to project management	2.9	1.9
Delegates who held postgraduate qualifications related to project management	38.2	19.2
'Very strongly' opposed to universities offering Bachelor's degree in project management	11.8	0
Overall proportion of delegates who 'disagree'	23.5	13.5

with universities offering Bachelor's degree in project management		
Overall proportion of delegates who 'agree' with universities offering Bachelor's degree in project management	55.9	73.1
Overall proportion of delegates who 'agree' with universities offering project management majors in non-project management degrees	85.3	92.3
Built environment as a discipline in which project management should be provided as an area of specialisation	52.9	76.9
Delegates who 'very strongly disagree' or 'strongly disagree' that Bachelor's degree related to project management should be a prerequisite for full membership of professional	38.2	23.0
Overall proportion who agree that Bachelor's degree related to project management should be prerequisite for full membership of professional body	20.6	34.6
Overall proportion who agree that a class of membership should be provided to recognise members with Bachelor's degree related to project management	32.4	23.1
Overall proportion who agree that a level of professional certification should align with a Bachelor's degree	58.8	65.4
Overall proportion who agree that a level of professional certification should align with a Master's degree	55.9	44.2