






"The influence of project manager competencies on the success of construction projects: A case of Indonesia"

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THE INFLUENCE OF PROJECT MANAGER COMPETENCIES ON THE SUCCESS OF CONSTRUCTION PROJECTS: A CASE OF INDONESIA

Abstract

Competent project managers are expected to be able to achieve project success in terms of time, quality, and costs specified in the contract. This study aims to determine the competence of project managers that has the most significant influence on the success of a construction project. The data used were questionnaires distributed to 43 respondents employed at contractor companies located in Aceh Province, Indonesia. The samples were selected using Stovin's formula; data were analyzed using descriptive statistical methods. The results of the study showed that of ten project managers' competence factors, the top five rankings were obtained by knowledge factor (X1) with a mean value of 4.773, problem-solving (X8) with a mean value of 4.659, technical skills (X5) with a mean value of 4.587, general skills factor (X2) with a mean value of 4.531, and attitude and behavior factor (X3) with a mean value of 4.521. The findings show that the knowledge factor was dominant among all project manager competencies necessary to implement construction projects in Aceh Province. This shows that the knowledge possessed by a project manager significantly affects the successful implementation of such projects.

Keywords

project manager, project success, manager competence, construction project, project management, Indonesia

JEL Classification

D80, D81, J24

INTRODUCTION

To achieve project success, project managers carry out overall project management activities (Brahmantariguna et al., 2016). Furthermore, Yulianto (2005) argues that the overall competence possessed by a project manager can determine the success of a project. Therefore, project manager competence is critical to project success; for this reason, a project manager must possess the required competency requirements.

A competent project manager requires at least three skills in terms of project completion. PMI (2017, p. 56) states, "there are three abilities in technical project management, namely leadership, strategic management, and business skills." Stakeholders have concerns regarding achieving project goals; successful projects have good quality, efficient time and cost, and sound risk management (Zhang et al., 2013). Poor project performance can be caused by incompetent project managers (Moradi et al., 2020a), and low-quality project managers are human factors that can lead to project failures (Shafiei & Puttanna, 2018). An organization determining a person in charge of a project or project manager must meet the competencies under the scope of a project being worked on (Yulianto, 2005). However, in reality, sometimes the appointment of a project manager is



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made suddenly and the person appointed is not the right person. This is one of the factors that cause a project not to run correctly or experience delays (Rauzana, 2016a; Rauzana & Dharma, 2022a). Project delays cause the contractor's performance to be considered poor. A delay is also considered the result of poor project management, so it can be judged to reflect how a project manager manages it. For this reason, the study analyzes the effect of project manager competence on the success of construction projects.

To achieve the project objectives, a competent and experienced project manager is required (Gustavsson & Hallin, 2014). To avoid project failures and losses, it is vital to identify the project manager's competency factors. The project manager's competence is one of the critical success factors for a project, as it also causes project failure (Yulianto, 2005).

1. LITERATURE REVIEW

A project manager on a construction project can be interpreted as a person responsible for driving project management strategies to achieve project goals (Alvarenga et al., 2020; Kerzner, 2001). A construction project is a series of activities carried out once and for a short period. Several parties are involved in construction projects: project owners, consultants, project implementers (contractors), and planning consultants (Dimiyati & Kadar, 2014). In general, construction quality is a fundamental element that must be maintained to always follow the plan. However, in reality, there are often cost overruns as well as delays in implementation time (Aidil et al., 2021; Rauzana, 2016b; Rauzana & Dharma, 2021). Thus, the expected efficiency and effectiveness of work are often not achieved. This results in developers losing competitive value and market opportunities (Mora, 2011).

For a project to achieve effective and efficient targets, an activity can be carried out by managing, planning, and organizing construction projects (Stoner et al., 2012). Management in construction projects has several resources that are used to manage work effectively and efficiently to achieve project goals following the provisions in the construction world. Project resources are people, materials, equipment, methods, and money (Kerzner, 2006). "A project manager is a person responsible for managing a project" (PMI, 2017, p. 29). A project manager comes from an institution or entrepreneur, which is synonymous with administrators, executives, supervisors, and leaders (Ritz, 1994). The role of a project manager is to use available resources to meet goals and objectives (Badiru & Pulat, 1995).

Project managers must be competent, firm, flexible, and effective in solving problems during project im-

plementation (Turner et al., 2009). The success of a project largely depends on the expertise of a project manager; therefore, special attention should be paid to selecting a project manager because selecting a project manager is one of the most critical aspects of the project. A project manager must be a person who has both administrative and technical credibility, who can carry out the work promptly and satisfactorily, and who is deemed necessary to have the technical knowledge to direct the project. S/he must also be a good note-taker. A project manager is one of the crucial people in the construction management (Briere et al., 2015). The primary function at the construction management level is to achieve and monitor the work (Moradi et al., 2020b; Sudarto, 2001). A project manager is responsible for coordinating and integrating various functional activities, requires strong interpersonal and communicative skills, is accustomed to dealing with each existing line organization (Kerzner, 2001), and has general knowledge of the technology being used (Oberlender, 2000).

Management is a function of planning, organizing, controlling, monitoring, and evaluating activities (Robin & Judge, 2013). Project management is a process or method to achieve predetermined goals (Gustavsson & Hallin, 2014). A project manager must manage resources to achieve the planned organizational goals in the planning function. In the implementation process, managers coordinate and supervise the work of others so that the work can be completed efficiently and effectively (Dulewicz & Higgs, 2005; Rabechini, 2001). For this reason, a project manager must have the required competency requirements. Project manager competence is essential in achieving successful project completion on time (Ballesteros-Sánchez et al., 2019; Blaskovics, 2016). The project manager competence factors are as follows: (1) knowledge, (2) general skills, (3) atti-

tude and behavior, (4) conceptual skills, (5) technical skills, (6) socialization, (7) business achievements, (8) problem-solving, (9) human management, and (10) self-management.

Managerial competence is derived from the values and core competencies of the organization. This shows a close relationship between managerial, individual, and organizational competence (Wulandari et al., 2018). Management competence is a qualification that managers possess based on work experience, level of insight, expertise, skills, attitudes, and personal characteristics needed to improve manager performance and project success (Martina et al., 2012). Managerial competence can also affect project success. Finally, competence is a characteristic within an individual related to performance (Palan, 2007; Rauzana & Dharma, 2022b).

Project success is based on a moral character in an environment that is increasingly influential with the implementation of a project. Moral aspect in the context of ethics can maintain the flow of relationships in integrated management. In the end, it will increase customer satisfaction and loyalty as well as create harmony, trust, brotherhood, and moral values among team members, suppliers, stakeholders, subcontractors, workers, and all construction project implementers (Bayiley & Teklu, 2016; Boakye & Liu, 2016; Fahri, 2019; Khang & Moe, 2008; Orchard & Stringer, 2016). The success of a project is measured by the timeliness of completion as scheduled; the project costs do not exceed the planned funds, the quality and specifications required are met, and the needs of consumers are satisfied (Shah, 2004).

Construction projects often experience high failure rates (Shafiei & Puttanna, 2018). Project failure is caused by unclear project objectives to be achieved, poor quality, time delays, and cost overruns (Zhang et al., 2013). Poor project performance is caused by the risk of project failure (Ahsan et al., 2013). According to Alaloul et al. (2016), project managers should have competencies to make projects successful and meet various stakeholder expectations. However, project managers who are not qualified and have low administrative capacity are a factor in project failure caused by human error (Shafiei & Puttanna, 2018). Therefore, recruiting project managers with the right competencies is a challenge for many contractors (Meredith & Mantel, 2009; PMI, 2018).

Therefore, the purpose of this study is to determine the competency factors of project managers that have the most significant influence on the success of a construction project in the province of Aceh, Indonesia.

2. METHODOLOGY

This paper used both primary data and secondary data. Primary data were a questionnaire distributed to 43 respondents, who were from contractor companies in Aceh Province, Indonesia. Questionnaire data were distributed to obtain respondents' opinions about the influence of project manager competence factors on the success of construction projects. The questionnaire was distributed directly to the contractor company as a respondent. Questionnaires are the primary means of collecting primary data for quantitative research; they are quantitative data collected in a standardized manner to obtain internally consistent and coherent data for analysis. The designed questionnaire must meet the research objectives (Roopa & Rani, 2012). The questionnaire used in this study had close-ended questions, namely a questionnaire with the answer choices already provided and limited (Arikunto, 2006; Roopa & Rani, 2012).

The questionnaire distributed to respondents was divided into two parts. Questionnaire A contains questions about the characteristics of respondents. Questionnaire B contains several questions about the influence of the project manager's competence factors on the success of construction projects. Secondary data were obtained from previous research related to the research objectives. Questionnaire measurements used a Likert scale as follows: very influential (5), influential (4), moderately influential (3), slightly influential (2), and not influential (1). A Likert scale reveals respondents' perceptions of social phenomena (Taherdoost, 2019).

This data processing process includes conducting a pilot test before the analysis using statistical methods, namely validity and reliability tests. The instrument test in this study was conducted to determine the feasibility of the questionnaire.

The population was 73 contractor companies in Aceh Province. Taking the number of samples that can represent the population using Slovin's formula, the confidence level used was 90%, and the error rate was 10%. The determination of the value of the error rate depends on the desired level of confidence. Thus, the number of samples obtained in this study was 43 contractor companies. The study used simple random sampling; namely, the sampling was randomly selected from the entire research population (Sugiyono, 2015).

Descriptive statistics were used to determine the characteristics of the respondents and the level of influence of project manager competence factors on the success of construction projects based on respondents' opinions and frequency of answers. Descriptive statistics include measures of frequency, central tendency, dispersion/variation, and position. Descriptive statistics are used for data processing to display data systematically by showing a relationship between research variables. Descriptive statistical analysis is an essential step in conducting research before drawing conclusions. In addition, descriptive statistics compress the data to make it more straightforward and easier to understand (Kaur et al., 2018).

3. RESULTS

Based on the distribution of questionnaires at the pilot survey stage, the results of the validity and reliability tests were obtained (Table 1).

Table 1. Validity and reliability test results

Item code	Factor	R-count	R-table	Cronbach's Alpha
X1	Knowledge	0.659	0.294	0.943
X2	General skills	0.548	0.294	0.898
X3	Attitude and behavior	0.711	0.294	0.956
X4	Conceptual skills	0.775	0.294	0.945
X5	Technical skills	0.645	0.294	0.854
X6	Socialization	0.479	0.294	0.812
X7	Business achievements	0.532	0.294	0.877
X8	Problem-solving	0.609	0.294	0.921
X9	Human management	0.532	0.294	0.901
X10	Self-management	0.645	0.294	0.867

Based on Table 1, it can be seen that all of the statement items studied have a value of R-count > R-table, which is the degree of freedom (df) = 43, with an error rate of 0.05 in both directions, so the R-table value was 0.294. Thus, all statements were valid and the study can continue with reliability tests. While the reliability test obtained Cronbach's Alpha values on all variables > 0.6, all variables are found reliable, and the questionnaire is feasible to use in this study. The characteristics of the 43 respondents, namely representatives of contractor companies in Aceh Province, are presented in Table 2 (Sekaran, 2006).

Table 2. Characteristics of respondents

Characteristics	Percentage (%)	Frequency (N = 43)
Gender		
Male	100	43
Female	0	0
Total	100	43
Age		
20-30 years	0	0
32-40 years	46.51	20
41-50 years	53.49	23
> 50 years	0	0
Total	100	43
Graduates		
High School	0	0
Diploma	0	0
Bachelor	69.77	30
Master	30.23	13
Doctoral	0	0
Total	100	43
Experience in the construction field		
0-2 years	0	0
3-5 years	51.16	22
6-8 years	48.84	21
> 8 years	0	0
Total	100	43

Table 2 shows that all respondents were male (100%), the age range of respondents with the highest frequency was 41-50 years (53.49%), the highest proportion of respondents' education level was a bachelor (69.77%), and the level of experience of respondents in construction projects most were 3-5 years (51.16%).

The level of influence of the project manager's competence factors was obtained based on the distribution of questionnaires to the respondents, and the questionnaire data were analyzed using descriptive statistical methods. The mean value for each factor can be seen in Table 3.

Table 3. Ranking the mean values for each factor

Item code	Factor	Mean	Std. Deviation	Rank
X1	Knowledge	4.773	0.765	1
X2	General skills	4.531	0.657	4
X3	Attitude and behavior	4.521	0.744	5
X4	Conceptual skills	4.473	0.546	8
X5	Technical skills	4.587	0.456	3
X6	Socialization	4.213	0.432	9
X7	Business achievements	4.485	0.653	7
X8	Problem-solving	4.659	0.598	2
X9	Human management	4.499	0.446	6
X10	Self-management	3.997	0.356	10

Table 3 shows that the project manager competency factor with the highest mean value was the knowledge factor, with 4.773, and the lowest mean value was the self-management factor, with 3.997. The findings indicate that the overall value of the standard deviation is not more than twice the average value. This shows that the distribution of the data is good.

4. DISCUSSION

Based on the study's results, the knowledge factor was found to be the dominant factor in applying project manager competencies to construction projects in Aceh Province. Knowledge must be possessed by a project manager in all contracting companies. This is so that contractor companies can compete with each other in implementing construction projects successfully. A successful project requires a reliable project manager who knows the scope of own duties as a project leader and has the necessary skills. A project manager must have a high level of education, master knowledge of the scope of work, scheduling, and budgeting, and know about quality management. In addition, s/he should be able to master human resource management regarding the selection and utilization of people in the project team and know about communication management and risk management to identify risks that may arise. Finally, a project manager can establish good relationships and maintain communication with all stakeholders (Brahmantariguna et al., 2016).

Based on the results of the study, the mean value for knowledge (X1) was 4.773 (rank = 1). Bredillet et al. (2013) stated that a project manager's knowledge dramatically affects project success

in Australia. Managers as supervisors and project leaders have an important role in project success; managers with a high level of formal education, at least a bachelor's degree, should be able to apply the acquired knowledge to implement construction projects. Education affects unique competencies, where a person masters a field of expertise that is studied in-depth. One of the knowledge aspects of project managers is based on education levels such as bachelor's, Master's, and Ph.D. levels. Thus, the higher the level of knowledge of a project manager, the higher the competencies possessed (Walas et al., 2021).

A problem-solving factor (X8) had a mean value of 4.659 (rank = 2). Construction projects are complex, so many problems arise. Project managers are required to solve several problems so that project success can be realized. Thus, it is necessary to modify the basic steps of problem-solving (Ahern et al., 2014). Project success depends on the manager's ability to communicate with the project members, maintain maximum performance, have negotiation skills, and enhance work discipline. The success of a project is influenced by good communication between all stakeholders in the project (Kolot et al., 2022). Problems can be resolved if communication between project stakeholders is open and honest (Coldwell et al., 2019).

Technical skills (X5) had a mean value of 4.587 (rank = 3). Technical abilities need to be mastered by project managers, such as having experience and a thorough understanding of technical work. Managers should determine construction methods following quality standards and formulate work breakdown structures. Technical skill is the ability to apply technical knowledge and competence in a particular field. This skill is an individual's capability to perform a specific task (Katz, 1965).

The general skills factor (X2) had a mean value of 4.531 (rank = 4). Both hard and soft skills are essential for a project manager. Based on Brahmantariguna et al. (2016), knowledge, skills, attitudes, and behavior considerably influence the success of construction projects (with 8%). Therefore, manager skills can improve performance (Sunindijo, 2015). In addition, project

managers must possess emotional intelligence, interpersonal skills, sincerity, financing, and the ability to maintain harmonious relationships. In addition, project managers need to have expertise in communicating with all stakeholders if problems occur in project implementation (Memon et al., 2014).

The attitude and behavior factor (X3) had a mean value of 4.521 (rank = 5). Attitude and behavior significantly affect project success and relationship-oriented leadership behavior. Namely, a manager en-

courages, supports, and helps subordinates, gives trust, is confident and friendly, and always tries to understand subordinates, providing problem-solving (Yukl, 2010). In addition, managers are expected to be able to build relationships/networking within and outside the project organization, can view and understand a problem as a whole, and coordinate and integrate all interrelated parts for the interests or activities of the organization. This skill is an understanding of managerial functions that include planning, organizing, delegating, controlling, evaluating, and solving the problems (Yukl, 2010).

CONCLUSION

This study aims to determine the competency factors of project managers that influence the success of construction projects in the Province of Aceh, Indonesia. Based on the findings, the knowledge factor was found to be the dominant factor in applying project manager competencies to construction projects in Aceh Province. This shows that the knowledge possessed by a project manager considerably affects the success of a construction project. The high level of project manager knowledge is affected by the manager's education level, work experience, understanding and mastery of project needs, and the fulfillment of the scope of work in the project so that the project goes according to plan. In addition, managers are expected to be able to arrange tasks correctly to keep the project on time and ensure the project is running on track. Therefore, it is expected that the leaders of the contractor company, in choosing a project manager, must pay attention to the level of knowledge of a project manager. Therefore, it is very important to choose personnel who know about the project to be handled so that the results obtained have a higher quality and the project can be as successful as it should be.

In addition, a project manager needs to continuously improve his/her knowledge of construction project management so that s/he can be more trusted by company leaders to handle a project. The success of a project cannot be separated from the selection of the right project manager with high abilities and a level of knowledge. Project managers have an important role in determining the success of a project and must have special skills and expertise. The involvement of a project manager in the implementation is needed because a project manager is a person who is responsible for implementing the project in the field. The involvement of a project manager is considered vital during project implementation, namely monitoring and controlling all activities and then taking corrective actions if there are challenges. Finally, the technical skills of a project manager needed during implementation comprise the ability to read drawings, understand technical specifications, make efficient and effective work methods, and follow up and provide alternative solutions if there are deficiencies and ambiguities in drawings and specifications.

AUTHOR CONTRIBUTIONS

Conceptualization: Anita Rauzana, Muhammad Hafidz Akbar, Wira Dharma.

Data curation: Anita Rauzana, Muhammad Hafidz Akbar, Wira Dharma.

Formal analysis: Anita Rauzana, Muhammad Hafidz Akbar.

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Writing – original draft: Anita Rauzana, Muhammad Hafidz Akbar, Wira Dharma.

Writing – review & editing: Anita Rauzana, Muhammad Hafidz Akbar, Wira Dharma.

REFERENCES

- Ahern, T., Leavy, B., & Byrne, P. J. (2014). Complex project management as complex problem solving: A distributed knowledge management perspective. *International Journal of Project Management*, 32(8), 1371-1381. <https://doi.org/10.1016/j.ijproman.2013.06.007>
- Ahsan, K., Ho, M., & Khan, S. (2013). Recruiting project managers: A comparative analysis of competencies and recruitment signals from job advertisements. *Project Management Journal*, 44(5), 36-54. <http://dx.doi.org/10.1002/pmj.21366>
- Aidil, M., Rauzana, A., & Muhammad, N. (2021). A Study on Drinking Water Distribution Project in Banda Aceh. *Journal of Physics: Conference Series*, 1933(1), 012091. <https://doi.org/10.1088/1742-6596/1933/1/012091>
- Alaloul, W. S., Liew, M. S., & Zawawi, N. A. (2016). Identification of coordination factors affecting building projects performance. *Alexandria Engineering Journal*, 55(3), 2689-2698. <https://doi.org/10.1016/j.aej.2016.06.010>
- Alvarenga, J. C., Branco, R. R., Guedes, A. L. A., Soares, C. A. P., & Silva, W. (2020). The project manager core competencies to project success. *International Journal of Managing Projects in Business*, 13(2), 277-292. <https://doi.org/10.1108/IJMPB-12-2018-0274>
- Arikunto, S. (2006). *Research Procedures: A Practical Approach*. Rineka Cipta.
- Badiru, A. B., & Pulat, P. S. (1995). *Comprehensive Project Management: Integrating Optimization Models*. Management Principles and Computers. Prentice-Hall Inc.
- Ballesteros-Sánchez, L., Ortiz-Marcos, I., & Rodríguez-Rivero, R. (2019). The impact of executive coaching on project managers' personal competencies. *Project Management Journal*, 50(3), 306-321. <https://doi.org/10.1177/8756972819832191>
- Bayiley, Y. T., & Teklu, G. K. (2016). Success factors and criteria in the management of international development projects. *International Journal of Managing Projects in Business*, 9(3), 562-582. <https://doi.org/10.1108/IJMPB-06-2015-0046>
- Blaskovics, B. (2016). The impact of project manager on project success – The case of ICT sector. *Society and Economy*, 38(2), 261-281. <http://dx.doi.org/10.1556/204.2016.38.2.7>
- Boakye, L. G., & Liu, L. (2016). With the projectisation of the world, the time is right to unravel why International Development Project (IDP) failure is prevalent. *Universal Journal of Management*, 4(3), 79-90. <http://dx.doi.org/10.13189/ujm.2016.040301>
- Brahmantariguna, I. A., Dharmayanti, C., & Yansen, I. (2016). Relationship Of Project Manager Competence To The Success Of Building Construction Projects. *Journal of Spectrum*, 4(2), 55-62.
- Bredillet, C. N., Conboy, K., Davidson, P., & Walker, D. (2013). The getting of wisdom: The future of PM university education in Australia. *International Journal of Project Management*, 31(8), 1072-1088. <https://doi.org/10.1016/j.ijproman.2012.12.013>
- Briere, M., Oosterlinck, K., & Szafarz, A. (2015). Virtual Currency, Tangible Return: Portfolio Diversification with Bitcoin. *Journal of Asset Management*, 16, 365-373. <https://doi.org/10.1057/jam.2015.5>
- Coldwell, D. A. L., Williamson, M., & Talbot, D. (2019). Organizational socialization and ethical fit: a conceptual development by serendipity. *Personnel Review*, 48(2), 511-527. <https://doi.org/10.1108/PR-11-2017-0347>
- Dimiyati, H., & Kadar, N. (2014). *Project Management*. CV Pustaka Setia.
- Dulewicz, V., & Higgs, M. (2005). Assessing leadership styles and organisational context. *Journal of managerial Psychology*, 20(2), 105-123. <https://doi.org/10.1108/02683940510579759>
- Fahri, J. (2019). *Identifying success criteria and critical factors at the post-handover stage for international development projects*. University of Sydney.
- Gustavsson, T. K., & Hallin, A. (2014). Rethinking dichotomization: a critical perspective on the use of 'hard' and 'soft' in project management. *International Journal of Project Management*, 32(4), 568-577. <https://doi.org/10.1016/j.ijproman.2013.10.009>
- Katz, S. (1965). *A Systems Approach to Development Administration: A Framework for Analyzing Capability of Action for National Development*.

- Comparative Administration Group, American Society for Public Administration.
21. Kaur, P., Stoltzfus, J., & Yellapu, V. (2018). Descriptive statistics. *International Journal of Academic Medicine*, 4(1), 60-63. https://doi.org/10.4103/IJAM.IJAM_7_18
 22. Kerzner, H. (2001). *Project Management; Systems Approach to Planning, Scheduling and Controlling*. New York: John Wesley & Sons.
 23. Kerzner, H. (2006). *Construction Project Application Guide*. Yudhistira.
 24. Khang, D. B., & Moe, T. L. (2008). Success criteria and factors for international development projects: A life-cycle-based frame-work. *Project Management Journal*, 39(1), 72-84. <https://doi.org/10.1002/pmj.20034>
 25. Kolot, A., Lopushniak, H., Kravchuk, O., Varis, I., & Ryabokon, I. (2022). Transferable competencies of HR manager under global socio-economic changes. *Problems and Perspectives in Management*, 20(1), 322-341. [https://doi.org/10.21511/ppm.20\(1\).2022.27](https://doi.org/10.21511/ppm.20(1).2022.27)
 26. Martina, K., Hana, U., & Jiri, F. (2012). Identification of managerial competencies in knowledge based organizations. *Journal of Competitiveness*, 4(1), 129-142. <http://dx.doi.org/10.7441/joc.2012.01.10>
 27. Memon, A. H., Rahman, I. A., Abdullah, M. R., & Azis, A. A. (2014). Factors affecting construction cost performance in project management projects: Case of MARA large projects. *International Journal of Civil Engineering and Built Environment*, 1(1), 30-35.
 28. Meredith, J., & Mantel, S. J. (2009). *Project management: A managerial approach*. John Wiley & Sons.
 29. Mora, L. (2011). *Implementation of Project Management in the Construction Sector*. Erlangga.
 30. Moradi, S., Kähkönen, K., & Aaltonen, K. (2020a). Comparison of research and industry views on project managers' competencies. *International Journal of Managing Projects in Business*, 13(3), 543-572. <https://doi.org/10.1108/IJMPB-04-2019-0085>
 31. Moradi, S., Kähkönen, K., & Aaltonen, K. (2020b). From past to present – the development of project success research. *Journal of Modern Project Management*, 8(1), 1-20.
 32. Oberlender, G. (2000). *Project Management for Engineering and Construction* (2nd ed.). McGraw-Hill Companies, Inc.
 33. Orchard, S. E., & Stringer, L. C. (2016). Challenges to polycentric governance of an international development project tackling land degradation in Swaziland. *Ambio*, 45(7), 796-807. <http://dx.doi.org/10.1007/s13280-016-0791-8>
 34. Palan, R. (2007). *Competency management*. PPM Publisher.
 35. Project Management Institute (PMI). (2017). *A guide to the project management body of knowledge (PMBOK guide)* (6th ed.). Newton Square, USA: Project Management Institute.
 36. Project Management Institute (PMI). (2018). *A guide to the project management body of knowledge (PMBOK® guide)* (7th ed.). Project Management Institute.
 37. Rabechini, R. J. (2001). A importância das habilidades do gerente de projetos. *Revista DeAdministração*, 36(1), 92-100. (In Portuguese). Retrieved from <http://www.spell.org.br/documentos/ver/16562/a-importancia-das-habilidades-do-gerente-de-projetos/i/pt-br>
 38. Rauzana, A. (2016a). Identification and Assessment of Risk Factors Affecting Construction Projects in North Aceh, Indonesia. *IOSR Journal of Business and Management*, 18(09), 72-77. <https://doi.org/10.9790/487x-1809047277>
 39. Rauzana, A. (2016b). The effect of the risk factors on the performance of contractors in Banda Aceh, Indonesia. *ARNP Journal of Engineering and Applied Sciences*, 11(15), 9496-9502. Retrieved from http://www.arpnjournals.org/jeas/research_papers/rp_2016/jeas_0816_4792.pdf
 40. Rauzana, A., & Dharma, W. (2021). The knowledge and awareness of occupational health and safety requirements among civil engineering students in an Indonesian university. *Global Journal of Engineering Education*, 23(3), 210-215. Retrieved from <http://www.wiete.com.au/journals/GJEE/Publish/vol23no3/07-Rauzana-A.pdf>
 41. Rauzana, A., & Dharma, W. (2022a). Causes of delays in construction projects in the Province of Aceh, Indonesia. *Plos One*, 17(1), e0263337. <https://doi.org/10.1371/journal.pone.0263337>
 42. Rauzana, A., & Dharma, W. (2022b). The effectiveness of on-line learning at an Indonesian university during the Covid-19 pandemic: students' perspectives. *World Transactions on Engineering and Technology Education*, 20(1), 71-75. Retrieved from [http://www.wiete.com.au/journals/WTE&TE/Pages/Vol.%2020,%20No.1%20\(2022\)/11-Rauzana-A.pdf](http://www.wiete.com.au/journals/WTE&TE/Pages/Vol.%2020,%20No.1%20(2022)/11-Rauzana-A.pdf)
 43. Ritz, G. (1994). *Total Construction Project Management*. McGraw-Hill, Inc.
 44. Robin, S. P., & Judge, T. A. (2013). *Organizational behavior* (15th ed.). Pearson Education, Inc.
 45. Roopa, S., & Rani, M. (2012). Questionnaire Designing for a Survey. *The Journal of Indian Orthodontic Society*, 46(4_suppl1), 273-277. <https://doi.org/10.5005/jp-journals-10021-1104>
 46. Sekaran, U. (2006). *Research methods for business: A skill building approach* (4th ed.). John Wiley & Sons.
 47. Shafiei, N. A., & Puttanna, K. (2018). Cost and schedule performance analysis of World Bank international development projects in Afghanistan. *International Journal for Research in Engineering Application and Management*, 4(11), 462-467.
 48. Shah, M. (2004). *Tips for Successful Managers*. Binapura Aksara.

49. Stoner, J. F., Freeman, R. E., & Gilbert, D. R. (2012). *Management*. Prentice-Hall Inc.
50. Sudarto. (2001). *The Effect of Project Manager Quality on Decent Rewards*. University of Indonesia.
51. Sugiyono. (2015). *Combination Research Methods*. Alfabeta.
52. Sunindijo, R. Y. (2015). Project manager skills for improving project performance. *International Journal of Business Performance Management*, 16(1), 67-83. <https://doi.org/10.1504/IJB-PM.2015.066041>
53. Taherdoost, H. (2019). What Is the Best Response Scale for Survey and Questionnaire Design; Review of Different Lengths of Rating Scale/Attitude Scale/Likert Scale. *International Journal of Academic Research in Management*, 8(1), 1-10. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3588604
54. Turner, J. R., Müller, R., & Dulewicz, V. (2009). Comparing the leadership styles of functional and project managers. *International Journal of Managing Projects in Business*, 2(2), 198-216. <http://dx.doi.org/10.1108/17538370910949266>
55. Walas, B., Nocon, M., Nemethy, S., Petrovic, F., & Oleksa-Kazmierczak, A. (2021). Diagnosis of competencies in the meetings industry in Poland, Hungary and Ireland in post-COVID-19 period. *Problems and Perspectives in Management*, 19(4), 198-212. [https://doi.org/10.21511/ppm.19\(4\).2021.17](https://doi.org/10.21511/ppm.19(4).2021.17)
56. Wulandari, J., Raharja, S. J., Muhyi, H. A., & Nurasa, H. (2018). Identifikasi kompetensi manajerial pada level manajemen menengah dalam industri perbankan Indonesia. *Jurnal Siasat Bisnis*, 22(1), 20-37. (In Indonesian). <https://doi.org/10.20885/jsb.vol22.iss1.art2>
57. Yukl, G. A. (2010). *Leadership in organizations* (7th ed.). Prentice-Hall Inc.
58. Yulianto, O. (2005). *The Influence of Superior Competence on the Progress of Thesis Project Progress*. Udayana University, Denpasar.
59. Zhang, F., Zuo, J., & Zillante, G. (2013). Identification and evaluation of the key social competencies for Chinese construction project managers. *International Journal of Project Management*, 31(5), 748-759. <https://doi.org/10.1016/j.ijpro-man.2012.10.011>