

The Association of Project Management Certification with Personal and Project Outcomes

A report on a pilot survey by Gary Klein and Surbhi Jain
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Twenty years ago, colleagues and I started collecting survey-based data on project management success, focusing on the Information system context and examining a number of factors including a variety of environmental conditions, development methodologies, risk traits, and project team capabilities. Many of these data collections included targeting project managers, team members, users external to the team, functional management, and direct representatives of ownership. When project managers were involved, one demographic question usually asked of them was whether or not they held a certification in project management that was based in knowledge.

The presence of a project manager leading a project and holding such a certification from a major professional society was thought to be an important factor to control when determining associations among project variables. That assumption turned out to be wrong. We never found any relationship between the project manager holding such a certification with any other measure of the project, including methodologies applied, risks encountered, or degree of project success. However, none of those studies were designed to study the value of holding a project management certification from any agency to the project, the individual, or the organization, so we made no claims about this unanticipated lack of association.

Yet in those 20 years, pursuit of certification has flourished. In that time many organizations promoted training-based certifications and professionally-assessed certifications in project management (this survey focuses upon the latter). And now, additional certifications are now offered by providers of project management certification. Claims about the value of certification changed frequently on the webpages of professional societies that now consider knowledge-based exams as the primary indicators for certification, to where now (October 20, 2010) you readily find hints of higher salaries and marketability when previously claims of substantial benefits to the person, project, and organization were all highlighted.

This may be due to a segmentation of the certification market or one of many other factors. For whatever reason, the questions still remain as to why one would want to pursue professional certification in project management or why should an organization wish to hire someone with such certification to lead a project? Given there are costs to pursuing and maintaining certification and implications in making hires, benefits should also exist for the individual and organization whether tangible or intangible. With this in mind, we begin to explore the association of select benefits of professional certification, with a focus on a common knowledge-based exam certification.

In particular, we model several variables that might explain the benefits of professional certification to include individual rewards, personal reputation, and traditional considerations of project success (meeting budget schedule and scope). These outcomes are tested for relationships to certification, attitudes about certification, and several control factors that include the degree of virtualization and size of the project. The variables were measured by an instrument developed for the study and targeted to members of *asapm*. A limited sample restricted the analysis and conclusions that could be drawn, but interesting trends are present in the results.

Certification per se is not associated with any increase in personal rewards or project success, but does associate with one's increased reputation within an organization. However, a *positive attitude* about certification and active promotion of professional certification does associate with higher rewards and performance. We speculate that enthusiastic support for the discipline of project management reflects on your professionalism and desire to achieve competence that strongly associates with desired outcomes. The process to reach this conclusion is described in more detail in the remainder of this article, as are supporting documentation, more detailed results, and an exposition of the limits of the study and where we go from here.

For the remainder of this article, we discuss the survey completed by 51 members and friends of *asapm*. The survey was designed to consider a number of variables that are might be influenced by certification while controlling for a number of other factors that may lead to project success or individual attainment. Due to the sample size, only limited conclusions are drawn, and even those still require further evaluation with larger samples to be tested against competing explanations. Still, the results do provide support of previous results that show no rewards or improvements to performance due to attaining certifications (at confidence intervals above the 95% level).

CERTIFICATION

One major problem of determining the value of certification is that there are many individual meanings and motivations behind the concept. One of the more important aspects of certification from an individual's perspective is the pursuit of professional excellence. This common view takes certification as one component of a large drive toward promoting success for self, peers, and the organization. Pursuing certification runs parallel to continual improvement and learning, with an actual certification being a reflection of professionalism rather than an end to itself. Others may pursue the certification in order to gain an advantage in the marketplace and view it as a wholly independent event. This suggests that we take two views of certification in any study, one being the attainment of certifications, the other being an active enthusiasm for the advancement of project management reflected by avid support of certification.

Societies that support project management also take different views in how certifications can be earned. Certifications can be based on knowledge, experience, competence, performance, or some combination with knowledge typically the lowest common denominator, followed by experience then competence, then performance. Most academic research agrees with this hierarchy. The examinations for various organizations and the multiple levels of certifications that can be pursued often differ in their approach to certification. However, the sample collected during this study did not allow for a check of the differences among those, leaving this distinction entirely to other studies.

Just what should we expect, then, of a project manager who holds a knowledge, exam-based certification in project management as opposed to one who does not? At the individual level there should be some reward, either tangible or intangible, associated with monetary considerations, job status, and personal satisfaction. Organizations should complete projects that more closely comply with goals regarding the budget, schedule, and deliverables. Further, it is well established that recognitions awarded to individuals leads to a substantial increase to personal reputation that lead organizations to rely on that individual as a "go to" source. This tends to be a mutual benefit to both individual and organization. These concepts then come to represent rewards, project success, and reputation as potential benefits to be realized from having a certified individual as project manager.

All of this leads to the design of the study. All the detailed academic junk needed to maintain scientific validity appears as an appendix to this note should you wish to delve into that aspect. In brief, recent request was sent to all members of *asapm* to complete a survey about certification. Certification measures and psychometric measures were collected for the primary variables of interest: certification, certification enthusiasm, personal reputation, intrinsic and extrinsic rewards, and project success. We were careful to include other factors known to influence the variables of interest as a control of the study. These controls included the influence of project size on project success, that certifications awarded truly reflect education and experience, and the recent trend that project teams virtually connected create problems beyond those where the team is collocated.

RESULTS

Regarding personal rewards, certification enthusiasm significantly increases the rewards that individuals perceive to receive, and no other variable is significant. Though both certification and virtualization are positively related to rewards neither is significant in this sample. Not unexpectedly, broadcasting your views regarding the importance of professional knowledge and experience are more important than having actual certifications. How you manage that image is how you reap the rewards. An enthusiastic supporter of project management knowledge will generate a positive image that holds more value than does something to hang on the wall.

This should not surprise, as long as decisions regarding raises, job assignments, promotions are made by management who have contact with an individual, then rewards are likely to follow the one who displays the merits of professional knowledge and experience outwardly. What is not said or shown by the data (because it was a nuance not designed into the study) is that being certified might be viewed as one who practices the preaching, providing credibility to an image.

Project success is in a similar situation: Actual certification is not significantly related to success. However, the enthusiasm about PM certification is a better predictor of project success than any other variable, and the only one that shows statistical significance in the sample collected. Let us repeat that comment, for emphasis: Certification is not a predictor of success. One who is enthusiastic about professionalism and reflecting the knowledge and experience of professionalism leading a project is what is important. Certifications based on competencies rather than knowledge may alter this as they likely are more reflective of essential leadership traits.

Reputation reverses the importance of the two certification variables. In this case, the achievement of certification is a stamp of approval. It stands as something that can be sought out in an organization to find desired knowledge and experience, both of which are important indicators of whether one holds certification or not in this sample. When someone is sought out for assistance, it is often not those familiar with the individual. In that case, certification is important as would be word of mouth endorsements or any other backing not derived from direct exposure. When reporters vote baseball players into the hall of fame, it is not based on watching the player for 20 years as much as the batting titles, MVP awards, and other “certificates” that form the basis of opinion.

CONCLUSIONS

Of course, all these results must be taken within the constraints of the study. The sample size is small, but does have enough power to draw certain conclusions. The variable of certification is based primarily on possessing a certification based solely on knowledge and experience, while other certifications relying on competences might yield different results. The biggest concern is that all items are reported by common respondents, while studies that can draw perception variables from one source and success measures from a different source are more reliable. However, the results mimic those found in a history of data collection efforts which adds to the credibility of the results and the sample is steeped in knowledge of project management and in the evaluation of project success.

Within the limitations, project management certification of project managers based on exams does not serve to predict whether a project will be more successful or not. Instead, it is the attitude of professionalism displayed while actively supporting these certifications that serves to predict the success of the project as well as of the individual. This has implications for organizations: Don't hire, reward, or make assignments on the basis of a certification. Follow the judgments that can be made during the interview process and base decisions on a record of accomplishment as well as indications of leadership ability that surface from interactions. For individuals we cannot in good conscience tell you to forget a certification.

Organizations will likely still take that as a factor into consideration, but even more importantly it is a component of walking the talk. It will be a difficult sell to convince others of your sincere dedication to the profession and to quality performance of your job if you do not show support for certifications.

ABOUT THE AUTHORS

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BIBLIOGRAPHY

Fertig, J., Zeitz, G., & Blau, G., (2009), Building Internal Motivation for Worker Competency Certifications: A Critique and Proposal. *Human Resource Development*, (8), 197-222, doi:10.1177/1534484309333614

Graffin, S., & Ward, A. (2010). Certifications and Reputation: Determining the Standard of Desirability Amidst Uncertainty. *Organization Science*, 21(2), 331-346. doi:10.1287/orsc.1080.0400.

Mahaney, R., & Greer, B., (2003), Business Value of Project Management: Professional Certification for IS Project Managers. Association for Information Systems, Americas Conference on Information Systems (AMCIS) Proceedings

Mei-I, C., Dainty, A., & Moore, D. (2005). What makes a good project manager?. *Human Resource Management Journal*, 15(1), 25-37.

Stevenson, D., & Starkweather, J. (2010). PM critical competency index: IT execs prefer soft skills. *International Journal of Project Management*, 28(7), 663-671. doi:10.1016/j.ijproman.2009.11.008.

APPENDIX – RESEARCH METHODOLOGY (IN BRIEF)

The target sample was current and recent members of asapm. The survey asked questions about a recently completed project on which the participant was a project team member, manager, or leader. The sample was taken via Survey Monkey in August of 2010. Approximately 250 were invited and 51 responded. Demographics of the individuals and the organizations of the project follow:

Demographic Characteristics of Survey Participants

Gender

Male	84%
Female	16%

Age (yrs)

Mean	49.27
SD	11.32
Range	29-84

Highest level of Education completed

High School	4%
Associate Degree	4%
Undergraduate Degree	30%
Masters' Degree	50%
Doctorate	12%

Total work experience (yrs)

Mean	25.72
SD	10.84
Range	5-45

Hold a knowledge-based exam certification

Yes	41.18%
No	41.18%

Organization and Project Characteristics

Project Team size (No:)

Mean	38.78
SD	59.76
Range	2-300

Project Duration (months)

Mean	28.84
SD	57.26
Range	2-380

Project Context

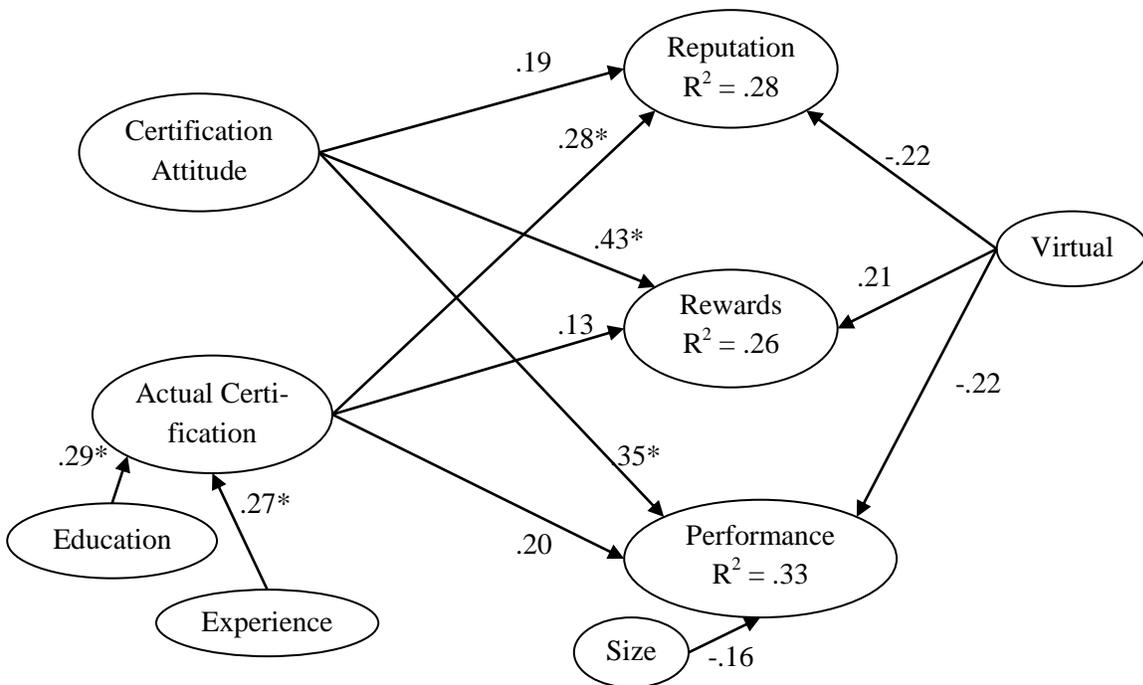
Construction	19.1%
Information System	46.8%
Engineering/NPD	19.2%
Other	14.9%

Number of Employees in the Organization (Approx)

<100	18%
100 –1000	32%
1000-10,000	16%
10,000>	34%

The variables in the research in the figure below include: certification attitude (a measure of the importance placed on professionalism and certification by the individual); actual certification (whether the individual holds a certification or not in addition to how many total certifications the individual claimed); reputation (the extent the participant is approached for advice and help); reward (financial and job related advances), and performance (typical measures of project success that include budget, schedule & scope).

It is proposed that actual certification and attitude regarding certification both positively influence the individual’s reputation, the rewards received, and performance. Controls variables include measures of project size (often considered related to performance), the degree of virtuality in the project team (possibly related to all three outcome variables), and whether or not actual certification reflects experience and education.



*significant at $p < 0.05$

Figure 1. Research model with statistical results

The scales of interest were derived from the literature where available. Attitude regarding certification was created for this study. The items are replicated in the table below. Only those items with acceptable loadings ($> .5$) were retained from the survey instrument. Those with high cross loadings (within .1 of the loading) were also eliminated. The reliability of each variable was high (Cronbach's $\alpha \geq 0.7$).

Discriminant validity was assured as all correlations for each variable pair were less than the Average Variance Extracted for both variables. Bias in the sample was investigated by conducting a regression analysis of each independent variable against demographic indicators of gender, age, project context, and organizational size (number of employees). No significant relation was found reducing concerns of a biased sample

Measurement items retained in the analysis

Item ID	Item statement
Certification Attitude	Professional certification is important to me.
	The organization encourages pursuit of professional certification.
	My colleagues at work encourage me to pursue or maintain certification.
	I am committed to maintaining professional certification.
	Managers in the organization encourage pursuit of professional certification.
Reputation	My peers all pursue professional certification.
Reputation	I am highly regarded by others in the organization.
	If people want things done right, they ask me to do it.
	Others come to me frequently for advice.
	My ideas are applied within the organization.
Rewards	Financial gain
	Job promotion
	Recognition
	Sense of contribution to the organization
Performance	The project has (will) come in on schedule.
	The project has (will) come in on budget.
	The project provided/will provide a definite improvement over the way clients used to perform these activities.
	The project tasks were carried out efficiently.
	The expected amount of work (scope) was completed.
	Given the problem for which it was initiated, this project was the best choice from among a set of alternatives.

Analysis was conducted by partial least squares regression using XLSTAT. Results are shown in Figure 1. Path coefficients appear on the path along with an indication of significance(*). The R^2 value for each variable is also indicated. These are interpreted in similar fashion to simple regression techniques. The R^2 values are good for social science research.