

A Study of the Skills of Construction Project Managers in Australia and Their Needs for Training and Certification

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Abstract

Project management as a discipline began in the late 1950s, primarily in the engineering and construction industries. Project management processes are being increasingly implemented to improve project success rates. This study investigates the current construction project managers in Australia, in terms of their skills, constraints and their needs for training and certification. This study also looks into the outcomes of construction industry projects in Australia managed by certified professional project managers, and comparing them to project outcomes to non-certified project managers. A questionnaire survey was developed based on findings from carrying out the literature review. Nine project managers at senior levels were also interviewed to refine the initial findings from the survey.

The results showed the ranking of top 5 essential attributes and 5 potential constraints of project managers. There is no major difference in rating the success criteria or project success between certified and non-certified project managers across all projects. Both non-certified and certified project managers deliver their projects to their clients' expectations. It emerges that there is less demand for a project manager being certified in Australia, which enables them to work as superintendents with their original trained skills. Registered project managers are only needed when or if the client so demands.

Keywords: Project managers, skills, constraints, certification.

Introduction

Project management involves the discipline of planning, organising and managing resources to achieve specific goals. Currently project management has proved its worth beyond the construction, information systems, health and manufacturing sectors (Wirth 1996). White and Fortune (2002) have defined as a domain for both the exercise of professional expertise and academic knowledge. Barber (2003) expressed the view that project management has changed substantially from its traditionally specialist character to now include numerous senior and middle managers. This change has resulted in a huge variety of project managers in both the public and private sectors working for many different types of organisations.

Many studies have demonstrated that most project failures are due to not meeting the designated time and budget goals, or failing to satisfy customer or company expectations (Sausser et al. 2009). Project success means not only just completing on time and within budget goals, but also taking into account future concerns for the business. These authors

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also stated that many researchers have tried for years to find the reasons for project success or failure; the search for critical success factors is one of the most common approaches.

Projects succeed or fail for similar reasons such as, project mission, planning, communication, politics, control, senior or top management support, technical tasks. The researcher's objective is to identify these reasons. Client satisfaction, perceived quality of output and implementation process factors are the three primary means of determining whether failure did or did not take place. The major contributor is client satisfaction as the causes of failure varied more when client assessment was used to determine failure (Jeffrey et al.1990). Hence the importance of the project manager came into play.

If a project task is assigned to a project manager who lacks experience or skills, project success will potentially be compromised. These issues could put the project at risk due to the lack of suitably qualified personnel (Barber 2005). Hence the individual project manager should be clear about career expectations and know-how (El-Sabaa 2001). The key factor on the successful project manager career path is having a qualification that is aligned with relevant career path levels and a sense of progressive continuity in the organisation that he or she works for (Holzle 2010).

However, not everyone can become a project manager. Project managers require outstanding behaviours to lead to the best possible outcomes. Fisher (2010) suggested specific behaviours for each skill need to be applied by project managers to make these skills truly effective. Knowing the skills and understanding the problems, project managers also need to develop a good project strategy before the project commences. By implementing of differentiation, operational and quality strategies, project managers may improve project outcomes in terms of schedule, quality, and innovation performance. It is important for the project team to provide customers with high value products so that their relationships with customers are consolidated (Yang, 2012).

This study aims to address the competency of construction project managers in Australia and the objectives are to capture their skills, constraints and the need for training and certification. This will include the most important project management skills that a project manager must possess, and whether any additional skills or issues should be obtained in the rapidly changing economy of the twenty-first century. Every client or developer would like to see project success and therefore choosing an appropriate project manager will interest those who play a role in the selection process.

Project Management Standards

The International Organisation for Standardisation (ISO) defines a standard as a 'document established by consensus and approved by a recognized body that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context' (ISO 1996, p1). According to Ahlemann et al. (2009, pp.293), 'standards may be regarded as socio-economic constructs reflecting a balance of perspective between stakeholders. They spread by market exclusion or joint modification. For a standard to be really beneficial it is important that the group of stakeholders accepting this standard is as large as possible. This may be explained by the network effect theory, since each additional stakeholder applying a standard makes it more useful for the rest of the community.'

Over the last decade, Project Management Standards (PMS) have increased significantly. Crawford (2007) addressed PMS in three areas, i.e. project, organisation and people:

- Projects - knowledge and practices for management of individual projects
- Organisations - enterprise project management knowledge and practices

- People - development, assessment, and registration/certification of people

Traditionally, many construction project managers begin their careers in a technical field and because of their experience and skills; they would be assigned management roles in their projects. As project management develops and becomes recognised, there are a number of institutions and associations established to promote education, professional accreditation and the compilation of project management body of knowledge as standards. These standards form the basis of training and the certification of project managers. Nowadays, there are many academic programmes available from training providers, vocational colleges and universities. Below is a list of common project management body of knowledge developed by institutions:

- PMBOK Guide - Project Management Institute (PMI)
- APM Bok - Association of Project Management (APM)
- Professional Competency Standards - Australian Institute of Project Management (AIPM)
- IPMA Competence Baseline (ICB) - International Project Management Association (IPMA)
- PRINCE2 - first established in 1989 by Central Computer and Telecommunications Agency (CCTA)

As illustrated by Burke (2010, p50), the PMI's Project Management Professional (PMP) is a certificate programme, which measures explicit knowledge directly through a multiple choice test, and a tacit knowledge and skills indirectly by assessing the candidates experience. The knowledge based test is based on the PMBOK Guide. However, in Australia, the certificate program is a workplace competence based process which assesses a person's ability to perform. There are four levels of certification namely certified practising project practitioner, project manager, project director and portfolio executive. The AIPM does not produce its own body of knowledge but instead the competency standards have been based on a number of national and international project management standards such as AIPM standards, APM standards and PMI standards (AIPM website). From the researchers' point of view, the competency standards endorsed fully the principles of PMBOK Guide. Currently there are over 10,000 members in Australia.

Project Management Institute's A Guide to the Project Management Body of Knowledge (PMBOK® Guide, PMI), is the most standout distributed of a number of body of knowledge guides to offer a general standard to manage most projects most of the time (Crawford 2007). The Fifth Edition (2013) of PMBOK is the latest document resulting from work overseen by the PMI that provides guidelines for managing individual projects and defines project management-related concepts, and the project management life cycle and processes. This particular edition addresses 47 processes that fall into five basic process groups identified as initiating, planning, executing, monitoring and controlling, and closing. This latest edition explained ten knowledge areas that are typical of almost all projects that contain the essential processes that need to be accomplished and in essence show that a project management program has been effective:

1. Project Integration Management
2. Project Scope Management
3. Project Time Management
4. Project Cost Management
5. Project Quality Management
6. Project Human Resource Management
7. Project Communications Management
8. Project Risk Management
9. Project Procurement Management

10. Project Stakeholder Management

Apart from the major inclusion of a new knowledge area of stakeholder management, there is also a new appendix of interpersonal skills to signify the importance of these skills to project managers.

Project Manager

The project manager is the professional who is responsible for completing the project and project management would not exist without the project manager. Blackburn (2002, pp.5) concluded that 'adding a project manager to a project (not uncommon: organizations do not know how early they should initiate a project, and the project manager is often brought in late) is like introducing a sheep dog to a field full of wandering sheep'. Furthermore the project manager is the communication hub for most reports, requests and complaints. The successful project manager is able to imbue team spirit and confidence that drives the team toward excellence or when the project becomes stressful and frustrating. Nicholas (2012) also stated that the project manager is ultimately accountable whether the project succeeds or fails.

In the delivery of successful projects, certain knowledge, skills and personal attributes are required for a project manager to be effective. This refers to the project manager's competence. Their competence is clearly a vital factor in the success of projects, yet it remains a quality that is difficult to quantify (Crawford 2000). The authority of the individual project manager depends on the status of the particular project and their reputation and influencing skills.

The role of the project manager is changing from being an administration position into a much more managerial one. Holzle (2010) agreed that capabilities and competencies are required for project manager. As suggested by El-Sabaa (2001), human skill is primarily concerned with working with people. By developing high level human or interpersonal skills, the project manager will be sufficiently sensitive to the needs and motivations of others in his or her project when communicating through behavioural norms what has to be achieved in certain contexts. He found that the human skills of project managers have the greatest influence on project management practices rather than technical skills.

Knowledge, skills and personal attributes of project managers are the factors that contribute to completion of successful projects (Crawford (2000). Competent project managers are those who consistently deliver, on time and within budget, projects that meet or exceed stakeholders' expectations. Understanding of leadership principles and people skills are even more important to good project management. Muller et al. (2009) concluded that developing the project managers' leadership styles so that these target profiles are achieved will contribute to better project results and the personal success of individuals. Thus leadership competencies should be taken into account when assigning project managers to projects.

Dolfi et al. (2007) agreed that the important contributor to an organization's ability to achieve its strategic goals is competency of the manager. Dolfi et al. (2007) pointed out that success in project management is dependent on many variables, the most important being leadership and interpersonal skills. Muller et al. (2005) found that competency can be segregated into a number of classifications, such as leadership being a managerial competency imbued with personal characteristics. They concluded that successful project managers must have emotional intelligence such as self-awareness, emotional resilience, motivation, sensitivity, influence, intuitiveness and conscientiousness rather than being a pure tactician. Knowledge of project management tools and techniques are built upon and enhanced by the managerial skills, personal skills and learning skills (Blackburn, 2002).

According to Pant et al. (2008), the focus of most project management training has been on the technical skills (time, cost and quality) deemed essential to achieve project success because technical skills are easier to deal with when compared to the more difficult areas of soft skills. They concluded that project management practices need to emphasize training and relevant education for up and coming professionals. Regarding the career path, the project manager needs to be clear about expectations of competencies and know how to acquire them (El-Sabaa, 2001). The personality of the project manager strongly influences the decision concerning which career path to choose (Tremblay et al. 2002) and how to succeed in a project management work environment.

Holzle (2010) found that the qualification of the project manager has to be aligned according to the chosen career path levels. Project managers who are able to develop the appropriate knowledge and skills described in this thesis would position them for future career success. He suggested the needs of providing the continuity development to project managers by their organizational recognition and the needs of supporting project organization by project managers.

PMP qualification is used here as an example for illustration. PMI established a professional certification exam in 1984 that led to Project Management Professional (PMP) certification. PMI became the first organization in its field to attain International Organization for Standardization (ISO) recognition in 1999.

To be eligible for the Project Management Professional (PMP) credential, professionals must meet specific project management knowledge and work experience requirements. The value of project management certifications is hotly debated in terms of whether: firstly, certifications make better project managers; and secondly, projects staffed by certified project managers are more successful than projects without PMPs. Starkweather and Stevenson (2011) concluded that PMP certification is a necessary, but not sufficient factor affecting project management success. Certification should be viewed as more than a paper chase; a more relevant curriculum and experiential knowledge base must be developed.

Muller and Turner (2007) maintained that project management certification does mean that projects will be executed well. The project manager, who has a track record of good projects plus a certification, strongly indicates a high performing professional. They found there is no difference in rating the success criteria or project success between certified and non-certified project managers across all projects. Many organizations are using PMI as an entrance requirement when hiring project managers.

Questionnaire Survey

In order to achieve the aims of this research, an anonymous questionnaire was developed based on the abstracts from various literatures. A total of 36 variables were identified and respondents were requested to rate their relative importance based on a 5-point likert scale:

- 15 attributes regarding the essential skills of project managers.
- 9 constraints the project managers have to overcome.
- 6 success criteria to compare the percentages between certified and non-certified project managers.
- 5 education levels to determine the education level of project managers.
- 1 level regarding the importance of being a certified project manager

The questionnaires were distributed to various construction professionals from the work-related network of the researchers. A total of 77 survey invitations were sent by

electronic means. A total of 57 completed answers were received, making a total response rate of 74% which is considered quite high.

- Of the total sample, 86% participants have over 7 years of working experience in the construction industry while 14% participants have over 3 years of working experience.
- The results indicate that the top 5 skills that project managers should have are: communication skill, decision-making skill, leadership and motivation skill, listening skill and time management skill.
- The top 5 constraints that project managers have to overcome are: poor communication skill, poorly defined goals and objectives, misunderstandings, stakeholders and senior Management in their organizations.
- 52 out of 57 (92%) participants responded to the success criteria rating against the non-certified project managers. Client satisfaction is the top of the list, followed orderly by budget, schedule, quality, client business and lastly the contractor satisfaction.
- 55 out of 57 (96%) participants responded to the success criteria rating against the certified project managers. Client satisfaction is the top of the list, followed by orderly schedule, client business, budget, and quality and contractor satisfaction.
- The importance of education level for a competent project manager is in order of bachelor degree, diploma, high school, master degree and PhD.
- 36.84% believe it is of medium importance for a project manager to have a professional certification, while 29.82% believed it to be of high importance.

Interviews

In order to clarify and refine some of the findings from the survey results, 9 structured interviews were conducted. All participants hold senior positions in the construction field and they have at least 20 years of experience in project management. Their profiles and answers were summarized in the Table 1 below:

Regarding the definition of project success based on time, cost and quality, all interviewees answered 'no' to this question. They said that it was only the success criteria of the company. Other contributing factors such as people (team work), innovations, safety, and engagement of client for the next project cannot be neglected. When it comes to the project performance, the interviewees commented that there is no major difference between the certified and non-certified project managers because they work and achieve things in similar ways. In their opinions, technical experience and skills from their original background can compensate for this shortfall in paper qualification. According to the findings, it showed that it is not essential to have a professional certification for project managers in Australia. It is beneficial but not essential. Certification is, however, add value to project managers in terms of employment opportunities or where the client so demands for it.

With reference to the future career of the project manager, all interviewees recommended graduates or tradespersons should work their way up from the ground and develop technical expertise with more education and training. Most large organizations offer leadership and training programs. They develop a training framework matrix so that employees can advance in their careers. Small organizations generally do not have the resources to do so. In Australia, most universities offer project management programs at a post-graduate level but they do have undergraduate degree programs in construction and engineering where there are curriculums of construction project management components.

Table 1. Summary of Interviews

Participants	Education level and (professional qualification)	A project is a success if within time, cost and quality	In terms of project performance, is there any major difference between certified and non-certified project managers?	As project manager, is it essential to hold a professional certification?	However, is project management training necessary?
1	TAFE (none)	No	No difference	Yes	Yes
2	Degree (member)	No	No difference	Yes	Yes
3	Degree (member)	No	No difference	No	Yes
4	Degree (member)	No	No difference	No	Yes
5	TAFE (none)	No	No difference	No	Yes
6	Degree (fellow)	No	No difference	No	Yes
7	Degree (member)	No	No difference	No	Yes
8	TAFE (none)	No	No difference	Yes	Yes
9	Degree (member)	No	No difference	Yes	Yes

Conclusion and Recommendations

The study looked at the career development path for project managers in Australia by assessing their essential attributes and competencies. It also set out to define project success and having a certified and non-certified project manager made any difference. Project managers must have good communication skills because they are the main communication hub for most construction reports, requests and complaints. They must know how to effectively liaise with internal and external stakeholders. It is evident that technical skills are not so important.

There is no difference in rating the success criteria or project success between certified and non-certified project managers across all projects. Both non-certified and certified project managers deliver their projects to their clients' expectations, particularly in terms of budget, time, and specifications. When they do this then they are better able to maintain and enhance their relationships with the client should future contracts arise. Having extensive years' experience indicated a wider exposure of project managers to many different project phases, experiences and the number projects. The major outcome of this study is that although time, cost and quality are common perceived criteria for project success, these are not complete in its entirety. Other contributing factors such as people, relationship with stakeholders and processes should not be underestimated. In terms of career development, project managers should find it beneficial to have a certification that is recognised in Australia. Certification is recognised globally as having achieved specified

educational and professional credentialing standards. Certification adds more value in terms of seeking opportunities of employment in the construction industry.

Experience has shown that the selection of the project manager with necessary skills is an important appointment which can influence the success or failure of a project. It is this person who integrates and co-ordinates all the efforts from the consultants, contractors and stakeholders with the aim to achieve project objectives. The recommendations concerning the career path of project managers are as follows. A university education qualification is essential for Australian applicants who want to work as registered project managers. They should also have as many years working in the field as possible so that they have a wide exposure to all project management phases and the challenges that can arise.

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