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Integrating Leadership Training Model in Construction Project Management Programs

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ABSTRACT

This research aims to develop a Leadership Training Model within the sphere of Construction Project Management, intended to enhance leadership skills crucial for the successful execution of projects with respect to cost, quality, timing, and administrative order. Employing the Research and Development methodology, this study adopts the ADDIE model approach (Analysis, Design, Development, Implementation, and Evaluation). Data were collected through a literature review, field surveys, interviews, and questionnaires. The research phases included needs analysis, model design, prototype development, model implementation, and evaluation. The validity and reliability of the instruments were tested using Validity Coefficient (Va) and Percent Agreement (PA). The findings indicate that (1) the Training Needs Analysis revealed a strong influence of leadership styles on cost, quality, and time accuracy in construction project success; (2) the designed training model considered various aspects including materials, guidelines, and training tools, establishing a strong foundation for leadership in construction project management; (3) the model was validated by experts, confirming its validity and innovative applicability for construction stakeholders; (4) the developed training model proved to be practically valuable, as demonstrated by the facilitators' ability to utilize the training guides and modules effectively; (5) the model was effective in enhancing leadership skills, evidenced by the pre-test and post-test results; (6) the training participants responded positively to the leadership training model for construction project management, regarding it as an innovative and continuous effort in transforming construction projects.

Keywords: Training; Leadership; Management; Construction Projects..

INTRODUCTION

In the fast-paced and complex field of industrial activities, the demand for robust management strategies is critical. These strategies must ensure high performance, precision, cost efficiency, integration, speed, accuracy, and safety, aiming to produce

outcomes that align perfectly with set expectations. Large-scale projects, particularly in construction, require not only proven technical methods and high-quality resources but also the application of relevant and up-to-date scientific knowledge that adapts to the rapidly evolving sectors (Akpan, et al., 2016).

Management, irrespective of project scale, significantly influences the final outcomes. Different individuals or organizations applying the same fundamental management principles can achieve varying results due to differences in cultural contexts, experience levels, environmental conditions, social dynamics, economic statuses, human resource characteristics, and the overall capability to grasp and implement foundational management principles (Orugbani & Benson, 2016). This variability highlights the nuanced nature of management in complex project settings.

In the domain of construction project management, it is crucial to consider a multitude of factors that ensure the project's deliverables meet the planned cost, quality, and schedule objectives. Effective implementation of management functions—planning, organizing, staffing, leading, and controlling—is vital for the success of any project. The construction sector, a significant driver of economic growth, engages both private and public sectors extensively. Government-managed construction projects, in particular, often involve substantial budgets aimed at enhancing public service facilities. Yet, the effectiveness of these projects is critically dependent on the quality of project management. Inadequate management can lead to various issues, such as delays, budget overruns, and substandard project outcomes, which are pivotal concerns that necessitate focused attention.

The literature reveals that while there is substantial research on the impact of managerial skills on project performance, as evidenced by studies like those of Abdelmasseh et al. (2022) investigating the relationship between various managerial skills and project performance dimensions, and Crilly (2020), who emphasized the strategic role of projects in organizational change, there remains a significant gap. Particularly, there is a lack of focused research on how structured and systematic leadership training specifically tailored to construction project management can influence overall project success.

Addressing this, Ismail & Fathi (2018) underscored the importance of employing varied leadership styles at different stages of the project lifecycle. Their research on transformational, transactional, and other leadership styles in construction project settings showed that the choice of leadership style could profoundly affect project outcomes. However, these studies do not delve into the specific impacts of a structured leadership training program within the construction industry, which can equip leaders with the necessary skills to manage the unique challenges of construction projects effectively (Akpan & Itighise, 2019; Akpan, I. F., & Babayemi, 2022).

This research intends to bridge this gap by developing a comprehensive Leadership Training Model for Construction Project Management. This model proposes that effective leadership, tailored to the complexities of construction projects, can significantly enhance project outcomes. The training model emphasizes the importance of leadership and effective management in achieving project goals and ensuring the overall success of the project. It is designed not just as a set of guidelines but as a transformative framework that instills essential leadership qualities and management skills tailored specifically for the construction industry.

By incorporating broader management theories and the latest research into a practical training model, this study aims to provide a foundational strategy for improving leadership in construction project management. This approach promises to address the challenges identified in previous studies and observed in real-world scenarios, offering a structured path to enhancing the competencies of project leaders in this critical sector.

LITERATURE REVIEW

Training Theory

Training is often conceptualized as either instructional or experiential, aimed at developing patterns of behavior, knowledge, skills, or attitudes to meet expected standards, as defined by Robinson & Robinson (1995). Training activities emphasize enhancing knowledge, skills, and attitudes regarding specific job tasks. Larasati (2018) further characterizes training as a short-term educational process that utilizes systematic and organized procedures so that non-managerial staff can acquire technical knowledge and skills for a specific purpose.

In "Training Strategies from Start to Finish," Friedman & Yarbrough (1985) discuss the dimensions of training including steps, trainers, and methods involved. Generally, training processes employ two approaches: a receptive approach used in the diagnostic phase, known commonly as the "bottom-up" approach, and a directive approach used in the instructional phase, often referred to as the "top-down" approach.

Herwina (2021) describes training as a short-term learning process utilizing systematic and organized procedures where non-managerial personnel delve into technical skills and knowledge for specific purposes. Training is a part of education that involves learning to acquire and enhance skills outside the standard educational system, typically over a relatively short period, with a focus more on practical application than theoretical understanding.

Competency-Based Training

Competency, according to Varkkey & Dessler (2018), refers to personal characteristics that can be demonstrated, such as knowledge, skills, and behaviors, including leadership. Abraham et al. (2001) define competencies as attributes, behaviors, and characteristics that lead to successful performance. McClelland (1973, 1987) and Boyatzis (1991, 2008) describe competencies as a set of related but distinct behaviors stemming from and indicative of an underlying construct called intent, which is context-oriented as per Boyatzis (2009).

Competency-Based Training (CBT) is a human resource development approach focused on outcomes, designed to specifically develop abilities and skills to achieve performance targets. The principles of competency-based training implementation, as stated by Rylatt & Lohan (1997), include meaningful best practices, acquisition of learning, flexibility, recognition of prior learning, non-time-based progression, appropriate assessment, ongoing monitoring and evaluation, consistent standards, and national accreditation among training providers.

As outlined in the "Guidelines for Developing Competency-Based Training Programs and Materials" by the Directorate General of Training and Productivity Development of the Indonesian Ministry of Labor (2020), the implementation of CBT is critically dependent on planning, execution, and evaluation aspects. Competency-based training programs are developed by involving stakeholders including instructors, industry representatives, and experts.

Leadership

Robbins (2003; Robbins & Judge (2009)) define leadership as the ability to influence a group towards achieving goals. Daft (2021) views leadership as the capacity to influence people towards goal attainment, where a leader must master theories of leadership character, including traits related to personality, social, and physical or intellectual aspects that distinguish leaders from non-leaders. Northouse (2021) in "Leadership: Theory and Practice, Ninth Edition," describes leadership as a process whereby an individual influences a group of individuals to achieve a common goal.

Leadership Styles

Leadership style, as defined by Delly (2016), involves various behavioral patterns preferred

by a leader in the process of directing and influencing workers. Yukl (1989) identifies three distinct leadership styles: democratic, autocratic, and laissez-faire. Employees working under a democratic leader demonstrate high satisfaction, creativity, and motivation; they maintain better relationships with the leader and are productive even in the leader's absence. In contrast, autocratic leaders focus primarily on quantitative output, while laissez-faire leadership is deemed suitable only for highly skilled and motivated teams with a proven track record. Burns (2012) discusses transformational and transactional leadership theories, stating that transformational leadership occurs when leaders and followers engage in a way that raises their levels of motivation and morality.

Construction Project Management

According to Manullang (2018), management in construction project management involves the art and science of planning, organizing, staffing, directing, and controlling human resources to achieve predefined objectives. Siswanto & Salim (2020) outline the construction project management process as planning, organizing, implementing, and controlling, ensuring that each phase is executed with minimal error and continual refinement to adapt to changes and developments throughout the project lifecycle.

METHOD

This study is developmental research adopting the ADDIE model, a structured framework that guides the stages of model development through five distinct phases: Analysis, Design, Development (or Production), Implementation (or Delivery), and Evaluation. This model, developed by Dick et al. (2005), aligns with instructional design principles further elaborated by Branch (2009).

The subjects of this research are construction practitioners engaged in the construction services industry or users of construction projects. The research specifically focuses on construction stakeholders operating within the province of South Sulawesi. The study employs a variety of data collection techniques to gather empirical evidence and insights directly from the field. These techniques include:

1. Observation: Direct monitoring of activities and behaviors related to construction project management within the field settings. This method allows the researcher to gather data on the natural behavior of participants and the context in which they operate.
2. Interviews: Structured and semi-structured interviews with key participants involved in construction projects. These discussions provide deep insights into the personal experiences, opinions, and attitudes of the subjects regarding leadership practices in project management.
3. Questionnaires: Distribution of structured questionnaires to a broader range of participants to collect quantifiable data on various aspects of leadership and management practices in the construction industry. This approach enables the collection of standardized data that can be statistically analyzed to draw broader conclusions.
4. Documentation: Review and analysis of existing documents and records relevant to the construction projects under study. This may include project reports, managerial documents, training records, and other related materials that can provide historical and contextual information about the projects.

The research focuses on developing a Leadership Training Model tailored for construction project management, applying the ADDIE model to ensure each phase of the project is methodically planned, implemented, and evaluated. This methodological approach aims to provide a comprehensive understanding of the current practices and needs, and to design an intervention that can significantly improve leadership competencies in construction project management.

FINDINGS AND DISCUSSION

The application of the ADDIE model in this research is structured as follows:

1. Analysis

The initial phase, the Training Needs Analysis (TNA), involved several activities:

- Literature Study: This included a review of managerial competencies in construction, fundamental concepts, and training development models.
- Instrument Design and Validation: Design and validation of the training needs analysis questionnaire, interview guidelines, and documentation study of training devices by subject matter experts.
- Field Study: Conducted at government agencies and construction project sites targeted by the research.
- Analysis of Findings: Both from the literature review and the field study using the designed instruments.

2. Design

This phase focused on designing the construction project management leadership training model, resulting in the first draft or Prototype-1, which was detailed in a training implementation guide. The guide covers:

- Introduction: Background rationale, needs analysis, training themes, training targets, objectives, and expected outcomes.
- Training Administration: Details the trainers, timing, and location of the training.
- Training Execution: Includes topics, materials, methods, media, model, facilitators, stages, and evaluation of the training.

Additionally, this phase involved:

- Setting Training Targets: Aimed at construction stakeholders with at least one year of project experience and a minimum of a bachelor's degree.
- Competency Goals: Establishing the competencies to be achieved through the training.
- Designing Evaluation Tools: To assess the outcomes of the training.

3. Development

In the development phase, the training guide product was validated by three experts in model development, training, and construction management. This step was crucial to ascertain the validity and feasibility of the training model before implementation or pilot testing.

4. Implementation

The implementation phase involved piloting the developed product to evaluate the effectiveness of the training model in terms of participant response, learning outcomes, and post-training performance.

5. Evaluation

The final phase involved testing the effectiveness of the training model. This was achieved by administering pre-tests and post-tests to the training participants. The training was implemented among members of the Indonesian Procurement Experts Association with 25 respondents. The results showed a significant improvement, with average pre-test scores of 77.30 increasing to 95 in the post-test, indicating a notable enhancement in managerial competencies following the training.

Based on these results, the hypothesis that the Training Model effectively enhances

managerial competencies was supported. PreTest and PostTest results are show in the following figure:

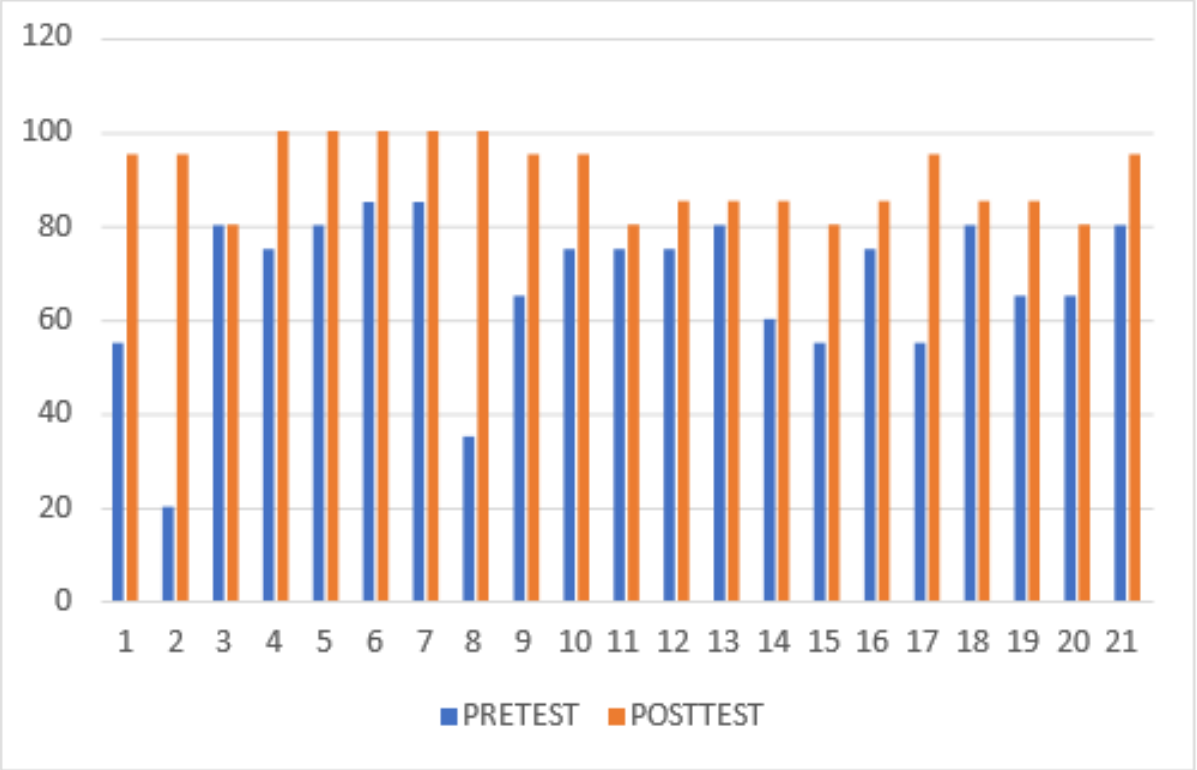

Figure 1: Implementation of Pretest and Postest

Based on the results illustrated in Figure 1 the implementation phase demonstrated a significant improvement in test scores from the pre-test to the post-test, with average scores increasing from 77.30 to 95. This descriptive analysis indicates a clear difference between the pre-test and post-test scores, suggesting an enhancement in managerial competencies following the use of the Training Model.

The observed increase in test scores validates the research hypothesis that the Training Model is effective in enhancing managerial competencies. This conclusion is supported by quantitative data reflecting the successful application of the training model, which specifically aimed to elevate the skillset and capabilities of construction project managers in managing complex projects efficiently.

This evidence strongly supports the effectiveness of the tailored training model in fostering significant improvements in managerial competencies, thus contributing positively to the overarching goals of construction project management training.

Table 1. Overall Score of Pre-test and Post-test

No.1	Pre-Test	Post-Test	Mean
1	55	95	40
2	20	95	75
3	80	80	0
4	75	100	25
5	80	100	20
6	85	100	15
7	85	100	15
8	35	100	65
9	65	95	30
10	75	95	20

11	75	80	5
12	75	85	10
13	80	85	5
14	60	85	25
15	55	80	25
16	75	85	10
17	55	95	40
18	80	85	5
19	65	85	20
20	65	80	15
21	80	95	15
	∑		**585**

DISCUSSION

The results from this study provide compelling evidence that the Leadership Training Model developed using the ADDIE framework significantly enhances managerial competencies in construction project management. The increase in scores from the pre-test to the post-test highlights the effectiveness of the training intervention. This finding is consistent with the literature that supports the necessity of tailored training programs in enhancing specific competencies required for complex project management (Robinson & Robinson, 1995; Larasati, 2018).

The use of the ADDIE model to design the training program has proven to be beneficial in addressing the specific needs of construction project managers. This approach ensures that the training is not only systematic and structured but also responsive to the dynamic requirements of the construction industry. It is recommended that training programs in other sectors consider a similar model to cater specifically to the nuanced needs of their fields. Furthermore, the focus on developing competencies rather than merely imparting knowledge is a crucial aspect of modern pedagogical approaches in adult education, especially in professional settings (Varkkey & Dessler, 2018; Abraham et al., 2001). The study underscores the importance of developing specific competencies that are directly tied to improved job performance and project success. Additionally, the ongoing evaluation through pre-tests and post-tests, as demonstrated in this study, serves as a critical pedagogical tool. It not only measures the effectiveness of the training but also provides feedback that can be used to continually refine and improve the training program. This iterative process is essential for maintaining the relevance and effectiveness of training programs.

THEORETICAL CONTRIBUTIONS

This research contributes to the theoretical underpinnings of project management training by demonstrating the practical application and benefits of a structured training model, grounded in competency development. The findings enrich the body of knowledge on adult learning and training, particularly within the high-stakes field of construction project management, where leadership decisiveness and competency directly influence project outcomes.

For practitioners, the implications of this study are clear: investing in specialized, competency-based training programs can lead to substantial improvements in project management performance. Construction firms and educational institutions should consider developing ongoing training modules that are tailored to the evolving landscape of the industry, incorporating advanced technologies and methodologies as part of the curriculum.

RECOMMENDATIONS FOR FUTURE RESEARCH

Future research could examine the long-term impacts of the training model on managerial

competencies and project success rates over multiple projects to assess sustained performance improvements. Another is by comparing the ADDIE-based training model with other training frameworks across different industries could provide deeper insights into the generalizability and adaptability of this training approach. And by Investigating the role of emerging technologies, such as virtual reality (VR) and augmented reality (AR), in enhancing the training experience could offer valuable insights into the future of training in construction project management.

CONCLUSION

This training model was crafted with a holistic approach that seamlessly integrates the latest leadership theories with best practices in construction project management. The model is thoughtfully designed to include a blend of classroom learning, case studies, and project simulations, ensuring that participants thoroughly understand the critical aspects of leadership within the context of project management. This approach not only keeps the training relevant but also responsive to the evolving trends and challenges within the dynamic construction industry.

The validity of the training model has been substantiated through empirical testing involving a diverse group of participants from the construction sector. Through rigorous pre-test and post-test evaluations, complemented by feedback from both participants and independent observers, it has been demonstrated that the training materials and methodologies effectively enhance participants' leadership skills. This confirms that the training model is built on a solid theoretical foundation and meets the practical needs of its participants.

Furthermore, the model has proven to be practically applicable in various organizational settings within the construction industry. Its flexible delivery options, which include both in-person and online formats, allow organizations to tailor the training according to their specific resources and needs. Additionally, the customizable nature of the training modules ensures that organizations can focus on specific leadership skills that are most pertinent to addressing their unique challenges.

The effectiveness of this training model is most convincingly demonstrated by the significant improvements observed in the leadership competencies of the participants, which include enhanced communication, decision-making, and team management skills. Long-term evaluations of the participants' performance in real projects have shown that these enhancements are not temporary but have a sustained positive impact on project success. This underscores the model's effectiveness not just in theoretical skill enhancement but also in practical application within the field.

The novelty of this study lies in its targeted approach, which integrates contemporary leadership theories with the specific, practical demands of construction project management. This model diverges from previous approaches that apply more generic leadership training, by addressing the unique environmental, technological, and organizational complexities faced in the construction industry. The innovative incorporation of diverse teaching methodologies, such as simulations and case studies, directly into the training framework, marks a significant advancement in leadership education for construction project management. This model emphasizes not only knowledge acquisition but also its application in real-world settings, making it a pivotal contribution to both educational practices and industry standards.

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